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ARTICLES IN MEDIA

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Breathe uneasy

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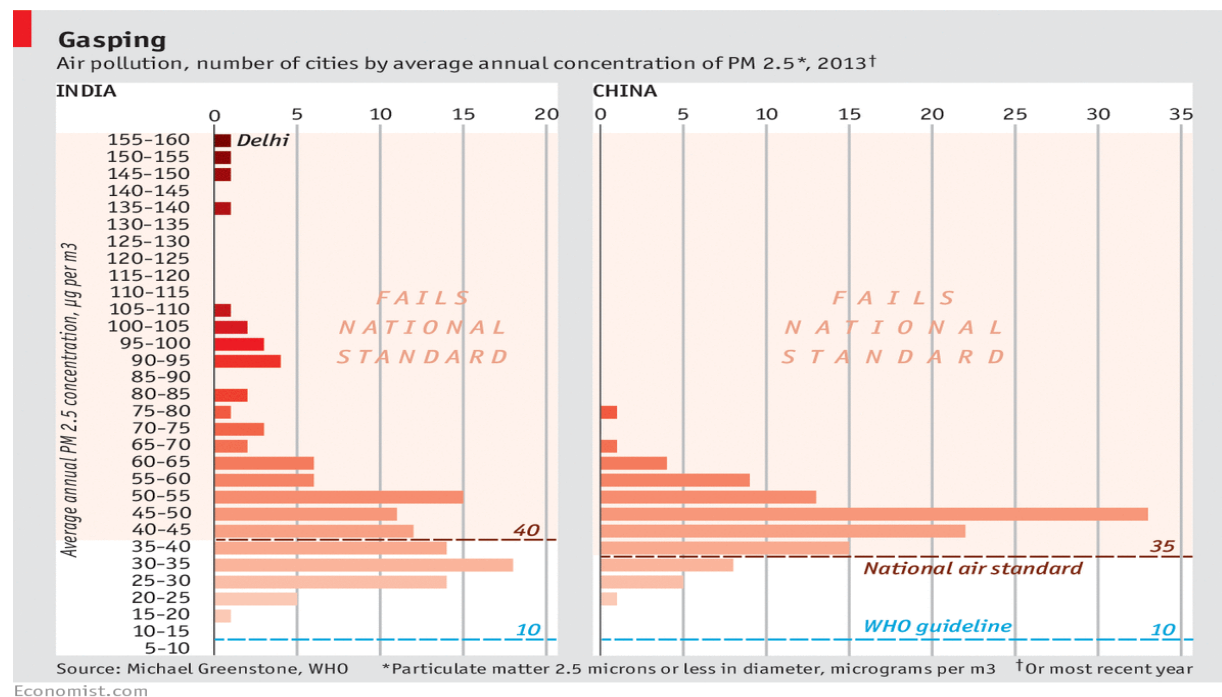
IN THE early hours of a January morning, all lanes of a motorway into Delhi are crammed with hundreds of rumbling lorries. These are brightly painted, with signs imploring overtaking drivers to “Honk please”. Every night immense convoys like this one snake their way into the Indian capital, belching sulphurous diesel smoke. The sinking winter air presses the resulting smog tight over the city. The lorries are a chief reason why Delhi’s air is now more toxic than any other city’s on earth. Admittedly Beijing has a worse reputation, with its visible smog from particulates of 10 microns or smaller, known as PM10. Delhi’s grim distinction is that it has even higher levels of PM10, as well as of the smaller particulates, PM2.5, that are more likely to kill because they go deeper into the lungs. Levels of PM2.5 in Delhi are routinely 15 times above levels considered safe by the World Health Organisation. New data suggest that, on this score, Delhi’s air has been 45% more polluted than that of the Chinese capital for the past couple of years. Last year the WHO assessed 1,622 cities worldwide for PM2.5 and found India home to 13 of the 20 cities with the most polluted air. More cities in India than in China see extremely high levels of such pollution. Especially to blame are low standards for vehicle emissions and fuel. Nor, for different reasons, are rural people better off. Indoor pollution inhaled from dung-fuelled fires, and paraffin stoves and lights, may kill more than 1m Indians a year. The WHO says the vast majority of Indians breathe unsafe air. The human cost is seen in soaring asthma rates, including among children.

PM2.5 contributes to cancer and it kills by triggering heart attacks and strokes. Air pollution is likely to cause vastly more deaths as Indians grow older and more obese. Indoor and outdoor pollution combined is the biggest cause of death, claiming over 1.6m lives a year. Michael Greenstone of Chicago University has led research into pollution-affected lifespans in China that has implications for India. The lives of northern Chinese, he found, are 5.5 years shorter on average because of air pollution. In a forthcoming article, he applies the same methods to assess the 660m Indians most exposed to toxic air. He concludes that they would each live over three years longer, on average, if their air met national standards. A former UN chief negotiator on climate change, Yvo de Boer, suggests that air pollution costs China the equivalent of a tenth or more of GDP and he warns India to avoid that fate. He urges India to “industrialise in a cleaner way”. And a study of agriculture in India from 1980 to 2010 found soaring levels of ozone and other air pollution, which has led to wheat yields a third lower than would otherwise have been expected. India’s leaders are starting to act, pressed by anti-smog campaigns such as the one by the Times of India to “let Delhi breathe”. Prakash Javedekar, the environment minister, says that monitors have been installed on thousands of industrial chimneys to gather data on emissions. Now officials have identified the country’s 17 most polluting industries.

In theory, at least, every Indian city is now supposed continuously to measure air quality. But state governments are slow to enforce national orders, while the Central Pollution Control Board, India’s main environmental agency, does little. Mr Javedekar promises “aggressive action” to improve fuel standards, which would cover those belching lorries coming into Delhi. In March the Supreme Court may anyway order standards to be tightened, by reducing sulphur, as well as instructing carmakers to cut vehicle emissions.

Some good initiatives to improve air quality are under way. A research project near Patna in Bihar proposes retrofitting the chimneys of brick kilns in ways that reduce smoke. The scrapping of subsidies on petrol and diesel in recent years has had the welcome effect of raising the costs of running especially noxious generators, which may account for nearly a third of all installed electricity capacity. Given that most people, even in the city, still commute by foot, bus or bicycle—and that only 5% of households own cars—India still has time to set up systems for mass public transport before the car becomes king. Already 14 cities have or are building metros. As for farmers, Sunita Narain, a green activist, says they should be pressed to use modern harvesting machinery that renders it unnecessary to burn stubble in fields, a big cause of air pollution. One experiment could prove particularly welcome. Three industrialised states—Gujarat, Maharashtra and Tamil Nadu—are about to launch the world’s first market for trading permits in emissions of particulate matter. In the

town of Surat, in Gujarat, 300 textile plants, which typically burn coal to produce steam, are likely to be the first to trade such permits. Monitoring equipment has already gathered emissions data from these and other plants. Factories could quickly cut emissions by a lot once they have incentives to do so. They could, for example, clean their equipment better or burn fuel more efficiently. The market can function once India's central government gives the order. That is likely to happen, however, only once the law allows financial rather than criminal penalties for owners whose plants breach legal standards. No one knows how long the change will take. Lots of bright ideas exist for tackling air pollution. Their widespread implementation, however, depends to a great degree on how much the public makes a fuss about inaction. As lorry drivers might say, honk please.



India among countries most vulnerable to climate change: Global Commission

Source : Zee News

Date: 06Th February, 2015

New Delhi: India is one of the countries most vulnerable to climate change and global action is needed to address that challenge, according to the Global Commission on the Economy and Climate.

Future growth in both Indian cities as well as in the agricultural sector is at risk from climate change, said Felipe Calderon, former Mexican president and currently Chair of the Global

Commission at the 8th India Climate Policy and Business Conclave here, industry chamber FICCI said in a statement Thursday.

"India can create better growth, and at the same time ensure a safe climate for its citizens. Prime Minister (Narendra) Modi has set out a bold vision for India that will make it a leader in solar energy. We believe it is in India's economic self-interest to go even further," Calderon said at the conference co-organised by the environment ministries of India and Germany and the World Bank.

"The Global Commission highlights huge opportunities for India. It recommends practical steps to make renewable energy cheaper and available to more people, building smarter, better connected cities and harnessing the enormous potential of India's villages by investing in agricultural innovation," he added.

The commission said that India's economic prospects hinge on its ability to meet fast rising demand for energy and securing access to the approximately 300 million people who currently lack it.

"The research conducted for the Commission finds that while the cost of foreign coal is projected to increase, the cost of renewable energy is likely to substantially decrease," it added.

According to the commission, urban sprawl, congestion and severe air pollution are reducing India's productivity.

Half the world's most polluted cities are in India, including the top four in the world - Delhi, Patna, Gwalior and Raipur, it said.

"The Commission recommends loosening building restrictions in order to contain urban sprawl and building better infrastructure including improving public transport," the release added.

Every Bengalesean smokes 6 cigarettes a day!

Source : *The Times of India*

Date: 05Th February, 2015

BENGALURU: Air pollution is emerging as a grave concern. Putting it simply, the extent of ultra-fine particulate matter in the air in New Delhi, for instance, is equivalent to the harm caused to an individual smoking 20 cigarettes a day. The corresponding figure is less puffed up in Bengaluru: it is akin to every Bengalesean smoking six cigarettes daily. This revelation was made by experts quoting data from UNEP (United Nations Environment Programme) at the 6th GRIHA Regional Conference hosted by TERI in their city campus on Wednesday. According to UNEP statistics, in Delhi, the ultra-fine particulate (less than 2.5 micrometres in diameter) presence in the air stood at an annual average of 153 microgram

per cubic metre in 2012. Bengaluru's annual average was put at 45. Particulate matter present in the air is a composition of dust, fine and ultra-fine particles.

Pointing out that the data pertained to 2012, experts said the situation could have only deteriorated further in two years.

According to the UNEP, between 2005 and 2010, death due to pollution rose by 4% worldwide, by 5% in China and 12% in India. Worldwide, 3.5 million people die each year from outdoor air pollution. A high 1.3 million Indians die every year of poor indoor air quality, the second biggest killer after high blood pressure.

Outdoor air is the biggest indoor air pollution source, if it is not properly filtered and purified before being let indoors.

Other indoor air pollution sources include tobacco smoking, copy machines and printers, cleaning products, mould growth, paints, solvents and other construction materials, new furniture and scents (perfumes, incense sticks) among others.

Among the sources of outdoor air pollution are vehicle emissions, coal power plants, chullahs and other open fire cooking, burning of waste, industrial emissions and open sewage systems. "We have zero immunity against particulate pollution. Contrary to popular belief, we should not sterilize our homes, offices and schools from all bacteria, as that reduces our immunity. Air cleaners that sterilize the air (including UV-light) or ozonisers (ozone is a lung irritant) should not be used in homes, schools and offices. They are only required in special areas like operating theatres," said Maija Virta, MD of a firm that focuses on sustainable buildings and system solutions.

On offer: Cost-effective measures to rid India of air pollution

Source : *Hindustan Times*

Date: 05Th February, 2015

Delhi has the dubious distinction of being the world's most polluted city. In fact, the entire country, including the rural areas, is heavily polluted as anyone who has taken a flight in India knows. The fog that engulfs north India in winter is largely a consequence of the smoke particles in the air on which water condenses easily. Why have matters been allowed to reach this state? One reason is that people do not realise how cheap it is to get rid of much of the air pollution that plagues us.

In November, the fields of north-western India are set on fire to burn the loose stalks of the harvested rice crop that are left behind by combine harvesting machines. The pollution from these fires is so great that the chief ministers of Haryana and Punjab have appealed to farmers not to burn the residue, and some district magistrates have tried to ban burning. These measures have had little effect because most farmers don't have an alternative method to remove the residue.



A machine called 'Happy Seeder' was introduced a few years ago and it solves this problem. It can plant wheat seeds through the loose residue without getting clogged. Retaining the residue rather than burning it helps to preserve soil moisture and nutrients. We now

need a major extension effort and subsidy to speed up the adoption of the machines. Once an alternative to burning is available, the bans on burning can be enforced.

Emissions from trucks and cars are another huge source of particulate emissions that can be largely eliminated economically. The main expense required to do this is to reduce the sulphur content of diesel and petrol from the current levels of 50-350 parts per million down to less than 10 parts per million. This needs investment in improvements in oil refineries. The International Council for Clean Transportation (ICCT) has studied the cost of these investments to produce ultra-low-sulphur-fuel and concluded that they can be covered by raising fuel prices by just 50 paise/litre.

The second investment that is needed to reduce transport emissions by over 90% is to tighten standards for new vehicles from the current Euro-IV (for metro cities) or Euro-III for the rest of India to Euro-VI and VII. These would require all new vehicles to be fitted with the latest emission control technologies. For example, trucks and buses need to be fitted with diesel particle traps to capture particles in the exhaust. These do not work properly if the sulphur content of fuel is high. The ICCT study finds that these improvements would raise the price of new vehicles by 3-5%. This is not negligible but it would be paid by the richest and is a modest price to pay for bringing emissions down to developed country levels.

A third major source of particle emissions is from households that use firewood, dung and waste for cooking and heating. For most households, gas is too expensive. Improved biomass 'chulhas' remain unpopular and in any case, would reduce emissions only slightly. However, electric induction stoves now cost as little as Rs 1,500 and are being adopted in cities as a cheaper alternative to gas. Promotion of these stoves in rural areas can reduce the problem of pollution from cooking fires. Initially, we may expect rural households to use them only for small tasks like making tea, for which it is too inconvenient to start up a wood fire. Over time, we may expect usage to increase. Of course, even with public health messages explaining the health effects of pollution, extension efforts, and subsidies, electric appliances will spread only in the northwestern and southern states that have reasonably

reliable rural power supply.

E Somanathan is programme director, Centre for Research on the Economics of Climate, Food, Energy and Environment, Indian Statistical Institute, Delhi. The views expressed by the author are personal

Delhi HC wants city's dirty air cleaned somehow by somebody in animals-poisoned-by-pollution-petition

Source : *Legally India*

Date: 05Th February, 2015

Taking note of a report that said Delhi was the most polluted city in the world, the Delhi high court Wednesday said if nobody was looking into the issue, it will start giving directions and fix responsibility on the authorities.

A division bench of Justice BD Ahmed and Justice Sanjeev Sachdeva asked the city government to check whether the Supreme Court was seized of the issue dealing with air pollution in the capital.

“I came across a newspaper report saying that Delhi is the most polluted of all cities in the world. Which are the authorities concerned that is responsible for dealing with air pollution?” the bench asked.

“Look at the ambient air pollution in Delhi. Is there any matter in the Supreme Court dealing with air pollution in Delhi?” the bench said, and asked the government to inform it about the status of the case.

“I had a talk with a paediatrician. He said 50 percent of children in Delhi are suffering from respiratory problems. It’s not acceptable. If nobody is looking into the issue, it’s high time we act into it,” the bench said.

The air in Delhi was the most polluted in the world, according to a report by the World Health Organization (WHO). The report contained results of outdoor air pollution monitored in almost 1,600 cities in 91 countries.

The bench also asked the Delhi Development Authority to explore the possibility of converting a polluted artificial lake and 200 acres of surrounding land behind the Tughlaqabad Fort into a biodiversity park on the lines of the Yamuna biodiversity park. The bench directed the Delhi Jal Board and the Delhi Pollution Control Committee to take instructions on maintenance of the cleanliness of water in the lake within permissible limits. The court sought a report from the authorities about the minutes of the meeting held Jan 29 as per the court’s earlier order to chalk out remedial measures to clean the contaminated water in the Tughlakabad Ridge area.

The court was hearing a petition filed by Tughlakabad resident Manoj Kumar, who said there was a forest area in Tughlakabad and birds and animals were dying because of poisonous and polluted water released from illegal factories in the area. The discharge has created an “artificial lake” and the polluted water “is spreading in the whole forest”, it said. It said animals were dying on a large scale.

Household pollution – the killer behind your doors

Source : *The Times of India*

Date: 04Th February, 2015

Pollution, of any form, has always been a major concern for our society. Thanks to the list of mushrooming social organisation working for the conservation of the environment, we are now more aware about the various types of pollution and the effect on the society. But, how many of you really think that this pollution is present outside your doors, only? For those of you who think staying indoor can save you from any form of pollution, let me share some insight on one of the lesser known yet equally harmful kind of pollution. I am talking about Household pollution.

Yes, you read that right! We humans are not safe from the clutches of this devil in disguise even when we sit comfortably at home. To give you a better perspective on what I am referring to, let me site an excerpt from the WHO website.

There is consistent evidence that exposure to household air pollution can lead to acute lower respiratory infections in children under five, and ischaemic heart disease, stroke, chronic obstructive pulmonary disease and lung cancer in adults. In 2012, household air pollution was responsible for 7.7% of the global mortality.

So what is this hullabaloo about Household pollution?

Well to make it simple, let's put it this say way; several countries all over the world are fast moving to an age of urbanization blessed with bio gas connections, modular kitchens and designer homes but there are still people (almost three billion) worldwide who continue to depend on solid fuels, including biomass fuels (wood, dung, agricultural residues) and coal, for their energy needs.

Such inefficient cooking and heating practices produce high levels of household (indoor) air pollution which includes a range of health damaging pollutants such as fine particles and carbon monoxide.

Being an agricultural country, India has almost 70% of its total population dwelling in rural areas. And it's not hard to picture a typical country side home with a rural stove or a chullah, as we call it, which using biomass cakes as cooking fuel.

The biomass cakes when burnt, produces smoke and numerous indoor air pollutants at concentrations five times higher than coal! Now, you can imagine the health risk it causes to people living in rural India.

But that's not all..

Before the urban dwellers, rejoice for being free from biomass cakes, coal or wood as fuel consumption, let me divulge details of other indoor air pollutants. I assume, all of us must have noticed some black- and dark-green slimy patches carrying a powerful musty odor below the kitchen sink that we so often pass over as nothing important. Well, those slimy patches are called *Stachybotrys chartarum*, or black mold, a fungus that can produce toxins and has been linked to illness and severe allergies. And what causes that is a large amount of moisture in an area.

So, how can you deal with that? Simple. Regular use of kitchen exhaust ventilation systems can help control excess moisture in the home, hence reducing the risk of mold formation. A good exhaust system is also very important in every household to cut the risk of other harmful toxins arising out of cooking fuels.

So, if you care about those lovely ladies, be it your mum, wife, sister, daughter or anybody for that matter who breathes in a kitchen to dish out delicious delicacies for you, you must assure they have proper ventilation.

And, can you avoid these contaminants in your daily life?

- Detergents, furniture polish, camphor, paints, stain removers, and even cosmetics
 - Insecticides, pesticides, and fertilizers that are used for maintaining one's lawn and garden.
- Their entry into the house could occur through air movement or adsorption by shoes and toys, which are then brought inside the house
- Volatile Organic Compounds (VOCs). Sources include paint strippers and other solvents, wood preservatives, air fresheners, automotive products. Even your dry cleaned clothing
 - Rug cleaners, and wet cell batteries
 - New flooring, basement remodeling, hanging new cabinets, removing asbestos sheets, scraping off old paint (which might contain lead), and the removal or application of wallpaper
 - The above list is long but not exhaustive and I am sure you know what that means. Indoor pollution surrounds us all, no matter which walk of life we come from.

Now, I don't mean to scare you, but you must know some of the potential health effects of these indoor pollutants.

For e.g, furniture polishes which Irritates skin, eyes, throat, nose and lungs. Getting your house texture painted, consider this. Paints - irritates skin, eyes, nose and throat can even

cause respiratory system damage. And what about the toilet bowl cleaner? That's toxic in nature; burns skin; causes digestive and respiratory system damage. And do you know Air fresheners & deodorizers can irritates eyes, nose, throat, skin, and damage nervous, digestive & respiratory system

Adopt alternatives to avoid exposure and go green!

There's plenty of green alternatives available for us that can helps us make our homes toxin free. Thanks to media, there's been plenty of buzz about nature friendly products and I already see the sudden inclination of people of all ages towards 'all things green'.

What I suggest personally, is that we should inform and encourage everyone specially people from lower income houses like your maid or the driver, to start using proper gas connections, ventilation system and other natural options to save their lives from the risk of toxins and other carcinogenic chemicals.

By Dr Arvind Kumar. Senior Consultant: General, Laparoscopic, Thoracic, Thoracoscopic and Robotic Surgeon.

Taking Action on Air Pollution Will Save Lives

Source : *The Moscow Times*

Date: 04Th February, 2015

Today, on World Cancer Day, I am thinking of all those who are affected by cancer —



people who are struggling with the disease, as well as their families and friends. In recent years I have been personally affected, as cancer struck members of my close family and some of my best friends. Cancer is a terrible disease, causing millions of deaths worldwide every year. We can do more to prevent people from getting sick. One way is to increase our efforts

to reduce the amount of pollutants in the air we breathe. In 2013, the International Agency for Research on Cancer classified outdoor air pollution as a cause of cancer. Data from 2010 shows that 223,000 deaths from lung cancer worldwide were attributable to air pollution. Air pollution is thus a leading environmental cause of cancer deaths. This is highly disturbing. Beyond cancer, recent research shows that air pollution is now by far the world's largest single environmental health risk. According to the World Health Organization, about 7 million people in the world died prematurely as a result of air pollution exposure in 2012. Some 600,000 alone in the European region. This makes it more deadly than malaria, tuberculosis and AIDS combined. The majority of air pollutant-related deaths occur in developing countries. The western Pacific and Southeast Asian regions bear most of the burden with 2.8 and 2.3 million deaths per year, respectively. According to WHO studies, exposure to fine particulate matter — a major component of air pollution — in Asia is highest in countries like Pakistan, Afghanistan, Bangladesh, Mongolia, India, Nepal and China. We must therefore take renewed action to improve air quality. The major sources of air pollution are well known: power stations and industrial installations emit sulphur dioxide and heavy metals; traffic is a source of nitrogen oxides; ammonia emissions from agriculture contribute to the formation of particulate matter. Likewise, wood-burning stoves in individual homes, if not equipped with appropriate filters, are also a major source of particulate matter and other pollutants. Reducing these emissions is possible. I remember the debate about air pollution in the 1970s and 1980s vividly. The forests and lakes in northern Europe were dying from acid rain and stirred heated discussions. Realizing that air pollution does not halt at national borders but can affect communities and citizens thousands of kilometers away, the countries in Europe and North America decided to cooperate to solve the problem.

In 1979, 32 countries signed the Convention on Long-range Transboundary Air Pollution under the auspices of the United Nations Economic Commission for Europe (UNECE). This was the first legally-binding international treaty in the world imposing ceilings on the emission of air pollutants.

Over the last 30 years, additional countries have joined, bringing the number of parties to 51 to date. The number of substances covered by the convention and its protocols has also been gradually extended, notably to ground-level ozone, persistent organic pollutants, heavy metals and particulate matter.

The result of this collective effort has been spectacular: emissions of a series of harmful substances have been reduced by 40 to 70 percent since 1990 in Europe. In North America, reductions of 30 to 40 percent have been registered. The air we breathe today in Europe and

North America is much cleaner than it was 30 years ago.

The Russian Federation, a party to the convention and three of its early protocols, has, over the years, managed to bring sulphur dioxide and nitrogen oxide emissions down. However, the fact that more needs to be done to reduce emissions has already been recognized by the Russian government.

In July 2014, a new law on best available techniques was adopted, which will help reduce emissions, especially from heavy industries. I welcome this new legislation and I urge the Russian Federation to ratify the other five protocols to the convention — to which it is not yet a party — in particular the three most recent on heavy metals, Persistent Organic Pollutants (POPs) and the Gothenburg Protocol. The latter is the first international treaty in the world to include emission reduction targets for particulate matter. But we must do more and we must take global action. Reducing air pollution must be a high priority on our health agenda to prevent cancer and other diseases. This is why air quality has been selected as one of the two main themes at the next Environment for Europe ministerial conference in Georgia in 2016.

If governments renew their firm commitment to implement the legally binding emission reduction targets, and set further targets, they will send a strong message to the world and help save tens of thousands of lives. To respond to this challenge, we must share experiences and inspire global action.

Countries all over the world will need to take drastic, and sometimes unpopular, measures to significantly curb the emission of air pollutants across all sectors. This will require the active engagement of all industries, and also behavioral change by each and every one of us. But we have proven that we can get cleaner air, we can help to prevent cancer, if we work together.

The Air Pollution That's Choking Asia

Source : *Health AIM*

Date: 04Th February, 2015

The World Health Organization has reported that over 7 million people dies from air pollution every year. As the organization has reported, the leading cause of deaths were: stroke and heart disease, COPD (chronic obstructive pulmonary disease, lung cancer, and respiratory infections among children.

Developing countries are amongst the top contributors to air pollution. China has been on top of the list of countries that most contributed to air pollution worldwide. China's environmental ministry just recently reported that out of the seven cities that are topmost contributors in the country's air pollution, they have a new topnotcher in the list, and this city is Baoding, last 2014, it was Xingtai. China is an industrial country. Their economy thrives

of industrial plants, adding to air pollution. Though their air pollution management implemented policies and did some effects on the environment, it is still not enough to totally eradicate air pollution in the country. With billions of people living in China, WHO's numbers of 7 million might be 8 million in the years to come, or worst, more than that. Air pollution carries numerous substances, and most of them have adverse effects on humans and the ecosystem. Some of the substance found were sulfur oxides, nitrogen oxides, carbon monoxide, free radicals, volatile organic compounds, and CFC's (chlorofluorocarbons) – which is harmful to the ozone layer. There is an ongoing talk on global warming, and advocates of anti-global warming have been persistent that China should have new regulations on factories, especially traditional ones, to make their production environment friendly.



The University of Hong Kong's School of Public Health reported that 3,000 premature deaths happened last 2013, all caused by air pollution. The same report has been released by the Center for Science and Environment in India. Premature deaths have increased to 620, 000 caused by air pollution. WHO also reported, last May 2014, that New Delhi had the worst air of 1,600 cities surveyed worldwide, increasing deaths caused by stroke, cancers, and lung diseases. This is not happening in China and India alone. Other Southeast Asian countries have been

suffering from the effects of air pollution. Though the numbers of deaths caused by air pollution may be higher in record from China and India, it is because of the number in population. Percentage-wise, the deaths are almost the same. Advocates who want to eradicate or solve air pollution have been asking for new policies in controlling emissions from vehicles and production plants, that are top contributors of the haze in these developing countries. Until such a time that these policies are fully studied and implemented properly – taking into consideration the political and socio-economic factors that may affect the proper implementation of these policies – people will continue to suffer the adverse effects of air pollution. Take note: graft and corruption is rampant in third world countries. Expect a long process, I am hoping that these policies would not be too late

Obama visit: US Embassy purchased over 1800 purifiers to tackle pollution in Delhi

Source : DNA

Date: 02nd February, 2015



Delhi's increasing air pollution issues led to the US Embassy to purchase over 1800 air purifiers prior to US President Barack Obama's visit to India this year. The purifiers were installed in the Embassy. Blueair, the company that supplied the air purifiers, confirmed the purchase by the Embassy.

The US regularly keeps a check on the pollution levels in the embassy buildings and makes a daily note of the high levels of pollution in the city. Around Obama's visit, the Air Quality Index recorded a reading of

222. Pollution at this level can cause serious heart or lung disease and a significant increase in respiratory effects in the general population, according to the Environmental Protection Agency. Keeping in mind this and the increasing cases of swine flu deaths, the US Embassy decided to purchase air purifiers for the staff visiting India.

Cellphones fueling air pollution, global warming

Source : Hindustan Times

Date: 1st February , 2015

You may not know it, but every time you use your cellphone, you are contributing to global warming. India's telecom network — the second-largest in the world, after the United States is largely made up of cellphone connections and is releasing substantial amounts of harmful pollutants and greenhouse gases into the atmosphere. So say the first-ever emission estimates from this sector, released jointly by the Germany-based Institute of Energy and Climate Research – Troposphere and the Indian Institute of Tropical Meteorology (IITM), Pune. The study was published in the January issue of *Atmospheric Environment*, an international peer-reviewed journal. Here's how it works. With erratic power supply across the country, base transceiver stations — the towers that facilitate wireless communication — are run partly on

diesel generators, a source of highly toxic pollutants. These direct pollutants — and the pollution emitted by coal-fired power plants while generating power for the towers — are together spewing tonnes of particulate matter, nitrogen oxide, carbon dioxide, sulphur dioxide, carbon monoxide, black carbon and hydrocarbons into the atmosphere every year. With the number of wireless phones in use spiralling upwards from 261.8 million in 2008 to 893.6 million in 2011 the number of wireless telecom towers in India has gone from 1.78 lakh to 8.60 lakh. And diesel consumption at these towers has shot up from 2 billion litres in 2007 to an estimated 7.5 billion litres a year in 2011. As a result, the study found, emissions from the generation of electricity consumed by wireless networks saw a nine-fold increase between 2008 and 2011. “These emissions are directly linked to air quality pollution and associated health impacts,” said Saroj Kumar Sahu, lead investigator at the Institute of Energy and Climate Research – Troposphere. “Our major concern is that these emissions are affecting the relatively clean atmosphere in rural India, and if no remedial measures are taken, future emissions could almost double by 2020.” As more people buy wireless phones, researchers estimate that 3 lakh new towers will be needed by 2020, leading to further increases in harmful emissions. If the impact on air quality is to be lessened, they say, the diesel generators will need to be replaced with renewable energy sources or at least more power supply from the grid. “Investing in low-emission technology could therefore constitute an important element for improving air quality in rural areas, where most of the future telecom growth is expected,” said Gufran Beig of IITM. The industry has been taking steps to reduce power consumption, says Rajan Mathews, director general of the Cellular Operators Association of India. “These measures include improved electronic equipment, using solar energy, running towers without air-conditioning and replacing old batteries with energy-efficient ones.”

Delhi elections: Lack of importance given to air pollution appalling

Source : *Hindustan Times*

Date: 1st February , 2015

The election to the 70-member Delhi assembly is round the corner and the three main parties the BJP, the Congress and AAP — are pulling out all the stops to woo voters. The last few weeks have been interesting yet chaotic: Defections, surprising choice of candidates by parties, trading of charges between candidates and a slew of promises ranging from free water to regularisation of illegal colonies. While the Congress and AAP have released their manifestos, the BJP is yet to release its, though the latter has cleverly said that it will not release a manifesto but a ‘vision document’. Such delays in releasing manifestos only defeat the purpose of the exercise: The people have been left with little time for a debate

on the merits or demerits of the promises that political parties make.

In the din many important issues have been overlooked, and one of the most important among them is the issue of air pollution in Delhi. In fact, none of the three parties spoke extensively on it or came up with solutions to improve the air quality. A study released by the World Health Organization (WHO) in 2014 had found New Delhi to have the dirtiest air among the 1,600 cities it surveyed, with an annual average of 153 micrograms of small particulates, known as PM2.5, per cubic metre. The issue again came up for discussion just before US President Barack Obama's visit when a study conducted by Greenpeace India at six locations, including Raj Ghat and Hyderabad House, which Mr Obama visited, revealed that the air quality was 'unhealthy and hazardous'. It also said that Delhi residents had been breathing extremely poor air this winter with PM2.5 averages peaking at 320 micrograms/cubic metre, which is six times the Indian safety limits and 14 times that of the WHO's. A report in Washington Post said that the US embassy ordered 1,800 air purifiers though it is not clear whether any of those air filters made it into Mr Obama's bullet-proof enclosure during the Republic Day Parade. Could anything have been more embarrassing than this? The Congress mentions air pollution in its manifesto and promises to bring it down, but does not give any concrete proposals. AAP's manifesto is mum on the issue. Prime Minister Narendra Modi and Congress president Sonia Gandhi hit the campaign trail on Sunday but neither spoke on this important issue.

The effects of pollution on health do not need reiteration. Yet what is appalling is the lack of importance that is being given to it by the parties in this election. The key reason for air pollution in Delhi is the spurt in the number of vehicles and parties will need to tackle the auto lobby, which wields enormous clout, if it wants to clean the air. As things stand today, no party seems to be keen to bell the cat; hence the chances that we can breathe a little easier are negligible.

Delhi's polluted air takes a toll: How bad the situation is for asthmatic patients

Source : *The Economic Times*

Date: 1st February , 2015

Delhi is now considered the most polluted city on earth. The lack of clean air has made the Capital more prone to illnesses and according to reports even forced officials who planned US president Barack Obama's visit to Delhi to cut down on his exposure outdoors.

The sudden rise in air pollution levels has made life difficult for most but has affected one particular section more than others. These are the children and the elderly who suffer from asthma.

ET Magazine asked Dr Vikram Jaggi of the Asthma Chest & Allergy Centre to offer his take on how bad the situation is for asthmatic patients in Delhi and to offer representative case studies of people who suffer on account of the pollution (see Pounded by Pollution). Here are the doctor's observations:

The quality of the air in general and the levels of air pollution in particular affect the lungs of the people who breathe this air. Even generally healthy individuals are affected but the most badly hit are the very young and the very old asthma patients.

When we think of pollution, we naturally think first of outdoor pollution: traffic and factory smoke. But there is another kind — indoor pollution related to burning of biomass such as gohar, wood and coal for cooking and heating. This is also an important health issue in India, particularly among the poor and the less privileged.

With increasing pollution and smog in the cities, doctors are seeing more and more cases of respiratory diseases. Coughing, wheezing and chest congestion are now more common than they were a few decades ago.

As the levels of air pollution rise, more people are also forced to visit doctors. This is definitely what has happened in north India in the past one month or so. The share of children in Delhi suffering from asthma has increased from 2-3% 40 years ago to 15-16% now.

Asthma: The Pollution Contagion

Source : *Indian Express*

Date: 31st January, 2015



Asthma is a complex and chronic inflammatory disease of the lower airways with patients experiencing recurrent wheezing, breathlessness, tightness in the chest at night or early in the morning. It affects people regardless of age, and in some cases can prove to be fatal. Approximately 300 million people are asthma patients worldwide.

According to the Indian Council of Medical Research, the number of asthmatics in the country is approximately 30 million. Asthma affects 3 to 38 per cent of children and 2 to 12 per cent of adults. The Global Initiative for Asthma's 'Global Strategy for Asthma Management and Prevention' records that asthma claims 250,000 lives annually and the majority of deaths occur in low- and middle-income countries, where symptoms are more severe. Experts say this is because of incorrect diagnoses, poor access to healthcare, costly treatment, exposure to environmental allergens, and genetic susceptibility.

Medical researchers use the socio-economic status (SES) to determine health and nutritional status, mortality and morbidity. The accessibility, affordability, acceptability and utilisation of health facilities are directly related to SES. The Asthma Epidemiology Study Group discovered that the overall prevalence of the allergy in India is 2.38 per cent—2.28 per cent in Chandigarh, 1.69 per cent in Delhi, 2.05 per cent in Kanpur and 3.47 per cent in Bengaluru. According to a research paper ‘General practitioners’ knowledge of childhood asthma in Delhi, India’, the diagnosis and treatment of asthma is “a sensitive issue”. Medical investigation has been limited in India. Most such reports reveal “marked deficiencies in knowledge and inadequacies in treatment practices of asthma among general practitioners”.

In the past decade, the number of children affected with various kinds of nasal blockage and sneezing has gone up. The proportion of Indian schoolchildren suffering from bronchial asthma had increased to more than double in the last 10 years and reached the highest-level ever. The Indian Journal of Community Medicine reports that while the rate of bronchial asthma was low (up to 3.3 per cent) in children surveyed in Lucknow, Ludhiana and Punjab, in Delhi it was 11.6 per cent. Youth and middle-aged Indians are prone to chest and lung infections. The most affected are patients above 40 years of age. A 2006 study conducted in a rural block of Haryana by the Department of Community Medicine of Pt B D Sharma PGIMS, Rohtak, records that smoke from tobacco or fuels become major asthma irritants. The report says, “Children (0-5 years) represent the largest subgroup of the population susceptible to the adverse health effects of air pollution. Air pollution causes irritation or inflammation that’s more likely to obstruct narrower airways. Further more, exposure to a pollutant triggers an asthma attack due to the sensitivity of a child’s developing respiratory system. In India, paediatricians face a common problem of bronchial asthma among children. Globally, many studies have been conducted but no epidemiological study defined the magnitude of the problem of asthma among children.”

The study shows that children of low SES families are the worst affected by indoor pollution. This causes a large rate of absence from school, affects families which require their assistance at work, and decreases the quality of their life. Air pollution is one of the primary causes of bronchial asthma cases and asthma aggravation anywhere in the world. In India, the effective treatment of bronchial asthma in children is dependent on by “cultural beliefs, poor socio-economic condition families, and use of alternate medicine”. Reduction in the indoor smoke causes a significant decrease in bronchial asthma in children.

How China's Filthy Air Is Screwing With Our Weather

Source : *Mother Jones*

Date: 30th January, 2015



As the snow began to fall earlier this week in the lead up to the season's first major blizzard, New York Governor Andrew Cuomo told reporters that the Northeast was witnessing "a pattern of extreme weather that we've never seen before." Climate change, Cuomo argues, is fueling bigger, badder weather events like this one—and like Hurricane Sandy.

While the science that links specific snowstorms to global warming is profoundly difficult to calculate, the Intergovernmental Panel on Climate Change says it's "very likely"—defined as greater than 90 percent probability—that "extreme precipitation events will become more intense and frequent" in North America as the world warms. In New York City, actual snow days have decreased, but bigger blizzards have become more common, dumping more snow each time. Mashable reported that all of New York City's top 10 snowfalls have occurred in the past 15 years. Scientists can trace the cause to the enormous amount of energy we're pumping into the oceans. Kevin Trenberth, a senior scientist at the National Center for Atmospheric Research, told Wired this week that "the oceans are warmer, and the air above them is more moist"—giving storms more energy to unleash more precipitation. In short, the blizzard dubbed Juno was being fueled in part by the ocean's excess of climate change-related heat.

But climate change may not be the only way that human activity is making storms worse. In an emerging body of work, NASA scientists have identified a surprising contributor to American storms and cold snaps: Asia's air pollution. Over the past few years, a team at

NASA's Jet Propulsion Laboratory and the California Institute of Technology has found that aerosols—or airborne particles—emitted from the cities fueling Asia's booming economies are making storm activity stronger in the Northwest Pacific Ocean. These storms wreak havoc on the polar jet stream, a major driver of North America's weather. The result: US winters with heavier snowfall and more intense cold periods.

Pollution billowing from Asia's big cities, they found, is essentially "seeding" the clouds with sulfur, carbon grit, and metals. This leads to thicker, taller, and more energetic clouds, with heavier precipitation. These so-called "extratropical" cyclones in the Northwest Pacific have become about 10 percent stronger over the last 30 years, the scientists say.

Chinese cities, for example, are so toxic that 90 percent of them fail to meet the country's own pollution standards. But it's not just China. In terms of air quality, 13 of the 20 most polluted cities in the world are in India. And thirty-one of the world's 50 most polluted cities are found in China and Southeast Asia (including India), according to the World Health Organization. The NASA animation above shows how these aerosol emissions moved around the world, from September 1, 2006, to April 10, 2007. I've included two versions of it. The first shows the Earth as a globe, the second shows the planet laid out flat. Also seen in the video are locations of wildfires, indicated by red and yellow dots. At the start, fires burn over South America and Africa, emitting black carbon, while dust from the Sahara moves westwards, getting sucked into two Atlantic cyclones. Later, in February, fires burning in Thailand and Southeast Asia mix with sulfates from industry in China and are eventually pulled eastward into cyclones that cross the Pacific and reach North America.

The work raises questions about proposals to "geoengineer" the globe by pumping aerosols into the atmosphere, which some argue could reduce the Earth's temperature by partially blocking out the sun. The NASA researchers found that sulfates are the most effective type of aerosol for deepening extratropical cyclones, which means that using them to fight global warming could bring about more stormy winter weather around the world.

There's some hope that China is attempting to stabilize and, eventually, curb its pollution through new emissions standards that would cut the level of dangerous particles, including sulfates. There are also signs that China's coal boom—the source of most of the country's air pollution—is finally slowing down. A new analysis released this week by Greenpeace showed that for the first time this century, China's coal consumption fell in 2014.

But India is another story. That country, which has the fifth-largest reserves of coal on Earth, is desperate to provide power to its millions of impoverished citizens. Sixty percent of the India's power currently comes from coal, and despite Prime Minister Narendra Modi's promises to ramp up solar energy, he is also planning to double India's coal production to

more than 1 billion tons annually.

So stock up on non-perishable grocery items. Looks like those blizzards are only going to increase in size.

Air Pollution Hits Crops More Than Climate Change

Source : *Asian Scientist*

Date: 30th January, 2015



AsianScientist (Jan. 30, 2015) - By Sandhya Sekar - Atmospheric pollutants may impact India's major crops like wheat and rice more than temperature rise, says a new study based on a 'regression model' that predicts future events with information on past or present events. The study by Jennifer Burney and V. Ramanathan, scientists at the University of California, project that a one degree centigrade rise in temperature could lead to a crop decline of four percent for wheat and five percent for rice. But losses from pollution could be greater. "For context, the yield loss for wheat attributable to pollutants alone in 2010 corresponds to over 24 million tons of wheat: around four times India's wheat imports before the 2007—2008 food price crisis and a value greater than \$5 billion," the authors write in a paper on the study published November in Proceedings of the National Academy of Sciences. Most pollutants impact temperature by absorbing incoming radiation from the sun and reflected heat from the earth. Black carbon aerosols and ozone are of special concern as they affect crops directly—black carbon changes the amount of radiation reaching the surface while ozone is toxic to plants. In 2010, wheat yields were 36 percent lower and the models show that 90 percent of that change was due to the pollutants. The impact was most drastic in the state of Uttaranchal

and Uttar Pradesh. Wheat yields in Uttar Pradesh were 50 percent lower than they would have been without the current climate and pollutant trends with two-thirds of the decrease attributable to pollutant levels. In the case of rice, 15 percent of yield decrease in the Gangetic plains could be attributed to pollutants. The Gangetic plains seem to accumulate surface level ozone and aerosols before the monsoons. “Previous studies have shown that wheat is more sensitive to ozone than rice,” Burney tells SciDev.Net. “Also, the dry season has more pollutants.” “I am pretty sure, based on other evidence, that yield declines due to pollution and warming are real, but I think that they are unlikely to be as large as the headline results in this paper,” says E Somanathan, professor at the Indian Statistical Institute, New Delhi. “Whether we believe the estimates of yield losses depends on whether we believe the regression model. Here, I am sceptical.” The authors acknowledge limitations in the study, but insist that ozone and black carbon have had “significant impact on crop yields in India in recent decades”. Read more from Asian Scientist Magazine at: <http://www.asianscientist.com/2015/01/features/air-pollution-hits-crops-climate-change/>

Centre wants to restrict car use as air pollution hits worrying levels

Source : Mail Online India

Date: 29th January , 2015



With air pollution rising to alarming levels, especially in the National capital, the Environment Ministry has urged the Supreme Court to ask the Delhi government to consider drastic steps, which includes the plying of private cars only on alternate days and a complete ban on “visible” smoke-emitting vehicles.

Other suggestions made by the ministry were making public transport free, and making the

wearing of masks compulsory on highly polluted days.

These suggestions were made in an affidavit filed before the court, which is monitoring various measures being taken to reduce pollution.

“All these are crucial aspects in which the views of government of Delhi and Health Ministry may be sought”, the ministry told the court.

The report said the major source of air pollution in the Capital is dust particles and not vehicular emissions.

"Road dust emerged as the most prominent source with contribution in the range of 14.5 per cent to 29 per cent, whereas the contribution of vehicles was in the range of 8.7 per cent to 20.5 per cent," it said.

The affidavit came in response to various suggestions mooted by the Central Pollution Control Board and the Environment pollution (Prevention and Control) Authority in a report submitted to the Apex court in November.

The panels said pollution was the fifth-biggest killer in India after high blood pressure, indoor air pollution from cooking fuels, tobacco smoking and poor nutrition.

As per the EPCA report, residents of Delhi and Ghaziabad in Uttar Pradesh have more reasons to worry as the two are among the five critically polluted cities.

Other measures suggested also include the closure of all schools and a ban on plying of private cars (only public transport to be allowed), and complete prohibition on the entry of commercial vehicles on days air pollution is very severe and toxic for human health.

COPD cases on rise due to pollution

Source :*The Times of India*

Date: 29th January , 2015

VISAKHAPATNAM: Instances of chronic respiratory illnesses such as COPD (Chronic Obstructive Pulmonary Disorder) are on the rise in key AP cities, exacerbated mainly by air pollution and aided by cold weather, early morning smog and the habit of smoking. Medical experts point out that COPD cases are no longer just restricted to the elderly but are also being detected even in younger age groups and with wide scale industrialisation taking place in cities like Visakhapatnam and Vijayawada, such cases may go up further in the coming days. According to doctors, the main symptoms of COPD are continuous cough with sputum and breathlessness. In a patient suffering from COPD, diffusion of carbon dioxide and oxygen in the blood do not take place properly. As a result, adequate oxygen doesn't reach the blood through lungs and more amount of carbon dioxide is retained in the body, causing difficulty in breathing. A chest x-ray and pulmonary function test can reveal the progression of the disease. Dr M Ravindranath, pulmonologist from Andhra Hospital, Vijayawada, said, "Two-three years ago, only 20-25% of the total patients suffering from various chest ailments had COPD and it was mainly in the elderly population. But nowadays, their number has gone up to 30-35% with even those in their 40s and 50s suffering from COPD mainly due to smoking and increase in air-pollution. Nowadays, out of 10 patients, we see at least 3-4 suffering from COPD." Agreeing, Dr Sambasiva Rao, medical superintendent of Government Chest Hospital, Visakhapatnam, said that cases of chronic respiratory diseases such as asthma and COPD have gone up due to increase in pollution levels as well

as the presence of smog in the winter season. "We have been getting more cases of COPD due to the cold weather and pollution," he averred. What is also troublesome is the lack of awareness about non-invasive ventilation (NIV) treatment for COPD despite the fact that it reduces respiratory distress and risk of death considerably, point out doctors."A patient in moderate or advanced stages of COPD should be treated with an NIV machine, which assists in decreasing the carbon dioxide level in the blood and thus increases the positive pressure in the lungs, enabling the patients to breathe normally," added Dr Ravindranath.

Prevention of COPD:

Stop smoking

Avoid staying in polluted environment

Adequate nutrition

Regular cardiac follow-up

Perform right breathing techniques through yoga and pranayama.

Mr. Obama's trip to India leaves a clear deal on curbing emissions up in the air

Source : *The Washington Times*

Date: 28th January, 2015

THE U.S.-India relationship has often seemed more attractive in theory than in practice. The world's two largest democracies share concerns about Chinese expansionism; throw in big economic potential and an active Indian immigrant population in the United States, and success seems guaranteed. Yet both sides have often felt disappointed in the results. So President Obama and Prime Minister Narendra Modi deserve credit for redoubling their efforts. In his second term, President George W. Bush made a strong effort to improve ties. It took Mr. Obama a while to pick up the baton, particularly as the previous Indian government flagged in energy. But with the energetic Mr. Modi in charge, Mr. Obama made his second state visit to New Delhi this week. There were some modest accomplishments — and, as usual, some hints of how much more might be done.

One obvious area of potential cooperation was suggested by the sooty air in and around the capital while Mr. Obama was in town for lavish Republic Day celebrations. In some very back-of-the-envelope calculations, Bloomberg News estimated that exposure to air pollution during Mr. Obama's short stay would shave six hours off his life. Unlike China, India doesn't go to great lengths to conceal the extent of its pollution problem from its people. But as in China, India's air pollution is harming health and contributing to climate change. The country recently became the third-largest emitter of greenhouse gases, behind

China and the United States.



Mr. Obama and Mr. Modi made a bit of progress on this front. They agreed to proceed with an international treaty to phase out hydrofluorocarbons, short-lived but potent greenhouse gases in appliances such as refrigerators and air conditioning units. The leaders announced U.S. financing for Indian solar projects and new cooperation on air quality. They also trumpeted a “breakthrough” on a nuclear power deal Mr. Bush struck nearly a decade ago with a previous Indian government, ostensibly putting it back on track. However, it remains unclear whether the latest agreement will be enough to attract U.S. nuclear firms into the Indian market — or whether the Indian Parliament will have to act to convince them. U.S. companies reacted with caution.

All of this falls far short of the clear emissions commitment and timetable that Mr. Obama struck with Chinese leaders last year. India has resisted calls to formally cap its carbon dioxide emissions, and that’s not a sustainable position for the world’s third-largest emitter. It needs to undertake a large-scale transformation of its chaotic energy sector. As new infrastructure goes in, it must be more sensitive to long-term environmental costs. But the small steps taken this week may lead to larger progress. As in the trade and security realms, the United States and India seem to have accepted that progress will be hard-won but worth the effort.

High pollution levels in Delhi may have cost Obama 6 hours of his life

Source: *First Post*

Date: 28th January, 2015

India geared up and how for US President Barack Obama's arrival in New Delhi with no-fly zones and seven tier security rings. The city turned into a fortress with office buildings around Rajpath being shut because he would attend the Republic Day Parade.



All this was done to protect the world's most powerful man from life threatening attacks, but if this Bloomberg report is anything to go by, Obama may have lost 6 hours from his life expectancy. That too because of the abysmal pollution levels in the national capital. The report says, "During Obama's three-day visit, PM2.5 levels in Delhi have averaged between 76 to 84 micrograms per cubic meter, according to data

collected by India's Ministry of Earth Sciences." Right before Obama landed in the city, Greenpeace India, citing the findings of its real-time check on the pollution levels in the capital, too had warned that Obama was likely to breathe "unhealthy and hazardous" air during his stay in Delhi.

Ahead of Obama's three-day state visit the NGO set out with an air-monitoring device called PDR 1500, to track pollution levels in six locations the president was expected to pass through. This device recorded particulate matter 2.5 levels at various locations, including Raj Ghat and Hyderabad House, that revealed unhealthy and hazardous quality of air, said a Greenpeace release. Meanwhile Bloomberg quoted David Spiegelhalter, a statistician at the University of Cambridge, as saying that the PM2.5 levels recorded during Obama's visit could translate roughly into an estimated loss of 2 hours a day in life expectancy.

In December 2014 environment experts had demanded immediate pollution control action after researchers at Centre for Science and Environment (CSE) monitored people's level of exposure to pollution in the city and found the results to be posing a "serious risk to public health". Delhiites are "not safe" from polluted air even at home and workplaces, they had said.

Experts bank on US air quality alert

Source : *The Times of India*

Date: 28th January, 2015

NEW DELHI: US and India haven't spelt out how their partnership on addressing air pollution will roll out, but scientists and advocacy groups are already excited about the possibilities. They say the partnership can help generate real-time, reliable air quality data for all cities, to begin with.

Low-cost, innovative technology that can be deployed immediately in all major Indian cities can help clear the air, which is the main problem. Experts, like Sarath Guttikunda, associate research professor at the Desert Research Institute, Reno, suggested that establishing a national public health alert system on the lines of US Environment Protection Agency (USEPA)'s AirNow programme, which issues real-time air quality index (AQI) data for 400 cities in US, will be beneficial.

The Central Pollution Control Board (CPCB), which has the mandate of monitoring air quality and issuing health alerts, has "failed miserably", according to scientists who are now resorting to other agencies to get reliable data. "They have no real-time data for most cities and do not follow any calibration protocol, which is why there is a huge difference in the results of air quality monitoring by different agencies," said a scientist.

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MoEFCC had launched an air quality index (AQI) last year. But, according to some committee members who helped formulate the AQI, CPCB's real time monitoring system has too many glitches and doesn't have enough automatic monitoring stations —only 16 out of 246.

Joshua Apte, assistant professor, University of Texas at Austin, who is running a unique research study in Delhi on monitoring exposure to air pollution in heavy traffic junctions, said he was excited that American scientists will have something to offer now. "The first step is just to expand the existing network of monitors. There are less than 50 real-time PM2.5 monitors that are reporting data to the web in India, as compared with nearly 2,000

in China. Other pollutants also need to be monitored," he said. This may also help point at the real sources by applying advanced 'source apportionment' techniques like 'vehicles versus biomass burning versus regional haze'.

Anumita Roychowdhury of CSE's Clean Air programme said, "We need low cost technology to monitor air quality that can be immediately and easily deployed across cities. US is doing innovative things like roadside exposure monitoring. Moving as soon as possible to superior fuel norms —Euro 6 among others—should be done now." Since the collaboration will also cover the government's pet project of smart cities, she says it's time to set norms and guidelines to reduce dependence on personal vehicles.

Morning drizzle spares Delhi air quality blushes

Source :*The Times of India*

Date: 27th January, 2015

NEW DELHI: The air on Monday around India Gate was relatively clean, thanks to unexpected rain during the Republic Day parade. Even though the PM2.5 (fine, respirable particle) level was high between 6 and 6.30am—at about 200 micrograms per cubic metre, it had begun to fall by 9.30am, at 11am it was 107 micrograms—less than twice the Indian safe standard of 60 micrograms. Only a cloudy sky and the drizzle partially affected the experience.



Favourable meteorology thus helped the government avoid the embarrassment of severe air pollution during US President Barack Obama's visit with an assessment by Gufran Beig, project director, System of Air quality Weather Forecasting and Research, claiming the 24-hour average on 26 January was only at 80 micrograms per cubic metre. Delhi Pollution Control Committee's real time

air quality monitoring, however, suggested that the levels, measured at the station closest to central Delhi, were just over 100 micrograms per cubic metre. Traffic volume, too, was low today.

Short-term exposure to pollution levels such as those in Delhi today cannot do significant harm to health, say experts, and so the US delegation may not be affected. But air pollution is considered an issue of international debate owing to its impact on the health of those who are consistently being exposed to very bad air. Experts, meanwhile, say air pollution this winter has been one of the worst seen so far. PM2.5 levels on some days in early December were as high as 400 micrograms per cubic metre, about six times the Indian standard, and 11 times the US safe standard of 35 micrograms per cubic metre.

According to Global Burden of Disease's 2010 report, air pollution is the fifth largest killer in India. The report found that, in 2010, about 6,20,000 premature deaths occurred in India due to pollution-related diseases. The World Health Organization urban air quality database last year showed Delhi to be having the highest PM2.5 levels among 1,600 global cities including Beijing.

In fact, an indoor air purifier company even claimed in a statement on January 24 that the US Embassy in Delhi has purchased several air purifiers to tackle indoor air pollution. Last year Delhi and Beijing were embroiled in major debate about which city is more polluted. Some Chinese cities have PM2.5 levels comparable to Delhi. Chinese authorities reportedly blocked air pollution data during the Asia-Pacific Economic Co-operation (Apec) summit in November last year which Obama and Vladimir Putin attended because the particulate matter levels were extremely high.

In a joint statement with PM Narendra Modi, Obama said the US has agreed to provide data to track and reduce air pollution levels in India.

Even though the PM2.5 level was high between 6am and 6.30am—at about 200 micrograms per cubic metre—it fell by 9.30am. At 11am it was 107 micrograms— less than twice the Indian safe standard.

Britain's ethnic minorities breathing most polluted air

Source: *The Times of India*

Date: 27th January, 2015

LONDON: Britain's ethnic minorities are breathing the most polluted air. A first of its kind scientific analysis has found a big difference in air pollution across communities in England, with deprived and ethnic minority areas the worst affected. Air pollution levels are linked to many forms of ill health, including higher risk of respiratory and cardiovascular diseases, especially for more vulnerable groups such as children and the elderly. Researchers at Imperial College London and the National Institute for Public Health and the Environment in the Netherlands examined data on two types of air pollution: particulate matter (PM10) and nitrogen dioxide (NO2). They compared air pollution exposures for small areas in England and the Netherlands with population characteristics including deprivation, ethnic makeup, and proportions of children and elderly people. The EU Ambient Air Quality Directive set limits of 40 micrograms per cubic metre (g/m3) at monitoring stations for both PM10 and NO2 pollution. Concentration averages across all neighbourhoods in England and all but two neighbourhoods in the Netherlands were within this limit for PM10, but 11% of neighbourhoods in England and nine per cent in the Netherlands exceeded the NO2 limit, accounting for an affected population of 5.4 million

and 2.7 million respectively.

In England, the most deprived 20% of neighbourhoods had higher air pollution levels than the least deprived neighbourhoods - 1.5 g/m³ higher PM₁₀ and 4.4 g/m³ NO₂ after adjusting for other factors - but this was not the case in the Netherlands. The biggest differences in air pollution levels according to socioeconomic status were in London. The worst air pollution levels were seen in ethnically diverse neighbourhoods, defined as those where more than 20% of the population are non-white. Even after allowing for the fact that some of these neighbourhoods are more deprived, in England, this difference was 3.0 g/m³ for PM₁₀ and 10.1 g/m³ for NO₂. In the Netherlands, differences were lower, with 1.1 g/m³ higher PM₁₀ and 4.5 g/m³ NO₂.

Lead researcher Dr Daniela Fecht from the School of Public Health at Imperial College London, said "The study highlights the fact that inequalities in exposure to air pollution are mainly an urban problem, suggesting that measures to reduce environmental air pollution inequality should focus on cutting vehicle emissions in deprived urban neighbourhoods". The reasons for the associations between ethnic minorities and air pollution are unclear. "England and the Netherlands have a long history of immigration. It's possible that immigrants settled in particular areas may tolerate poorer air quality for the benefits of living close to friends and family, even when their communities become less deprived," said Dr Fecht.

Air pollution hits crops more than climate change

Source: SCIDEV.NET

Date: 26th January, 2015



[THIRUVANANTHAPURAM] Atmospheric pollutants may impact India's major crops like

wheat and rice more than temperature rise, says a new study based on a 'regression model' that predicts future events with information on past or present events. The study by Jennifer Burney and V. Ramanathan, scientists at the University of California, project that a one degree centigrade rise in temperature could lead to a crop decline of four per cent for wheat and five per cent for rice. But losses from pollution could be greater. "For context, the yield loss for wheat attributable to pollutants alone in 2010 corresponds to over 24 million tons of wheat: around four times India's wheat imports before the 2007—2008 food price crisis and a value greater than \$5 billion," the authors write in a paper on the study published November in Proceedings of the National Academy of Sciences. Most pollutants impact temperature by absorbing incoming radiation from the sun and reflected heat from the earth. Black carbon aerosols and ozone are of special concern as they affect crops directly — black carbon changes the amount of radiation reaching the surface while ozone is toxic to plants.

In 2010, wheat yields were 36 per cent lower and the models show that 90 per cent of that change was due to the pollutants. The impact was most drastic in the state of Uttaranchal and Uttar Pradesh. Wheat yields in Uttar Pradesh were 50 per cent lower than they would have been without the current climate and pollutant trends with two-thirds of the decrease attributable to pollutant levels.

In the case of rice, 15 per cent of yield decrease in the Gangetic plains could be attributed to pollutants. The Gangetic plains seem to accumulate surface level ozone and aerosols before the monsoons.

Mr. President, World's Worst Air Is Taking 6 Hours Off Your Life

Source : *Bloomberg Business*

Date: 26th January , 2015

(Bloomberg) -- U.S. President Barack Obama could lose roughly 6 hours from his expected lifespan after spending three days in India's capital inhaling the world's most toxic air. Air Force One descended through an acrid smog when it landed in New Delhi on Sunday. A day later, haze obscured the visibility of fighter jets flying over Obama and Prime Minister Narendra Modi as they watched the Republic Day parade, the ceremonial centerpiece of his visit. Delhi has the world's highest levels of PM2.5 -- tiny, toxic particles that lead to respiratory diseases, lung cancer and heart attacks. The Indian capital averaged 153 micrograms per cubic meter in 2013, the World Health Organization said in May, citing government data. That's 15 times more than the average annual exposure recommended by the WHO. India as a whole is home to 11 of the top 20 cities on the planet with the worst air quality, according to data from the WHO, which collected pollution levels from 1,600



metropolitan areas between 2008 to 2013. The worst U.S. city was Fresno, California, which came 162nd on the list. During Obama's three-day visit, PM2.5 levels in Delhi have averaged between 76 to 84 micrograms per cubic meter, according to data collected by India's Ministry of Earth Sciences. The U.S. leader

departed on Tuesday for Saudi Arabia.

Those levels translate roughly into an estimated loss of 2 hours a day in life expectancy, said David Spiegelhalter, a statistician at the University of Cambridge, who specializes in quantifying risk in a way that is understandable to the public.

Eight Cigarettes "That's roughly 8 cigarettes a day," Spiegelhalter said in an e-mailed response to questions. "I think Delhi is a wonderful city, but this pollution is harming its residents." India says this week's levels aren't that bad. The government classifies any reading from 60 to 90 micrograms over a 24-year period as "satisfactory," which means they "may cause minor breathing discomfort to sensitive people."

"We weren't concerned about bringing the president here for these meetings," John Podesta, Obama's climate counselor, told reporters Monday at a briefing in New Delhi. "The president has traveled to many places where the air is bad for one reason or other," including Beijing, he said.

The U.S. Embassy in New Delhi recently purchased more than 1,800 Swedish air purifiers ahead of Obama's visit, according to Stockholm-based Blueair AB, which makes them. In recent years, India has seen readings exceed 500 micrograms, a level that doesn't even make it on U.S. charts, according to data from India's Central Pollution Control Board. Action Plan Back in Washington, the 24-hour average was 15 micrograms, classified as "moderate" by the U.S. government's AirNow system. Beijing, by comparison, has had a good week. The latest 24-hour average in China's capital was 13 micrograms, according to the Beijing Municipal Environmental Monitoring Center.

Obama, who said he stopped smoking about eight years ago, said Sunday that India and the U.S. will start "new joint projects to improve air quality in Indian cities." In a briefing with Modi, both leaders pledged to cooperate more closely on clean energy and climate change. The U.S. is the world's second-biggest carbon dioxide emitter, while India is third.

"America wants to be your partner as you protect the health of your people and the beauty of this land," Obama said in a speech to about 1,500 people at a Delhi auditorium earlier

Tuesday, calling for cleaner energy, vehicles and water. “Because every child should be able to drink clean water; every child should be able to breathe clean air.”

Diesel Engines

Podesta said that the clean-energy agreements reached between Obama and Modi will have the added benefit of helping public health by improving air quality. Despite the talk, there’s little Washington or even Delhi officials can do until India’s oil refiners are able to start producing cleaner fuels in 2020.

Vehicles with diesel engines, which proliferated as successive governments subsidized the cost of the fuel, aren’t able to install filters to scrub exhaust gases because local fuels carry too much sulfur. As a result, those cars can pump out exhaust gases with 10 times the carcinogenic particles found in gasoline exhaust.

While Modi ended state control on diesel pricing in October, the ratio of diesel to gasoline vehicles running on Indian roads is far greater than in China or the U.S. India expects its refiners to be able to supply high-quality Euro-VI fuels nationwide by 2020, according to Saurabh Chandra, the oil ministry’s top bureaucrat.

Pressure Building

PM2.5 refers to tiny airborne particles and liquid droplets measuring less than 2.5 micrometers or one-thirtieth the width of a strand of hair. Because they’re so small, they penetrate deep into the lungs and pass into the blood stream, according to the U.S. Environmental Protection Agency.

The World Health Organization classifies PM2.5 as a Group 1 carcinogen, similar to asbestos and tobacco. Short-term spikes can kill, triggering strokes, heart failure and asthma attacks, according to the American Lung Association.

Shortened life spans of the urban population because of air pollution cost India \$18 billion annually, according to a World Bank report in June.

Whether that spurs Modi to take more action remains to be seen. The Indian leader was asked Jan. 25 if his country felt pressure to act more aggressively on environmental issues. “When we think about the future generations and what kind of a world we are going to give them, then there is pressure,” he replied. “India is an independent country and there is no pressure on us from any country or any person.”

To contact the reporter on this story: Natalie Obiko Pearson in New Delhi at npearson7@bloomberg.net

To contact the editors responsible for this story: Daniel Ten Kate at dtenkate@bloomberg.net Sunil Jagtiani

What Delhi’s air pollution says about India and climate change

Source : *The Washington Post*

Date: 26th January , 2015



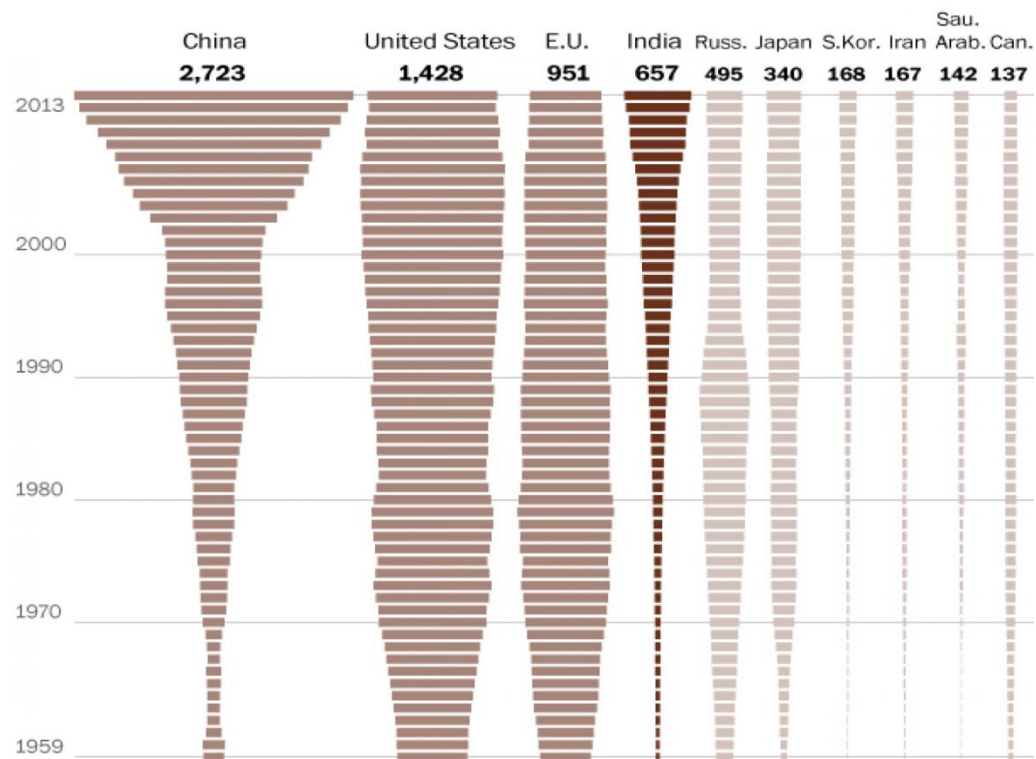
NEW DELHI –The thick winter haze that settles over Delhi – a nasty mix of smog, vehicle exhaust and smoke from cooking fires – abated somewhat when President Obama arrived in India this week for talks. A bit of rain came and cleared the air. Even so, the air quality index hovered around 200 when the

president arrived at the viewing stand to watch India’s Republic Day Parade on Monday. That’s approaching what’s deemed a “very unhealthy” level of the microscopic 2.5 particulate matter, which causes respiratory disease and other ailments.

The Americans were prepared. Delhi police had kept traffic to a minimum around the parade route, and the Embassy ordered 1,800 Swedish air purifiers in the weeks preceding the American delegations’ arrival. (It’s not clear whether any of those air filters actually made it into Obama’s special bullet-proof parade enclosure, as the Indian media had reported.)

Bloomberg published a story Monday titled “Mr. President, World’s Worst Air is Taking 6 Hours Off Your Life,” which argued that Delhi’s toxic air was so harmful that it could shorten the president’s longevity. “I think in Delhi, I think particularly at this time of the year, the air quality deteriorates,” John Podesta, counselor to the president, said to reporters in Delhi on Sunday. “But I think we weren’t concerned about bringing the president here for these meetings.”

Top ten countries, in millions of tons of fossil fuel carbon emissions



The air in New Delhi is the worst in the world, according to a World Health Organization report last year. Environmentalists say that efforts to control it – such as a switch to clean-burning natural gas for auto rickshaws – have made little long-term impact as the city has sprawled, eight coal-fired power plants chugged out more power and more than 7 million cars clogged the roads.



The situation is hardly better in other parts of the country. Earlier this year, a report by a Yale University research team showed that India ranked 174th of 178 countries in air quality, somewhere close to China and Pakistan.

On Sunday, the president and Prime Minister Narendra Modi announced that the two

countries would work to battle pollution in India's cities by implementing the Environmental Protection Agency's international air quality forecasting system AIRNow. It's part of an

overall climate deal that includes a pledge for “concrete progress” on a pact to phase out a class of widely used refrigerants called hydrofluorocarbons, and support for solar energy initiatives to help India reach its goal of expanding its solar energy capacity to 100 gigawatts by 2022, an amount equal to the energy of about 100 nuclear power plants.

Administration officials acknowledged that Modi-Obama did not produce a breakthrough like the deal with China on emissions last fall. But they said that it represented significant progress from a still-developing country that has long balked at agreeing to significant curbs on its emissions. They say the rapport that seemed to develop between Obama and Modi during this trip – Modi served Obama’s tea, and Obama kidded him about being attacked by a crocodile – may go a long way in helping the United States achieve a strong a global climate agreement in Paris with India’s help later this year.

“This signals that India sees the Paris agreement as a priority, and establishes a direct channel that could prove absolutely essential to delivering the final deal,” said Elliot Diringer, vice president of the Center for Climate and Energy Solutions, a Washington environmental group.

At a meeting with chief executives Monday, Modi called for “global action on renewable energy,” saying the world “should take a lesson from past efforts to tackle hunger and many diseases.”

However, other environmentalists expressed disappointment that the agreement between the two countries did not specifically target carbon emissions, especially as India doubles its coal production to try to meet unrelenting power needs. India is the third largest emitter of greenhouse gases, behind the United States and China.

Raymond T. Pierrehumbert, a professor of geophysical sciences at the University of Chicago, pointed to Modi’s somewhat short response to a reporter’s question about whether he felt pressured to agree to a China-style climate deal with the United States.

“The sad thing for India is that while in rejecting a China-type deal, Modi said, 'There is no pressure on us from any country or any person, but there is pressure when we think about the future generations and what kind of world we want to give them,' ” Pierrehumbert said.

“In attempting to provide adequate energy, if India goes with coal to the extent in current plans, Modi will be leaving future generations in India — already one of the hottest populous countries — to suffer under oppressive warming so severe that, according to some projections, mammals (and that includes people) will not be able to survive outdoors,” he said.

Pollution up as Obama arrives in Delhi

Source : DNA

Date: 26th January , 2015



NEW DELHI: Air quality during the Republic Day parade may turn out to be slightly better than the bleak smoggy mornings the city has seen this winter, but it will continue to be in the "poor" and "very poor" categories. In fact, for president Barack Obama and guests from the US, the early morning air at Rajpath on Monday may seem nearly choking as PM2.5 levels here are several times the levels in Washington in the last couple of days.

The air quality index (AQI) for Metropolitan Washington was "good" on Sunday evening, but in the "unhealthy" range at the US Embassy in Chanakyapuri which has a real time PM2.5 monitoring system. Obama's brief comment on partnering with India on providing clean air to Indian cities was not surprising as alarmingly high air pollution in Delhi grabbed headlines quite frequently in national and international media.

A forecast based on the System of Air Quality Weather Forecasting and Research (SAFAR) model found that the hourly PM2.5 concentration on January 26 (5am to 10pm) will range from 90 to 118 microgram per cubic metre, which is about 2-3 times the US Environment Protection Authority (EPA) standard.

"The impact of sporadic rain, which improved the air quality significantly by washing out pollution during the past three days, is almost gone now. Cooler temperature and calm conditions are likely to enhance the concentration of overall particulate pollution from moderate to poor range on January 26," said Gufran Beig, project director, SAFAR.

The SAFAR model offers two scenarios: One in which traffic is like on any other day, or second where traffic is less due to diversions. Going by the latter, the air quality will be marginally above the Indian safe standard.

The US has extremely stringent air quality standards compared to India. Their annual safe standard for PM2.5 is 15 microgram per cubic metre and for 24 hours it's only 35 microgram per cubic metre. They also make sure that industries, vehicles and each city conforms to

these standards. It's legally binding for each city administration (civil penalty provisions) to meet these standards. If they are not able to meet the clean air standard they are penalized with a cut on the development grant.

On Sunday evening at 7.30, PM2.5 levels at Mandir Marg hovered between 138 and 160 microgram per cubic metre. The visibility is also likely to be poor on early Monday morning. "There is no forecast for rain in the morning, but it may be foggy or partly cloudy. There is a 20% chance of very light rain in the afternoon. The temperature is likely to be 9-10 degrees," said BP Yadav, director of National Weather Forecasting Centre, IMD.

Why India Can't Stop at 100 Gigawatts of Solar

Source : *Green Tech Media*

Date: 20th January , 2015



India needs to reform its energy markets and broaden its scope of policies to make solar more impactful. The spotlight will turn to India next Monday when President Obama joins Prime Minister Narendra Modi at India's Republic Day celebrations -- a first for a U.S. president. The two leaders have a packed agenda for the president's three-day visit, which will include discussions about energy. But don't expect a climate deal similar to one crafted by

China and U.S. Last year, India's new environment minister categorically stated that India, whose per capita emissions are lower than those of U.S. and China (1.7 tons CO₂ per capita), has no intentions of reducing greenhouse gas emissions in the near future. Instead, the new government's priority is to meet its energy deficit by significantly increasing coal production, which already accounts for more than 60 percent of India's electricity generation. Further, the minister in charge of power and coal (who interestingly also heads the Ministry of New and Renewable Energy) plans to double India's coal output by 2019, to 1 billion metric tons, by approving several old and new coal projects.

Meanwhile, the clean energy industry has been celebrating India's recent policies promoting solar development. The new government has set an ambitious target to procure 100 gigawatts of solar capacity by 2022. And just last week, SunEdison announced a \$4 billion investment to build a factory for manufacturing lower-cost solar panels in India.

These developments will boost India's nascent solar industry, which currently accounts for less than 1 percent of power generation in India. They may allow solar to meet as much as

10 percent of India's electricity demand by 2022. Solar could significantly change India's electricity mix. But a pro-solar policy in isolation will not translate to a drop in emissions -- not when India still has no cohesive plan to phase out fossil-fuel electricity generation and transition to a low-carbon economy.

Realizing the goal of 100 gigawatts of solar will also bring many challenges of its own. Power distribution companies in India, which are entirely state run, have set dismally low renewable purchase obligation targets of 3 percent by 2022, and most states have been failing to meet current targets year after year. These obligations are not enforced or regulated, increasing uncertainty around new large solar projects.

Moreover, Indian utilities rely on large industrial and commercial consumers to subsidize electricity for all other customers, and are wary of independent renewable power producers taking away large consumers and depriving them of their main source of profit.

As a result, independent solar (and wind) projects are subject to restrictive open-access policies, as well as high wheeling and cross-subsidy charges that prevent renewable energy from being cost-competitive. Such prohibitive policies need to be eliminated and the electricity sector must be deregulated if India hopes to achieve its solar targets. There is hope for this given that the parliament is debating changes to the Electricity Act of 2003 and the Ministry of New and Renewable Energy has proposed eliminating wheeling charges for upcoming solar parks. However, the electricity sector is not the only problem. Manufacturing and transportation account for a major share of emissions and harmful air pollutants as well. The 2014 Environmental Performance Index ranked India 174th out of 178 countries for air quality, barely ahead of Pakistan, Nepal, China and Bangladesh. Meanwhile the government is reluctant to improve air quality and has even denied that vehicles are responsible for hazardous air quality in cities. As India's traffic problems worsen and fuel consumption increases, stricter measures will be needed in order to curb the respiratory illnesses that are growing at an alarming rate. It is clear that India's approach to development thus far has not been successful in achieving desirable health outcomes. If the country's preferred strategies include doubling down on coal production and increasing oil consumption, the future looks rather bleak. Simply increasing the amount of solar power without drawing up specific timelines and targets for emission reductions will not help India deal with climate change and lower the health impact of pollution. It's time for India's new government that came to power with the promise of "achhe din aayenge" -- meaning "better days are ahead" -- to lead the way to a cleaner, secure future without repeating mistakes that we now know can be avoided. In order to have a meaningful impact, India's 100-gigawatt solar target needs to be part of a larger suite of policies designed to reform

the country's energy market and promote a low-carbon economy.

Where there's smoke: the mystery of Asia's pollution haze

Source : *City Metric*

Date: 20th January , 2015



A haze has periodically wafted over South-east Asia for 20 years. But despite rising public health concern, the problem remains as opaque as the smoke itself.

At the age of 13, Tan Yi Han could not see the edge of his schoolyard. It was 1998 in Singapore, the wealthy city-state known for its tidy streets

and clean, green image. But for much of that particular school year, clouds of smoke shrouded the skyline. The record-setting air pollution, which had begun in 1997 and lasted for months, caused a 30 per cent spike in hospital visits. It would later be remembered as one of south-east Asia's worst-ever "haze episodes". Haze episodes have occurred in south-east Asia nearly every year since. Back in 1998, and for years afterwards, Tan didn't think too deeply about them. Yet at some point in his late 20s, he began to wonder: where did the haze come from? And why did it keep coming back?



Air pollution kills around 7m people every year, according to the World Health Organization (WHO), accounting for one in eight deaths worldwide in 2012. It's especially bad in the Asia-Pacific region, which has a population of over 4.2bn and a high population density. China and India alone, with a combined population of around 2.7bn, are both enormous sources and victims of air pollution.

In 2010, 40 per cent of the world's premature deaths caused by air pollution were in China, the world's largest emitter of carbon dioxide, according to a survey published in the *Lancet*. The University of Hong Kong's School of Public Health reported more than 3,000 premature deaths in the city in 2013, and the situation in many mainland Chinese cities is reckoned to

be far worse.

Similar health concerns are building in India, where air pollution is now the fifth-leading cause of death. A 2014 study has linked a significant drop in India's wheat and rice crop yields to rising levels of two air pollutants – black carbon from rural cooking stoves, and ground-level ozone formed from motor vehicle exhausts, industrial emissions, and chemical solvents – between 1980 and 2010.

In both China and India, air pollution is one consequence of a massive exodus from farm to city that has occurred in recent decades. The change has contributed to rising emissions from both vehicles and factories, especially coal-fired power plants, and an emerging middle class that increasingly desires a range of consumer goods that are common in Europe and the United States.

South-east Asia has encountered similar problems in recent decades as its economies and populations have boomed. In fact, according to the WHO, nearly 1m of the 3.7m people who died from ambient air pollution in 2012 lived in south-east Asia.

But on top of smokestacks and tailpipes, the region faces an added burden: smoke haze produced in Indonesia that is a by-product of the world's US\$50 billion palm-oil industry.

In the summer of 2013, a plane carried Tan Yi Han over the Straits of Malacca to Pekanbaru, the capital of Riau province, the largest palm-oil production region in Indonesia. Tan, then a 28-year-old financial consultant, was volunteering with the Global Environment Centre, a Malaysian group that has worked for years to prevent and mitigate haze. He travelled to the heart of neighbouring Indonesia, just after a record-breaking haze episode hit peninsular Malaysia.

A couple plied Tan with tea and snacks, then quietly asked if he could spare any of his own food for them

On a driving tour in Riau, he saw endless acres of burned-out landscapes. Fires had turned swampy peat bogs, the area's natural vegetation, into land whose parched surface resembled charcoal. These fires are to dry out the peatlands for agricultural uses, mainly the cultivation of oil palms. But the fires, once set, are hard to put out, and in some villages, fires had even destroyed existing oil palm trees that belonged to multinational companies or local farmers.

Tan had a memorable encounter in the village of Rantau Bais. A couple there plied him with tea and snacks, then quietly asked if he could spare any of his own food for them. Their daughter had developed a respiratory problem because of the haze. The surprise medical bill, coupled with the fire destroying their oil palm crops, had left the family penniless and hungry.

Until that moment, he had mostly thought of peat blazes as “forest fires,” as they are often called in media reports. But here was a visceral reminder that the fires affect working land and real people. “It really touched me,” said Tan. “I made a promise to myself that I’d do my best to prevent them from suffering from fires again.”

It was an issue, he felt, that required far more public discussion – and when the time was right, action. “I must get more people involved,” he had thought, “and turn this into a movement.”



Hazy skies may all look similar, but the emissions from any particular source are unique. A factory smokestack in Beijing releases a different mix of chemical compounds into the atmosphere than an automobile tailpipe in New Delhi does. And the extent of pollution in a given city will depend on how carefully emissions are controlled, and how easily they

can be dispersed.

Vehicle and factory emissions have been analysed for decades in high-income countries, but haze smoke, and its impact on health, is not well understood. “Not many people have investigated it even though it’s a very important phenomenon,” said Mikinori Kuwata, an atmospheric chemist at Singapore’s Nanyang Technological University.

Unlike factory and vehicle emissions, wildfire smoke is not regulated by tailpipe scrubbers, catalytic converters or other pollution-mitigating applications. The composition of the smoke also varies widely according to the type of material that is burning. Peatlands, for example, typically take a longer time to burn than drier matter – just as a damp piece of wood takes longer to burn in a campfire. According to the US Environmental Protection Agency, peat fires burn at lower temperatures and produce smoke that is more harmful, and in larger quantities, than the average forest fire or grassland fire does.

The emissions from a given peat fire will largely depend on the peat’s composition, its burning temperature and how far below the ground the fire occurs. But such details aren’t yet available in Indonesia, whose peatlands cover an area roughly the size of the United Kingdom. As a result, Kuwata told me, “We do not have a very reliable inventory” of the country’s peatland fire data. Kuwata burns Indonesian peat in his Singapore laboratory to study its chemical properties, but his work is limited, he said, because he can never be sure whether his experiments mirror reality.

Indonesia has an enormous repository of tropical peatlands – and, for a generation, areas of

these have been burned to prepare the land for the cultivation of oil palms. Peat smoke now contributes around 40 per cent of Indonesia's overall greenhouse gas emissions. Palm oil is an ingredient in a range of consumer products, from lipstick to ice cream. Yet it has also helped to give its source country the dubious distinction of being the world's third-largest greenhouse gas emitter after China and the US – as well as a leading source of hazardous smoke haze.



On a summer afternoon, the skies were a milky white in Riau, the Indonesian province that produces about a quarter of Indonesia's palm oil. My first stop was the headquarters of WALHI, an NGO in the city of Pekanbaru that lobbies the Indonesian government for action on haze and other environmental problems.

I arrived at WALHI's headquarters, a low-rise residential building near the Pekanbaru airport, just as a group of farmers and

environmental activists were discussing haze, over coffee and cigarettes, with Sri Nurhayati Qodriyatun, a researcher for the Secretary General of Indonesia's parliament.

"Government statements about haze are false!" shouted a local NGO activist

Qodriyatun said her boss had dispatched her to Riau to compile a report on haze. At the meeting, she explained that, according to government estimates, forest fires were generally not occurring in areas owned by large plantations.

The crowd stirred. "Government statements about haze are false!" shouted an activist from a local NGO, Forest Rescue Riau Network. "And there's no coordination between ministers – they just pass the blame around!"

The exchange underscored the long-running debate across south-east Asia about who, exactly, is responsible for Indonesia's peat fires. Farmers and environmental groups often accuse companies, many of which are headquartered in Singapore or Malaysia, of malfeasance. But many companies say such criticism is overblown, and that they have largely reformed their destructive land-clearing practices in recent years through voluntary reform initiatives like the Roundtable on Sustainable Palm Oil, an industry-led consortium.

Whoever is right, said Qodriyatun, the fires have damaged Indonesia's international reputation, and the Indonesian government pays little attention to their health implications in Riau and beyond.

“Personally, I don’t think the government is managing this well,” she told me after the meeting. “Usually they just react after the fires start, but they should think more about prevention.”

Peat fires, though, are notoriously hard to predict and extinguish. They start and spread easily, and sometimes uncontrollably, depending on conditions like wind speed, the depth of the soil and the dryness of the air.

“It’s really hard to know how bad a fire will be when it starts,” said Dedy Tarsedi, a farmer in the Riau village of Bungaraya. We were sitting in a roadside café flanked by oil palm trees. Tarsedi told me that oil palm is the crop of choice for Bungaraya farmers because it is more valuable than paddy rice. A hectare of oil palm, he said, typically earns a farmer around 48m Indonesian rupiah (nearly US\$4,000) per year. Paddy rice, by contrast, brings in just 40m rupiah. But as oil palm cultivation has increased in the village, so have fires. And they affect both corporate plantations and smallholder farmers.

“If a fire happens and we can’t control it, we’ll report it,” said Maman, a Bungaraya farmer. But sometimes, even helicopters are powerless to stop the burning, he added. “And during the really bad fires, a lot of the kids cough and end up at the clinic with health problems.”

In 2009, Indonesia passed a law banning fires on peat plantations. Farmers in Bungaraya told me that, as a result, they had started to clear peat bogs manually, without using fire. But Tarsedi said manual clearance is more labour-intensive and requires extra fertilisers. And that, he said, requires extra time and money that most farmers don’t want to part with.



When the wind blows from the west, smoke can whip east across the Straits of Malacca and into both Singapore and Kuala Lumpur (the capital of nearby Malaysia) – collectively home to about 7m people. South-east Asia is not the only place where the burning of vegetation occurs over large areas; most of the world’s fires occur in Africa and South America. But South-east Asia’s

fires are unique, says Miriam Marlier, an atmospheric researcher at Columbia University, because they occur so close to dense urban centres. There are no comprehensive studies on how repeated exposure to peat smoke affects human health over the long term, much less how peat smoke’s chemical properties differ from other kinds of biomass smoke. Yet emerging research offers early clues. US researchers have found that peat fires in the southern states during the summer of 2008 caused a spike in emergency room visits for heart failure and asthma-related respiratory complications. In a follow-up study, published

in June 2014, they burned semi-charred peat from the fires in the vicinity of lab mice. Subsequent pulmonary problems in the mice were mainly linked to coarser-grained smoke particles and cardiac problems to finer-grained particles. A primary concern from a health perspective is that peat fires tend to generate larger amounts of fine-grained particulate matter, called PM_{2.5}, than normal forest fires. That is worrying mainly because finer-grained particles are thought to penetrate further into the bloodstream than coarser ones do, posing a potentially higher risk to the heart and other internal organs. Finer-grained particles are also harder to block with the simple surgical masks that many people in Asian cities have traditionally worn as protection against air pollution. A widely cited 2012 study, published in the journal *Environmental Health Perspectives*, estimated that about 339,000 deaths between 1997 and 2006 were associated with landscape fires. About four in five deaths were linked to chronic, rather than sporadic, exposure. Sub-Saharan Africa and South-east Asia accounted for 157,000 and 110,000 deaths, respectively, and the rate of mortality spiked during years dominated by the El Niño weather phenomenon, which typically correlates with drier conditions in South-east Asia. "Reducing population level exposure to air pollution from landscape fires is a worthwhile endeavor that is likely to have immediate and measurable health benefits," the researchers concluded. Another 2012 study, by Miriam Marlier and other scientists from American and British institutions, found that between 1 and 11 per cent of South-east Asia's population was repeatedly exposed to pollution above the WHO's recommended air quality levels during sporadic haze episodes between 1997 and 2006. Elevated exposure during El Niño years caused around 15,000 cardiovascular-linked adult deaths per year, the researchers wrote. Roughly two-thirds of those were linked to fine-grained PM_{2.5} particles, while the other third were linked to levels of ozone. However, there was not enough evidence available to determine exactly how the toxicity of PM_{2.5} in peat fires differed from that of PM_{2.5} emissions in American cities. Some scientists suggest that peat smoke's long-term effects on humans may be broadly similar to those of urban air pollution, which also includes PM_{2.5} particles. No one is sure because so little research has been done to test the theory. Rajasekhar Balasubramanian, an American environmental engineer who studies haze at the National University of Singapore, speculates that long-term exposure to haze episodes could potentially make the population less healthy over time, even if people continue to live long lives. In a 2013 study, he and his colleagues found that the air above Singapore during a smoke haze episode contained arsenic, chromium, cadmium and other carcinogenic elements. They estimated that normal urban levels of PM_{2.5} pollution would cause about 12 out of every million Singaporeans to develop cancer over a lifetime, but if haze were to

occur for 10 days per year over 70 straight years, the number of likely cancer cases would increase by nearly half. Yet there still is no coordinated international effort to analyse haze in a truly interdisciplinary fashion. That is partly due to the sporadic and unpredictable nature of haze, Balasubramanian said: South-east Asia's highly variable weather makes it tricky to predict when haze will appear or where it could spread. He likens a particle of peat smoke to a grasshopper that jumps into the air, shoots along horizontally, then quickly zooms back to earth – only to jump again. Another problem, Balasubramanian said, is that the general public does not yet view haze as a serious health threat. "People view it as, 'Oh, yeah, it's a problem that occurs in Indonesia'," he told me one afternoon in his office at the National University of Singapore. For governments and funding bodies, "the priority's more mitigation: how to mitigate human exposure to this haze issue, rather than to study the problem itself".



The task of mitigating pollution is also clouded by politics. Countries in South-east Asia have little control over what blows across their borders: unlike the European Union, the Association of Southeast Asian Nations (ASEAN) lacks the legal authority to force its members to act against their own interests.

A case in point is ASEAN's 2002 trans-boundary haze agreement, a non-binding document in which the group's ten member states pledged to prevent and monitor peat fires. The agreement called for technology exchanges and other measures to improve regional dialogue and cooperation on haze. It was initially hailed as a landmark achievement, but until September 2014, Indonesia's parliament had refused to ratify it. Laode M Syarif, an environmental lawyer based in the Indonesian capital of Jakarta, said that was mainly because Indonesia has long tried to use the haze agreement as a way to leverage Singapore into overturning a refusal to extradite Indonesian citizens who are wanted for crimes in their homeland.

ASEAN tends to view economic development, national sovereignty and mutual non-interference as its highest priorities, said Helena Varkkey, a senior lecturer in the Department of International and Strategic Studies at the University of Malaya. In her view, ASEAN has taken a mild-mannered approach to haze fighting out of deference to powerful palm-oil companies, many of them based in Singapore or Malaysia.

Indeed, many analysts have said that Indonesia's land concessions – areas allocated for commercial plantations – are deeply entwined with corruption. A popular joke has it that, if Indonesia's overlapping concession maps were all counted as national territory, the country would grow in size. But companies and officials mostly refuse to share those maps with the public. "It's a mess," said Andika Putraditama, a research analyst at the Jakarta office of the World Resources Institute, a research organisation headquartered in Washington, DC. It's also another reason why Indonesia's peatlands continue to burn.

Against this backdrop, Tan Yi Han, the Singaporean financial consultant and self-styled haze activist, is hoping to influence the regional debate on haze. In early 2014, he founded a citizens' organisation called People's Movement to Stop Haze, or PM Haze, to kick-start the discussion.

"My personal goal is to stop haze by 2023," Tan says

"My gut feeling is, we need influence," Tan said at a Sunday-evening PM Haze meeting. There was only one other participant: Putera Zenata, an Indonesian schoolteacher who had joined the group after finding Tan online. The venue was Zenata's modest apartment in a middle-class Singapore neighbourhood.

In June 2014, one of Tan's hometown newspapers, the Independent, dubbed him "Singapore's intrepid haze fighter". But PM Haze, with 10 active members and no outside funding, is well behind many established advocacy and research groups that fight air pollution elsewhere in Asia. In New Delhi, the Centre for Science and the Environment has proposed specific ways that the government could tackle air pollution – for example, by cracking down on open fires. And in Beijing, the Institute of Public and Environmental Affairs is promoting a pollution-monitoring mobile phone app as a way of ramping up pressure on polluting companies.

By his own admission, Tan has very little experience in the non-profit sector. He told me that he has no plans to pressure the government or companies into action – at least not yet. For the moment, he said, PM Haze is simply trying to learn about the problem, in all its complexity, and then communicate its findings to the Singaporean public. In early November 2014, the group developed the content for an informational "haze exhibition" in Singapore that drew an estimated 800 visitors. And in the longer term, Tan said, they would like to film a documentary in Indonesia.

"My personal goal is to stop haze by 2023," he added casually.

That could be a pipe dream. But according to Wilson Ang, Assistant Director for Sustainability at the Singapore Institute of International Affairs, the haze of June 2013 made the Singaporean public "much more involved" in the issue. Along with PM Haze, the episode

spawned the creation of the Haze Elimination Action Team, another grassroots community group. Both groups have since gone on site visits to Indonesia, opened dialogues with palm-oil companies, and offered feedback or recommendations to Singaporean officials. “Such a ground-up approach is very much welcomed by the government,” said Ang.



Haze, however, is still a growing public health concern for many countries, especially lower-income ones. “We put a lot of legislation in place to control point sources, and still, when you add it up, ambient conditions don’t get better,” said Jacqueline McGlade, Chief Scientist at the United Nations Environment Programme. Other challenges, she told me, are linking air pollution data with research on impacts and holding governments accountable for enforcing

pollution laws.

More than ever, air pollution is a prominent target of policy reforms and public health interventions. Many lower-income countries, grappling with the environmental and health consequences of their booming populations, are tightening air pollution standards. International aid and development agencies are also rolling out projects to monitor or regulate particulate emissions.

In South-east Asia, haze has recently resurfaced on ASEAN’s political radar. In early July 2014, officials from Riau province announced that they would conduct a large-scale “compliance audit” of local officials and agroforestry companies linked to peatlands. On 5 August, Singapore’s parliament passed a law that allows the government to fine both domestic and international companies up to 2m Singapore dollars (US\$1.5m) for causing or contributing to haze. And on 16 September, Indonesia’s parliament finally ratified ASEAN’s 2002 trans-boundary haze agreement after 12 years of resistance.

If climate change increases the number of droughts and wildfires, the incidence of peatland fires may also rise

Also that summer, a senior adviser to Joko “Jokowi” Widodo, then Indonesia’s President-Elect, said the new administration planned to renew the 2009 Indonesian law that banned peat burning when it expires in 2015. Widodo himself said he planned to streamline land governance by creating a “one-map” forestry policy. “The haze is caused both by the people and also the companies,” he told the Straits Times, a Singapore newspaper, in late August. “If we have good, tough law enforcement, then it can be resolved.”

How significant are these developments? In conversations with several haze-watching

analysts across South-east Asia, I heard a wide range of opinions. Some, like Helena Varkkey, aren't especially optimistic, mainly because Indonesia and ASEAN have so far made so little progress on the haze problem. Neither the Singaporean law nor the regional haze agreement, they pointed out, would be enforceable in Indonesian courts. And if climate change increases the number of droughts and wildfires around the world, as many scientists predict it will, the incidence of peatland fires may also rise – and pose additional enforcement challenges.

But others said it is positive that the Indonesian and Singaporean governments are at least taking action – the sort that could breathe new life into existing Indonesian laws designed to tackle haze. The recent political activity gives them hope that annual peat fires will not become South-east Asia's status quo for future generations.

"Jokowi did say that he aims to take action against the haze," said Tan Yi Han, the haze fighter. "That's just words, but it's better than nothing."

Pay hefty fine for parking car on Delhi roads

Source : *India Today*

Date: 20th January , 2015

Advocating more coercive measures to regulate traffic and bring down pollution, the National Green Tribunal on Monday ordered Rs.1,000 as fine on any car parked on a metalled road.

Refusing to accede to the requests of residents and shopkeepers of some local markets to allow them to park their cars on roads due to lack of parking space, Justice Swatanter Kumar, said: "If you use ground floor for commercial purpose, then you must pay for parking."

In pursuance of this case, NGTT had also passed the important order that all vehicles above 15 years of age in Delhi be banned.

On Monday, the committee on air pollution set up by NGT informed it that almost all prescribed parameters of air pollution were found to be in excess of the National Ambient Air Quality Standards.

"There will be complete prohibition of parking of any cars on the metalled roads and the corporation would take strict action against a person who violates it."

Justice Kumar also said that in case of violation of its order, the area SHO and DCP will be held personally liable.

MoEF guided by bad science, EPCA tells SC

Source : *The Times of India*

Date: 18th January , 2015

NEW DELHI: Environment Pollution Control Authority (EPCA) has submitted its rebuttal to Supreme Court on MoEF's recent affidavit that downplayed the role of vehicles in air pollution. The ministry's original affidavit had claimed vehicles contribute only 6.6% of particulate matter (PM) pollution. However, faced with criticism on the issue, it filed another affidavit on Friday stating vehicles contribute between 8.7% and 20.5% of PM emissions. Rebutting the ministry's first claim, EPCA, which also submitted its rejoinder on Friday, said MoEF's stand against upgrading fuel quality to Euro IV standards across the country by end-2015 is also "unacceptable" as there has been "inordinate delay" in taking action against air pollution. EPCA, a body notified by the Centre in 1997 to deal with all environmental issues in the NCR and ensure compliance with air quality standards, said upgrading fuel standards immediately is important because truck traffic is a major source of air pollution. Euro IV standards for trucks are 81% cleaner than the current Euro III standards. SC was hearing a petition by MC Mehta, Supreme Court lawyer and environment activist. EPCA pointed out the government is depending on "bad science", referring to National Environmental Engineering Research Institute's source apportionment study that concluded vehicles are responsible for only 6.6% PM pollution in Delhi. EPCA quoted another government study by Ministry of Earth Sciences, done before the 2010 Commonwealth Games, that found vehicles contribute 29% of PM 10 (coarse particles of less than 10 micrometre size) and 45% of PM 2.5 (fine, respirable particles of less than 2.5 micrometre size). The MoES study conducted by IITM was also published in Atmospheric Environment, a journal. EPCA sought directions from SC on creating a clean fuel fund from the Rs 2 per litre excise duty on fuels and an additional excise duty of Rs 81,000 on diesel cars, proposed by the government-appointed Kirit Parekh committee.

Chill & air pollutants take your breath away

Source : *The Times Of India*

Date: 17th January , 2015

Pune: If you are suffering from a persistent cold, cough and other respiratory problems and so are many others around you, blame it on a combination of a spike in pollution levels in the city and the winter chill.

Sundeep Salvi, director of Chest Research Foundation said viral respiratory tract infections, [asthma](#) attacks and pneumonia cases have increased this winter due to a rise in the air pollution.

Patients complaining of these conditions have increased by about 25% this winter, he

added. "Increase in air pollutants adds to the complexity of bacterial and viral infections, which means that more the pollution, higher the chances of such infections," he said.

A statistical analysis of air pollution in Pune carried out by the Maharashtra Pollution Control Board (MPCB) showed that the average values of respirable suspended particulate matter (RSPM) increased by over 100 to 300% in the winter months as compared to summer. Though air pollution levels have been rising in the city, experts see the recent spike due to winter. Pollution levels are also contributing to respiratory troubles among citizens, compounded with the chill in the air.

The board monitors the ambient air quality at five locations Karve Road, Pimpri Chinchwad Municipal Corporation (PCMC) building, Nal Stop, Swargate and Bhosari.

The national air monitoring programme identifies several air pollutants such as sulphur dioxide, oxides of nitrogen, and respirable suspended particulate matter (RSPM), among others. The permissible limit of RSPM is 100 ug/m³ (micrograms per cubic meter of air) as per the national ambient air quality monitoring standards.

Though the levels of sulphur dioxide, oxides of nitrogen were found to be within the prescribed standards in most cases during the last few months, RSPM levels went through the roof. For instance, the average RSPM level in June 2014 near the PCMC building was 45.25 ug/m³, which in December 2014 shot up by over 200% to 164 ug/m³. The average RSPM value in November 2014 at this location was 126.13 ug/m³.

It is the same case with other locations where the ambient air quality was monitored. On Karve Road, the average RSPM level rose by 118% in December 2014 as compared to June 2014, while the average RSPM level at Nal Stop shot up by around 158% in December 2014 as compared to June 2014.

At Bhosari, the average RSPM level rose by a whopping 330% in December 2014 as compared to June 2014, while the average RSPM level at Swargate shot up by around 220% in December 2014 as compared to June 2014.

Shashikant Nehul, a research scholar on air pollution from Savitribai Phule Pune University, told TOI that the drastic increase in air pollution in December can be contributed to the climate inversion phenomenon that takes place in winter.

"Pollution peaks in winter because of the climate inversion phenomenon, where cold air near the ground is trapped by warmer air above preventing pollutants from being dispersed over a larger area. On the other hand, during summer months, the warm air facilitates dispersion of pollutants," said Nehul. He added that sources of RSPM include aerosols from unpaved roads, apart from those from construction sector and industrial fumes.

Javadekar to hold chintan shivirs across India to explain govt's

environmental stance

Source : *Hindustan Times*

Date: 17th January , 2015



Environment minister Prakash Javadekar will start nationwide consultations — called chintan shivirs — where he will meet forest officials and talk about the government's move to change environmental laws and the need to adopt traditional ways of conserving nature. This will be Javadekar's first nationwide consultation since taking charge as

minister in June 2014 after which the NDA government made more than 40 changes in environmental regulations.

“The idea is to have an open house with 150-200 forest officers in different age groups and take their feedback on what they think is wrong with the country's environment management and ways to improve it,” said a Javadekar aide. “The minister will also emphasise that foresters should propagate the traditional Indian way of living has been environment friendly.”

The chintan shivirs come at a time when the environment ministry is pushing a new environmental regime by amending five environmental laws to boost ease of doing business in India, a move activists say will reduce environment protection measures.

“The amendments proposed would be disastrous for our environment and should not be pursued at all,” environmental lawyer Ritwik Dutta told a Parliamentary Standing Committee last week.

Javadekar said he wanted to hold the chintan shivirs to change the ministry's negative image its policies has given it as well as to make environment regulation transparent and accountable. “My idea was opposed by some officers but I have decided to go ahead with it,” he said. The minister spoke about a broad-based consultative process at the Indian Science Congress in Mumbai this month, saying that ancient Indian scientific theories were based on centuries of observations. “We should draw upon the knowledge of ancient Indian science concepts and explore possibilities of their application in the modern world,” he said. The minister also directed officials to hold an exhibition at the ministry's headquarters on conserving environment using Vedic methods.

“We are in touch with some Rashtriya Swayamsewak Sangh affiliate organisations to put up

demonstrative models on Vedic ways of conserving nature,” a ministry official said. The first chintan shivir will be held at Bengaluru on February 8-9, where a motivational speaker will address forest officials and other issues will be discussed, including cleaning rivers, social forestry and air pollution. The minister plans to hold four such sessions in different parts of the country.

U-turn by Centre in apex court on capital vehicular pollution

Source : *The Times Of India*

Date: 17th January , 2015

NEW DELHI: There is a twist to the recent controversy about an MoEF affidavit to Supreme Court claiming vehicles in Delhi contribute to only 6.6% of particulate matter pollution while road dust contributes to 52%. Following criticism from experts about the veracity of these findings, MoEF, in another affidavit submitted to the apex court on Friday, claimed that vehicles in fact contribute between 8.7% and 20.5% of PM emissions while road dust leads to 14.5% to 29% and that the study by National Environmental Engineering Research Institute (NEERI) it had quoted is based on data from 2007. The Central Pollution Control Board commissioned the NEERI study in 2005-06. Subsequent studies, some government-funded, have contradicted the NEERI findings of 6.6% PM emissions from the transport sector. NEERI scientists TOI spoke to were also clueless about why an old study was quoted in the affidavit and clarified it was not peer-reviewed. In its latest affidavit, MoEF clarifies that its initial submission was only meant for PM10 (coarse particles more than 10 micrometres in size). PM10 emissions are not as dangerous as PM2.5 (fine, respirable particles less than 2.5 micrometres in size) as those can enter the bloodstream and get lodged in the lungs. It also informs that the data was from 2007 and there is no government study on source apportionment of PM2.5 emissions. A WHO study found Delhi has the highest PM2.5 levels among 1,600 cities globally. Delhi Pollution Control Committee has only recently commissioned another source apportionment study with focus on PM2.5 to Prof. Mukesh Sharma of IIT Kanpur.

After completely denying the role of vehicles in air pollution, MoEF-in its latest affidavit-seems to have made a volte-face. "Vehicular PM emissions being in the finer category and having toxic elemental carbon as well as organic carbon, controlling them is important for improving air quality and minimizing health effects." It also states there should be "no tolerance" to visible smoke-emitting vehicles and suggests taking Delhi government and the health ministry's opinion on mandatory use of masks, free public transport, allowing only BS III and BS IV vehicles and doubling of parking charges.

A NEERI scientist told TOI, "We aren't sure why MoEF quoted such an old study which only

considers PM10 emissions. The study was not peer-reviewed." Another scientist said, "In any large city, contribution of vehicles is much higher. It's obvious the results of the NEERI study are not reliable."

CPCB had commissioned a large-scale study of health impacts of PM10 emissions to the Kolkata-based CNCI. Its 15-year study had alarming findings. Fearing criticism, CPCB reportedly didn't publish the reports for seven years.

Oil slump heightens pollution challenge

Source : *Leader-Post*

Date: 17th January , 2015



A brisk walk in India's capital New Delhi on Christmas Eve was rated "hazardous" to health, while a similar stroll in the Chinese city of Shanghai was ranked "unhealthy." Two of Asia's biggest cities with the same problem: air pollution.

This year, it could get worse. As the plunge in oil prices filters through to lower costs at the gasoline and diesel

pump, more cars, buses and trucks will be on the roads adding to the smog, warns researcher Anumita Roy Chowdhury, executive director at the Centre for Science and Environment in New Delhi.

The lower oil price brings the problem, but also holds a solution, she says.

"The need of the hour is not to fully pass on the benefits of falling crude oil prices to the consumers, but to create a fund that can be used in building infrastructure to produce cleaner fuel and also implement better emission norms."

Brent crude, a benchmark for more than half of the world's oil, dropped 48 per cent last year, causing pump prices to fall by as much as 14 per cent in India and 23 per cent in China. In November, both countries acted to try and slow the price decline by raising taxes on transportation fuels.

India increased taxes on gasoline and diesel, the fuel blamed for the worst of Delhi's air pollution, twice again since November. China raised taxes on a range of fuels, including gasoline and diesel.

"Too low a price in gasoline and diesel will only spur demand and consumption and may cause some direct setbacks to our goal to cut emissions," Yin Zhongqing of the National People's Congress said in Beijing on Dec. 16. "I think people may live with higher taxes in

exchange for better air quality."

China's Ministry of Finance echoed this view in a statement in November, adding that a "suitable price" will not only curb pollution, but also help develop renewable energy industries. So far, the fuel taxes don't seem high enough to achieve those goals. China's gasoline sales in November grew 16 per cent on year; diesel rose three per cent.

In India, consumption of diesel - which outsells gasoline by four times - rose 3.4 per cent to six million tons in November from a year earlier.

Part of the difficulty for India is it freed diesel prices from state control mid-October and refiners have cut retail prices several times since then.

The preference for diesel in India makes the health issue more acute. Vehicles running on the fuel aren't required to use equipment mandated in Europe to scrub exhaust gases of lethal particle emissions.

Diesel engines emit a pollutant known as PM2.5, or airborne particles and liquid droplets measuring less than 2.5 micrometres, a fraction of the width of a strand of hair.

Because of their size, they penetrate deep into the lungs and pass into the blood stream, according to the U.S. Environmental Protection Agency.

In October 2013, the World Health Organization classified PM2.5 as a Group 1 carcinogen, similar to asbestos and tobacco. Short-term spikes can kill, triggering strokes, heart failure and asthma attacks, according to the American Lung Association.

"Diesel consumption has only increased in the past year and as more bigger vehicles are being sold today we think the fuel efficiency of the system will go down causing more pollution," said Sumit Sharma, a fellow at the Energy and Resources Institute in New Delhi.

"More vehicles, absence of any stringent measure by the government in the past one year means the pollution levels will only increase."

Pollution clearance: GSPCB rules out exemption for shacks

Source : GOACOM

Date: 16th January , 2015

In a blow to the shack operators, Goa State Pollution Control Board (GSPCB) has turned down their request for exemption from the provisions of Air and Water Pollution (control) Act. It has however decided to hold special camps to assist shack operators to apply for consent to operate.

GSPCB will hold three-day special camp from Friday to Sunday for the entire North Goa belt at Calangute community hall whereas for South Goa belt, two-day camp will be held on Monday and Tuesday next week the venue for which is yet to be finalised.

Members of Shack Owners' Welfare Society of Goa along with Calangute MLA Michael Lobo

made a representation to the GSPCB chairman Jose Noronha on Thursday afternoon and proposed to exempt shack business from the ambit of pollution control board on the grounds that their's is a seasonal business.

Speaking to this daily, GSPCB chairman Jose Noronha said that the issue is consequent to NGT order. Though some have obliged to the norms but there are large number of applicants who need assistance in filling up forms hence we will hold special camps in both the coastal belts with our team comprising of technical, accounts and IT.

GSPCB had in its 115th board meeting made 'consent to operate' compulsory for shack owners to be valid for two years. It was said that the shack owners will be allowed to operate soon after applying for the consent to operate and NOC granted within six months.

Responding to a question, Noronha said that the application for consent to operate will be accepted on the spot and a team of engineers will subsequently carry out an inspection. However, he said that the consent to operate will be granted only after a compliance report is filed.

Under Water Act and Air Act, Noronha said that shacks should have proper oil and grease trap, make provision of soak pits or arrange storage system for sewage collection and maintain detailed log books showing daily collection and transportation of sewage to night soil tankers. Moreover, adequate facilities for garbage collection and disposal have to be in place.

Meanwhile, owners of eleven shacks along Majorda-Utorda beach belt that were shut down by the tourism department for violation of green norms have approached the GSPCB and filed applications for consent to operate. [NT]

Yak dung polluting indoor air in Tibetan households

Source : Zee News

Date: 16th January , 2015

Washington: Burning of Yak dung is leading to pollution of indoor air in Tibetan households, filling the atmosphere inside with dangerous levels of fine particulate matter including black carbon, a new study finds.

"In a cold place like Tibet, the impact on individuals could be even greater because they spend so much time indoors and try to keep their homes as air-tight as possible," said Eri Saikawa, assistant professor in the department of environmental sciences at the Georgia-based Emory University in the US.

In 2013, team member Qingyang Xiao, a graduate student at the Emory University's Rollins School of Public Health, travelled to the Nam Co region in Tibet to gather the data.

About 4,500 residents live in the region located at an altitude of 4,730 metres.

Xiao used battery-powered aerosol monitors to measure indoor concentrations of fine particulate matter, which consists mainly of black carbon and organic carbon.

She recorded the measurements in six households with different living conditions and stove types.

Yak dung was the main fuel for cooking and the only fuel for heating.

The results showed that the average concentrations for black carbon and fine particulate matter were nearly double those reported by some similar studies of households in areas located at lower altitudes and consequent warmer climates such as India and Mexico.

The moisture content of the yak dung is a key factor in the emission levels.

"After rain or snowfall, the piles of uncovered dung are moist, leading to incomplete combustion and more emissions of fine particulate matter," Saikawa added.

She hopes to work with Georgia Tech engineer Jonathan Colton to develop gasifier cooking stoves that would burn yak dung in a more efficient matter, thereby producing fewer emissions.

The findings were detailed in the journal Atmospheric Environment.

Pollution a top concern for Delhiites in Assembly elections

Source : *IBN LIVE*

Date: 15th January , 2015

New Delhi: With elections around the corner, one of the biggest concern of Delhiites is pollution in the city. The air pollution is skyrocketing, noise pollution is on the rise and the Yamuna remains filthy despite thousands of crores being spent to clean it.

A WHO study released in May 2014 also quoted Delhi to be the most polluted city in the world when it comes to air quality. The national capital has the highest concentration of PM 2.5, which is considered the most dangerous at 1533 micrograms as compared to Beijing's 56 micrograms.

The pollution level at all parameters is way above permissible limits in the city, causing a serious health hazards to Delhiites. In fact, air pollution is the fifth largest killer in India, affecting 6.2 lakh million Indians prematurely, a six-fold increase since the year 2000 according to a study in the Lancet.

Air pollution is also causing more than 25 per cent of all stroke cases. A whopping 48.6 per cent heart disease cases, more than 17 per cent of chronic OPD cases and more than 6 per cent of all lower respiratory infections are due to air pollution in the city.

"High level of pollution can cause lung cancer, chest infections. People get more prone to H1n1 due to high levels of air pollution," say doctors.

According to a study by CSE, air pollution exceeded between 3 and 11 times the

recommended safe exposure to PM 2.5 and PM 10. Data from the CSE shows that between October 1, 2013 and January 31, 2014, Delhi met the bare minimum for breathable air for just three days. On all other days in the 4-month period, Delhi's air quality in terms of Particulate Matter 2.5 was hazardous.

Not just air pollution, pollution in Yamuna is also a major concern. Till now, the state government has spent over Rs 3,500 crore under the Yamuna Action Plans but the river still remains filthy.

"The problem is that Yamuna has lost its flow. If recycled water is used, river will get its flow back," member Yamuna Jiye Abhiyan Manoj Mishra said.

While the Congress is claiming credit for introducing CNG autos to reduce pollution, the Bharatiya Janata Party (BJP) and the Aam Aadmi Party (AAP) are also promising to work on this mostly ignored issue.

Noise pollution, too, is on the rise. According to a survey by the Center for Science and Research, noise levels go up to 90 decibels in residential zones during traffic time as against the acceptable limit of 50 decibels and given the ground realities, it won't be easy for any political party to fulfill their promise easily.

TNPCB Advice Up in Smoke as Bhogi Propels Pollution

Source : *Bloomberg Business*

Date: 15th January , 2015

CHENNAI: Air pollution levels in the city increased manifold on Bhogi day s residents chose to discard the advisory from the Tamil Nadu Pollution Control Board (TNPCB) and burned unused items in the name of tradition. Perungudi topped the list of most polluted localities, followed by Royapuram, Alandur, Kodambakkam, Anna Nagar, and Tondiarpet.

According to ambient air quality statistics released by the TNPCB, except Ambattur, all 14 zones of the Chennai Corporation recorded presence of Respirable Suspended Particulate Matter (RSPM) much higher than the permissible standard limit. This led to formation of thick fog over much of the city in the early hours of Wednesday. Perungudi recorded the



highest RSPM level with 262 $\mu\text{g}/\text{m}^3$ while pre-Bhogi, the area recorded 113, still exceeding the limit. Royapuram with 231, Alandur with 228, Kodambakkam with 216, Anna Nagar with 213 and Tondiarpet with 206 all exceeded the standard permissible limit of 100 $\mu\text{g}/\text{m}^3$. Ambattur was the only zone to have recorded RSPM level below the

permissible limit at 93. A release from TNPCB, however, attributed the smog also to high

humidity and foggy conditions which made the local stable atmospheric conditions poor resulting in vertical mixing and low wind speed. Thick smog affected flight movement at the Chennai airport. As many as 34 flights were affected on Wednesday. Flights were affected from 7.15 am. The after effects lingered till after 9 am. Air India and Jet Airways had the most number of flights operating during that window.

Pollution soars in Beijing amid winter smog

Source : *The Times of India*

Date: 15th January , 2015

BEIJING: Pollution levels soared in Beijing on Thursday to readings more than 20 times WHO recommended limits, as an annual bout of intense smog returned to haunt the Chinese capital despite government vows to address the plague.

Levels of PM2.5 particulates, the smallest and most dangerous, with a diameter small enough to deeply penetrate the lungs, were recorded at 568 micrograms per cubic metre by the US embassy during the afternoon. An even worse reading of 631 was recorded at a municipal monitoring station in the east of the city. The World Health Organization's recommended maximum is 25 micrograms per cubic metre. China has for years been hit by heavy air pollution, caused by enormous use of coal to generate electricity to power a booming economy, the world's second largest, and more vehicles on the roads. Beijing is periodically hit by choking, acrid haze, with particulate levels jumping far beyond recommended limits. The phenomenon tends to be at its worst in winter, when demand for electricity rises for heating. Authorities warned earlier this week of smoggy weather blanketing northern China, blaming calm weather as windy conditions tend to disperse pollution. Thursday's spike, levels were beginning to reduce in the late afternoon, came almost exactly two years after an extreme bout of bad air in January 2013, dubbed the "airpocalypse", when state media reported readings at nearly 1,000 micrograms per cubic metre, almost 40 times the WHO's limit. Public discontent about the environment has grown, with pollution a popular discussion topic on social media.

The official news agency Xinhua reported Thursday that Rao Bing, a local environmental official in Dazhou, in the southwestern province of Sichuan, had been excoriated online after blaming smog in the area on residents smoking bacon.

"The people who discovered this should win a Nobel," sneered one poster on Sina Weibo, a Chinese equivalent of Twitter.

Preserved pork and sausages are traditional Sichuanese foods, with many households smoking their own ahead of the lunar new year.

The central government has declared a "war on pollution" and vowed to cut coal use in

some areas, although it has only pledged a goal of greenhouse gas emissions peaking "around 2030", suggesting they will rise for more than a decade.

China last year passed the first amendment to its environment protection law in 25 years, imposing tougher penalties on polluters.

Air pollution in the capital dropped slightly last year, the Beijing Municipal Environmental Protection Bureau announced earlier this month, although they still averaged 85.9 micrograms per cubic metre, more than three times the internationally recommended limit.

India bans burning cow dung near yellowing Taj Mahal

Source : DAWN

Date: 14th January , 2015

NEW DELHI: India has banned the burning of cow dung near the Taj Mahal amid fears the famed white-marbled mausoleum was turning yellow from air pollution, an official said on Tuesday.



Authorities have long struggled to control the impact of pollution on the stunning 17th-century monument to love in the northern city of Agra, which attracts millions of tourists each year.

The ban on Agra residents burning cow dung, a common fuel source, is aimed at reducing carbon deposits on the Taj's walls, spires and domes, said Pradeep Bhatnagar, chairman of the area known as the Taj Zone.

"From time to time there are concerns that the colour of the Taj is changing," said Bhatnagar said.

"So at a recent meeting it was decided that there should be a ban on burning cow dung fuel within the city limits.

“There is an aesthetic aspect to it as well.

We don’t want the city’s walls to be plastered with cow dung,” he said.

Dried cow dung is commonly used in rural areas as a cheap source of fuel for heating and cooking. Women knead fresh dung into melon-size balls before flattening them against walls to dry — a common sight throughout India.

A recent study into the discolouration of the monument by experts from United States and Indian universities and the Archaeological Survey of India, found that dust was to blame for the majority of the yellowing, with carbon deposits were responsible for the rest.



We couldn’t have done much about the dust but we decided to plug the source for the carbon particulate matter which was the burning of organic matter,” Bhatnagar said.

Bhatnagar said Agra residents would now be encouraged to use cleaner fuel, adding that they would be given gas connections.

Trucks using diesel will also be asked to switch to compressed natural gas by July, local media reported.

The ban comes after an air quality monitoring system was set up near the Taj.

In 1996 the Supreme Court banned use of coal by industries located within a 10,400-square kilometre zone around the monument.

The Unesco world heritage site was built by Mughal emperor Shah Jahan as a tomb for his beloved empress, Mumtaz Mahal, who died during childbirth in 1631.

Tax diesel vehicles in Delhi to check pollution: Sunita Narain

Source : Zee News

Date: 14th January , 2015

New Delhi: With diesel vehicles being biggest source of air pollution in Delhi, noted environmentalist Sunita Narain Wednesday said there was a need to heavily tax such vehicles in the national capital.

With crude oil prices fallen below USD 50 per barrel, now is the right time for the

government to implement second generation reforms to control pollution, she said, adding that pollution in Delhi was growing and road speeds were also down because private cars take up 90 per cent of road space.

"Even after introduction of CNG vehicles in 1999, the pollution levels have increased due to unabated rise in number of vehicles in the city. So, second generation measures are required to address the problem of pollution," Narain said while speaking on the topic 'Smart cities need clean air'.

Suggesting four steps to fix air pollution in Delhi, she said the government should ban use of diesel vehicles by taxing heavily and stop use of such vehicles during smog.

"Diesel and petrol differential remains because of tax. Diesel is classified class 1 carcinogen by the WHO same class as tobacco. We allow its use without restraints. We need to stop dieselisation of vehicles," said Narain, Director General at the Centre for Science and Environment.

Stating other countries are already taking steps to curb use of diesel vehicles, she said France has decided to phase out diesel cars, Chinese cities like Beijing and Shanghai as well as Brazil do not allow diesel cars.

That apart, neighbouring Sri Lanka has discouraged diesel cars with tax measures, she added.

Besides, Narain said there was a need to build public awareness about health impacts as diesel fuel contains fine particles associated with negative health effects.

Quoting the 2012 epidemiological study conducted on children in Delhi, she said, "Every third child has reduced lung function. Sputum of Delhi's children contains four times more iron-laden macrophages than those from cleaner environments, indicating pulmonary hemorrhage."

She also suggested "drastic and urgent improvement in quality of fuel/vehicle technology" and giving "push for public transport, mobility transition and right to walk for clean air" to address the problem of air pollution.

Back to nature: Turn your home into a healthy zone

Source : *Hindustan Times*

Date: 14th January , 2015

Air pollution is a big killer in India. Just like outdoor pollution, indoor air pollution can be deadly too, with a wide variety of toxic chemicals lurking in your home!



According to a survey by World Health Organisation, indoor pollution in India caused 34% stroke, 26% heart disease, 22% COPD, 12% acute lower respiratory infections in children and 6% lung cancer fatalities which eventually lead to death. Woman protecting herself from the hazards of air pollution (Photo: Shutterstock) It's time you stopped living in fear. Here are a few DIY ideas to turn your home into a healthy zone. Make an herb garden. In 2014, a study by University of California warned that air pollution in India had a direct, negative impact on grain production.

Analysing three decades of data, scientists found that in

densely populated states wheat yields were 50% lower than what they could have been in 2010.

You may argue that you are not into crop cultivation, and therefore, by extension, you need not bother about this figure. Right? Wrong. Air pollution impacts all, and you'll do yourself a world of good by giving yourself a protective shield with an herb garden. How to do it

First things first! Keep in mind what kind of light comes into your home and its intensity.

The best way to make a herb garden at home is to take one rectangular pot and fill the base with 1 inch of gravel. Then, cover the pot with 5 inches of well-drained soil/vermi compost.

What to plant

Suggests Shaan Lalwani, director of Vriksha Nursery in Mumbai: "If you have 2-3 hours of light indoors, then you can grow rosemary, oregano and curry leaves. For areas that have natural sunlight for around 3-5 hours, plants like thyme, tarragon and chives are the best."

Mamta Bargale, founder of Bengaluru's Orchid Tree, adds Italian basil, mint and cilantro to the list.

"These three plants are easy to grow and are pretty useful in the kitchen too. You can use them for their strong aromatic properties -- garnish your food with them, mix them with juices/cocktails or simply use them whole," she says.



Make yourself an herb garden (Photo: Vriksha Nursery)

Another favourite with horticulturists is Stevia Rebaudiana. Says Ashish Lakhnarpal, founder of The Plant Studio in Delhi: "Stevia works as a natural sweetener and is very good if you have diabetes running in the

family. It can also help you control your blood pressure level."

Why is it helpful

- * Basil contains high quantities of (E)-beta-caryophyllene which is useful in treating arthritis and inflammatory bowel diseases.
- * Oregano that contains high amounts of omega-3, iron, manganese and antioxidants can help treat respiratory tract disorders, gastrointestinal disorders, menstrual cramps, urinary tract disorders and a number of skin conditions.
- * Rich in antioxidant properties, curry leaves can control diarrhea, indigestion, excessive acid secretion, peptic ulcers, and diabetes.
- * Mint helps with digestion, nausea and headaches, asthma, depression and fatigue, cough and respiratory problem.
- * The antimicrobial properties of cilantro can help you detoxify. These days a lot of diets have juices and drinks that include cilantro.
- * Rich in Vitamin A and antioxidants, thyme protects from colon cancer, breast cancer, food-borne bacteria, hypertension, stomach ache and arthritis.



* Rich in potassium and the Vitamin A, tarragon is good for overall eye health and heart health. It also acts as an effective remedy against toothache.

*This nutrient dense food can help fight prostate, esophageal and stomach cancer.

Keep your rooms purified

Did you know that formaldehyde, a volatile organic compound emitted in low levels by a variety of household products and furniture, may trigger asthma attacks and allergic reactions when present in high levels?

The good news is, you can get rid of it easily. You have a green tool at your disposal! Sansevieria Trifasciata, commonly known as Snakeplant (Photo: Shutterstock). Though all plants are good air purifiers, there are some which do it more effectively.

Plants like peace lily (spathiphyllum), weeping wig (ficus bengemina), fall guy (dracaena magenta), philodendron oxycardium are recommended.

Says Lalwani: "We have set up some of these air-purifying plants in several hospitals, offices and homes across Mumbai and we have got positive feedbacks. Many people say that plants like peace lily and ficus bengemina have helped them reduce stress levels. In fact, people with asthma have noted a decrease in attacks around these plants." Adds Lakhanpal: "Sansevieria Trifasciata, also known as Snakeplant, is my first choice. Mostly because this plant thrives on its own and is very effective in reducing levels of vehicular pollution. The

best part is that it emits oxygen at night."
Other air-purifying plants



- * Dwarf Umbrella Tree (Schefflera)
- * Moth Orchid (Phalaenopsis)
- * Chinese Evergreen (Aglaonema)
- * Areca Palm (Dypsis lutescens)
- * ZZ plant (Zamioculcas)

Plants you should keep handy"Ashwagandha, or indian gooseberry, is a must have. It has multiple benefits and is good for arthritis, anxiety, insomnia, tumours, tuberculosis, asthma, leukoderma, bronchitis, backache, fibromyalgia, menstrual problems, hiccups,

and chronic liver disease," says Lalwani.

Ashwagandha is known for its medicinal properties- it's good for arthritis, anxiety, insomnia

Here are a few other good options you could consider.

* Aloe vera is a good first aid for burns and skin infections. It is also effective against dandruff.

* Adusol can help you keep your cough and cold in check.

* Basil (Tulsi) can cure respiratory problem, help fight cancer, diabetes and protect the heart.

* Rosemary can boost your memory and can also as a strong anti-oxidant.

However, Bargale swears by Dendrobium (a huge genus of orchids). "It is good for de-stressing and can also be used to treat stomach pain, heatstroke, dry mouth and sores in the mouth," the orchid enthusiast says.

Keep pests at bay

Make worry a thing of the past! Roam around stress and insect free in your house with these plants around:



Euphorbia Thiruchillii: Commonly known as pencil euphorbia, this plant has been used by the Portuguese for centuries to ward off rats. The sap in the plant is highly alkaloid that causes the rats to die.

Citronella grass is one of the best mosquito repellants (Photo: Shutterstock)

Pityopsis ruthi: Pityopsis ruthii commonly known as rutha, a small olive green shrub with pretty yellow flowers works like a dream in keeping cockroaches, lizards and fleas away. **Citronella grass:** It is one of the best

mosquito repellants. Just plant them in your garden and you will notice a drop in the number of mosquitoes.

Note: Children living in polluted cities have higher chances of developing brain inflammation and neurodegenerative changes that raise the risk of diseases such as Alzheimer's or Parkinson's. Pledge to keep your surroundings and indoors healthy.

State maintains low-grade campaign to end Indian Point

Source : *Capital Newyork*

Date: 14th January , 2015



ALBANY—Andrew Cuomo once called Westchester's Indian Point nuclear facility a “catastrophe waiting to happen,” and included a section on why it should be closed in his 2010 campaign literature.

In 2011, the Times reported that one of Cuomo's top advisers told officials of the company that owns Indian Point that the governor was determined to close it.

And that turned out to be something of a high-water mark, in terms of the administration's public campaign against Indian Point. Since then, the administration's efforts have become less dramatic and more incremental, pursuing talks with the facility's owners while waging a slow-moving legal battle seemingly designed to achieve leverage ahead of an eventual deal with the company and federal regulatory authorities.

This week, in a move that typifies the administration's recent approach, the state appealed an appellate court ruling that Indian Point is grandfathered into the state's Coastal Management Plan, which protects the wildlife habitat and recreational activities on the river.

The ruling prevents the state from imposing an additional environmental review on the

plant, removing one of its only bits of leverage in its negotiations with Indian Point's owner, Entergy. (Only federal authorities have the power to license or unlicense nuclear facilities, but states can make it difficult for plants to operate profitably through aggressive regulation.) The appeal could send the case to the state's highest court.

At the same time, Cuomo administration officials have had ongoing meetings with Entergy officials, including as recently as last month, public schedules show. And the state's Public Service Commission has for the past year explored contingency energy plans that don't include Indian Point.

While Entergy's C.E.O. Leo Denault recently said the company could agree to an early closure of the plant if state officials could guarantee the "proper compensation," the two sides have failed to reach an agreement.

The coastal contingency plan is a potentially powerful chit for New York officials to use in bargaining with Indian Point over its closure, since the federal Clean Water Act gives states control over water quality issues.

The licenses for the plant's reactors have expired and it applied for a 20-year re-licensing in 2007. Last year, state officials floated the possibility of protecting wildlife species by shutting Indian Point during the summer months—which would essentially erase its profitability—during the separate ongoing negotiations over its water withdrawal certificate required as part of its re-licensing. The state also wants Indian Point to install cooling towers that would cost hundreds of millions of dollars to mitigate harm to wildlife when the plant sucks in billions of gallons of Hudson River water to cool its turbines.

But aside from the possibility of additional regulation, pending a possible Court of Appeals' hearing of the state's case, it's not clear what the administration's options are for the near term.

Notwithstanding the state's ongoing studies of alternatives to Indian Point, in meetings between state officials and Entergy representatives early last month, P.S.C. chairwoman Audrey Zibelman offered no other significant alternatives and indicated that the state was waiting for someone from the Cuomo administration to make a decision, according to multiple sources with knowledge of the talks.

And tough new rules from the federal Environmental Protection Agency on power plant emissions will make closing Indian Point that much harder, if the state is to do so and still meet its other environmental goals.

New York must reduce its greenhouse gas emissions 38 percent by 2030 and the emissions-free power produced by Indian Point won't easily be replaced by plants that burn coal, natural gas or oil. Indian Point produces 2,000 megawatts of power, about a quarter of the

demand of New York City and Westchester County.

A state Department of Environmental Conservation spokesman did not respond to request for comment. A state Public Service Commission spokesman said the Indian Point contingency plan was on track.

The Nuclear Regulatory Commission is not expected to make a final decision on the relicensing until 2018. The license for Indian Point's reactor 2 expired in 2013 and the license for reactor 3 expires at the end of this year.

Entergy vice president Mike Twomey said the state appeal of the appellate court ruling on the Coastal Management Plan was expected. He acknowledged that Entergy faced more challenges in its bid for a new license, but was confident a renewal would eventually be granted.

"We believe that we share the governor's objectives on a number of issues such as ensuring a reliable electric system in New York, protecting the environment and ensuring that people can afford their electric bills," he said. "The only disagreement we have is whether Indian Point should be part of that electric grid that is affordable reliable and sustainable."

New report looks into India's water and air purifier industry competition and market share report to 2019

Source : Whatech

Date: 13th January , 2015

India water and air purifier market report provides statistics on market size, volume sales, segmentation and market share analysis of RO purifier, UV purifier, Inline Purifier, Offline Purifier Market.

Eureka Forbes is expected to maintain focus on Emerging Markets in small towns and villages to compete with other players in the industry such as Hindustan Unilever Limited and Tata Swach which has performed well in the rural areas and small towns.

The air purifier market in India is still at its nascent stages with revenues expected to register an astonishing CAGR of 40.1% during FY'2014-FY'2019

Air purifier market in India is expected to rise in the forthcoming years due to increasing awareness level and rising air pollution.

Eureka Forbes followed by Daikin India are the market leaders in the air purifier industry in India.

Ken Research announced its latest publication on "India Water and Air Purifier Market Outlook to 2019" which provides a comprehensive analysis of the water and air purifier industry in India. The report covers various aspects such as market size of water and air purifier market in terms of revenue, segmentation on the basis of region wise demand, by

end users in water and air purifier market; by types of water and air purifiers; by types of distribution channel and by organizational structure in water purifier market. This report will help industry consultants, water and air purifier startup companies and other stakeholders to align their market centric strategies according to ongoing and expected trends in the future.

Water and Air Purifier Market India The water purifier market in India has witnessed a growth in recent years on account of rising awareness and the increasing water pollution in the country. The surge in growth of the industry is majorly originated from growth in the organized sector and the availability of affordable purifiers. The growth in the water purifier market has been largely led by the increase in water pollution and the lack of fresh water supply by municipalities. India water purifier market is comprised of large companies such as Eureka Forbes, Kent RO, Hindustan Unilever and Tata which posses the maximum market share in the organized sector. The water purifier market in terms of revenues has grown at a CAGR of 25.4% from FY'2010-FY'2014. The air purifier industry has been in nascent stages due to lack of awareness among people about the harmful effects of breathing polluted air and the lack of intensive marketing from the companies. The CAGR for the period FY'2010-FY'2014 for air purifiers was evaluated at 33.4%.

According to the research report, the air and water purifier market in India will grow at a considerable rate due to the increasing awareness among people and the rising spending power of people.

“While rising disposable incomes, increase in water pollution and the growth of the organized sector will result in tightening of water supply standards from the municipal authorities; increase in the standardization of products manufactured by the companies and the strengthening of the weak distribution channels adopted by the companies which are some of the few major challenges will affect the growth of this industry in the future. The air purifier market on the other hand is still developing from the early stages and is expected to boom in the coming 5-10 years due to rising air pollution and increase in awareness among people” according to the Research Associate, Ken Research.

Key Topics Covered in the Water Purifier Report:

Water Purifier Industry

-Market Size by Revenue and Volume sold

-Market Segmentation by

Region Wise Demand

End Users

Types of Water Purifiers

Types of Distribution Channel
 Organized and Unorganized Market
 -Trends and Development
 -Export and Import of Water Purifiers
 -SWOT , Porter's Five Forces
 -Major Challenges
 -Government Regulations
 -Growth Drivers
 -Competitive landscape
 -Competition and Market Share
 -Future Outlook
 -Macro Economic Parameters

Pollution mislead slur on govt

Source : *The Telegraph*

Date: 9th January , 2015

New Delhi: A non-government environmental organisation has accused the Union environment and forests ministry of misleading the Supreme Court by claiming that vehicles contribute only a small proportion of air pollution in the capital.

The ministry had filed an affidavit this week that claimed that vehicles contribute only 6.6 per cent of particulate matter (PM), tiny soot-like particles that can penetrate the lungs and at excess levels cause respiratory distress.

The environment ministry affidavit has attributed air pollution to dust from roads and construction activities, claiming that industry and power plants are responsible for 78 per cent of nitrogen oxides and 95 per cent of sulphur dioxide in the capital's air.

The Centre for Science and Environment (CSE) has questioned these claims. "We are deeply shocked at the callous and indifferent attitude of the ministry towards one of the most serious health crises looming in Delhi and other cities of India," Sunita Narain, the CSE director general, said in a media release.

The environmental NGO that has long been campaigning for government measures to curb the growth of vehicular traffic, particularly private vehicles, has said the ministry's affidavit appears intended to play down the role of vehicles.

"This (affidavit) protects the automobile industry and car users as combating vehicular

pollution requires tough measures to restrain cars, encourage public transport and leapfrog vehicle technology," said Anumita Roychowdhury, the CSE executive director and head of the air pollution campaign. The CSE says there is abundant evidence, including Central Pollution Control Board observations, to link traffic with air pollution.

The CSE has said the ministry has assessed only the inventory of PM10 (particles less than 10 micrometres in size) and ignored PM2.5 (particles less than 2.5 micrometres in size) that can penetrate deep into the lungs and are a greater danger to human health.

The ministry filed the affidavit in response to a notice issued by the Supreme Court asking for government action to curb air pollution. An analysis by the CSE has shown that pollution levels are lower when traffic density on the roads is lower.

The CSE has pointed out that the ministry had in 2009 conducted its own study carried out by the School of Environmental Sciences at the Jawaharlal Nehru University, New Delhi, which had said vehicles contributed at least 60 per cent of PM at at least five busy sites in the capital.

The ministry has used another study by the National Environmental Engineering Research Institute, Nagpur, to claim vehicles do not contribute much to air pollution. But Roychowdhury claims that study was based on a flawed methodology.

The CSE has cited air pollution data from Delhi and Bangalore as evidence to support its argument that pollution levels drop on holidays when traffic density is lower than on working days. The PM2.5 levels, for example, on January 26, 2013, was 140 microgrammes per cubic metre, but jumped to 187 on January 27 and 216 on January 29.

Houses, vehicles pollute as much as factories: Scientists

Source : DNA

Date: 8^h January , 2015

An IIT-Bombay professor has debunked the myth that industrial effluents are the chief cause of air pollution.

Environment science professor Virendra Sethi, in his paper 'Air Quality: Status and Management' cites pollution generated from homes and vehicles as an equally worrisome factor.

What the research reveals.

Citing his research work in Chandrapur district of the state, Sethi told the Indian Science Congress, "Chandrapur was the fourth most polluted city in thhe state, and despite all efforts to curb industrial pollution, in three years it became the second most polluted city. Our survey found that a large number of households are using coal as fuel since it is being collected illegally from the trucks which go to the Chandrapur thermal power station. The

coal chulha pours huge amounts of polluted air in the area."

What makes houses a source of pollution



The IIT-B study found air quality to be poor even when the thermal power station - mainly thought to contribute to pollution - was shut during April-June. "As compared to the thermal plant, only 0.1% coal is being used in homes, but the release of hazardous smoke is very high compared to the plant, which has systems to restrict the pollution."

Additional factors that contaminate air

Sethi also pointed to vehicular growth and poor road conditions as factors for pollution. He said the government must look into these aspects, besides nailing industries that don't follow environmental norms.

Domestic units generate 70% sewage too

Environment consultant Deepak Kantawala also highlighted that 70% of sewage in India comes from domestic sources and involves a huge amount of water waste. "Out of 150 litre of water supplied to each citizen, 120 litre goes into sewage, which is a misuse of both water and resources. We must look at the dry toilets developed by DRDO, instead of the flushing ones, besides trying out decentralized treatment plants using bio-cultures and solar power to reduce the sewage collection and transport cost, which takes up 70% of the sewage treatment budget."

Sewage also affects water bodies. Scientists also said that due to insufficient resources, over 24,000 MLD (million liters a day) of untreated water is dumped into water bodies every year, which is worsening the quality of water in the country by the day. Scientists also urged the government to use the satellite to monitor the air quality rather than establishing the costly monitoring systems at every place. "Satellites, especially the geostationary PSLV launched recently, are automated and give a correct comparative picture of air pollution across cities, urban areas or regions," said professor Sethi.

Shifting industries out of state capital

Source : *The Hans India*

Date: 8th January , 2015

Like previous governments of the united Andhra Pradesh, the TRS government has also come up with a plan to relocate industries from Hyderabad city limits to the outskirts. It is surely a welcome decision, but whether it can implement the decision in letter and spirit is to be seen.

Addressing industrialists at a meet, Telangana Industries Minister J Krishna Rao said that the government was seriously thinking of moving industries from the city, but quickly added that it would not apply the rule to all in haste.

In fact, earlier governments resorted to such actions, albeit under pressure from NGOs and pollution control agencies, but the end result was no relief to common man. For instance, about a decade ago, the then Telugu Desam government tried to shift VST Ltd owing to air pollution. However, the company implemented precautionary measures ordered by the pollution control board and secured permissions to continue to operate its cigarette factory with full capacity.

Interestingly, this time the government may follow the carrot and stick policy. It is contemplating to permit the industry to use the land for other purposes and relocate the factory to the outskirts of the city.

As the city has been rapidly expanding in the last one decade, there is a need for relocating industries – whether they are polluting or not. Most of the industrial estates within the city were enveloped by residential and commercial areas. The government could not find enough land in the city for expansion, and hence the decision to move out the industrial estates.

TRS government claims that it has identified enough land parcels around city, which may be offered to the industry to relocate factory with an option to expand. As an industrialist puts it, it will benefit industry to unlock the value of land, while the residents will be relieved of pollution and hardships due to the factories. The government also gets sizable revenue in the process.

In some cases, even the earlier governments successfully implemented this plan. In fact, the earlier government identified as many as 45 locations outside the outer ring road (ORR) for relocating industrial parks. It planned to partially or fully relocate about 13 industrial estates. It relocated about 150 electroplating units in Balanagar industrial estate to Automotive Industrial Park in Toopran.

About 50 per cent of the industries in Sanathnagar have already moved to Adibatla and

other localities. Similarly, oil and steel factories in Kattedan are being moved to Zaheerabad. Moreover, as per the new master plan of Hyderabad Municipal Development Authority, no new industries are allowed along the ORR. It has identified about 210 locations where such industries can be shifted. Thus, one should welcome the move as it will help people live in industrial pollution-free city. This will also boost property values on the city outskirts, facilitating more investments.

For Obama, Indian parade may be a bit too breathtaking

Source : Reuters

Date: 8th January , 2015



(Reuters) - It may not rain on President Barack Obama's parade when he comes to New Delhi this month for India's Republic Day celebrations at the invitation of Prime Minister Narendra Modi.

But, judging by the smog cloaking the Indian capital on Thursday as motorcycle stunt men rehearsed for the Jan. 26 event, the city's notorious air pollution could be a

problem.

The U.S. embassy denied media reports that the outdoor program for Obama's visit, his second after a trip in 2010, would be curtailed if the bad air persisted.

The embassy's monitoring station recorded an Air Quality Index reading of 252 on Thursday, making the city's air "very unhealthy", according to a scale devised by the Environmental Protection Agency.

That's enough, the EPA says, to cause "significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly," and a "significant increase in respiratory effects in the general population."

Weather forecasters expect the index reading to be around 200 when Obama visits, in line with recent years, although accurate predictions will not be available until three or four days before.

Indian defense and foreign ministry officials say there are no plans to change the parade, a military-dominated affair which stretches from the president's palace to India Gate, a memorial to unknown soldiers.

"We are importing special masks for all," joked one. "We can give you one too."

Obama's attendance will be a first for a U.S. president at an event more closely associated with India's non-aligned past and friendship with the Soviet Union.

In 2010, the event was wreathed in thick fog that obscured the view for the guest of honor, the then president of South Korea.

Oil slump heightens pollution challenge from Delhi to Shanghai

Source : *Live Mint*

Date: 7th January , 2015



Hong Kong/Mumbai/New Delh: A brisk walk in India's capital New Delhi on Christmas Eve was rated 'hazardous' to health, while a similar stroll in the Chinese city of Shanghai was ranked 'unhealthy.' Two of Asia's biggest cities with the same problem: air pollution. This year, it could get worse. As the plunge in oil prices filters through to lower costs at the gasoline and diesel pump, more cars, buses and trucks will be on the roads adding to the smog, warns researcher Anumita Roy Chowdhury, executive director at the Centre for Science and Environment in New Delhi. The lower oil price brings the problem, but also holds a solution, she says. "The need of the hour is not to fully pass on the benefits of falling crude oil prices to the consumers, but to create a fund that can be used in building infrastructure to produce cleaner fuel and also implement better emission norms." Brent crude, a benchmark for more than half of the world's oil, dropped 48% last year causing pump prices to fall by as much as 14% in India and 23% in China. In November, both countries acted to try and slow the price decline by raising taxes on transportation fuels. India increased taxes on gasoline and diesel, the fuel blamed for the worst of Delhi's air pollution, twice again since November. China raised taxes on a range of fuels, including gasoline and diesel. "Too low a price in gasoline and diesel will only spur demand and

consumption and may cause some direct setbacks to our goal to cut emissions,” Yin Zhongqing of the National People’s Congress said in Beijing on 16 December. “I think people may live with higher taxes in exchange for better air quality.” China’s ministry of finance echoed this view in a statement in November, adding that a “suitable price” will not only curb pollution, but also help develop renewable energy industries. So far, the fuel taxes don’t seem high enough to achieve those goals. China’s gasoline sales in November grew 16 percent on year. Diesel rose 3%. In India, consumption of diesel—which outsells gasoline by four times—rose 3.4% to 6 million tonnes (mt) in November from a year earlier. Part of the difficulty for India is it freed diesel prices from state control mid-October. Refiners cut retail prices by Rs.3.37 a litre immediately after that. Indian Oil Corp. Ltd, the nation’s biggest refiner, has cut prices another three times since then and the government has raised taxes on diesel by Rs.4.5 a litre. The preference for diesel in India makes the health issue more acute. Vehicles running on the fuel aren’t required to use equipment mandated in Europe to scrub exhaust gases of lethal particle emissions. Diesel engines emit a pollutant known as PM2.5, or airborne particles and liquid droplets measuring less than 2.5 micrometers or one-thirtieth the width of a strand of hair. Because of their size, they penetrate deep into the lungs and pass into the blood stream, according to the US Environmental Protection Agency. In October 2013, the World Health Organization classified PM2.5 as a Group 1 carcinogen, similar to asbestos and tobacco. Short-term spikes can kill, triggering strokes, heart failure and asthma attacks, according to the American Lung Association. “Diesel consumption has only increased in the past year and as more bigger vehicles are being sold today we think the fuel efficiency of the system will go down causing more pollution.” said Sumit Sharma, a fellow at The Energy and Resources Institute in New Delhi. “More vehicles, absence of any stringent measure by the government in the past one year means the pollution levels will only increase.”

Pollution challenge for India, China grows as oil price sinks

Source : *Toaday*

Date: 6th January , 2015

MUMBAI — A brisk walk in India’s capital New Delhi on Christmas Eve was rated hazardous to health, while a similar stroll in the Chinese city of Shanghai was ranked unhealthy. Two of Asia’s biggest cities have the same problem: Air pollution.

This year, it could get worse. As the plunge in oil prices filters through to lower costs at the petrol and diesel pump, more cars, buses and trucks will be on the roads adding to the smog, warned researcher Anumita Roy Chowdhury, executive director of the Centre for Science and Environment in New Delhi.

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In India, consumption of diesel, which outsells petrol by four times, rose 3.4 per cent to six million tonnes in November from a year earlier.

Part of the difficulty for India is that it freed diesel prices from state control in mid-October. Refiners cut retail prices by 3.37 rupees a litre immediately after that. Indian Oil, the nation’s biggest refiner, has cut prices another three times since then and the government has raised taxes on diesel by 4.5 rupees a litre.

The preference for diesel in India makes the health issue more acute. Vehicles running on the fuel are not required to use equipment mandated in Europe to scrub exhaust gases of lethal particle emissions.

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Regulating Air Pollution from Coal-Fired Power Plants in India

Source : *Economic & Political Weekly*

Date: 3rd January , 2015

Coal remains the main fossil fuel for power generation in India. The health impacts of air pollution from these coal-fired power plants include numerous premature deaths and frequent asthma attacks. In the future, the amount of power generated from coal will remain high, at least through 2030, and unless we find a better way to manage these power plants, the environmental effects of growing air pollution, greenhouse gas emissions and the cost to human health will all be high.

Cleared 650 Projects in 7 months, Environment Minister Prakash Javadekar Tells NDTV

Source : *NDTV*

Date: 2nd January , 2015

NEW DELHI: Environment Minister Prakash Javadekar says his ministry has handed out 650 green clearances since the new government came to power in May, and this will fast-track projects worth thousands of crores.

"We are giving clearances without even looking at the faces of project promoters," Mr Javadekar said in an interview to NDTV.

There is a "drastic shift" from the policies of the previous Congress-led government when the environment ministry was seen as roadblock to projects, he said, adding, ""The entire functioning of the ministry has changed."

The previous government battled criticism for projects blocked over environmental

approvals; Jayanthi Natrajan had stepped down as Environment Minister amid allegations that she had held back clearances. Taking digs at her while campaigning for the national election, Prime Minister Narendra Modi had repeatedly alleged that a "Jayanthi Tax" had to be paid to push files.

Prakash Javadekar said under him, the ministry was working faster as there is no agenda.

"We have been able to fast track clearances as we have no personal agenda and we are no longer putting up impractical conditions," the minister said, adding that he was personally monitoring all the files.

"We have cleared projects that had been stuck for many years," he told NDTV.

Taking the example of the National Wildlife Board, he said, "The Board met after many years. But we took 130 decisions in a single day."

Mr Javadekar's ministry has recently been criticized for giving out too many clearances at the cost of the environment. "No compromise has been made in a single case. We are protecting the environment. Our philosophy is development without destruction," the minister said.

He shared that the government is preparing to put in place a new green architecture this year by making changes to environment laws and making the system of clearances transparent.

Pollution Turning India's Famed Taj Mahal Yellow

Source : *Voice of America*

Date: 2nd January , 2015

A new study has identified the pollutants that are causing the marble of India's iconic Taj Mahal to turn yellow. The discoloration of the white marble has long been a concern, but the latest study could help in drawing up more targeted measures to protect the 360-year-old famed monument of love.

Researchers say years of burning fossil fuels, biomass and garbage as well as dust has left behind carbon deposits which are turning the white marble dome and minarets of the Taj Mahal brownish yellow.

The 17th century monument is located in the busy, industrial city of Agra in northern India. Many have long blamed air pollution for discoloring the famed monument, but the year-long study by two American universities – the Georgia Institute of Technology and the University of Wisconsin – the Indian Institute of Technology at Kanpur, and the Archeological Survey of India have identified the specific causes.

Researchers placed small samples of pristine marble on the Taj Mahal, left them there for two months, and then analyzed the particles deposited on their surfaces.

Fossil fuels, biomass burning to blame

One of the study authors, Professor S.N. Tripathi at the Indian Institute of Technology at Kanpur, said the particles come from multiple sources.

“We have [an] increasing fleet of diesel vehicles nowadays in cities, large vehicles, trucks, that’s number one,” he said. “And that is a major emission source for black carbon and organic carbon. But biomass burning – particularly the season now – we are seeing people, when they feel cold, they burn any kind of stuff. People, maybe in houses, they are burning just wood etc., but outside the people are burning cow dung and different kinds of trash. Burning is also a major source of organic carbon.”

Activists have warned for several years that Agra's air pollution is making the Taj lose its sheen.

Over the last decade authorities have banned vehicles within 500 meters of the monument. Efforts have also been made to supply clean fuel to industries and improve the power supply to lessen the impact of diesel generators.

But despite these measures, a 2010 study found that the relentless growth of industry, population and traffic have only worsened air pollution in Agra.

Targeted protection needed

Preservationists are stressing the need for more targeted protection of the monument.

Conservationist Ratish Nanda in New Delhi said some weathering is to be expected in a monument that is over 360 years old. He believes that the single issue of discoloration should not be blown out of proportion.

Nanda stressed, however, the need for more far more intensive monitoring and greater involvement of the scientific community, and more funding to protect the Taj.

“There are lot of studies which are saying that is the discoloration happening and how it is happening, but there is absolutely no real work on what to do to prevent it,” he said. “The whole preservation mechanism of the Taj Mahal needs to change... Absolutely the one thing that is absolutely essential is to put in a regime of conservation, that whatever cleaning is done, should be sensitive and have no long term impact.”

Since 1994, authorities have been giving the monument mud pack treatments to remove the pollution stains. Modelled on a centuries-old beauty treatment used by women, it involves plastering the Taj’s surface with lime-rich clay and then peeling it off. The monument received the treatment for the fourth time in June last year, but experts warn this too could have unwanted side effects.

In 2013, nearly 6 million people visited the monument, which is considered one of the finest examples of Mughal art and architecture in India.

Pollution turning Taj Mahal yellow: Study

Source : *The Times of India*

Date: 2nd January , 2015

NEW DELHI: India's white marvel, the Taj Mahal, is slowly turning brownish-yellow because of air pollution, says an Indo-US study which also identifies the pollutants responsible for the effect. It says Taj is changing colour due to deposition of dust and carbon-containing particles emitted in the burning of fossil fuels, biomass and garbage. The study confirms what has been suspected for long — that Agra's poor air quality is impacting India's most celebrated monument. The reeseach was conducted by experts from US universities — Georgia Institute of Technology and University of Wisconsin — as well as Indian Institute of Technology, Kanpur and Archaeological Survey of India. The paper was published in the Environmental Science & Technology journal in December.

The findings can lead to targeted strategies to curb air pollution in and around Agra and more effective ways to cleanse the marble surface of the 366-year-old mausoleum, which remains by far the most visited man-made structure in the country with footfalls of more than 6 million in 2013. The researchers first analysed air samples at the site for roughly a year using filters and found high concentrations of suspended particles that could potentially discolour Taj's surface.

Clean marble samples were then placed at various points on the monument accessible only to ASI staff. After two months of exposure, the samples were analysed using electron microscope and X-ray spectroscope. The pollutants deposited on the marble were identified through these investigations. Researchers found 3% of the deposits to be black carbon, around 30% organic carbon (or brown carbon) and most of the rest dust. Black carbon is emitted by vehicles and other machines that burn fossil fuels. Brown carbon is typically released through burning of biomass and garbage, a common practice in the region.

S N Tripathi of IIT Kanpur, one of the authors, said the team then used a novel approach to estimate how these deposited particles would impact light reflecting off the marble surface. "We found that black carbon gives a greyish colour to the surface while the presence of brown carbon and dust results in yellowish-brown hues," he said. "Results indicate that deposited light absorbing dust and carbonaceous particles are responsible for the surface discolouration of the Taj Mahal," the study concludes. Since 2008, ASI has been trying to fight the yellowing of the monument by giving it a clay pack treatment using the lime-rich Fuller's earth (Multani mitti) to clean the marble surface. Researchers are now keen on studying the efficacy of this method and finding ways of improving it.

"Now that we know what's causing the yellowing, the focus should now shift to undoing the effect," Tripathi said.

No conflict between development and protecting environment, says Pachauri

Source : *Business Line*

Date: 31st December, 2014

India has a serious problem of energy security and pollution at the local level. And all of that can be met by moving toward renewable energy in a big way

India has to be ready for higher environmental targets, says RK Pachauri, Director General of The Energy and Resources Institute and Chair of the Intergovernmental Panel on Climate Change (IPCC). In an interview with BusinessLine, Pachauri talks about the benefits of moving aggressively towards renewable energy. Edited excerpts:

As a member of the PM's council on Climate Change, what are your recommendations?

What I would like to see is that we adapt to the impact of climate change that is going to progressively get more serious.

Then, of course, you have impacts on agriculture, human health, water resources, and the problem of rising sea-levels. Each one of these will require adaptation strategies to see there is no major economic impact on the society. My submission would be that we need to revisit those missions since these were formulated about four years ago and find institutional means by which they get implemented.

Would you say we also need to revisit our targets?

Absolutely. If you look at the solar energy mission, the target for 2021-22 was 20,000 MW of solar capacity. This should be increased substantially, because there are huge co-benefits from doing that. This country has a serious problem of energy security and pollution at the local level. And all of that can be met by moving toward renewable energy in a big way.

At the international level, however, there is a feeling that India is trying to keep those targets low.

The fact is that if 100,000 MW solar power is in India's interest, then we should tell the whole world that this is what we are doing.

And if some of the other targets can also be upped, say, energy efficiency, why not? Our automobile fleet is way behind in energy efficiency compared with Europe. Our Bharat standards are running far behind the Euro standards. I think we should close that gap because the technology is there.

How does that tie up with our developmental plans?

I don't see a conflict between protecting the environment and development. Yes, for

promoting industry and other activities, we can't bring about a sudden reversal of our energy mix.

But if we want to promote energy security, we have to go along the route of decentralised forms of renewable energy production.

Since India is the third-largest emitter, what kind of radical changes are possible at the grassroot levels?

In case of mitigation, there are huge co-benefits in lower levels of pollution at the local levels and much higher levels of energy security, which, perhaps, would generate more jobs.

You have a centralised power supply system that gives you x number of jobs.

If you have a decentralised renewable energy-based strategy, then the number of jobs per unit of energy produced will be substantially higher.

Can you tell us about IPCC's fifth assessment report?

One of the major findings we have in this report is the budget for Co2 emissions that are permissible, if we have to stick to a 2 degree Celsius limit on warming. This is an extremely powerful piece of information on the basis of which the world can see if we are doing enough to limit ourselves to this 2 degree Celsius increase or exceed it.

Tehran air pollution puts nearly 400 in hospital

Source : *The Times of India*

Date: 30th December, 2014

TEHRAN: Almost 400 people have been hospitalized with heart and respiratory problems caused by heavy air pollution in Tehran, with nearly 1,500 others requiring treatment, an official said on Tuesday.



Year round, more than four million cars spew exhaust fumes into the atmosphere of the Iranian capital. The situation worsens in winter, when cold air leads to a carcinogenic fog that blankets the city. The latest casualties were treated on Tuesday, according to Hassan Abbas, an emergency services manager quoted

by the official IRNA news agency.

"Some 392 people were admitted to hospital due to respiratory and heart problems," he said. "We treated another 1,434 externally."

Authorities are said to be considering school closures and the introduction of traffic restrictions for the whole capital tomorrow, although this has not yet been officially

confirmed. However, the sick and elderly have been asked to avoid city traffic due to the effects of breathing in a noxious mix of carbon monoxide, sulphur dioxide, nitrogen oxide and dirty rubber particles. The capital and other cities, including top tourist attraction Isfahan and the religious destination of Mashhad, have experienced pollution peaks in recent weeks. Tehran, with its population of 12 million people, is one of the most polluted cities in the world, partly because of an altitude ranging from 1,100-1,700 metres (3,600-5,600 feet) above sea level in a basin surrounded by mountains.

In addition, Iranian cars consume on average more than other countries, a situation made worse by some fuel being of low quality. Pollution peaks in winter are regularly caused by the climate inversion phenomenon, where cold air near the ground is trapped by warmer air above preventing pollution being dispersed over a bigger area. In 2012, pollution contributed to the premature deaths of 4,500 people in Tehran and about 80,000 in the country, according to the health ministry.

OSU researcher tracks health effects of air pollution around the world

Source : *Gazette - Times*

Date: 30th December, 2014



Perry Hystad has only been at Oregon State University for a little over a year, but the young epidemiologist is already making a name for himself.

This fall the 33-year-old Hystad was selected as one of 17 winners of an Early Independence Award by the National Institutes of Health, becoming the first OSU researcher to win the honor since it was established in 2011. In addition to conferring

a healthy measure of prestige, the award also comes with a substantial infusion of research funding: \$250,000 a year for up to five years.

Hystad will use the money to investigate the global health impacts of air pollution, which kills an estimated 3.2 million people a year.

“When people first look at this they say, ‘This can’t be real — the numbers are too high,’” he said. “But that’s because this is something everybody is exposed to.”

While the health effects of air pollution have been reduced in many developed countries such as the United States, Hystad’s research will provide some of the first hard data on pollution impacts in rapidly developing economies such as India and China.

He'll do that by joining the Prospective Urban and Rural Epidemiology Study. Launched in 2009 by a pair of researchers at McMaster University in Ontario, Canada, the PURE Study is the largest project of its kind in the world, with some 200,000 participants in 21 countries.

Each person enrolled in the study fills out a detailed questionnaire and undergoes a medical examination. Participants represent a cross-section of urban and rural residents of varying income levels from places as diverse as Canada and Colombia, Bangladesh and Brazil, Sweden and Zimbabwe. Individual health information is correlated with community- and national-level data, and participants will be tracked over a 12-year period to see how social, environmental and biological risk factors contribute to chronic health conditions such as cardiovascular disease, diabetes and cancer.

Hystad, a native of Canada (he's applying for a green card and still says things like "I've been working around the house"), learned about PURE while doing postgraduate work in epidemiology at the University of British Columbia and decided he wanted to get involved.

"When I first heard about this study, I thought, 'This can't be real — it's too big and the data is too detailed,'" Hystad recalled. "It's just this really big collaboration between lots of researchers." Hystad's NIH funding will help pay for things like pollution monitoring equipment and research assistants. He'll be looking at how both outdoor air pollution (from vehicle exhaust and industrial emissions) and indoor air pollution (from cooking and heating with coal, wood and other dirty fuels) contribute to serious health conditions among the study participants, such as heart attack, stroke, congestive heart failure and chronic obstructive pulmonary disease. While the data will come from a variety of settings around the globe, Hystad is particularly interested in what can be learned about conditions in places where economic development may be outpacing both environmental regulation and reliable scientific information. "We're going to be able to look at disease impacts related to really high levels of air pollution in India and China," he said. "If you look at the contributors to the global burden of disease, those two are right at the top."

However, Hystad cautions against viewing these countries as environmental villains, noting that many factories in China and India burn coal imported from Western countries to make products destined for Western consumers. He's hoping insights gleaned from his work will enable policymakers all over the world to develop new and more effective responses to air pollution. "We can't be looking at it on a region-by-region basis," he said. "It's really a global issue, and this is going to be the first study that's going to look at the impacts of air pollution on a global basis."

New Oregon State researcher tracks impact of air pollution around the globe

Source : *Daily Reporter*

Date: 30th December, 2014

CORVALLIS, Oregon — Perry Hystad has been at Oregon State University for only a little over a year, but the young epidemiologist is already making a name for himself.

This fall the 33-year-old Hystad was selected as one of 17 winners of an Early Independence Award by the National Institutes of Health, becoming the first OSU researcher to win the honor since it was established in 2011. In addition to conferring a healthy measure of prestige, the award also comes with a substantial infusion of research funding: \$250,000 a year for up to five years.

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Can Houseplants Really Clean the World's Smoggiest City?

Source : *National Geographic*

Date: 30th December, 2014

Kamal Meattle, CEO of Paharpur Business Centre in New Delhi, India, grows 400 plants in his office building's greenhouse to help clean its indoor air.

NEW DELHI—On the roof of an office building in India's capital, the world's smoggiest city, Kamal Meattle has a unique tactic for cleaning the air: a greenhouse with 400 common plants, including mother-in-law's tongue.

Meattle, the CEO of Paharpur Business Centre, has 800 other plants spread throughout its lower six floors, greening each room and hallway. Their job: remove soot and other chemicals from the often charcoal-colored outdoor air.

In India, where almost no one wears filter masks on the streets as many do in China, Meattle is seen as a radical. He says he's even been dubbed the Mad Hatter of Nehru Place, a high-tech hub that's home to his leafy building and an adjacent lot he converted from a slum into an oasis of 2,000 trees.

He uses rainwater collected in cisterns to spray the trees so they can grow faster and absorb more pollutants. He's urging India's new government to require rainwater

harvesting and to paint roofs, and buses, white. And he's pushing to build one of the world's largest energy-efficient office parks, complete with greenhouses.

Meattle hardly seems a firebrand. A soft-spoken grandfather, he's a scion of India's elite who attended school with Rajiv Gandhi and later earned a chemical engineering degree from the Massachusetts Institute of Technology. He sees his efforts, touted in a 2009 TED talk that's attracted more than two million views, as common sense.

"Sustainability is good business, and energy efficiency is low-hanging fruit," says Meattle, whose 25-year-old building was India's first to earn the top rating (in 2010) for a retrofit



from the U.S. Green Building Council. He says it uses one-fifth as much energy per square meter as the average office building in India. At least 10 percent of its energy savings is due to plants, which obviate the need to pump in ambient air.

His horticulture is also a practical nod to ancient tradition. "Why did Buddha sit under the peepul [or bodhi] tree?" he asks, adding that the sacred fig with heart-shaped leaves

releases oxygen even at night, allowing those beneath a light sleep.

Good Business—and a Health Imperative

As Meattle tells it, he really had no choice but to try something new. "My doctors told me to leave" India in 1992, he says, citing his reduced lung capacity because of the city's air pollution. He decided to stay, seeking instead to solve a society-wide problem that's become increasingly dire. (See related story: "In Climate Talks, Spotlight Turns to India.")



"Delhi's unfit for living between October and March," Meattle says, noting how often its air pollution veers into the "very unhealthy" or even "hazardous" category. The U.S. Embassy, which posts its air quality data on outdoor monitors, has issued warnings against letting kids play outside.

Smog envelops the landmark India Gate in New Delhi, the world's

smoggiest city.

In fact, New Delhi's smog is now nearly three times worse than Beijing's, the World Health Organization reported in May, based on measurements of fine particulates, or PM 2.5. The WHO found that the city had the world's dirtiest air, and the cities ranking second through fourth are also in India. (See related story: "What Step Is Crucial in Fighting Cities' Air Pollution?")

India's indoor air pollution is even worse, exacerbated by the use of woodstoves and by chemical emissions from appliances. The WHO estimates it's India's second biggest killer, after high blood pressure, and contributes to 1.3 million annual deaths. (See related story: "WHO Report: Indoor Air Pollution Is Greatest Environmental Health Risk.")

India's press has only recently begun to focus on the issue, but the people are still largely in denial, says Barun Aggarwal, director of the Paharpur Business Centre's Breathe Easy program and Meattle's son-in-law.

"We are Indians. We have iron lungs," Aggarwal says is a common attitude, adding that many have adopted Nietzsche's "what-doesn't-kill-me-makes-me-stronger" mentality.

Meattle, after reviewing research by NASA and others, drew up a plan that focuses largely on three common houseplants because of their complementary abilities to detoxify indoor air and enrich it with oxygen: the areca palm, mother-in-law's tongue, and the money plant. Before outside air is allowed indoors, his 50,000-square-foot facility uses a scrubber to wash it with water to reduce the levels of chemical compounds such as nitrogen oxide and sulfur dioxide. The air then passes through his greenhouse to remove formaldehyde, benzene, and carbon monoxide and through a filter to remove bacteria. No smoking is allowed inside.

Since January 2013, Meattle's company has created plant-based air-filtering systems for more than 700 homes in India's capital. It's also working to clean the air inside the embassy schools of the United States and Germany.

But Can Plants Really Clean the Air?

"It's a phenomenon that's growing now," says Bill C. Wolverton, one of the original NASA researchers and author of the 2010 book *Plants: Why You Can't Live Without Them*. Wolverton has been working in Japan, where plants have been used to make 50 to 60 "ecological gardens" in hospitals. He also says there's budding interest in South Korea and China.

The Paharpur Business Centre's greenhouse focuses largely on three plants: mother-in-law's tongue, the areca palm, and the money plant.



NASA published several studies in the 1980s showing interior plants could purify the air in sealed test chambers akin to a space station. It later tested the value of plants to both clean air and recycle waste in a tightly sealed building known as the BioHome.

Subsequent studies have also suggested that plants could help clean indoor air. In 2009, via greenhouse tests, a Pennsylvania State

University research team found plants could reduce indoor ozone, which can be emitted by copy machines and laser printers.

Not everyone is convinced. "I certainly would not rely on plants to clean indoor air...To get them to work, you'd need too many plants," says John Girman, former senior science adviser at the U.S. Environmental Protection Agency's Indoor Air Division. He says a 1,500-square-foot house would need 680 plants to duplicate NASA-like benefits, and the result would be "an indoor jungle" with moisture problems.

Girman co-wrote a study criticizing research such as NASA's that tested plants only in sealed chambers, which don't replicate the actual conditions of buildings with ventilation systems that can bring in fresh outside air. He says increasing ventilation is far more effective than using plants to clean the air.

But what if the outdoor air is filthy? "I don't have a good solution for India," Girman says.

Meattle's building has been proved to alleviate health problems, according to a 2008 study by the Chittaranjan National Cancer Institute and the Central Pollution Control Board. The study compared 94 nonsmokers working there with nonsmokers employed elsewhere in Delhi. It found the former had fewer cases of eye irritation, headaches, hypertension, and respiratory problems.

Another study raised questions. It said the building's indoor air quality is akin to that in the United States. "Given the extreme air pollution levels in the outdoor environment of New Delhi, this is an achievement," says the 2010 research co-authored by Joshua Apte, now an engineering professor at the University of Texas-Austin. It noted the "air-washer and filtration array" but said there's no "strong evidence" that the success is due to the greenery.

"We have an air treatment plant," Meattle says of his innovative combination of scrubbers, filters, and greenery. The result, he adds, is fewer employee sick days, greater productivity, and air as clean as that in Davos, Switzerland.

High pollution level makes city colder during day

Source : *The Times of India*

Date: 30th December, 2014

Thick fog and haze that envelops the city every morning and evening is an indicator of high pollution levels in the city. Experts have suggested that high concentration of pollutants in the air results in dense haze and smog formation that lasts throughout the day, thus restricting sunlight to reach the surface.

According to data collected from Uttar Pradesh Pollution Control Board (UPPCB), particulate matter of size 10 micrometre (PM 10) levels at 5 locations of the city were found too be double to its permissible level of 100 microgram per cubic metre throughout the year. This clearly indicates high air pollution level in the city. Dr. Anirudh Dubey, weather scientist at Chandra Shekhar Azad Agriculture University (CSAU), said that fog, smog and haze, are all linked to atmospheric pollution that causes dimming of the sun's rays reaching the surface, leading to drop in day temperature.

"During winters dirt particles sublimate with water vapours and become heavy, thereby hanging at lower level of the atmosphere. When sun rays break during the day, this smog absorbs the heat energy and starts evaporating. But, by the time they evaporate completely, it is already evening and the vapour formation begins again. In other words, heavy smog formation traps all sun energy, without letting it reach the surface. This results in drastic dip in temperature during afternoon hours," he explained.

The highest PM 10 levels were recorded from Panki area (217.9 microgram per cubic metre) which were over two times the standard, while the lowest levels were recorded at Kidwai Nagar (184.5 microgram per cubic metre) and Avas Vikas Kalyanpur (194.4 microgram per cubic metre).

However, these levels were nearly twice more than the normal level. Jareeb Chowki and Shastri Nagar also recorded high pollution levels with 215.8 and 208.3 microgram per cubic metre respectively.

Talking about weather conditions in near future, the expert said that similar foggy conditions would prevail for another few days. However, the arrival of easterly winds in the first week of January will result in cloud formation. "As soon as the easterly winds arrive, the sublimated water vapours with dirt will begin to condense and form clouds.

It will give way to light showers at few isolated areas of the city. This will bring down foggy conditions and slight relief from the dipping temperatures," he concluded.

PCB fails to monitor air pollution, rue shortage of staff, equipment

Source : *The Tribune*

Date: 27th December, 2014



Due to acute shortage of field staff and requisite equipments, the State Pollution Control Board (SPCB) is yet to start monitoring air pollution as per the revised National Ambient Air Quality (NAAQ) norms, notified by the Central Pollution Control Board (CPCB) in November 2009. As per board officials, the concentration of gaseous pollutants like sulphur dioxide and oxides of nitrogen monitored in different industrial areas of the state, including Baddi-Barotiwala-Nalagarh, Paonta Sahiib, Kala Amb, Damtal, Barmana, Parwanoo and other locations, were within the prescribed limit but the annual average of other air contaminants, such as respirable suspended particulate matter (RSPM) and particulate matter in areas like the BBN and Kala Amb, was above the prescribed limit.

Though the board officials attributed this to added construction activities, including widening of road, vehicular emissions and industrialisation, not much has been done to install the requisite machinery to ensure monitoring of air quality as per the revised norms. It was worth mentioning that the board was still monitoring air quality on the basis of three parameters- sulphur dioxide, nitrogen oxide and RSPM- which defeated the very purpose of monitoring air quality.

As per the revised NAAQ norms, air quality is supposed to be measured on various parameters, including sulphur dioxide, nitrogen dioxide, particulate matter of varying dimension, ozone, lead, carbon mono oxide, ammonia, benzene, benzo a pyrene, arsenic and nickel.

Board's member secretary Vineet Kumar said additional facilities were being created for monitoring the additional five parameters notified in the NAAQ standards notified in 2009 by the CPCB and for the remaining parameters, like benzene and benzo a pyrene, steps were being taken to procure online monitoring instruments.

The board's oft-repeated excuse of making available new monitoring instruments failed to hold ground as five years had elapsed since the new norms had been notified.

With shortage of staff making it difficult to even manage the existing monitoring of air quality, enhancement of field staff was the need of the hour. In Baddi, which figured amongst the most polluting areas, the air quality monitoring station failed to be run for 24 hours as there were only two people available.

Vineet Kumar confirmed that there was an acute shortage of staff and out of the 207 posts only 136 were filled. The situation was worst with regard to the field staff where against 20 junior engineers only five were available, out of eight posts of lab assistants 50 per cent were vacant and most significantly, out of the sanctioned eight posts of Junior Scientific Assistants, only one was filled. With barely eight of the 22 posts of clerks being filled, the board was now preparing to recruit nine clerks.

Wepo is a Crowdfunded Wearable for Air Quality Monitoring

Source : *NDTV Gadgets*

Date: 25th December, 2014

Every week, we search through crowdfunding sites like Kickstarter and Indiegogo to try and highlight one project worth backing. We're always on the lookout for great new projects to fund, ranging from the next big thing to the weird yet cool tech products that won't find traction in a big company.

That's because some of the coolest products these days, such as the Pebble Smartwatch and the Oculus Rift virtual reality headset owe their existence to crowdfunding, instead of coming from big companies. Of course, not every project is as big a game changer, and often, projects that get funded still fail to materialise.

But if you're willing to take a risk and can afford to write off a little money, then there's a lot to look at and maybe fund.

This week, we came across an Indiegogo project that we wanted to highlight particularly for all Indians, especially those who live in Delhi, which was recently acknowledged as the most polluted city in the world.

The Wepo is a wearable device that measures air pollution exposure. Countries like India and China are badly hit by air pollution today, and the more people are aware of the constantly rising levels of pollution, the greater the likelihood of ever achieving change.

This first generation Wepo is a portable carbon monoxide sensor, and future versions will also measure nitrogen dioxide and particulate matter, along with other pollutants. The device will connect with your smartphone using Bluetooth Low Energy, and it packs a 2000mAh battery that will take around 20 hours to discharge.

Along with phone apps, the creators are also looking for apps for Tizen devices like the Galaxy Gear S smartwatch, an Android Wear smartwatches. This way, the makers hope, you'll be able to regularly see information about air quality, and be more conscious about pollution.

Air pollution a major environmental risk to health

Source : *The Times of India*

Date: 24th December, 2014

CHANDIGARH: A three-day training programme on 'Impact of air quality on human health' commenced on Monday at School of Public Health, PGI. The training programme is being organized by School of Public Health (SPH), PGI, in collaboration with department of environment studies, Panjab University, and funded by Central Pollution Control Board, New Delhi.

This programme is specially designed for participants representing pollution control boards of various states. Dr Ravindra Khaiwwal, assistant professor of environment health, SPH, and Dr Suman Mor, assistant professor, department of environment studies, PU, are coordinating the programme.

Dr Khaiwal highlighted that WHO estimated that around 7 million people died as a result of air pollution in 2012 and mainly in Asian countries. Hence, air pollution is a major environmental risk to health. With reduction in air pollution levels, countries can reduce the burden of disease like stroke, heart ailments, lung cancer and both chronic and acute respiratory diseases, including asthma.

Dr Mor said that the rate at which urban air pollution has grown across India is alarming and almost all cities are reeling under severe particulate pollution while other pollutants like oxides of nitrogen and air toxics have begun to add to the public health challenge. Hence, there are serious concerns about the adverse impact of vehicular pollution.

The environmental training programme was inaugurated by Bhola Ram Gurjar, a professor of environmental engineering at Indian Institute of Technology, Roorkee, and Dr Manmeet Kaur of SPH. Dr Gurjar highlighted that it is important to regularly monitor the air quality.

Gurgaon in grip of deadly air pollution

Source : *The Times Of India*

Date: 24th December, 2014

GURGAON: Delhi may have been in the spotlight for being the world's most polluted city, as per a recent urban air quality database released by the World Health Organisation but Gurgaon is definitely no better.

A recent study by the Centre for Science and Environment (CSE), using a portable air pollution monitoring device, found a 24-hour average PM 2.5 (fine, respirable particulate matter) level to be about 13 times the national safe standard. PM 2.5 levels are considered a serious health threat as these are ultra-fine pollution particles can get lodged in the lungs and reduce its capacity over time. They are linked to cardiac conditions like strokes and heart rhythm disorders.

But what is even more appalling, say CSE researchers, is that despite being a business hub where several multinationals are located, the Haryana State Pollution Control Board doesn't even monitor PM 2.5 levels here. It only releases monthly data of PM 10 levels. There is no real time, automatic air quality monitoring in Gurgaon.

Delhi may be trying to put in place various air pollution combating policies, but there can be no improvement in air quality unless other NCR cities like Gurgaon implement similar policies. "Air pollution has no borders. We need policies that treat NCR like a common air-shed. Public transport immediately needs to be upgraded in all the cities," said Anumita Roy Chowdhury, head of CSE's clean air programme.

CSE did not have comparative data for the same day (December 18-19) for Delhi but a 24-hour average of more than 400 is usually considered "severe" and can affect the health of not just the sick and elderly but even the young and healthy.

During CSE's experiment in Gurgaon, the team covered IFFCO Chowk-Cyber Green Office area- Sohna Road-Artemis hospital- Amity International School- Medanta-Rajiv Chowk- Civil Hospital-Sadar Bazar-Udyog Vihar.

The hourly average of PM2.5 during peak evening hours at IFFCO Chowk was recorded at 996 microgram per cubic metre. In late evening, PM2.5 level crossed 1,094 mgcm at Cyber Greens Office area.

At the time when children go to school and people go for morning walks to start the day healthy, the air pollution levels were found to be quite high.

The census data provided by CSE shows that Gurgaon has 232 cars and two-wheelers per 1,000 people, Chandigarh has 172 cars and two-wheelers per 1,000 people, and Delhi has 120 cars and two-wheelers per 1,000. In Gurgaon, 43% of households own two-wheelers, 33% own cars. Diesel cars may be causing alarming air pollution here, they said.

Unhealthy Air Pollution Remains in Northern India, Pakistan

Source : *AccuWeather*

Date: 22nd December, 2015

Unseasonable cold combined with air stagnation across northern India and Pakistan lead to extremely poor air quality during the past week.

Without a significant change in the overall weather pattern, chilly air, poor air quality and low visibility could continue into next week.

Visibility from Islamabad, Pakistan, to New Delhi and Patna, India, has been reduced to less than a kilometer (0.6 of a mile) frequently during the past several days due to the pollution and fog. Visibility at New Delhi's Indira Gandhi International Airport dropped to zero on occasion over the weekend.

Smog is so prevalent it has also been keeping daytime temperatures cooler than normal across this region. High temperatures have averaged 3-7 degrees C (6-12 F) below normal during this stretch.

The cold is responsible for at least 31 deaths while additional deaths have been reported in road accidents due to the low visibility, according to Hindustan Times.

A pattern like this is not unheard of during this time of the year in northern India due to the combination of air pollution and a ridge of high pressure sitting across the country leading to air stagnation. As the jet stream continues to shift farther south later in the winter, frontal systems will help to clear the air eventually.

Due to the poor visibility, the India Meteorological Department has Dense to Very Dense Fog warnings issued for a significant portion of the country through Friday, Dec. 26, to include Punjab, Haryana, Chandigarh, Delhi, Uttar Pradesh, Rajasthan, Bihar, Sub Himalayan West Bengal, and Sikkim.

Tuesday, an upper-level disturbance moving across northern India was not strong enough to break up the low clouds and fog leaving the region socked into the thick overcast and low visibility for another day. A more potent upper-level system will track toward the region Thursday into Friday. This storm could potentially break up the low clouds and fog, as flow turns northwest allowing a fresh air mass to mix into northern India.

The core of this storm will pass north of the Himalayas which will in turn weaken the magnitude of the winds across northern India. Despite this, an increase in winds from the northwest will still break up some of the low clouds and fog. In order to truly clear out low clouds and fog, much of the impacted area will have to wait for the trough will move across northern India this coming weekend.

This trough will interact with a tropical disturbance over the western Bay of Bengal and actually lift this storm northward with the potential for heavy rainfall across eastern and northeastern India.

According to AccuWeather.com Senior Meteorologist Jason Nichols, this disturbance will be the true pattern changer. "Until the trough works through and picks up the tropical air circulating the disturbance, the pattern looks too tranquil to kick out the stagnant air."

In situations with poor air quality such as this, outdoor time should be limited by everyone and those with respiratory problems should avoid outdoor activities all together.

New anti-pollution norms for ready-mix concrete plants soon

Source : *The Times of India*

Date: 20th December, 2014

MUMBAI: Ready-mix concrete (RMC) plants in the city will not be allowed within 200m of

schools, colleges, hospitals and courts and they must maintain a 100-m buffer zone from residential areas as well as arterial roads and highways. RMC plants will be allowed to function only during the day and the operator will have to file an affidavit stating that all conditions for operating the plant will be complied with.

These are some of the measures suggested by the Maharashtra Pollution Control Board (MPCB) in the draft guidelines for RMC plants in the Mumbai Metropolitan Region. The board has sought suggestions and objections to its guidelines within 30 days.

While RMC plants were earlier banned within municipal limits, it is becoming increasingly difficult to find space to set up such plants necessary for the construction industry. Hence, the MPCB has decided to frame guidelines to regulate them.

To prevent air pollution, the draft guidelines have recommended covering all material transfer points and tree plantation along the periphery of the RMC plant. The draft guidelines also suggested a separate drainage system and water treatment facility. The MPCB will give old plants one year to implement the norms. No consent to operate will be given unless these conditions are fulfilled by new plants too, said Rajiv Mital, member secretary, MPCB.

Sumaira Abdulali, convenor, Awaaz Foundation, said, "Air pollution is affecting the city badly; the health of citizens must be taken seriously. The building industry can afford to implement these measures in phases."

Ozone Pollution can Reduce Crop Yields

Source : *The Crop site*

Date: 19th December, 2014



INDIA - The experiments conducted by Indian Council of Agricultural Research (ICAR) have shown that ozone pollution can potentially reduce the crop yields, Indian minister of state for agriculture, Mohan Bhai Kundaria said in a state recently.

Apart from pollution, long term use of waste water for irrigation can also reduce crop yields due to higher pest incidence and disturbance in

plant metabolism due to heavy metal contents, Mr Kundaria adds.

The agriculture ministry in a statement said that ministry of environment, forest & climate change (MoEF&CC) is administering various measures to prevent air pollution and environmental degradation across the country.

The MOEF&CC is also undertaking large scale afforestation and forest development activities, enhancing carbon sequestration for reducing air pollution and addressing the issues of climate change.

Further, in order to curb crop residue burning which causes air pollution, the government has finalized National Policy for Management of Crop Residues (NPMCR) – 2014, the statement adds.

The policy envisages adoption of technical measures including diversified uses of crop residue, capacity building & training along with formulation of suitable law/legislation.

However, due to various crop development schemes being implemented by government through state governments, production of agricultural crops has been generally increasing except in the years of bad monsoon, adverse weather/temperature conditions etc.

Prenatal exposure to air pollution ups child's autism risk

Source : *Zee News*

Date: 19th December, 2014



Washington: A new study has revealed that women who are exposed to high levels of fine particulate matter specifically during pregnancy-particularly during the third trimester-may face up to twice the risk of having a child with autism than mothers living in areas with low particulate

matter.

According to the study by researchers from Harvard School of Public Health (HSPH), the greater the exposure the greater the risk.

Marc Weisskopf, associate professor of environmental and occupational epidemiology and senior author of the study, said that they data add additional important support to the hypothesis that maternal exposure to air pollution contributes to the risk of autism spectrum disorders and the specificity of the study for the pregnancy period, and third trimester in particular, rules out many other possible explanations for these findings.

Autism risk linked to particulate air pollution

Source : *Times Live*

Date: 18th December, 2014



Autistic children sit on a horses during the Horse Therapy Special Children program at the Mounted Police Sub-Division in Bangkok. The program aims to help children with autism and other physical problems develop brain and body coordination and to adapt to their family and community.

Image by: CHAIWAT SUBPRASOM / REUTERS

Children whose mothers were exposed to high levels of fine particulate pollution in late pregnancy have up to twice the risk of developing autism as children of mothers breathing cleaner air, scientists at Harvard School of Public Health reported.

The greater the exposure to fine particulates emitted by fires, vehicles, and industrial smokestacks the greater the risk, found the study, published online in Environmental Health Perspectives.

Earlier research also found an autism-pollution connection, including a 2010 study that found the risk of autism doubled if a mother, during her third trimester, lived near a freeway, a proxy for exposure to particulates. But this is the first to examine the link across the United States, and "provides additional support" to a possible link, said Heather Volk of the University of Southern California Children's Hospital, who led earlier studies.

U.S. diagnoses of autism soared to one in 68 children in 2010 (the most recent data) from one in 150 in 2000, government scientists reported in March. Experts are divided on how much of the increase reflects greater awareness and how much truly greater incidence.

Although the disorder has a strong genetic basis, the increasing incidence has spurred scientists to investigate environmental causes, too, since genes do not change quickly enough to explain the rise.

The Harvard study included children of the 116,430 women in the Nurses' Health Study II, which began in 1989. The researchers collected data on where the women lived while pregnant and levels of particulate pollution. They then compared the prenatal histories of 245 children with autism spectrum disorder to 1,522 normally-developing children, all born from 1990 to 2002.

There was no association between autism and fine particulate pollution before or early in

pregnancy, or after the child was born. But high levels of exposure during the third trimester doubled the risk of autism.

Evidence that a mother-to-be's exposure to air pollution affects her child's risk of autism "is becoming quite strong," said Harvard epidemiologist Marc Weisskopf, who led the study, suggesting a way to reduce the risk.

It is not clear how tiny particles might cause autism, but they are covered with myriad contaminants and penetrate cells, which can disrupt brain development.

Last year the Environmental Protection Agency, citing the link to asthma, lung cancer and cardiovascular disease, tightened air quality standards for fine particulate pollution. States have until 2020 to meet the new standards.

Pollution takes its toll: India's Taj Mahal is turning brown due to pollutants in the air, scientist says

Source : *The Weather Network*

Date: 17th December, 2014

Scientist Mike Bergin of the Georgia Institute of Technology in Atlanta noticed something peculiar during his travels to India.

As the American Association for the Advancement of Science (AAAS) reports, Bergin saw workers applying 'facial masks' to the UNESCO World Heritage site, constructed in 1653 by emperor Shah Jahan in memory of his wife. The masks were an attempt to remove the discolouration from the temple's exterior.

Bergin concludes that air pollution is at fault for the change of colour to the temple's exterior. He noticed that periodically, workers would clean the surface using clay, peeling it off to remove the dirt.

The AAAS notes that initially, scientists were unsure of the exact cause of the discolouration. There was speculation that "fog droplets oxidizing the surface" may be one cause, or "possibly sulfurous gases in the air." Bergin, however, noticed that the brown debris couldn't be removed by water - only clay. This indicated a small source of pollution, via "water-insoluble particles in the air."

Bergin and his colleagues tested the hypothesis, which proved to be correct. According to Bergin, "vehicle emissions and the burning of biomasses such as dung and trash" are to blame for the pollution.

He adds that reducing these air pollutant-inducing activities enable the preservation of the Taj Mahal's beauty, as well as the health of locals.

'T.S.R. Subramanian Committee' is interested in "Management of

Environment" and not in "Protection of Environment"

Source : *Bilkul*

Date: 16th December, 2014

The BJP's Election 2014 Manifesto categorically assured the industrialists that policies to promote industrial growth will take precedence over those that ensure environmental protection. This is consistent with the "Gujarat Model of Development," which led Gujarat State to become number one in pollution. To make operational this commitment to industrialists, on 29 August 2014 the Modi Government appointed the T.S.R. Subramanian committee to review six environmental laws. Officially known as the "High-Level Committee constituted for review of Environment and Forests Laws," the committee was tasked with submitting an exhaustive appraisal of six environmental laws to the Ministry of Environment, Forest & Climate Change (MoEF&CC) within two months, with subsequent a one month extension. The specific laws were: [1] The Environment (Protection) Act, 1986, [2] The Forest (Conservation) Act, 1980; [3] The Wildlife (Protection) Act, 1972; [4] The Water (Prevention and Control of Pollution) Act, 1974; [5] The Air (Prevention and Control of Pollution) Act, 1981; [6] The Indian Forest Act, 1927.

In spite of the impossibly short time frame, surprisingly the committee submitted a report with detailed recommendations to develop a totally new structure of NEMA (National Environment Management Authority) and SEMA (State Environment Management Authority) to replace the Central Pollution Control Board & State Pollution Control Boards. The Committee also proposed a new umbrella law 'The Environmental Laws (Management) Act, 2014' (ELMA). The name "NEMA", "SEMA" & "ELMA" clearly indicates that the committee is interested in "Management of Environment" and not in "Protection of Environment". This committee dealt not only with the six laws under review but also suggested some fundamental changes in two other laws, [1] The Forest Right Act, 2006 and [2] The National Green Tribunal Act, 2010. It appears that the committee particularly scrutinized environment-related laws which have been effectively used by the people to protect the environment.

The committee was expected to read, discuss and review 1. the laws and various notification, amendments and circular issued under these laws, 2. land mark judgements of courts on Environment Laws of the Indian Courts and courts of advance countries, 3. status of environment of the country, and public consultation with various concerned state authorities, mainly the industrial associations across the country and with the people and people's organisations. Yet, during one instance of a public consultation in Bangalore, the committee chose to walk out of the consultation rather than engage in a discussion when

people's organisations raised fundamental questions regarding terms of reference of the committee and various other issues. Actually there was no serious consultation across the country organised by the committee to deliberately avoid the real feedback on the concerned issues by people's movements and affected people.

It is also surprising for us that a former Cabinet Secretary - Government of India, Former Secretary to Government of India, a former Judge of the Delhi High Court, a senior Advocate of Supreme Court of India, a Joint Secretary of MoEF&CC of Government of India and Member Secretary of Gujarat Pollution Control Board felt confident and competent to do the task within three months without a proper consultation across the country and to propose new laws and new structures to "implement" the law.

We leave it to academicians, researchers and sensible people to make their own assessment about the assigned task of the committee keeping in mind the competency of the committee members and time period given to them to review the six environment laws.

The committee at many places describes its "concern" about the status of environment, but in practise made explicit suggestions to give free hand to the polluting industries and eliminate their legal accountability to the land, environment and the people.

The committee in its preamble states:

"1.2. [] Over the past decades, national and regional economic space has become more energy-intensive, also impacting on the environment. [...] Livelihood issues still dominate the social and political manifestoes. [...] There is now an urgent necessity for integration of environment, economic and social issues in the development paradigm."

1.3 [...] In the race for development, which ideally ought to improve the quality of life of the citizen, the relationship with environment is often lost sight of. [...] it is implicitly imperative for each generation to leave the environment to the next generation in a better state than they found it. [...] Already Delhi is rated as one of the most polluted cities in the world; and many other Indian cities appear in the same list. We need to take heed of the very recent Intergovernmental Panel on Climate Change (IPCC) call from Copenhagen that the earth is flirting with danger – the alarm flag has been hoisted. [...] A knee-jerk attitude in governance, flabby decision-making processes, ad hoc and piecemeal environmental governance practices have become the order of the day. The legal framework has not delivered."

1.4 The lasting impression has remained that the Acts and the appurtenant legal instruments have really served only the purpose of a venal administration, at the Centre and the States, to meet rent-seeking propensity at all levels. This impression has been

further strengthened by waves of large scale 'clearances', coupled with major delays in approvals in individual cases. It should also be added that our businessmen and entrepreneurs are not all imbued in the principles of rectitude – most are not reluctant, indeed actively seek short-cuts, and are happy to collaboratively pay a 'price' to get their projects going; in many instances, arbitrariness means that those who don't fall in line have to stay out.

[...]

1.5 The Committee finds uneven application of the principle of separation of powers as established by the Constitution of India, in the administration of environmental laws. [...] Judicial pronouncements frequently have supplanted legislative powers, and are occupying the main executive space. [...] However, the perceived role of ad-hoc committees in decision-making and implementation appears to have reduced the MoEF&CC to a passive spectator, with little initiative except waiting for the Court to say what next. [...] The Executive, as pointed out has not covered itself with glory – indeed it has invited the attention of the judicial branch through lack of basic care. [...] Who pays for pollution? Who suffers? Who enforces? Who monitors? Who punishes? The legislations are weak, monitoring is weaker, and enforcement is weakest.”

1.7 The principal aim of Environmental Laws should be to ensure enhancement of environmental quality parameters and maintenance of ecological balance.

1.8 The Committee takes note of the fact that the dynamic equilibrium between environment conservation and development for inter-generation equity is the need of hour.”

The above remark gives the impression that the committee is truly committed to protecting the environment and is fully aware of the need to address loopholes in the present laws, implementing authorities and mechanisms. The substance of their suggestions and recommendations, however, demonstrate that the committee has not attempted to plug loopholes but instead creates more loopholes or give complete freedom to industries by making them unaccountable to laws, nature and people.

In para 1.3, 1.4 & 1.5 the words “flabby decision-making processes”, “waves of large scale 'clearances', coupled with major delays in approvals in individual cases”, “Judicial pronouncements frequently have supplanted legislative powers, and are occupying the main executive space” imply that these were the real worries of the committee. And that is why the committee mainly focused on delay in environment clearance approval, decision making process and judicial pronouncement against the concerned authorities and industrial projects while giving the recommendations to get rid off these “major hurdles” of

the industries across the country.

The committee in its executive summary states:

At Page 10

“1. [...] While India has a strong environmental policy and legislative framework, much of the problem relates to weak implementation of the various acts and the rules thereunder. Conservation advocates, project proponents and judiciary – none is satisfied with current environmental governance and the policy tools currently deployed in the management of the sector.

“2. [...] While the pace of diversion of forest land has decreased in recent years, the target of 33% of land area as forest cover is a long way off; the more disturbing aspect is that the quality of forest cover has seen a secular decline. New forestation policies to attract investment of growing forests in private land, and providing a statutory safeguard – a classification of ‘treelands’ as distinct from ‘forest’ has been recommended.”

At Page 11

“3. The Committee also has recommended identification of ‘no go’ areas, which are in forest areas or inviolate zones – primarily with the criteria of over 70% canopy cover and ‘Protected Areas’ which should not be disturbed except in exceptional circumstances, and that too only with the prior approval of the Union Cabinet.

“5. [...] Newly proposed full time expert body National Environmental Management Authority (NEMA) at the Centre, and State Environmental Management Authority (SEMA) would be the premier institutions to evaluate project clearance, using technology and expertise, in a time bound manner, providing for single window clearance (the existing Central Pollution Control Board and corresponding State agencies would be subsumed respectively in NEMA and SEMA when they come into existence). A ‘fast track’ procedure for ‘linear’ projects which provide benefit to community at large, as well as power/ mining projects, as also projects of national importance has been recommended.”

At Page 12

“6. Environmental Management policies and programmes, and environmental mapping of the country, will facilitate pre-identification of locations for industries.

[...]

“8. A new model ‘umbrella’ law, ELMA, to give a statutory cover to the above has been recommended, incorporating inter-alia the concept of utmost good faith, as also the proposed national institutions and agencies.”

In the executive summary the committee’s other similar main concerns are expressed in clear words in para 3, 5, & 8 ‘Protected Areas’ which should not be disturbed except in

exceptional circumstances, and that too only with the prior approval of the Union Cabinet; A 'fast track' procedure for 'linear' projects, the concept of utmost good faith." In the name of "utmost good faith" the committee wants to give more 'freehand' to the industries rather than making them more accountable to laws and environment. The word 'linear project' is so widely define by the state that they can include many more projects in that list as when they wish. As a solution to implement these ideas the committee suggests new authorities call National Environmental Management Authority (NEMA) at the Centre, State Environmental Management Authority (SEMA) at the state level and a new law the ELMA. In chapter 3 of the introduction, the Isha Upanishad is quoted: "Everything in the universe belongs to the Supreme God. Therefore, take only what you need, that is set aside for you. Do not take anything else for you do not know to whom it belongs." We do not know what the committee means by "take only what you need, that is set aside for you." Who will decide "set aside for you" in this capitalist world?

While the committee quotes the miserable state of the environment throughout the report, the committee's recommendations are more concerned with delaying development projects due to environmental protection laws. Removing these "delays" remains their main focus in their analysis of the problems and all major suggestion made by them in terms of new authorities and the new law the ELMA. These contradictory concerns are laid out in chapter 3.

Air pollution causing respiratory diseases

Source : *The Tribune*

Date: 15th December, 2014

Air pollution continues to remain the biggest cause of respiratory diseases among city residents. Lack of coordination between the Pollution Control Board (PCB) and traffic police has led to delay in action against highly polluting vehicles.

As per the rules, vehicles have to comply with the emission norms set by the government and they are being checked regularly by the authorised stations established by the PCB, but many of the vehicles don't follow the rules.

People with symptoms of respiratory diseases, burning eye and skin allergy have increased as most of them are exposed to smoke and dust for 12 to 16 hours daily and toxic fumes have a long-term effect on the health of people.

Even the PCB has admitted that residents are inhaling poor-quality air and this is likely to worsen in the coming years, keeping in view the high concentration of vehicles per kilometre and expansion of industries, but multi-agency coordination needed to deal with the threat is missing and only remains on the papers.

"Vehicles, industries and heavy generators are the major cause of carbon monoxide and sulphur dioxide in air," said Bushan Parmoo, an environmentalist.

As per the data gathered by the State Pollution Control Board (SPCB), suspended particulate matter (SPM) and respiratory suspended particulate matter (RSPM) have witnessed a steep rise in the past two decades, mainly because of the increase in the number of vehicles and dust generated by the construction activity.

Study finds that air pollution is causing the Taj Mahal to turn brown

Source : *The Weather Network*

Date: 14th December, 2014

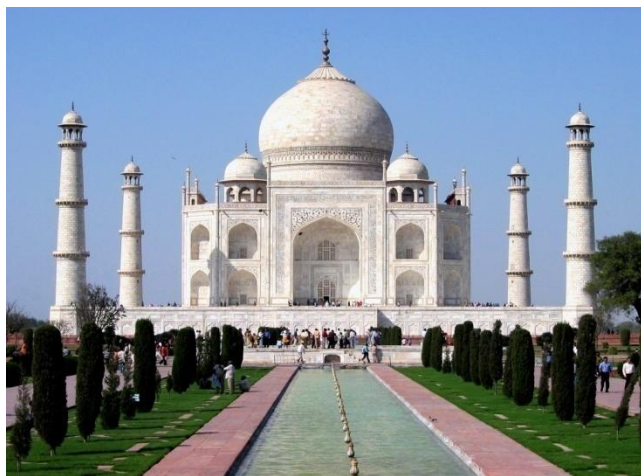


The Georgia Institute of Technology, the University of Wisconsin, the Indian Institute of Technology at Kanpur and the Archaeological Survey of India collaborated in the study that analyzed the effects of pollution on the Indian landmark.

"Our team was able to show that the pollutants discolouring the Taj Mahal are

particulate matter: carbon from burning biomass and refuse, fossil fuels, and dust - possibly from agriculture and road traffic," said Michael Bergin, a professor in the School of Earth and Atmospheric Sciences at the Georgia Institute of Technology.

To pinpoint the cause, researchers used air sampling equipment to measure what was in the air in the Taj Mahal complex from November through June 2012.



"Taj Mahal in March 2004" by Dhirad, picture edited by J. A. Knudsen - see permission. Licensed under CC BY-SA 3.0 via Wikimedia Commons.

Filters from the sampling equipment were analysed for both fine particulate matter (smaller than 2.5 microns in diameter) and total suspended particulate matter. Researchers then

placed small samples of pristine marble onto the structure at various locations near the

main dome.

After two months, the samples were analyzed using an electron microscope to measure the size and the number of particles deposited on their surfaces as well as their elemental signatures. The information collected allowed researchers to the likely composition of the particles.

The carbon particles come from a variety of sources, including fuel combustion, cooking and brick-making, trash and refuse burning, and vehicle exhaust. The dust may come from local agricultural activities and vehicular traffic - or from distant sources, researchers said.

Overall, the results suggest that the deposition of light absorbing particulate matter in regions of high aerosol loading are not only influencing cultural heritage but also the aesthetics of both natural and urban surfaces.

India committed to fight against climate change, says Environment Minister Prakash Javdekar Published on December

Source : *DNA*

Date: 11th December, 2014



India on Thursday expressed confidence that negotiators at the UN Climate Change Summit here could put in place the stepping stones towards a post-2020 deal under a comprehensive, balanced, equitable and pragmatic Convention that will address the genuine needs of developing nations.

Speaking at the High Level Segment of UNFCCC COP-20 at Lima, Minister for Environment, Forests and Climate Change Prakash Javdekar said India is committed and

ready to play its part in the global fight against climate change. "We are pursuing action-oriented policies to bring rapid development to our people while purposefully addressing climate change. We have shown that we have the vision and the political will to act," he said. "Our ambition in the post-2020 period is directly linked with ambitious actions in the pre-2020 period by the developed countries, otherwise the poor people in developing countries will not get the carbon space to achieve sustainable development," he said.

Noting that the number of poor people in the world is more than twice the combined population of Europe and all of them are in developing countries, he said, "We are determined to ensure development to all these people and provide them with basic services of energy, water, sanitation, healthcare, education and employment."

"We in India are committed to protecting the interests of the poor. We did it in WTO for

ensuring food security of our people," he said, adding that the success of India's endeavours in all these issues will also be critical for the success of the global efforts for the achievement of the Sustainable Development Goals (SDGs).

"Despite our serious resource constraints, we are undertaking ambitious actions to undertake adaptation and mitigation actions, including through lowering of the energy intensity of our economic growth, increasing energy efficiency across sectors and making greater use of renewables," he said.

"We hope to put in place in Lima, the stepping stones towards a post-2020 agreement under the Convention that is comprehensive, balanced, equitable and pragmatic," Javadekar said, adding that it should be able to address the genuine requirements of the developing countries by providing them equitable carbon space to achieve sustainable development.

Adherence to the principles and provisions of the Convention is the key, he added. "It is equally evident that developing countries could do more if finance, technology support and capacity building is ensured. This must be a key focus of the new agreement," said the minister, who is leading the Indian delegation.

"If we believe that the global warming threat is real, then we must deliver on the agreed commitments as a matter of priority," he said.

"We hope to achieve a positive outcome which will set us on the path to an ambitious, comprehensive and equitable agreement at Paris next year," he added.

Javadekar met the UN Secretary General Ban Ki-moon and US Special Envoy for Climate Change Todd Stern among others. He also met with the leaders of Australia, Germany and France and attended a dinner with the Like Minded Developing Country group.

Javadekar told Ban that though India is "positively engaged" in the draft text negotiations, it did not want parties to operate "as if this is the last opportunity," noting that there is an entire year before Paris. He said though finance commitment announcements seemed to be a positive highlight from the first days of the Lima talks last week, it is "not a happy story" as much anymore.

India is still pushing for financial commitments that fit into the Convention mandate that they be "new, additional, and predictable," which is not always the case with the latest country commitments.

In his remarks, the minister said that "developing countries are allocating significant portions of their scarce national resources on adaptation, which remains an immediate and urgent global priority."

Air Pollution Analyzed at India's Taj Mahal

Source : *Archaeology*

Date: 10th December, 2014



ATLANTA, GEORGIA—The discoloration of the Taj Mahal, a seventeenth-century mausoleum built by Shah Jahan for his wife, Mumtaz Mahal, is caused by airborne carbon particles and dust, according to a study conducted by scientists from the Georgia Institute of Technology, the Indian Institute of Technology at Kanpur, the Archaeological Survey of India, and the University of Wisconsin. The scientists took air samples at the site, and placed pieces of marble near the main dome. After two months, the samples were collected and analyzed with an electron microscope. “Our team was able to show that the pollutants discoloring the Taj Mahal are particulate matter: carbon from burning biomass and refuse, fossil fuels, and dust—possibly from agriculture and road traffic. We have also been able to show how these particles could be responsible for the brownish discoloration observed,” said Michael Bergin of Georgia Tech. The monument is routinely cleaned with clay to maintain the brightness of the marble, but until now, there had not been a systematic study of the causes of the discoloration. “Some of these particles are really bad for human health, so cleaning up the Taj Mahal could have a huge health benefit for people in the entire region,” Bergin added. To see photographs of another iconic Indian site, see "The Islamic Stepwells of Gujarat."

India's power ambitions mean air pollution to soar

Source : *CCTV America*

Date: 9th December, 2014

Delhi is covered with smog at any time of the day. A drop in temperatures makes polluted air heavy, triggering illnesses.

“When the wind blows the ash blows with it,” a resident of Jaitpur Diwan Dutt said. “People have a tough time breathing and many develop diseases related to breathing. People start coughing.”

Government figures show that in Delhi more than 40 people die of respiratory diseases everyday. Children are worst affected. The government is not equipped to deal with the rising air pollution and so children like Jatin find their own solution.

“I am covering my face because of the dust which bothers me and I fall ill,” Jatin said.

During a public interest litigation on air pollution at India's Supreme Court, the judge



allowed a monitoring machine to measure the pollution inside the courtroom. The results were four times higher than normal.

The government is taking measures to tackle air pollution.

"We will ensure quick action there after to get coal production significantly enhanced and to meet our government's target of one billion

tonnes coal by 2019 to ensure that every power plant in this country gets adequate coal," minister of state for power Piyush Goyal said.

Digging deeper for coal is on a war footing. Experts feared that this coal rush would derail the climate change agenda, saying that India needs a two-track strategy that would be beneficial for both public health and climate change mitigation.

Britain declares air pollution a 'public health crisis'

Source : *The Times of India*

Date: 8th December, 2014

LONDON: Britain on Monday declared air pollution a "public health crisis" with the Environmental Audit Committee warning that air pollution in the UK kills nearly as many people as smoking does.

This has led to a recommendation that new schools, hospitals and care homes must not be built next to air pollution hotspots to help reduce the tens of thousands of deaths currently being caused by nitrogen dioxide (NO₂) and particulate pollution every year.

Existing schools next to buusy roads should also be fitted with air filtration systems, EAC committee chief Joan Walley said.

There are an estimated 29,000 deaths in the UK from air pollution each year.

"There is a public health crisis in terms of poor air quality," said Walley, MP for Stoke-on-Trent North.

"There are nearly as many deaths now caused by air pollution as there are from smoking, so the main thing is we stop a new generation of children being exposed. Clean air is vital for people's health and, while air quality has improved significantly in recent decades, we are investing heavily in measures across government to continue this, committing £2b nillion since 2011 in green transport initiatives".

The EAC report blames traffic for 42% of carbon monoxide, 46% of nitrogen oxides and 26% of particulate (mineral dust, carbon and other chemicals) pollution in the UK. Such pollution is linked to cancer, as well as heart and lung diseases.

Nitrogen dioxide is known to exacerbate asthma as it causes an inflammation of the airways and reduces lung function.

The report states that pollutant-heavy cars, such as diesel-run vehicles, should be scrapped to cut emissions.

"It is unacceptable that another generation of young people growing up in our towns and cities could have their health seriously impaired by illegal air pollution before the Government brings this public health crisis under control. Children growing up near busy roads with high NO₂ and particle emissions have stunted and impaired lung development. There is also emerging evidence that air pollution can increase infant mortality rates, prompt pre-term births and affect cognitive performance."

"Well over a thousand schools around the country are 150 metres away from major roads. Ministers must pluck up the political courage to take the potentially unpopular decisions necessary to get the most polluting vehicles off the road and encourage more people to walk, cycle or take public transport," EAC said.

It recommended that a National Framework of Low Emission Zones (LEZ) needs to be urgently set-up to enable LEZs, like the one in London, to be rolled out across the country to reduce inner city pollution. LEZs are one of the most powerful tools that local authorities have for controlling vehicle emissions, according to the report, but few have introduced them. London has operated a low emission zone since 2008 and plans to introduce a limited Ultra Low Emission Zone in 2020, but elsewhere in the UK few have been set up. Those that have been (in Norwich, for example) are limited in scope. In contrast, Germany has a national framework of over 70 LEZs.

The report calls on the government to take urgent action to comply with legal limits on air pollution and save lives by implementing the following recommendations "Include legal air quality obligations in new infrastructure and road building plans; Close legal loopholes that allow mechanics firms to remove engine filter from HGVs; Examine fiscal measures to gradually encourage a move away from diesel vehicles; Consider introducing a diesel scrappage scheme to help drivers switch to cleaner vehicles; launch an independent public inquiry to look at the required action on air pollution and apply pressure at European level to ensure effective EU legislation and 5 emission standards backed up by a robust testing regime".

How the world keeps air clean

Source : *The Times of India*

Date: 7th December, 2014

NEW DELHI: If Delhi is really serious about bringing down air pollution levels, it may have to

enforce some unpopular measures along the lines of the steps taken by the UK, Singapore and China. In fact, National Green Tribunal (NGT)'s order on more than 15-year-old vehicles is already being resisted by their owners as well as agencies which cite logistical hurdles to implement the ban. TOI takes a look at how these countries have successfully implemented stiff measures to reduce air pollution.

UK is facing a fine of £300 million a year for repeatedly violating the European Union's directive on air quality and not meeting the standard for oxides of nitrogen (NOX), which are major contributors to air pollution. Besides, there is legal pressure from the European Court of Justice on Britain's polluting cities. London Mayor Boris Johnson is now considering implementing weekly car-free days along the lines of what Jakarta does in congested areas every Sunday.

In 2008, despite stiff resistance from authorities, people and businesses, London implemented the "low emission zone" policy where cars, buses, lorries and others that do not conform to emission standards are fined heavily. This despite a low concentrations of PM 2.5 (fine, respirable matter) in London's air. For instance, average annual concentrations of PM 2.5 in London was 6.5 microgram per cubic metre in 2010, about 20-25 times lesser than annual average concentrations in Delhi.

Transport for London, the body that manages the transport system in Greater London, implements the scheme by tracking images captured by automatic number plate recognition cameras that help identify polluting vehicles. Germany has a similar emissions zone where entry is banned for polluting vehicles.

Singapore is the first city in the world to implement electronic road pricing (ERP). The measure that came into effect from September 1998 involves a method whereby a smart card is installed in every vehicle and congestion charges are automatically deducted. So at ERP zones when any vehicle slows down due to congestion, an amount is deducted for contributing to the jam. Besides, owning a car in Singapore is very expensive due to higher taxes-the certificate on entitlement costs one almost equal the car's original price.

Even China has adopted some stringent measures in recent years after its air pollution reached alarming levels. According to an analysis by the Centre for Science and Environment, Beijing allowed 2.4 lakh cars to be sold in 2012 after it took the decision to cap the number of four-wheelers. In 2010, about 8,00,000 cars were sold in Beijing. The current actual demand in the city is a staggering number of 1,515,449.

A section of experts though feels such drastic measures like a "low emission zone" may be impossible to implement in Delhi where people end up fighting over paying a small toll tax. But, at least a start has to be made, they say. "People will resist but there is no silver bullet

for the air pollution crisis. While a low emission zone or congestion tax may be difficult to implement without a robust public transport system, why not charge higher fee for parking?" said Sarath Guttikunda, director, UrbanEmission.info.

"Even implementing the ban on 15-year-old vehicles can be very effective. According to our analysis, it can cut emissions by 30% to 40%. Why can't we first implement low-hanging fruits like banning waste burning completely? Delhi needs four times its current number of buses, why can't that be made available?" Guttikunda added.

Manfred Breithaupt, director of sustainable urban transport project at GIZ, said Colombian cities have a 20% surcharge on petrol sales. In fact, half of Bogota's revenue from this surcharge funds the city's public transport system. So effectively, private vehicle owners finance one-third of the mass transport system. France now has a new taxation system where eco-friendly cars receive a bonus of 200 to 5,000 euros depending on emissions and a CO2 emissions penalty for polluting vehicles. Now, France which at times experiences smog has announced that it gradually wants to phase out the use of diesel fuel for passenger cars and will put in place a system to identify most polluting vehicles with a "car identification system."

Anumita Roy Chowdhury, head of CSE's clean air programme, says Delhi cannot wait for its public transport to be developed completely to introduce tough measures like hiking parking costs. "Delhi can consider congestion fee for areas like CP. It can be reached easily with public and para-transit modes from any part of the city. If they are serious about dealing with pollution then parking costs have to be increased," she said.

R-Day: Will Obama breathe easy?

Source : *The Times of India*

Date: 6th December, 2014

NEW DELHI: What is seen to be a diplomatic coup may turn out to be something of an embarrassing affair. For, US President Barack Obama will land in Delhi when pollution levels are likely to be rather high. In Washington DC, the air quality index (AQI) usually ranges in the "good" to "moderate" range. In Delhi, R-Day and days preceding it are usually in the "very poor" or "unhealthy" AQI.

While it's too early to forecast how the coming R-Day is going to be like, one wonders if Obama will have to use a mask during the R-Day parade.

The PM 2.5 (fine, respirable particles) levels ranged from 120 to 200 microgram per cubic metres (approximate) from January 20 to 27, 2014, according to the data with Centre for Science and Environment (CSE). According to records with System of Air Quality Weather Forecasting and Research (SAFAR), the AQI for Delhi was 183 in 2012; 225 in 2013; and 213

in 2014. These are in the moderate to poor range in India but graded as "unhealthy" as per US's air quality standards.

Some experts are, however, optimistic. "Usually December is the worst and temperatures start rising from end of January. If this time too temperatures start rising, pollution levels will not be very high as the boundary layer will move up and winds may help blow away pollution particles," said Gufran Beig, chief project scientist, SAFAR, under the ministry of earth sciences.

But there was practically zero visibility on January 26, 2014, according to IGI met office which may have intensified the impact of pollution. "This year from midnight to 11 am on January 26, visibility was very poor. In 2009, 2010 and 2014, there was dense smog. In 2008, 2011 and 2012 it has been moderate," said RK Jenamani, director-in-charge, IGI Met. During the Asia-Pacific Economic Cooperation (APEC) meet in China, the Chinese government reportedly took drastic measures like shutting down industries and taking off many cars off the roads. Since both President Obama and President Putin were attending the summit, when nothing else worked, the Chinese government reportedly censored real-time monitoring of air pollution on websites and apps.

The US has extremely stringent air quality standards. Its annual safe standard for PM 2.5 is 15 microgram per cubic metre and for 24 hours it's only 35 microgram per cubic metre. It also makes sure that industries, vehicles and each city conforms to these standards. It's legally binding for each city administration (civil penalty provisions) to meet these standards.

"If they are not able to meet the clean air standard, they are penalized with a cut in the development grant. They have state implementation plans which ensure that source-wise standards are met. US has managed to keep air pollution in check with superior technology and fuel standards," said Anumita Roy Chowdhury, head of CSE's clean air project.

While US has managed to keep emissions in check with high fuel standards and pollution abating technologies in industries and power plants, they are not seen to be resource efficient. Most cities continue to lack a good public transport system and also have an "urban sprawl" (expansion of cities away from the urban centre), leading to greater dependence on personal vehicles.

Anumita added that Europe's trajectory in dealing with air pollution has also been very effective as it has been a combination of superior fuel norms (Euro 6), compact cities and well-developed public transport systems.

Decline in Production due to Pollution

Source : *Business Standards*

Date: 5th December, 2014

As a result of various Crop Development Schemes being implemented by Government of India through State Governments, production of agricultural crops has been generally increasing except in the years of bad monsoon, adverse weather/temperature conditions etc. However, the experiments conducted by Indian Council of Agricultural Research (ICAR) have shown that ozone pollution can potentially reduce the crop yields. Further, long term use of waste water for irrigation can also reduce crop yields due to higher pest incidence and disturbance in plant metabolism due to heavy metal contents.

Ministry of Environment, Forest & Climate Change (MoEF&CC) is administering various measures to prevent air pollution and environmental degradation across the country. The MOEF&CC is also undertaking large scale afforestation and forest development activities, enhancing carbon sequestration for reducing air pollution and addressing the issues of climate change.

Further, in order to curb crop residue burning which causes air pollution, the Government of India has finalized National Policy for Management of Crop Residues (NPMCR) - 2014. The Policy envisages adoption of technical measures including diversified uses of crop residue, capacity building & training along with formulation of suitable law/legislation. The above Policy also envisages extending central financial assistance for various interventions proposed by States under the ongoing Schemes/Programmes/Missions of Department of Agriculture & Cooperation.

This information was given by the Minister of State for Agriculture Shri Mohanbhai Kunduria in the Rajya Sabha today.

India has 13 of the 20 Most Polluted Cities in the World

Source : *All GOV*

Date: 5th December, 2014

Delhi is the world's most polluted city, according to a World Health Organization (WHO) report. But what should make the government sit up and take notice is that 13 of the 20 most polluted cities in the world are also Indian.

The Ambient Air Pollution report released in May ranked 1,600 cities in 91 countries after studying their air for the presence of harmful gases, such as nitrogen dioxide, carbon monoxide and sulphur dioxide, besides particulate matter 10 and 2.5. According to the ranking, Delhi has six times the levels of airborne particulate matter than are considered safe.

Particulate matter (or small airborne particles) is among the most detrimental of pollutants. Studies link it with increased rates of chronic bronchitis, lung cancer and heart disease.

“Particles smaller than 10 micrometres in diameter pose the greatest threat to human health,” Anumita Roychowdhury, executive director at the Centre of Science and Environment, told Scroll.in. “They can not only get deep into a person’s lungs but can also



enter the blood stream.”

The WHO advises that fine particles of less than 2.5 micrometres in diameter (PM2.5) should not exceed 10 micrograms per cubic metre. Delhi tops the list with 153 micrograms of PM2.5 per cubic metre. Not far behind are Patna with 149 micrograms, Gwalior with 144 micrograms and Raipur with 134 micrograms. The other Indian cities in the list include Ahmedabad, Lucknow, Kanpur, Firozabad, Amritsar and Ludhiana.

In comparison, Beijing, which is considered a very polluted city, has a PM2.5 concentration of just 56 micrograms. It ranks 77th on the WHO list.

Though airborne particulate matter between 2.5 and 10 micrometres in diameter (called PM10) are less hazardous than their smaller cousins, these are still harmful. In Delhi, according to the WHO report, PM10 levels stand at 486 micrograms per cubic metre. In Gwalior, the levels are 329 micrograms and in Raipur 305 micrograms.

Lucknow (219 micrograms), Firozabad (219 micrograms), Kanpur (212 micrograms), Amritsar (210 micrograms) and Ludhiana (207 micrograms) also feature on the list. Beijing meanwhile has a PM10 concentration of 121 micrograms.

The WHO report findings were rejected by the government when it was released in May.

Yet a new report once again highlights the dangers, showing that if current trends of vehicle population, fuel and emission standards persist in India, PM 2.5 emissions could increase three times and nitrogen oxide levels could rise five times in the near future.

The report ‘Options to reduce road transport pollution in India’ was released last month by The Energy and Resources Institute (TERI), University of California, San Diego (UCSD) and the California Air Resources Board (CARB).

"In 1991, there were 20 million vehicles in India. The number had skyrocketed to 140 million in 2011, and by 2030, vehicle population is expected to reach a staggering 400 million," said CARB chairman Mary Nichols.

The recent ban of 15 year-old vehicles in Delhi by the National Green Tribunal will go some way in halting the further deterioration of Delhi’s air quality. But unless the government takes further drastic steps to reduce vehicular emissions in our cities, India will continue to rank high on global lists that no country would want to be seen in.

Air pollution in Delhi worsens during winter: study

Source : *Domain-b.com*

Date: 5th December, 2014



As the cold weather sets in, a quantitative analysis on particulate matter (PM) in Delhi has highlighted that residents are exposed to significantly higher levels of air pollutants in the Indian capital during winter than in summer.

Air pollution continues to be one of the key global environmental challenges and is widespread in India, with Delhi, most notably, experiencing major air quality problems. The largest public health impact from air pollution is due to exposure to particulate matter – very fine dust floating in the air. These dust particles are so small that they can get in to the lungs, potentially causing serious health problems.

Researchers from the University of Birmingham (UK), the Indian Institute of Technology Delhi (IIT Delhi), the Central Road Research Institute (India) and the Desert Research Institute (USA) have been collaborating to provide key scientific evidence in this area. The aim of their study is to analyse the composition of particulate matter and to understand its sources in Delhi, which will assist in the development of targeted policy instruments to control air pollution.

Air samples were collected in June 2013 (summer) and December 2013-January 2014 (winter) adjacent to a heavy traffic site on Mathura Road, Delhi. The site is also influenced by industrial emissions from the Okhla Industrial Area and biomass emanations from nearby dwellings.

Worryingly, researchers found that average 12 hour PM_{2.5} concentrations in winter were significantly higher than the 24 hour National Ambient Air Quality Standard in India (60 µg/m³). PM_{2.5} are fine particles, less than 2.5 micrometres in diameter. Normally, these smaller particles can penetrate in to the respiratory system and cause negative health effects. In fact, a majority of the overall particles were found to be in the small size range, which can easily be inhaled and cause irreversible damage.

Several harmful components, including lead, zinc and polycyclic aromatic hydrocarbons were found to be present in very high concentrations in winter. These particles are associated with respiratory diseases such as asthma and bronchitis, and they can also cause inflammation and exacerbate cardiovascular diseases. Earlier in 2014, ambient air pollution was identified as one of the top 10 health risks for India.

The quantitative analysis shows that sources for particulate matter include soil, road dust

and tailpipe emissions from vehicles, as well as wood, coal and waste burning. Road dust and soil levels in the air increase in summer when temperatures are high and rainfall is low. However, in winter, when a lot of people use wood and other substances for heating, lower temperatures, accompanied with little or no wind, can lead to a build-up of pollutants in the atmosphere.

Professor Roy M. Harrison, head of the environmental Health sciences group at the School of Geography, Earth and Environmental Sciences at the University of Birmingham, says, "Exposure to particulate matter has negative consequences for human health but cost-effective abatement measures depend upon a quantitative knowledge of the contributions of different sources in the atmosphere. This work contributes to the body of knowledge which underpins policy development"

Indian Dr Pallavi Pant carried out much of the research whilst studying for a PhD in source apportionment of particulate matter at the University of Birmingham. She said:

"This is an exciting piece of research and we are hopeful that this data will help in preparation of targeted action plans for air pollution control. We are continuing to engage with the academic community in India to further assess the health implications."

The research project is one of the Trilateral Research in Partnership (TRIP) Awards, the first strand of the successful UK-India Education and Research Initiative (UKIERI) to partner with the United States. Analysis of data is ongoing, with IIT Delhi continuing to collect air samples.

India says will not be bulldozed at climate talks

Source : *Mail Online*

Date: 5th December, 2014

India, the world's third-largest greenhouse gas emitter, said Thursday it is committed to tackling global warming but vowed to protect its interests at the latest round of UN climate talks in Lima.

"We will walk with confidence with our own aggressive actions on climate change," India's environment minister Prakash Javadekar told Indian television network NDTV on the eve of his departure for the Peruvian capital.

United States and China, the world's top two emitters of carbon dioxide, signed a landmark deal last month to work together to cut their carbon footprint.

With air pollution reaching alarming levels in Indian cities, pressure is mounting on the government to improve air quality ©Roberto Schmidt (AFP/File)

India's economy still is far behind that of China and government officials have argued in the past that this is why the South Asian country should not be obliged to curtail its carbon



emissions. But with air pollution reaching alarming levels in Indian cities, pressure is mounting on the new right-wing government elected in May to improve air quality.

"We are growing and walking the energy-efficiency path," said Javadekar.

The government led by Narendra

Modi is a strong proponent of solar power.

The Indian minister insisted that India is "not the odd man out" in wake of the agreement between China and the United States.

But he said India would not be forced into accepting any measures that did not protect the country's interests at the 12-day conference that began Monday.

Energy-starved India is heavily dependant on coal-fired power plants and millions suffer regular power cuts.

While climate change experts have warned the South Asian giant of dire consequences from its dependence on coal, India has said it will not compromise on its goal of eradicating poverty. India has long maintained the burden of reducing the amount of carbon emitted lies with industrialised countries, and has opposed any move to shift the burden to developing nations. In a statement Tuesday, the government said its negotiating position would "enhance the solidarity among the developing countries on these (climate change) issues". The latest round of UN climate talks aims to pave the way for a deal in Paris in December 2015 to roll back greenhouse-gas emissions. Gathering 195 states, the 12-day meeting must agree on a common format for making pledges to reduce carbon pollution -- the cornerstone of a pact due to take effect from 2020. UN member countries have promised to limit global warming to two degrees Celsius (3.6 degrees Fahrenheit) over pre-Industrial Revolution levels. Scientists say the earth is on course for roughly twice this amount by the end of the century -- raising the threat of more extreme weather events such as droughts, floods and storms as well as rising seas.

India Green News: UN's Montreal Protocol tackles HFCs; PM Narendra Modi makes strong pitch for clean energy at G20 summit; India plans solar army, to train 50,000 people

Source : *SwitchBoard*

Date: 3rd December, 2014

India Green News is a selection of news highlights about environmental and energy issues in India. This compilation of the India Green News was authored by Nehmat Kaur.

November 20th – November 28th

200 countries agree to hold informal talks on hydrofluorocarbons issue

New Delhi: A breakthrough in the deadlock over greenhouse gas hydrofluorocarbons (HFCs) happened late Wednesday evening at the UN's Montreal Protocol on ozone depleting substances with nearly 200 countries agreeing to hold "informal discussions".

The developing nations fighting to keep HFCs out of the Protocol, which deals with production as well as consumption of ozone depleting gases, were able to buy some time with the European Union proposing an amendment to only hold informal discussions on the contentious issue.

On Wednesday, Jordan was leading the Gulf countries in opposing the formation of contact group for negotiations on HFCs. These countries, along with other developing nations such as Venezuela and Argentina, have not agreed to any formal meetings, or formation of contact groups for negotiations on the issue.

"The deadlock continues but we are better placed today than we were six months ago," Bhaskar Deol, India Representative at the Natural Resources Defense Council, said.

(Hindu Business Line, Nov. 20th, 2014)

India must be active in Lima climate change talks: Experts

New Delhi: India must get actively get involved in the climate change talks to be held in Peru next month, expressing how much it wants as its share in the "carbon budget", or the country's annual flow of emissions, and setting up time limit to reduce its carbon footprint, experts said Thursday.

The experts also maintained a global political will laced with an ethical approach can limit the effects of climate change.

Adaptation and mitigation are some preventive options to check climate change that must be adhered to by developing as well as developed countries alike in order to be successful in containing the problem, said Navroz K Dubash, a senior fellow of the Centre for Policy Research, at an event organized by Indian Women's Press Corps.

The recently-released Fifth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), a scientific intergovernmental body under the auspices of the United Nations, highlights the rising impact on all continents due to human influence on climate system.

(First Post, Nov. 27th, 2014)

Logjam on inclusion of HFCs to continue as India remains silent

PARIS: The six-year-long logjam at the Montreal Protocol on the inclusion of greenhouse gas hydro-fluorocarbons (HFCs), used as a coolant for refrigeration, is unlikely to be cleared at the United Nations this year.

India, which had been leading a group of countries, including the Gulf nations, for the last six years in protesting against proposals to amend the protocol to include HFCs, maintained its silence. However, over a dozen countries such as Saudi Arabia, Kuwait, Jordan and Venezuela, are opposed to the formation of a contact group to negotiate the issue of HFCs. With the formation of an informal group for discussions on the proposed amendment, a breakthrough remains highly unlikely.

While India, like China and Brazil, remained neutral towards the proposed amendment, senior members of the Indian delegation also confirmed that India will not oppose the formation of a contact group, if asked at a later date.

However, if such a proposal was made the country would highlight its demands and concerns, some of which include transfer of technology from the developed countries, monetary support and others.

(Hindu Business Line, Nov. 19th, 2014)

India needs to improve energy efficiency by 2030: UN report

NEW DELHI: Nearly 100,000 premature deaths take place annually due to air pollution in India and some other countries which can be avoided by 2030 by improving energy efficiency measures in transport and industrial sectors, a United Nations report today said.

The fifth Emissions Gap Report 2014 by the United Nations Environment Programme (UNEP), which was released today, said that countries across the globe need to "shrink" greenhouse gas emissions to net zero between 2080 and 2100 in order to limit global temperature rise to two degree Celsius.

The report said that improving energy efficiency can be an excellent opportunity for linking sustainable development with climate mitigation.

Launching the report in India, report co-author and professor at TERI University Ritu Mathur said that given the frequencies observed of extreme events taking place in the world as well as developing countries like India, there is a need to improve the preparedness level as countries like India have lesser coping capacities with such extreme events.

(Business Standard, Nov. 21st, 2014)

Energy

PM Narendra Modi makes strong pitch for clean energy at G20 summit

NEW DELHI: With India getting ready to give a big push to tap solar energy in the next six to eight years, the Prime Minister Narendra Modi on Sunday pitched for a global effort to make clean energy available to all through concerted actions which can be a major economic opportunity for all countries across the globe.

He articulated his point in his statement on energy at G20 summit in Brisbane, Australia.

Seeking collective R&D effort and collaboration in the direction of having clean energy path, Modi urged the leaders of big economies to set up a "global virtual centre" for clean energy research and development, with adequate public funding, which will fund collaborative projects in diverse sources of clean energy, smart grids and energy efficiency.

His remarks came at the time when his government is planning to target up to 100,000 MW of solar generation by 2022, far more than an existing 20,000 MW target by 2020.

(Times of India, Nov. 16th, 2014)

India plans solar army, to train 50,000 people

NEW DELHI: The government is planning to train around 50,000 people in areas related to solar power—a so-called solar army that would help India achieve ambitious targets in harnessing the power of the sun.

The workforce will be trained through organizations such as the industrial training institutes (ITIs) under the government's national skill development mission. While India has a solar generation capacity of 2,900 MW, the National Democratic Alliance (NDA) government has substantially revised an earlier target of achieving 20,000 MW capacity by 2022 to 1,00,000 MW.

This would require an investment of around Rs.6.5 trillion over five years.

"For us to achieve this ambitious target, there will be a requirement of land, labour and capital. This 50,000-strong solar army will be provided three to six months training in the solar energy related areas, which will also prepare them for the job opportunities that the sector will have to offer," a government official said, requesting anonymity. "On the other hand, they will help meet the sector's demand for a workforce."

(Live Mint, Nov. 19th, 2014)

IEX sees sluggish demand for renewable energy certificates

NEW DELHI: Reflecting sluggish demand, Indian Energy Exchange this month saw sale of just over 93,000 renewable energy certificates out of nearly 52 lakh that were available.

The total number of sale bids, together in solar and non-solar segments, stood at around 51.88 lakh during the REC trading session held on Wednesday.

However, REC trading activities this month were better than in October when only about 36,000 such certificates were sold.

The session yesterday saw trading of 93,100 non-solar and 245 solar RECs, the exchange said in a statement today.

Renewable energy certificates are used as instruments to help entities meet the Renewable Purchase Obligation set by states. One REC is equivalent to 1 MWh of energy generated from renewable sources.

(Business Standard, Nov. 27th, 2014)

Indian Factories Will Count and Sell Their Energy Savings

SAN FRANCISCO: India, the world's third-largest producer of greenhouse gas, after China and the United States, has resisted international pressure to commit to capping planet-warming emissions. But when it comes to saving energy, India is moving ahead briskly.

Its innovative and closely watched program called Perform, Achieve and Trade, is designed to encourage hundreds of the nation's largest industrial plants to keep their energy use in check.

The program sets a goal of cutting energy use an average of about 4 percent per unit of output at the factories. Those that save extra energy can sell their savings to plants that fail to meet their targets. It is a market-style system akin to cap-and-trade, but the "cap" is an energy efficiency target. Linking the savings to output lets India reduce the intensity of energy use but still increase production to meet its needs as a developing nation.

"What's being launched is a national program of trading in certificates representing energy savings," said Noah Sachs, a law professor at the University of Richmond in Virginia, who spent the spring studying the program. "It's really interesting. There's no other country in the world that's doing this so ambitiously."

(NY Times, Nov. 26th, 2014)

Environmental Health & Governance

India court slams Delhi's worsening air pollution

NEW DELHI: India's environment court has slammed the government over the capital's horrendous air pollution, which it said was "getting worse" every day, and ordered a string of measures to bring it down.

The National Green Tribunal directed all vehicles older than 15 years be taken off New Delhi roads, pollution checks undertaken for all state-run buses and air purifiers installed at the city's busy markets.

Environmentalists welcomed the decision, saying policymakers were failing to heed the "emergency" facing the city of 17 million people.

"We applaud the tribunal's urgency on Delhi's pollution which is reaching toxic levels," Chandra Bhushan, deputy director general of the Delhi-based Centre for Science and

Environment.

"But the measures need to go further to deal with issues like the 1,000 new vehicles coming on to the roads each day," he told AFP.

"The government has a legal obligation to introduce the tribunal's measures," he added.

(The Guardian, Nov. 27th, 2014)

'Leapfrog to cleaner norms'

NEW DELHI: A day after National Green Tribunal gave a detailed order for tackling air pollution in Delhi, the agencies tasked to do so seemed to be in a haze. In fact, some officials claimed they were yet to read the order which has asked for a complete ban on more than 15-year-old vehicles. Delhi Pollution Control Committee (DPCC) and the environment department of Delhi government - which have been entrusted with implementation of several directions, including creating a web portal where citizens can upload pictures or complaints of open burning or other pollution-related issues, and exploring the possibility of installing air purifiers in markets - said they need time to study the order.

"Let the officials read the order first. We will try to implement whatever the Tribunal has directed us to do," said Sanjiv Kumar, secretary, environment. Other officials, however, seemed less enthusiastic. "We are already busy with other orders of NGT. I am not sure how such elaborate directions can be implemented in Delhi," said another official.

Activists are more hopeful. Centre for Science and Environment (CSE) has appealed to NGT to broaden the scope of its order. "We appeal for more stringent measures to bring down the severe peak pollution levels in Delhi. The city needs stronger action to reduce vehicle numbers, scale up walking, cycling and public transport, and leapfrog to clean emission standards," said a CSE statement on Thursday.

Old vehicle ban triggers scrap mountain fear in Delhi

Source : *India Today*

Date: 3rd December, 2014

A mammoth effort to clean the capital's notoriously dirty air may end up turning Delhi into a junk yard. The National Green Tribunal has ordered that all vehicles aged over 15 years be taken off the roads. Delhi has an estimated 29 lakh 'unusable' vehicles out of a total of 82 lakh vehicles and the city administration is clueless what to do with the former. The national capital has no authorised scrap yards and authorities fear discarded vehicles may clog city streets.

On Tuesday, the Secretary-cum-Commissioner of Delhi's Transport Department, Gynaesh Bharti, said the number of vehicles that are over 15 years of age amounts to no less than 29

lakh in Delhi. Sources present in the meeting said that Bharti pleaded it would be impossible for the state to impound and stock so many vehicles at one go.

The National Green Tribunal has till now refused to budge from its order and reiterated its stand at a meeting of all stake holders that old vehicles must be pulled off roads to curb toxic emissions and check rising air pollution.

NGT chairperson Justice Swatanter Kumar, who presided over the meeting, said he was not passing a new order but only emphasising earlier Supreme Court rulings imposing restrictions on vehicles that are more than 15 years old and directing authorities to take steps to control air pollution. Justice Kumar said it is now up to the government departments to implement the order.

The joint secretary of the ministry of road transport and highways requested the court to consider vehicles as 'old' by their fitness levels and emission standards and not by years spent on the road. The bench ruled out both. On a specific order of the court, passed on November 26, on providing alternative routes to highly polluting trucks crossing Delhi, government officials explained that the western Peripheral Expressway (WPE) for heavy vehicles going to Haryana will be ready only by 2016 and it was not possible to put the project on fast track.

The suggestion of setting up air purifiers in Delhi markets also did not hold ground as such an experiment had failed during the Commonwealth Games in 2010.

The additional secretary of the ministry of urban development said they had already set up a high-powered committee to look into "decongesting Delhi" with respect to traffic and parking.

The managing director of Delhi Transport Corporation (DTC) cited paucity of funds to run small buses which could help during peak traffic hours and bring down pollution. The ministry of environment and forests had its own suggestions such as sprinkling of water on roads, footpaths and trees to settle dust.

Mail Today spoke to air quality modeling experts who said that the city needs an 'old vehicle dismantling and scrapping' policy to implement the ruling which is a "step in the right direction". Anumita Roychowdhury, head of Air Pollution and Clean Transportation at Centre for Science and Environment, said, "A combination of strategies is required to effectively implement the order. This would require a taxation policy whereby higher taxes are imposed on older vehicles and their entry into city centres is also curtailed. Both Beijing and Germany label vehicles of older and non-conforming emission standards with yellow and their entry into the city is banned on aggravated pollution days."

She added that a robust, start-to-finish 'dismantling and scrapping policy for old vehicles' is

also needed wherein "manufacturers are obliged to use parts that can be recycled and then purchase the vehicle back when it has crossed the expiry date." IIT Delhi professor Mukesh Khare gave the example of USA which has a system in place with scrapping yards that take care of toxic lead batteries and oil leaches. He said: "Scandinavian countries have a policy whereby the vehicle insurance providers charge a premium and then compensate the vehicle owner when he voluntarily submits it after it has become nonconfirming to prevalent emission standards."

Earlier, on November 26, a National Green Tribunal bench, comprising Justice Swatanter Kumar and expert members DK Agarwal and AR Yousuf, had passed the order to ban all vehicles over 15 years from Delhi roads, taking both the government and citizens by surprise. The bench had summoned no less than 18 central and Delhi government departments - ministries of environment and forests, petroleum, road and surface transport, urban development, Delhi departments of health, traffic - to iron out issues involved in executing the order.

Delhi earned the notoriety of having the worst air quality in the world when WHO ranked it above even Beijing earlier this year.

Air pollution in Delhi is worse during winter: Study

Source : DNA

Date: 3rd December, 2014



As the cold weather is setting in, people are exposed to significantly higher levels of air pollutants in Delhi during winter season compared to summer season, as per a study.

Air pollution in Delhi is worst during the winter season, as per the study jointly conducted by the University of Birmingham (Britain), the Indian Institute of Technology - Delhi, the Central Road Research Institute (India), and the Desert Research Institute (US). The study is likely to assist in

the development of targeted policy instruments to control air pollution.

According to researchers, air samples were collected in June 2013 and between December 2013 and January 2014, adjacent to a heavy traffic site on Mathura Road, an area highly influenced by industrial emissions in Delhi.

The research said, "It was found that for average 12 hours...PM 2.5, fine particles, which is less than 2.5 micrometers in diameter, concentrations in winter were significantly higher

than the 24-hour National Ambient Air Quality Standard in India." "Harmful components including lead, zinc and polycyclic aromatic hydrocarbons were found to be present in very high concentrations during winter season," it stated.

The study said the particles are associated with respiratory diseases such as asthma and bronchitis, and they can also cause inflammation and exacerbate cardiovascular diseases.

Earlier in 2014, the government identified air pollution as one of the top 10 health risks for India. "Exposure to particulate matter affects human health but cost-effective abatement measures depend upon a quantitative knowledge of the contributions of different sources in the atmosphere," said Roy M. Harrison, professor, University of Birmingham.

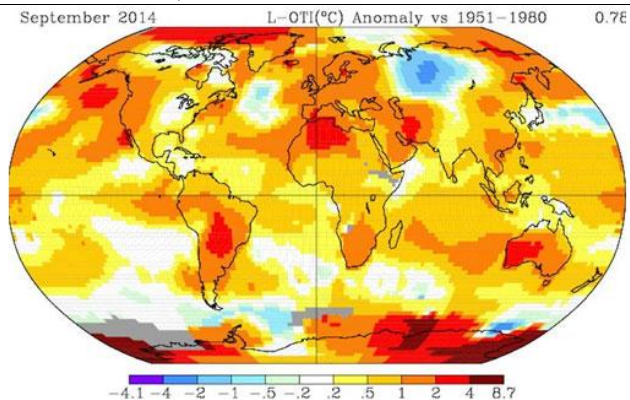
The quantitative analysis shows that sources of particulate matter include soil, dust and emissions from vehicles, wood, coal and waste burning.

"Dust and soil level in the air increase in summer when temperatures are high with less rainfall. However, in winter season, when people use wood and other substances for heating, low temperature accompanied with little or no wind can lead to building-up of pollutants in the atmosphere."

How India could be a game-changer in the war on global warming

Source : *Daily Digest News*

Date: 2nd December, 2014



Climate change talks have largely focused on policy-making deals in the nations that created the problem with their fossil fuel emissions—the United States and European Union countries. Now the climate change world is shifting its attention on the developing nations positioned to be either major contributors to future greenhouse gas emissions or models of how to regulate the emissions.

In fact, China has stepped up to the challenge and has agreed to join the U.S. in making firm commitments to reduce greenhouse gas emissions. The new critical questions is this. Will India follow suit?

India is currently the world's third-largest greenhouse gas emitter and has a legacy of standing next to China on climate change policy. With representatives from 200 nations meeting in Lima, Peru, to discuss climate change management, a high probability that India will act responsibly is emerging.

Both India and China face the problem that burning fossil fuels not only contributes to the global greenhouse gas burden but also produces local air pollution problems. Both nations have experienced even deadly levels of local air pollution to the extent that the World Health Organization now monitors for airborne particulate concentrations above acceptable limits in many cities in China and India.

Airborne particulates are widely believed to be the most detrimental type of air pollution for human health. More than half of the cities in China and India fail their own airborne particulate standards. This pollution exerts tremendous negative impact on these emerging economies by shortening lives and negatively influencing health. As a result, China's residents increasingly call for better emissions regulation, and the government has responded with policies to move away from coal and other fossil fuels.

India's new prime minister, Narendra Modi, has acknowledged the nation's air pollution problem, which some say is worse than China's. Modi promised to make air quality data publicly available. More recently, the Indian government has said it will announce revised emissions standards for power generation facilities.

The rest of the world is waiting to see whether India will follow China in translating pledges into actions.

India can have healthier growth with greenhouse-gas limits

Source : *Live Mint*

Date: 1st December, 2014

India lags far behind rival China in wealth and development—and also in the amount of carbon dioxide it spews into the atmosphere. Indian leaders say this explains why they shouldn't be expected to limit their greenhouse-gas output as China has just done. At global climate talks in Lima this week, they'll probably also point out that 1 in 4 Indians still lacks electricity, so the country can't afford any limits on economic growth.

In fact, India's relatively low level of development is exactly why it stands to benefit from setting aggressive emissions targets. It means, first, that the country has a chance to build smarter. According to one government estimate, some 70% of India's buildings in 2030 will have been constructed after 2011. Enforcing strict green building codes now, and providing financial and tax incentives to comply, would limit the carbon intensity of India's growth

and, at the same time, improve its air quality and help businesses save money.

In a similar way, the rapid expansion of India's smaller cities offers an opportunity to upgrade public transportation and avoid productivity-killing gridlock. Eager to boost India's manufacturing sector, Prime Minister Narendra Modi has already backed plans for efficient new rail freight corridors, an encouraging sign. If his government also rationalized pricing—traditionally, high freight tariffs have subsidized passenger fares, while diesel subsidies, now lifted, made road transport artificially cheap—it could enlarge the share of goods shipped by rail, which has fallen to less than a third.

For its own reasons, notably India's poor oil and gas reserves, Modi's government has already set ambitious targets for renewables, hoping to reach 100 gigawatts of solar power by 2022, from around 3 gigawatts on Monday—a commendably ambitious target. While that may be a stretch, the country is well-positioned to benefit from new energy storage and distribution technologies that can bypass the decrepit transmission grid. If Modi continues to eliminate subsidies as he's promised, his government could also invest more in energy research and development, and reduce the country's dependence on imported (mostly Chinese) green technology.

Committing to these strategies—say, by setting more ambitious targets for reducing carbon intensity, if not emissions—won't be cheap. Indeed, it could knock 0.15% off annual growth, according to a government estimate, if India gets no outside financial support for the effort. But the investment will pay long-term dividends, and it's a cost India can't afford to dodge.

India must think long term about carbon emission

Source : *Daily News*

Date: 1st December, 2014

India lags far behind rival China in wealth and development – and also in the amount of carbon dioxide it spews into the atmosphere. Indian leaders say this explains why they shouldn't be expected to limit their greenhouse-gas output as China has just done.

At global climate talks in Lima this week, they'll probably also point out that 1 in 4 Indians still lacks electricity, so the country can't afford any limits on economic growth.

In fact, India's relatively low level of development is exactly why it stands to benefit from setting aggressive emissions targets. It means, first, that the country has a chance to build smarter.

According to one government estimate, some 70 percent of India's buildings in 2030 will

have been constructed after 2011. Enforcing strict green building codes now, and providing financial and tax incentives to comply, would limit the carbon intensity of India's growth and, at the same time, improve its air quality and help businesses save money.

In a similar way, the rapid expansion of India's smaller cities offers an opportunity to upgrade public transportation and avoid productivity-killing gridlock. Eager to boost India's manufacturing sector, Prime Minister Narendra Modi has already backed plans for efficient new rail freight corridors, an encouraging sign.

If his government also rationalized pricing – traditionally, high freight tariffs have subsidized passenger fares, while diesel subsidies, now lifted, made road transport artificially cheap – it could enlarge the share of goods shipped by rail, which has fallen to less than a third.

For its own reasons, notably India's poor oil and gas reserves, Modi's government has already set ambitious targets for renewables, hoping to reach 100 gigawatts of solar power by 2022, from around 3 gigawatts today – a commendably ambitious target.

While that may be a stretch, the country is well-positioned to benefit from new energy storage and distribution technologies that can bypass the decrepit transmission grid. If Modi continues to eliminate subsidies as he's promised, his government could also invest more in energy research and development, and reduce the country's dependence on imported (mostly Chinese) green technology.

None of this would end coal's dominance in India's energy picture. It will long be the cheapest, and dirtiest, source of power, and the government has already laid plans to double state-run Coal India's output during the next five years.

Right now, however, only about 6 percent of coal-fired power plants use so-called super-critical boiler technologies, which are much cleaner than older systems.

As new plants come online between now and 2030, that proportion could be pushed to more than 50 percent.

Upping the existing coal tax and expanding it to other fossil fuels would also make clean energy more economically viable. Bigger investments in nuclear and hydropower projects could raise the proportion of energy generated by non-fossil fuels to a third by 2030.

Committing to these strategies – say, by setting more ambitious targets for reducing carbon intensity, if not emissions – won't be cheap. Indeed, it could knock 0.15 percent off annual growth, according to a government estimate, if India gets no outside financial support for the effort.

But the investment will pay long-term dividends, and it's a cost India can't afford to dodge.

With its long coastline and huge population (1.25 billion and counting), the country is worryingly vulnerable to flooding and other effects of climate change.

And the costs of India's air pollution – by some measures worse than China's – in terms of lost lives, health care and potential political tensions are certain to rise.

India should consider this week's talks an opportunity to set itself on a healthier growth path – for its own sake, no less than the world's.

— Bloomberg News

India says will not be bulldozed at climate talks

Source : *Channel NewsAsia*

Date: 5th November, 2014

NEW DELHI: India, the world's third-largest greenhouse gas emitter, said on Thursday (Dec 4) it is committed to tackling global warming but vowed to protect its interests at the latest round of UN climate talks in Lima.

"We will walk with confidence with our own aggressive actions on climate change," India's environment minister Prakash Javadekar told Indian television network NDTV on the eve of his departure for the Peruvian capital.

United States and China, the world's top two emitters of carbon dioxide, signed a landmark deal last month to work together to cut their carbon footprint.

India's economy still is far behind that of China and government officials have argued in the past that this is why the South Asian country should not be obliged to curtail its carbon emissions.

But with air pollution reaching alarming levels in Indian cities, pressure is mounting on the new right-wing government elected in May to improve air quality. "We are growing and walking the energy-efficiency path," said Javadekar.

The government led by Narendra Modi is a strong proponent of solar power. The Indian minister insisted that India is "not the odd man out" in wake of the agreement between China and the United States.

But he said India would not be forced into accepting any measures that did not protect the country's interests at the 12-day conference that began on Monday. Energy-starved India is heavily dependant on coal-fired power plants and millions suffer regular power cuts.

While climate change experts have warned the South Asian giant of dire consequences from its dependence on coal, India has said it will not compromise on its goal of eradicating poverty.

India has long maintained the burden of reducing the amount of carbon emitted lies with industrialised countries, and has opposed any move to shift the burden to developing nations.

In a statement on Tuesday, the government said its negotiating position would "enhance the solidarity among the developing countries on these (climate change) issues".

The latest round of UN climate talks aims to pave the way for a deal in Paris in December 2015 to roll back greenhouse-gas emissions. Gathering 195 states, the 12-day meeting must agree on a common format for making pledges to reduce carbon pollution - the cornerstone of a pact due to take effect from 2020.

UN member countries have promised to limit global warming to two degrees Celsius over pre-Industrial Revolution levels. Scientists say the earth is on course for roughly twice this amount by the end of the century - raising the threat of more extreme weather events such as droughts, floods and storms as well as rising seas.

Study offers new insight into New Delhi's air pollution woes

Source : *sitename*

Date: 4th November, 2014

New Delhi's air has already been ranked as the world's most polluted. But as researcher Joshua Apte tells DW, a new study has yielded some alarming results for anyone living near or alongside roads in the Indian capital.

Following a study published this year of 1,600 cities across the globe, the World Health Organization (WHO) found that New Delhi had the world's highest annual average concentration of small airborne particles - higher than major Chinese cities. The tiny floating particles, measuring 2.5 micrometres or less in diameter, are hazardous because they can penetrate deeply into the lungs and cause respira

tory and cardiovascular diseases. While Delhi authorities have disputed the WHO's findings, India's environment court, the National Green Tribunal, recently slammed the government over the capital's air pollution levels, directing all vehicles older than 15 years be taken off the city's roads and ordering that pollution checks be undertaken for all state-run buses and that air purifiers be installed at the city's busy markets.

While environmentalists welcomed the court's ruling, a study conducted by researcher Joshua Apte and his partners at the University of California, Berkeley, and the Indian Institute of Technology in New Delhi suggests this might not be enough. Roaming the Indian capital's streets in a autorickshaw fitted with air pollution monitors, the researchers found that average pollution levels were up to eight times higher on city roads. Air quality is represented by the annual mean concentration of fine particulate matter: PM10 and PM2.5, referring to particles smaller than 10 or 2.5 microns.

In a DW interview, Apte says the high pollution levels in Delhi come from a wide variety of sources, with no single dominant emissions source. As with many other places in the world, transportation is an important source, accounting for roughly 30 percent of the total PM2.5 emissions within the Indian capital.

DW: How would you describe the issue of air pollution in India's capital New Delhi?

Air pollution is a large and growing health concern in New Delhi and throughout India. In terms of health risks, the most important pollutant is thought to be PM2.5 - fine particulate matter - which has a strong association with premature death from heart attacks, stroke, lung cancer, and other diseases. Roughly 630,000 Indians die each year from diseases related to outdoor air pollution, more than three times as many as AIDS and malaria combined.

Over the course of a year, urban background - ambient - pollution levels in Delhi are among the highest levels measured in the world. However, official air quality monitors miss one important aspect of the air pollution that ordinary citizens experience. In Indian cities - and in many other countries, including the USA -, PM2.5 is measured at a small number of background sites that tend to be located away from major sources such as traffic. These monitors do not reflect elevated levels of pollution that people are exposed to on the road.

Our study took a detailed look at one aspect of air pollution - the very high levels that one frequently encounters in traffic. We found that the exposures that one experiences on and near roads can substantially exceed what one would measure at an official monitoring site.

What are the main contributing factors to this development?

Delhi has high urban background levels of PM_{2.5}, with annual average concentrations roughly 15-20x higher than WHO's recommended guideline: annual average concentration of 10 µg per cubic meter.

India's air quality figures can't be trusted

Source : *The Guardian*

Date: 20th October, 2014

Delhi is the most polluted city in the world, but it may actually be worse as faulty instruments, data fudging and lack of regulation allow industries to pollute with impunity



Smog obscures the view of the road as women wait for a bus in Delhi, India. Photograph: Prakash Singh/AFP/Getty Images

India is changing the way it maps pollution, with an update to its air quality index.. In its initial phase, eight pollutants will be tracked in 46 cities with populations exceeding a million people. After five years, the rest of the country will

slowly be brought into the system.

At the launch, the minister for environment and forests, Prakash Javadekar, said it wouldn't be "business as usual" anymore.

The move couldn't have come a moment sooner.

Five months ago, World Health Organisation declared Delhi to be the worst polluted city on earth. In a study spanning 1,600 cities across 91 countries, the organisation used India's own officially released data to show the city had the world's highest annual average concentration of microscopic airborne particles known as PM_{2.5}.

These extremely fine particles of less than 2.5 micrometres in diameter are linked with increased rates of chronic bronchitis, lung cancer and heart disease as they penetrate deep into the lungs and pass into the bloodstream. Delhi's annual PM_{2.5} reading was 153 compared to London's 16. Indian officials contested the study's finding but agreed Delhi was as bad as Beijing, although the latter's PM_{2.5} reading was only 56.

Faulty instruments

In fact, Delhi's air quality may be even worse. The Economic Times reports that the central pollution control board compared some India-made PM_{2.5} samplers with international ones a couple of years ago. A manufacturer of samplers, Rakesh Agarwal of Envirotech,



candidly said: “There was a 100% difference in readings.”

While some instruments leaked air from the sides, others evaluated a lower-than-stipulated volume of air. Agarwal explained the implications: “If I expect the air input to be 20 litres per minute, but get just 16 litres, my PM2.5 count will be lower.” If this is how

PM2.5 is measured, Delhi’s PM2.5 score is likely to be worse.

The Economic Times notes while the Indian government hasn’t set standards for these instruments, it makes it mandatory for manufacturing companies to adhere to the US Environment Protection Agency (EPA) specifications. It doesn’t check if these samplers comply with those standards. “Manufacturers self-certify.”

Children cover their faces as a precaution against air pollution in Delhi, India. Photograph: Sanjeev Verma/Hindustan Times via Getty Images

Users of these faulty instruments then fudge this flawed data. Since the early 1990s, industrial units have had to install air quality measuring units and send the data to the appropriate state pollution control boards. If emissions peak, the industrial unit may be shut down. So industries fabricate 90% of the data

by changing the calibration of their machines, or by injecting clean air into the intakes or by placing CM units [instruments] away from the plant and in a nearby wood or between trees.”

The Economic Times says 30 years after legislating the Air (Prevention and Control of Pollution) Act, India has no monitoring protocols. Here too, the country follows EPA standards that may be inappropriate for a tropical country with large volumes of dust. Even if instruments are accurately calibrated and real data flows in, there’s no system to monitor the information and act on it.

Air quality standards are not set according to zones such as residential and industrial areas. The entire country has one standard. All is fine as long as industries’ emissions do not push the overall air quality score above that standard.

So instead of investing in clean technology, industry promoters look for clean places. If it’s located in the countryside, which enjoys relatively low pollution, a company can get away with its emissions, unlike one in a crowded industrial area.

The whole system – from faulty instruments and data fudging to lack of policing – allows industries to pollute and get away with it.

Will the newly launched index improve air quality? It seems unlikely.

The proposed air quality index seems to be interested only in setting up more instruments in more places and providing colour-coded air quality information to the public. If people do become concerned about the quality of air they breathe, there's likely to be more fudging of data. The new index is no panacea for the rot in the system.

Despite the minister's exhortations, it's going to be "business as usual."

Air pollution on Diwali getting worse

Source : *The Times Of India*

Date: 18th October, 2014



An analysis of levels of various pollutants on Diwali day since 2010 reveals a disturbing trend. Levels of some pollutants, including sulphur dioxide (SO₂) and nitrogen dioxide (NO₂), seem to be on the rise.

NEW DELHI: The festival of light seems to be the worst time for people suffering from asthma and other respiratory diseases with the city's air quality deteriorating with each passing year during Diwali. Even the Delhi government's campaign against crackers has failed to bring down the pollution levels.

An analysis of levels of various pollutants on Diwali day since 2010 reveals a disturbing trend. Levels of some pollutants, including sulphur dioxide (SO₂) and nitrogen dioxide (NO₂), seem to be on the rise.

The levels of particulate matter (PM) 2.5 (particles smaller than 2.5 micrometres), which have serious health implications as these tend to get lodged in the lung and can even enter the bloodstream, have been seven to eight times higher than the standard level for several years.

PM 2.5 is associated with a number of health impacts such as asthma, bronchitis, chronic respiratory symptoms including, shortness of breath and painful breathing, and premature deaths. High SO₂ levels are also linked with inflammation of airways and severe breathing difficulty.

Meanwhile, the Delhi Pollution Control Committee (DPCC) on Friday announced that it had formed seven teams to assist DCs and visit various areas to check noise levels on Diwali. It asked the Delhi Police to ensure that the total number of firecracker licences issued this

year should not exceed the last year's figure.

List of licences granted to be displayed on the official website of licensing unit of the Delhi Police, a copy of which is to be given to the DPCC.

Sub-divisional magistrates have been asked to organize meetings with RWAs to sensitize them about of Supreme Court directions regarding complete ban on bursting of sound emitting firecrackers between 10pm and 6am.

As far as air pollution is concerned, Anand Vihar seems to be the worst affected. PM 10 (coarse particles) levels have been 10 to 13 times higher than the standard level in 2012 and 2013, PM 2.5 levels have been about seven to eight times the standard. Experts say heavy traffic in Anand Vihar and vehicles from Ghaziabad may be adding to the Diwali emissions. "We have noticed that even on regular days, air pollution levels are on the higher side in Anand Vihar, Civil Lines and IGI Airport. In Anand Vihar, the interstate traffic may be causing levels to go up. As for high SO₂ levels, they may be from imported crackers that seem to have high sulphur content," said Anumita Roy Chowdhury, head of clean air programme at the Centre for Science and Environment (CSE).

M P George, scientist at the DPCC air lab, said Anand Vihar's high particulate matter levels could also be linked to the industries near the Delhi border.

Delhi Pollution Control Committee had tested firecracker samples recently and found most of them to be flouting the Explosives Rules, 2008, as their manufacturers did not mention the chemical composition on the packages. This means that there is no monitoring of the heavy metals that are also emitted from crackers.

"You will notice that a lot of colour crackers are being used now. So they are not just noisy and polluting, they may be causing toxic pollution due to presence of heavy metals. We are not even aware of what health impacts these coloured and imported crackers may be causing," added Roy Chowdhury.

India launches its own Air Quality Index. Can its numbers be trusted?

Source : *The Washington Post*

Date: 17th October, 2014

After years of facing flak from global health experts for not doing enough to tackle worsening air pollution, India now says it will launch its own national air quality index in the next five years.

The index will rank 66 Indian cities and provide associated health risks in a color-coded manner that can be understood by everyone. The move, officials say, could raise public awareness of an issue that many Indians often overlook, but also push them to demand higher quality standards and laws.

"The index is meant to alert us, but it has to also drive us to action," said Ashok Lavasa, secretary of the ministry of environment, forest and climate change, at an event in New Delhi on Friday to announce the launch.

Earlier this year, a report by a Yale University research team showed that India ranked 174th



of 178 countries in air quality, somewhere close to China and Pakistan.

Then came the World Health Organization, that said New Delhi's air quality is the worst in the world, and that its annual average concentration of small particles was almost three times that of Beijing.

The reports prompted environmentalists here to call for stricter fuel emission standards across India.

Officials here had at that time dismissed it as "biased."

On Friday, India touted the launch of its own index.

"There was a lot of hue and cry over claims made by some foreign people at that time that the air quality in Delhi was the worst," said Susheel Kumar, chairman of the Central Pollution Control Board.

"We want to come out with our own national air quality index. Our team of experts are second to none in the world."

Air quality has steadily worsened in the past two decades in India, caused largely by rapid industrial growth, use of coal and growing urban traffic. Experts say that air pollution is the fifth-largest killer in India.

But producing credible pollution data is easier said than done.

A newspaper article this week titled, "Why India's Numbers on Air Quality Can't be Trusted," said state pollution control boards routinely under-report data for fear of looking bad; use dodgy machines that generate unreliable data; and routinely use imported machines that do not work well in local conditions.

Heavily polluted India launches national air quality index

Source : *Reuters*

Date: 17th October, 2014

(Reuters) - India has launched a new air quality index to help citizens understand complex pollution data and its implications for their health, the environment minister said on Friday. A World Health Organization (WHO) study of 1,600 cities released in May found New Delhi had the world's dirtiest air with an annual average of 153 micrograms of small particulates, known as PM2.5, per cubic metre.

Thirteen of the dirtiest 20 cities worldwide were in India, the WHO said. India rejected the report.

The new index, launched as part of Prime Minister Narendra Modi's 'Clean India Mission', will provide one consolidated number after tracking eight pollutants and will use colour coding to describe associated health impacts.

"In our cities air pollution is increasing ... we need to stop it," Environment Minister Prakash Javadekar said.

"This (index) will provide the common citizen one colour, one number and one description so that he can understand what is the level of air pollution."

Currently, India's air quality status is reported through "voluminous data", the government said. This makes it difficult for people to understand particle names such as PM2.5 or PM10.

"People don't know what these pollutants are and what happens when they reach a certain level. This index will help people understand air quality better," said Anumita Roychowdhury, head of air pollution team at the Centre for Science and Environment.

The environment minister said the government would also start action-oriented programmes in collaboration with the states to improve air quality, but he gave no details.

Roychowdhury said India needed to do more and should have emergency measures in place when pollution levels are high. In China, for example, primary schools are shut when pollution levels are at "red alert" levels, she said.

Air pollution killed about seven million people in 2012, making it the world's single biggest environmental health risk, the WHO, a United Nations agency, said in March.

(Editing by Gareth Jones)

Protecting Our Indian River group appeals to Superior Court

Source : *Coastal Point*

Date: 17th October, 2014

A courtroom in the Sussex County Superior Court in Georgetown was packed Monday morning, as Superior Court Judge Richard Stokes heard oral arguments for an appeal to overturn a decision by the Sussex County Board of Adjustment that allows the Allen Harim chicken processing plant to move forward in Millsboro.

Last year, Allen Harim announced its \$100 million plan to redevelop the former Vlasic pickle plant site for poultry processing.

Appealing the decision was Richard Abbott, attorney for Protecting Our Indian River, a group comprising of residents who are opposed to Allen Harim taking over the vacant former Pinnacle site.

Abbott said that the Sussex County Board of Adjustment did not follow Sussex County Code regarding potentially hazardous uses in a Heavy Industrial District.

"The Board, in reviewing the plans and statements, shall consult with other agencies

created for the promotion of public health and safety and shall pay particular attention to protection of the county and its waterways from the harmful effects of air or water pollution of any type,” Abbott read from the code.

“Shall consult with agencies,” Abbott said, means that Harim should have contacted the Center for the Inland Bays, the Environmental Protection Agency, Delaware Division of Public Health and the Sussex Conservation District.

“It’s a no-brainer that you would go to them,” he said.

Robert Gibbs, attorney for Allen Harim, said that, as the Delaware Department of Natural Resources & Environmental Control’s mission statement reads, “It’s the mission of the Delaware Department of Natural Resources & Environmental Control to protect and manage the state’s vital natural resources, protect public health and safety, provide quality outdoor recreation and to serve and educate the citizens of the First State about the wise use, conservation and enhancement of Delaware’s environment,” and therefore, by consulting with them, addressed the concern for public health and safety.

Gibbs went on to argue that the Code reads, “shall consult with other agencies,” not “all agencies,” and that he believed the Department of Public Health would be contacted when the process was further along.

“They haven’t done anything yet,” he said. “They haven’t even put up a building.”

He said that DNREC’s letter to the Board had showed the department did not have any concerns with the project, and that Harim would have to acquire a number of permits in order for the facility to be established.

“This was just the first step,” said Gibbs. “There’s going to be a lot more hearings.”

Abbott also said that the Board did not properly conduct the public hearings that were held. Although a public hearing was held on June 3, allowing public comment, the subsequent meetings, on June 17 and Sept. 13, did not allow for additional comments from the public.

“They re-opened the record and they solicited all these comments from State agencies, but then they didn’t permit people to come to the Sept. 23 meeting and comment on them,” said Abbott.

The two later meetings, he added, were not noticed or advertised, as the June 3 meeting had been, and a sign was not posted outside of the Pinnacle plant announcing that they were to occur.

“The community was not aware ... they could come,” he said. “Fundamentally, the Board erred.”

Gibb argued that the public hearing did not need to remain open while the Board kept the

record open to consult with other agencies.

"This is almost a second step," he said. "There's nothing that says it has to be a part of the public hearing process. The idea was the Board ... had to look prospectively."

Following oral arguments, Gibbs said that he felt good about the morning's proceedings.

"If we win this appeal, it's just the beginning," he said, adding that the project would continue to allow for public input in forums where citizens' concerns would be addressed.

A decision by Stokes was expected within 90 days after the oral arguments. Once it is made, his decision may be appealed to the Delaware Supreme Court.

Diversify the economy, boost biodiversity

Source : *Live Mint*

Date: 14th October, 2014



As a fast-developing country, India's economic growth is allowing millions to escape poverty. A new government has risen on this mandate of overcoming economic debacles, and is doing so by leaning on the primary sector of the economy, such as mining, a sector that is distinctly low in priority for developed countries. While developed countries have switched

to service and knowledge-based economies (tertiary and quarternary sectors), India's development plan remains firmly on the path to boosting gross domestic product through unsustainable natural resource use. The World Bank predicts that this inability to switch into tertiary and quarternary sectors will push Indians back into poverty by triggering a new recession. It claims that the Indian economy could crash due to shortages of clean air, food and water. The cost of environmental degradation in India was estimated to be \$80 billion annually in 2009. In 2012, the cost of ignoring environmental degradation was pegged at 3% of GDP. Deteriorating health due to poor air, water and food quality now costs India's economy about 5.7% of GDP. Several Indian economists at the World bank, along with former ministers such as Jairam Ramesh identify that this grow now, clean up later strategy is becoming prohibitively expensive. In other words, addressing environmental issues in the short term is actually a pro-development move. In the World Bank's 2014 survey of 178 countries, India ranked well below its new BRIC allies in terms of environmental quality. This survey was concluded well before the flurry of new environmental clearances to industry. How long can industries dependent on natural resources last if India's natural resources are being consumed at this pace? Spanning several different governments, India's development plan appears to repeat the mantra of encouraging natural resource

hungry industry at the cost of the environment. If this is the only foreseeable way to grow, then encouraging the primary and secondary sector requires planned natural resource use. Instead, there appears to be an irrational speed-up of development at present, despite the fact that India cannot afford to depend on globally-sourced resources. A strategy of keeping the current account deficit in check by only boosting natural resource-hungry industry merely delays the impending bubble burst. Current policy directives aimed at keeping the Sensex afloat indicate a rush of short term solutions. With environmental problems looming on the horizon, enthusiasm by a minister for environment, forests and climate change to promote industry by diluting due process should serve as a red flag. Even if India's GDP growth rate was to push beyond 5%, could her citizens continue to afford to live in the country? Several groups, including Delhi-based Centre for Science and Environment, have exposed the life-threatening effects of air pollution linked to thermal power, one of India's most resource-hungry primary industries. Despite the fact that India's dependence on coal for power is over 70%, there has been no attempt to address this issue in terms of the national budget or environmental clearances. From an economic standpoint, the last thing India needs is another financial slowdown. A rational growth track calls for diversification of industry. Rather than merely imitating or importing developments from the west, there is a need to encourage indigenous innovation. This innovation need not come at the cost of existing rules and regulations, particularly when these rules were instituted to safeguard basic citizen's rights to clean air, water and food. Improving well-being for Indians requires a balance of present and future concerns. The first step towards this is to move beyond a singleminded vision of industrialization and progress. Safeguarding India's economic future requires safeguarding the systems on which economics depends—its citizens, ecology and culture. Following environmental laws is one way to ensure that development is conducted with care. Divya Karnad is a wildlife biologist and geographer pursuing a PhD at Rutgers University, US.

India Clears 3000 MW Dibang Project In East Himalayan Region – OPED

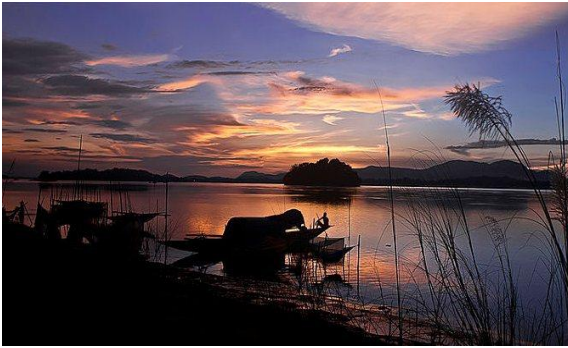
Source : *EURASIA Rreview*

Date: 14th October, 2014

New Threat for a million people and rich biodiversity in riparian Assam

The largest dam in Indian history will be built on Dibang river, a tributary of the Brahmaputrariver in a remote and pristine part of the country's northeast, and which ignores the potential damage to the area rich in ethnic cultures and biodiversity without

public consultation or a study of downstream impacts



India's Prime Minister Narendra Modi has given the green light to construction of the 3,000 megawatt Dibang hydropower project in the ecologically fragile region of Arunachal Pradesh, north-east India. It is to be noted, in the build up to this year's elections, Narendra Modi held a rally in Pasighat in the East Siang district of Arunachal Pradesh in February

where he acknowledged peoples' concerns about large dams and committed to developing small hydropower instead. "I know citizens of the region are against large power projects," he said. "I respect your sentiment. But hydropower can also be harnessed using smaller projects, while protecting the environment." The proposed dam on the Dibang river, a major tributary of the Brahmaputra close to the border with China, will be India's largest and one of the world's tallest dams.

The Forest Advisory Committee of India's Ministry of Environment and Forests cleared the dam last week, subject to a reduction in the dam height by 20 metres from the originally envisaged 288 metres. The committee has refused environmental clearances for the project twice before on the grounds it would destroy forests and impact the Dibru-Saikhowa National Park downstream in Assam state. The National Hydroelectric Power Corporation (NHPC) –the company behind the dam – submitted several revised proposals to the ministry, reducing the amount of forest cleared and the height of the dam structure. But on August 28 the Forest Advisory Committee rejected the latest proposal to submerge more than 45 square kilometres of forest land for the project.

The committee concluded the "ecological and social costs of destroying a vast tract of forest land which is a major source of livelihood for the state's tribal population would far outweigh the benefit likely to accrue from the project." However, days later the Prime Minister's principal secretary sent a letter to the Environment Secretary on September 3 to "clear the project expeditiously" as per the decision of the Cabinet Committee on investment. At the end of June, 298 projects were awaiting environmental approval, a backlog that Environment Minister Prakash Javadekar said last month he had subsequently cleared following 'Single Window Clearance' in the name of development. Only a handful of those projects were rejected or deferred for further analysis.

Opening the floodgates

The central government has decided to build the project without any public consultation or study of the potential impacts in downstream Assam state. Anti-dam activists are now concerned Modi's government will now push ahead with a series of mega dams planned in the northeast region, ignoring all expert and advisory committees in an attempt to harness "green" hydropower. The Dibang is just one of 168 massive dams slated to produce 57,000 megawatts of hydropower in Assam and Arunachal Pradesh states.

This strategically important region, which borders Myanmar in the east, Bhutan in the west and China in the north, is described by politicians as India's 'future powerhouse' and is a key focus point of the country's dam building programme. China is involved in a major dam building programme on its side of the border, also using the waters of the Brahmaputra – which it calls the Yarlung Tsangpo. China's plans to build a massive dam three times the size of the Three Gorges Dam on the Great Bend before the river swings round into India.

The Brahmaputra is one of the world's major rivers, winding across the Tibetan Plateau through China, India and Bangladesh before joining with the Ganga and flowing out into the Bay of Bengal. The dam building programme in north-east India has been highly controversial.

Opponents say it not only ignores geological and ecological factors – it also fails to take into account the impact of climate change in the region. Experts also say no proper overall plan has been put in place: though India and China have signed a limited agreement to data on river flow, there is no specific deal on managing the Brahmaputra's waters.

Protests about the dams have been growing, with work on the 2,000 megawatt Lower Subansiri dam on one of the Brahmaputra's tributaries – repeatedly held up. Most of the power produced will be exported to help ease power shortages elsewhere in India, like objective of Suwansiri Project. Organisations spearheading the anti-dam movement in the region agitating against mega dams are also determining to protest against the 16,000 crores (US\$2.6 million) Dibang project.

Hardly has the dust settled on the controversial lower Suwansiri Hydro-electric Project when the region have another mega dam all but approved by the Central Government in the geologically and ecologically sensitive Eastern himalayas in Arunachal Pradesh, The Assam Tribune, a leading daily in northeast Indian region said. The proposed dam is the biggest of its kind in the country and the wisdom of having such a massive intervention on a fragile location must be questioned.

Organisations spearheading the anti-dam movement in the region agitating against mega dams are also threatening to protest against the 16,000 crores (US\$2.6 million) Dibang project. It is planned that most of the power produced will be exported to help ease power

shortages elsewhere in India. Shoddy clearances in utter disregard to environmental and downstream concerns have become the norm – something typical of New Delhi's handling of complex issues concerning the north-east region. People of the region have decried the government's plan to go ahead with as many as 168 large hydro-electric projects in the region on the ground that the basic concerns such as downstream impacts in the form of flood, siltation moraine, erosion, loss of biodiversity, seismic vulnerability of the region etc. seems to corroborate the stance of the opponents of the big dams.

The way pristine wildlife habitats are disappearing across the planet, protection of biodiversity hotspot is a concern of not just the northeast Indian region but of the entire world. While the proponents of the hydro-power policy would argue that it is the best way to get the cheap, non-polluting power so critical for development, the question unanswered is that the colossal social and environmental costs of these mega dams could effectively negate the benefits. Scientific study done by impartial agencies involving top environmental scientists must precede construction of any big hydro project in the region. And last but not the least, the logic of having so many dams in Arunachal Pradesh seems to be a preposterous proposition in any count, the Assam Tribune said. Given the complexities involved in the exercise of extracting electricity through large dams in the region, the situation definitely calls for a resentment of the Central government's hydro-power policy for the north-east India region. A riparian state like Assam stands to be the worst-hit by the project, the state has already have been victims of dam-induced floods several times in the recent past. A new kind of desertification has spoiled agricultural land of Majuli, Lakhimpur and Dhemaji districts. Making large-scale intervention on the Himalayan ecology could also lead to catastrophic and irreversible consequences for its biodiversity of global importance.

Beijing stage slashed over air pollution

Source : *Times of India*

Date: 11th October, 2014

BEIJING: Heavy air pollution forced Tour of Beijing organisers to slash the cycle race's second stage by about a quarter on Saturday following complaints from riders.

Belgium's Philippe Gilbert surged into the lead on the curtailed stage, which was planned to run 147.5 kilometres (92 miles) from Chongli to Yanqing on the outskirts of Beijing.

But after days of thick smog in the Chinese capital, organisers ended the stage 36 kilometres early at the 111-kilometre mark, "due to weather in Yanqing".

"Air quality in Beijing has been very poor in the past few days and this has spread to surrounding areas including Yanqing," read the race's official Twitter feed.

Saturday's hilly stage stretched through an area which is part of Beijing's bid to host the

2022 Winter Olympics.

The decision to reduce the race may concern football fans with heavyweights Brazil and Argentina due to clash in a "Super Clasico" friendly in Beijing later on Saturday.

Gilbert said riders had asked cycling body UCI (Union Cycliste Internationale) to reduce the race.

"We spoke together with the organisation, UCI, and everyone agreed that we should cancel the last 30K," he said. "I think it was a good decision."

"This means a lot, because a lot of times in the past ... they didn't listen to us," he added.

"And today, we did a big step in our sport, I think."

The first stage took place Friday in rolling hills well to the north of the city, and under often blue skies with clear visibility.

But Saturday's course saw the riders make their way closer to the Chinese capital, which has been shrouded by pollution more than 20 times over recommended maximum levels.

The race, the final WorldTour event of the season, is being run for the last time, and has also been overshadowed by some top-level withdrawals including Tour of Spain winner Alberto Contador.

Firecrackers pass Maharashtra Pollution Control Board noise test

Source : *Times of India*

Date: 11th October, 2014

AURANGABAD: The Maharashtra Pollution Control Board's (MPCB) attempt to keep a check on noise pollution during Diwali in Aurangabad has shown a sign of improvement: only one type of firecracker was found to have slightly surpassed the permissible sound limit this year. The cracker had exceeded the limit considerably in 2013.

Officials of the MPCB and the police conducted a test of firecrackers on Friday at the Jhalani Ground, MIDC area in Chikalthana. Firecrackers of around 15 manufacturing units were tested, of which only one was found to have exceeded the permissible limit.

"Testing firecrackers helps determine whether they are legally permissible to be sold. The firecracker vendors have to get a license from the police department to sell these. The MPCB aims to take action against those found selling crackers that are above the prescribed decibel limit and will seek help from the city police. By conducting the tests in advance, the MPCB and police officials will get more than two weeks to take punitive action. As per the rules, a single firecracker should not exceed more than the 125-decibel limit, while the noise of a serial firecracker should not exceed 105 decibel," said Pravin Joshi, regional officer, MPCB, Aurangabad.

"On Friday, the MPCB conducted tests on firecrackers manufactured by around 15 units, of

which one - the 2000 shells manufactured by Standard Fire Works, Sivakashi was found to cross the peak value of 105 against 109.1, while last year it had reached the 111 dB level. The manufacturer will be again asked to bring down the dB level of the firecracker," said Joshi.

"Volcano, Pukar bomb green, New Parrot Bomb, Soldier Bomb, Magic Fountain, Hydro Bomb green, bullet bomb, lavangi bomb, sheri anaar, flower pots, music party, Shanghai Nights and Magic Whip were among the firecrackers that were tested, which maintained the permissible dB," he said.

Explaining about the test, Joshi said, "The level of sound created by an individual firecracker is measured with the help of a hand-held machine that shows the amount of noise generated by the respective firecracker."

Joshi appealed citizens to abstain from fire-crackers that not only cause noise but air pollution as well; he appealed to people not to use the sheri anaar, since the cracker, while within the permissible noise limit, causes considerable air pollution. Joshi said that the MPCB would hire a vehicle to create awareness on firecrackers that cause noise and air pollution and their adverse effects on health. Pamphlets would be distributed across the city on Saturday and Sunday.

He urged citizens to burst crackers for one day, rather than indulging in this over all four days. "The best practise would be engage in community celebration, which would help curb the spread of pollution," Joshi said.

"The SC has also banned loudspeakers and bursting of firecrackers in residential areas between 10 pm and 6 am. Noise in residential areas should not exceed 55 dB during the day and 45 dB at night. Only during commercial events that this rule is relaxed a bit, allowing 65 dB during the day and 60 dB at night," he said

Days of heavy air pollution blight northern China

Source : Zee News

Date: 10th October, 2014

Beijing: Days of heavy smog shrouding swathes of northern China pushed pollution to more than 20 times safe levels on Friday, despite government promises to tackle environmental blight. Visibility dropped dramatically as measures of small pollutant particles known as PM2.5, which can embed themselves deep in the lungs, reached more than 500 micrograms per cubic metre in parts of Hebei, a province bordering Beijing.

The World Health Organization`s guideline for maximum healthy exposure is 25.

In the capital buildings were obscured by a thick haze, with PM2.5 levels in the city staying above 300 micrograms per cubic metre since Wednesday afternoon and authorities issuing

an "orange" alert.

"It's very worrying, the main worry is my health," said a 28-year-old marketing worker surnamed Hu, carrying an anti-smog mask decorated with a pink pig's nose as she walked in central Beijing.

China has for years been hit by heavy air pollution, caused by enormous use of coal to generate electricity to power a booming economy, and more vehicles on the roads.

But public discontent about the environment has grown, leading the government to declare a "war on pollution" and vow to cut coal use in some areas.

Nonetheless poor air quality has persisted with officials continuing to focus on economic growth, and lax enforcement of environmental regulations remains rife.

In a sign of growing environmental activism, Greenpeace East Asia projected the message "Blue Sky Now!" onto a facade of the Drum Tower, a historic building north of the Forbidden City.

The pollution -- which also hit areas hundreds of kilometres from Beijing -- comes as the city hosts a high-profile cycling tournament, the Tour of Beijing, and a Brazil-Argentina football friendly.

Global heads of state from the US, Russia and Asia are set to gather in the capital for a key summit next month.

City authorities said Thursday that they would place tighter restrictions on vehicle use during the APEC Economic Leaders' Meeting in November, while requesting neighbouring areas to shut down polluting facilities.

But most locals were not wearing protection Friday, and several people said they believed Beijing was being hit by natural haze, rather than pollution.

Even so, sitting in a Beijing park 82-year-old Liu Shuying said: "There are too many cars. I don't wear a mask because I'm not afraid of death."

China tries to keep a lid on air pollution for APEC Summit

Source : *Zee News*

Date: 10th October, 2014

Beijing: China plans to keep a tight rein on air and water pollution by cutting emissions from vehicles and industries when it hosts leaders of 21 APEC nations including US President Barack Obama early next month.

"Beijing will make every effort to prepare for the APEC meeting and we need to control air and water pollution," said Guo Jinlong, the city's Party chief.

The measures, aimed at improving air quality for 10 days during the APEC Economic Leaders' Meeting starting November 3, came as the capital has been hit by severe pollution



in recent days.

The situation is forecast to remain until tomorrow as the municipal authorities yesterday raised the smog alert to orange, second-highest level before red.

The city will restrict the use of private vehicles based on even/odd-numbered license plates,

reducing its use by 35 per cent, the municipal traffic committee said yesterday.

The measures are similar to those introduced from July 20 to September 20 in 2008 during the Beijing Olympic Games.

Vehicles transporting construction waste and dangerous chemicals will be barred from the capital's roads during this period.

The restrictions will not apply to buses, taxis and other vehicles such as police cars, state-run China Daily reported.

"The number of passengers using public transport will increase by 3 million a day," Li Shaoming, deputy director, Beijing Traffic Management Bureau, said.

During this period, 400 additional buses will be used to transport commuters to meet the increased demand.

Zhuang Zhidong, deputy director of the Beijing Municipal Environmental Protection Bureau said that from November 3, production at some companies listed by the government will be suspended for 10 days.

"Work will also be suspended at all construction sites and on demolition projects during this period.

"More important, Beijing will work with its neighbouring provinces to control emissions," Zhuang said, adding that six governments will hold regular discussions on air pollution.

Media reports said that between November 7 to 12, employee departments, institutes and social organisations in Beijing can observe holiday, except for bureaus dealing with the APEC meeting and city management.

Trucks give night pollution a free run

Source : *The Times of India*

Date: 9th October, 2014

KOLKATA: The state government has banned 15-year-old commercial vehicles, replaced petrol-drive two-stroke autos with four-stroke LPG ones and put into effect Bharat Stage-IV

emission standard. But all measures have failed to yield result as air pollution shoots up at night when overloaded goods vehicles emit toxic fumes unchecked.

According to a senior Pollution Control Board (PCB) officer, emission by overloaded vehicles at night is defeating the purpose of implementing stringent norms during the day. There has been no control over emission standard of thousands of goods vehicles that enter the city after 9pm and ply till early morning next day, he conceded.

In fact, the respirable particulate matter (RPM) and nitrogen dioxide (NO₂) level at night have shot up alarmingly, stated PCB in its report to the high court. Environment crusader Subhas Dutta said: "The transport department and the pollution board have admitted the problem. I had submitted some suggestions to curb this menace. But no action has been taken till date."

As many as 50,000 overloaded and polluting goods vehicles enter the city every night. According to a government report, only 1,091 tests were carried out over the last one year. "This effectively means that not even three vehicles were checked in a day. At least 200 tests should be carried out every night. The Supreme Court had issued specific directions in 2005 to check the movement of overloaded, polluting goods vehicles," said Dutta, who was the first to start a legal battle to stop night pollution.

The SC had directed the government to put up checkpoints along national highways to measure the weight of goods vehicles and their emissions. If a vehicle was found to be overloaded, the additional load was to be dumped on the spot. Nearly all states have followed these directions, except Bengal.

An analysis of air quality data of 17 manual stations in Kolkata revealed that except monsoon months, the trend of RPM levels is increasing from day to night time over the last four years. Comparison of daily average concentration of RPM level with that of night shows that from September to March every year, the RPM concentration at nights is more than that of during the day.

Nitrogen di-oxide is a typical air pollutant directly related to emissions from fossil fuel burning, said a PCB official. Nitrogen di-oxide, for Kolkata, has been on the higher side compare to the national standard.

Asia-Pacific Air Quality Control Systems (Flue Gas Desulphurization, Electrostatic Precipitators, Fabric Filters, Nitrogen Oxide Control Systems, Scrubbers, Mercury Control Systems) Market - Forecasts to 2019

Source : *Digital Journal*

Date: 8th October, 2014

DUBLIN, Oct. 8, 2014 /PRNewswire/ -- Research and Markets has announced the addition of the "Asia-Pacific Air Quality Control Systems Market by Technology, by Application, and by Country - Trends and Forecasts to 2019" report to their offering.

This report estimates the 'Asia-Pacific Air Quality Control Systems Market' in terms of value. The Asia-Pacific air quality control systems market is segmented on the basis of the technology type used which includes flue gas desulphurization (FFGD), electrostatic precipitators, fabric Filters, Nitrogen Oxides (NOX) control systems, and scrubbers & Mercury control systems. The market is further segmented on the basis of countries such as Australia & New Zealand, China, India, Indonesia, Japan, Malaysia, Philippines, South Korea, Thailand, and Vietnam.

Air quality control systems are required for a healthy indoor and outdoor environment. These systems make it possible for industries to comply with national pollution control standards for clean air, thereby improving productivity and lowering health related absences. The air quality control systems market is witnessing a huge demand across Asia-Pacific because of the stringent regulations for industrial emission. Especially in developed countries such as China, Australia, and New Zealand environmental standards have been introduced to regulate harmful industrial pollutants.

Rapid industrialization in the emerging economies is another major factor influencing the demand for such environmental products. With the rising population, the demand for cement in the construction industry is growing at a fast rate that is also, leading to the increase in emissions of SOX and NOX into the atmosphere. Cement manufacturing has become one of the key application areas for air quality control systems. The coal-fired power plants and cement industries are experiencing high growth rates in countries like India, China, Vietnam, and Japan.

We have used various secondary sources such as encyclopedias, directories, and databases to identify and collect information that was useful for this extensive commercial study of the Asia-Pacific air quality control systems market. The primary sources- experts, service providers and end users from the industry -have all been interviewed to obtain and verify critical information, as well as to assess the future prospects of the air quality control systems market in Asia-Pacific.

We have also profiled leading players of this industry, along with their recent developments and other strategic activities. Some of these include companies such as Alstom (France), Babcock & Wilcox Company (U.S.), Foster Wheeler (U.S.), Mitsubishi Hitachi Power systems America (Japan), Hamon RC (U.S.), and Siemens Energy (Germany) among others.

Key Topics Covered:

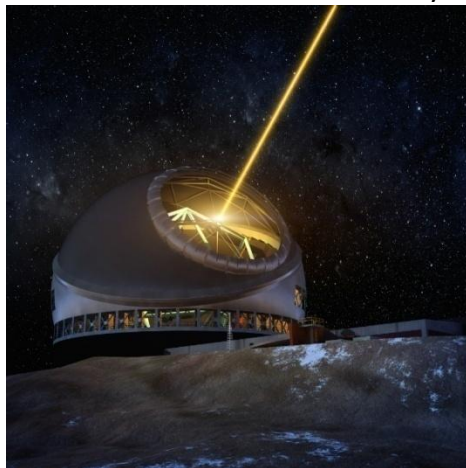
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U.S., India, three other countries to build world's biggest telescope atop Mauna Kea

Source : *Tech Time*

Date: 7th October, 2014

With the cooperation of the United States, India, Japan, China, and Canada, the Thirty Meter Telescope broke ground on Oct. 7 to start construction. The multi-national project will cost \$1.4 billion and will be located close to the summit of Mauna Kea in Hawaii. The TMT International Observatory is an international partnership entered into by the California Institute of Technology, University of California, Japan's National Institutes of Natural Sciences, and Chinese Academy of Sciences' National Astronomical Observatories. The Union Cabinet of India has approved the country's participation in the project starting in the fall while Canada will officially be on board starting spring 2015.



"This is an exciting moment as we begin construction of TMT. Its giant mirror, nearly 100 feet across, promises the highest definition views of planets orbiting nearby stars and the first stars and galaxies in the distant universe," said Edward Stone, TIO executive director, at the groundbreaking.

Standing at 30 meters tall, the TMT will allow astronomers to look into space and observe heavenly bodies 13 billion light years away. Given its light condensing capability, the TMT can identify an object around the size of a coin even at distances equivalent to about 311 miles.

A telescope with high light-condensing capability will be able to look for stars that are farther away from the Earth or simply aren't as bright as the others in the galaxy. The oldest observed star was born around 800 million years after the Big Bang event. With the help of the TMT, astronomers will be able to observe stars born between 200 million and 400 million years after the Big Bang. The TMT even holds the possibility of identifying planets outside of the solar system that may be capable of supporting life with Earth-like atmospheres.

Why Mauna Kea as a location?

The dormant volcano will be able to provide ideal conditions for using the TMT. For starters, at a height of nearly 13,800 feet, the telescope will be getting clear, deep views of the sky for most days of the year. Viewing conditions will also be generally clear because Hawaii has low levels of air pollution. As the volcano is located in an isolated spot in the middle of the Pacific Ocean, scientists also won't have to worry about light pollution. For the telescope itself, the dry air and minimal fluctuations in temperature will be great for maintaining the TMT's structural quality.

The TMT is scheduled to be completed by 2022.

Clean India movement should also clean the air

Source : *One India News*

Date: 3rd October, 2014



The most crucial inclusion in the India-US Joint statement issued on Sep 30 is the strategic partnership on energy and climate change. The actions agreed will have far reaching impacts on India's poor, neo-middle class and youth. They will also enhance the image of an India as a steward in international negotiations on environment.

At WTO, India resisted the American pressure to amend Trade Facilitation Agreement (TFA),

only to protect the hundreds of millions of poor and hungry Indians. Now, India, through actions planned in partnership with the US, has unique opportunity to act on climate change and secure future of poor workers and farmers.

Till now India, over the last 17 years has been resisting at international meetings to avail an important the opportunity to make its refrigeration and air conditioning industry move away from a refrigerant - hydrochlorofluorocarbons (HFCs). Nearly 100 countries including the US and Japan and those in Europe have given their consent but India continues to block this agreement. Many countries are even advancing to implement it. In Europe, for example, a new law will phase down HFCs by 80 percent by 2030.

In the US, President Barack Obama is also using his regulatory authority to shift away from HFCs - and is promising to do even more.

India's blockade, unlike in case of WTO, is not for the interest of the poor. Far from it. Indian negotiators question the availability of alternatives to HFCs. They debate if the Montreal Protocol is the right forum for the action against HFCs. In reality, this stand completely ignores the opportunity for India to avail larger national benefits for the poor and neo-middle class.

The refrigeration and air-conditioning industry has made enormous contribution to protect the stratospheric ozone layer by effectively implementing the Montreal Protocol. By 2010, as per the Montreal Protocol, it had eliminated production and consumption of CFCs. Now it, like other developing countries, is phasing out the last remaining ozone depleting chemical - hydrochlorofluorocarbons (HCFCs). However, in most cases HFCs were introduced as alternative to CFCs and now HCFCs.

The annual global growth of HFCs, which are mainly used in room and car air-conditioners, is eight percent but in emerging economies like China and India it is more than 10 to 15 percent. It is likely to be 20 percent soon due to increasing demand on air-conditioners from the rising neo-middle class.

As the plans declared by Prime Minister Narendra Modi for 100 smart cities goes on stream, as the cold storage requirements increase to feed in those cities, as the number of refrigerated facilities increase to prevent the waste of perishables to give better income to farmers for their produce, the demand for HFCs would further rise. If left unchecked, by 2050, annual HFC emissions could be equivalent to 12 percent of annual CO₂ emissions under a business-as-usual scenario and up to 75 percent of annual CO₂ emissions under the IPCC's strongest mitigation scenario.

Scientific studies say global fast action on HFCs phase down will avoid up to 200 billion tonnes of CO₂ emissions by 2050 and up to 0.5 degrees Celsius of warming by 2100.

Avoiding this warming is essential for staying within the long-term international goal of stabilizing global temperature rise at or below 2 degrees Celsius over pre-industrial temperatures by the end of the century.

Are the alternatives to HFCs available? Godrej in India has already commercialized room air-conditioners without HFCs. It uses hydrocarbons (HC), which are easily available in India and much cheaper. The energy efficiency of such air conditioner is also at least 10 percent higher. I myself use HC-based room ACs at my home. I have also test-driven a Tata Motors car that uses a non-HFC alternative. The alternative for car air conditioners is presently costly. However, as we have witnessed under the Montreal Protocol, when the consumption grows the price comes down.

When India phased out CFCs, the energy efficiency of the appliances using CFC-alternatives went up to the extent of nearly 30 percent to 60 percent. If we enhance the energy efficiency of non-HFC (or very-low global warming HFCs) room ACs, and even make super efficient AC in India-as per Modi's 'Make in India' campaign and as intended in the US-India partnership statement, the benefits to consumer at micro-level and to India at macro-level would be enormous.

India's air conditioning sector uses up to half of the available electricity during the sub-continent's hottest months. The peak demands during the hottest days burden India's timeworn and tattered power grid. The power outage in India in July 2012 was the largest in the history. Nearly half of India's population suffered during this black out-mainly blamed for the use of air conditioning systems.

A recent study by the Lawrence Berkeley National Laboratory of USA calculates that super-efficient air conditioning in India could avoid the need to build up to 120 medium-sized power plants by 2030. This would save \$60 billion just in construction costs. It also would save Indian consumers and businesses money and take pressure off the electric grid, reduce emission of carbon dioxide and reduce air pollution.

Implementing HFC phase-down under the Montreal Protocol, India during negotiations can insist on applying the same rules as accepted under the Montreal Protocol - getting a grace period by requesting industrialized countries to carry out HFC phase-down first, ensuring that alternatives are available and affordable, getting full incremental cost of transition away from HFCs and getting the energy efficient and even super-efficient technology.

This opportunity is being withered away by India for last few years by splitting hair on legal issues without understanding the larger interest of India's poor and aspirations of the emerging neo-middle class.

Air pollution can be reduced by enhancing the energy efficiency and by avoiding new power

plants based on fossil fuel. Millions of poor lives will be saved. India's import of fossil fuel would also stand reduced.

The Clean India campaign, pronounced by Modi, started Oct 2 on the occasion of Mahatma Gandhi's birth anniversary. It should not be restricted only to sweeping the roads, brushing the walls and dusting the files. It should move beyond - and also clean the skies from air pollution by making ACs super-efficient and HFC free.

Old vehicles major drain on air quality

Source : *Times Of India*

Date: 29th September, 2014

INDORE: Regulating thousands of new vehicles hitting city roads every month is a proving a big problem. But bigger challenge is to stop old vehicles polluting air with poor engine efficiency from plying on roads and carry out pollution drive on a regular basis.

With each passing year, number of 15-year-old vehicles adds to list of existing vehicles. Indore RTO data makes it clear that there is a significant rise in number of all types of old vehicles in last three years. Though phasing out 15-year old vehicles from city is a welcome step announced recently by National Green Tribunal (NGT), concrete steps in direction are yet to be taken by MP Road Transport Department. Instead of harsh action like not allowing plying of old vehicles, the department so far has renewed registrations of 15-year-old vehicles after checking their fitness. Regional Transport Officer, Indore, Jitendra Raghuvanshi said, "NGT has recently given orders to phase out 15-year-old vehicles running on city streets. Though number is rising, we are conducting the drive to check their fitness and allow running on roads. Diesel vehicles are major contributors of high pollution level and adequate steps will be taken soon." Environmentalists said phasing out old vehicles will reduce vehicular emissions in the city. Head of clean air programme, Centre for Science and Environment Anumita Roychowdhury said, "The move will have sizable reduction in PM and NOx emissions. Plying of old vehicles with poor engine design, which are not only grossly fuel inefficient, but high polluters is another factor for deteriorating air quality." Compared to developed countries where on an average vehicle is used for seven years, in India it is about 20 years. Despite introduction of newer cleaner vehicles with improved engine design, emission from older vehicles is much more, she added. Action on vehicles without PUC certificate non starter Crackdown on vehicles plying without pollution under control (PUC) certificate has failed to produce results due to multiple reasons. Out of 29 centres, once authorised for checking pollution level three years ago, the number is down to meagre nine, because long queue at centres and lack of seriousness in conducting drive that people gave drive a miss.

About 90% of vehicles in the city have been running without PUC certificates. RTO, traffic police and MP Pollution Control Board (MPPCB) had jointly conducted a drive in May and June 2014 with a fine of Rs 1,000, but no significant check-up drives were carried out later. Additional SP (traffic west) Anjana Tiwari said, "We have acted against vehicles, who flout noise and exhaust pollution levels. Commercial diesel vehicles are causing high pollution, proper coordination with other concerned department can make drive more aggressive."

Forum demands reconstitution MoEF's committee

Source : *Times of India*

Date: 28th September, 2014

MANGALORE: Activists in Dakshina Kannada urged that the review of environmental laws must never be done in haste. Activists expressed their views before the High Level Committee of Union ministry of environment and forests (MoEF) headed by former Union Cabinet Secretary TSR Subramanian during its meet to receive suggestions and objections at deputy commissioner's office here on Sunday. The Acts to be reviewed by the centre include Environment Protection Act, 1986, Forest Conservation Act, 1980, Wildlife (Protection) Act, 1972, Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981. Karavali Karnataka Janabhivridi Vedike members said that they are deeply concerned about the haste with which the TSR Subramanian Committee has been set up by the Union Ministry to review five of India's most important environmental laws. In a memorandum, Vedike members urged the committee to undertake a study of the effectiveness of the existing laws and their proper implementation, not just from the perspective of obtaining speedy clearances for industrial projects, but from that of protecting the environment and the rights of the poor. "As concerned citizens, we would like to assert that review of environmental laws must never be done in haste. Protection of the environment concerns is our very survival and must not be seen as an impediment in the drive for industrialisation. Any review must be done in a transparent manner, involving all the stakeholders. The MoEF has a duty to uphold the constitutional right of every individual to livelihood and a clean environment. Economic growth benefiting the rich at the cost of life-sustaining ecosystems must not be seen as development. In view of such concerns, we urge the Government to revamp the review process," members stated in the memorandum. Vedike coordinator Shreekumar said seeking to make changes in environmental laws, which are meant to protect important rights enshrined in the Constitution such as Right to Life, Clean Environment and Livelihoods in such haste under vague terms of reference is indeed disturbing. "Recent statements emanating from the Union Government as well as the MoEF have been

displaying a dangerous haste with respect to granting environmental clearances for industrial projects with scant respect for environmental protection. Expediting clearances is serving only the interests of corporate powers. The haste and thoughtlessness with which the current review is being undertaken raises the apprehension that it is meant to facilitate such policies," Shreekumar said urging reconstitution of the committee by including experts in the fields of environmental science, social sciences, natural sciences and environmental law, also giving adequate representation to various stakeholders such as farmers, fishers and tribals.

India's Environment Ministry Sending Confusing Signals As Major Laws Stand to be Amended

Source : *Yahoo Uk News*

Date: 28th September, 2014



The climate of change hangs heavily over India's Ministry of Environment, Forests and Climate Change (MoEFCC) like never before. The fast pace of changes to India's environmental protection laws, which have been brought in since Prime Minister Narendra Modi's Bharatiya Janata Party came to power, have led to the government being accused of weakening the country's strict environmental protection laws, and of being an agent of the power and commerce industries. Most recently at the climate summit in New York India's environment minister, Prakash Javadekar, noted that the sole focus of the Indian government was lifting India's masses above poverty through encouraging economic growth, not protecting the environment.

In the name of removing roadblocks to growth, the ministry has been busy making changes and amendments to laws, raising concern among environmentalists.

Major changes have been made in the Environment Impact Assessment (EIA) Notification 2006, issued under the Environment Protection Act 1986.

The EIA notification details the process for gaining permission for activities listed under the notification, starting with public consultation followed by expert appraisal. Most projects were scrutinised at the state and ministry level.

Now some projects have now been placed under the oversight of state regulatory agencies, removing the ministry's role. Others have had the need for consultation removed.

Many projects have been exempted from the EIA's purview.

'Category B' projects which required approval from an expert committee of the

Environment Ministry, if they were located within 10km of a national park, sanctuary, critically polluted area, or ecologically sensitive area, now only require approval if they are located within 5km.

Public hearings under EIAs have been reduced to a farce, according to experts. For instance, on 28 July the ministry, on the urging of the coal ministry, amended the EIA notification, so coal mines with a certain existing level production that required a one-time capacity expansion from having mandatory public hearings.

Major laws being reviewed

Most worrying has been the ministry's action to set up a six-member committee to review the country's five major environmental laws – the Wildlife Protection Act, Environmental Protection Act, Forest Conservation Act, and the Air and Water Pollution Acts – to bring them "in line with current requirements to meet objectives".

Given such a major task, that the committee has only been given two months, while citizens only had until today to leave comments on changes on the ministry's website, which were limited to just 1,000 characters, is seen as an indication of where this review is heading.

At one of its public hearings in Bangalore, the committee came under a heavy barrage of queries from various NGOs representing the public. The chairperson TSR Subramanian, a former union cabinet secretary, walked out, apparently irked by the questions thrown at the panel.

Earlier, he informed the gathering that the panel had a mandate to propose changes to the laws that would help improve the quality of life and the environment.

He said the need to ensure development was the primary concern, as India is very poor – he claimed 80% lived in poverty – and thereby it is essential to streamline environmental clearance processes that are seen as thwarting growth.

Another member voiced concerns from the industry about how environment and forest protection laws were delaying the start of projects.

Rather than proposing planned changes and seeking public opinion, the committee has sought to change the public's views about their its proposed changes in the laws.

The vague terms of reference have conveyed the impression that the public meetings were paying lip service to the law and the public's expectations.

The ministry should come out with a white paper on what changes it proposes, and constitute a committee with experts from various sectors, says Bangalore-based Environment Support Group (ESG).

The timeline for consulting for such a major review has to be reasonable, says Leo Saldanha of ESG, noting that the laws the government is seeking to change affect the rights to life

and livelihoods, and a clean environment.

Wildlife Angst

In July, Javdekar's ministry constituted a National Board for Wildlife (NBWL) and passed most of the 140 pending proposals through its standing committee, with the minister saying projects would not be held up due to "frivolous" reasons. These projects included dams, roads, power lines and canals, inside and around protected areas.

The NBWL is the country's top body for wildlife conservation under the Wildlife Act. But the board did not have the required representation of 10 environmental experts who were nominated by the central government, as mandated by section 5A of the Wildlife Protection Act.

The Supreme Court stayed the decisions of the NBWL's diluted standing committee, following a petition challenging the board's constitution.

The Wildlife Protection Act protects the nation's 660-odd Protected Areas, which take up less than 3% of India's geographical area.

Lauded for its vision, the Act aims to "protect wild animals, birds and plants... with a view to ensuring the ecological and environmental security of the country."

The question facing the citizens today clearly is: who will protect these acts?

Fortunately for the environment, the Supreme Court has been a watchdog down the years, striking down many major projects, including mining projects that have caused havoc in the biodiverse hot spots of the Western Ghats.

More recently, the court struck down all 214 coal blocks allotted by the government to companies indiscriminately, in what is hailed as a landmark judgement.

But how often can the Supreme Court intervene in this manner?

India, which has an exemplary set of laws designed to protect the environment, seems to have more learning ahead for its political leaders – that development and environment conservation can and must be inclusive.

With a population increasing past 1.2 billion, which is aspiring for better living standards, environmental conservation is even more important today. Sustaining the needs on a limited, fast-vanishing resource reserve will require the needs of environment conservation to be woven firmly into any growth plan.

Air Pollution in Europe is Causing Poor Lung Health in Adults, EU-funded Study Reveals

Source : *Lung Disease News*

Date: 23rd September, 2014

In spite of costly, wide-ranging measures to curb pollution and carbon emissions

throughout the EU, exposure to air pollution is rapidly deteriorating the lung health of the average adult European citizen, as concluded by a study from the EU-funded European Study of Cohorts of Air Pollution Effects (ESCAPE) project. The researchers found that, despite lowered levels of air pollution in Europe, its negative effects are still being seen in adults and children alike, as revealed in past research.

The recent data not only confirmed that children who grow up in regions with high levels of air pollution suffer from lower levels of lung function and an increased risk of suffering from symptoms like coughing and bronchitis symptoms in adulthood, but it also demonstrated that the adults who are more vulnerable to air pollution's negative effects are those who also suffer from obesity.

"The ESCAPE project has clearly confirmed that air quality largely differs across Europe. The findings of this project are crucial as they demonstrate that air pollution is having a negative effect, not only on children as previously demonstrated, but also into adulthood," explained the senior author of the study, Nicole Probst-Hensch, who worked in collaboration with Martin Adam, lead author, both from the Swiss Tropical and Public Health Institute.

"Although the levels we see in Europe are much lower than in the so-called megacities in China and India, we are still seeing a deterioration of lung function in people exposed to higher levels of air pollution and this must be addressed," she added, referring to the conclusions of the first-of-its-kind study, which was recently published at the European Respiratory Journal (ERJ).

During the study, the research team analyzed data from throughout Europe in order to assess the relationship between air pollution and lung function among the European citizens, using parameters of traffic and modeling the exposure levels to different pollution measures including nitrogen oxides (NO₂ and NO_x) and particulate matter (PM). The research enrolled 7,613 people from Switzerland, UK, France, Germany, Italy, Belgium, Spain and Sweden, whose lung function was tested with spirometry exams.

"The findings of this study demonstrate the importance of educating about clean air and the negative effects of air pollution. Urgent action is needed to tackle air pollution in Europe," said the president of the European Respiratory Society (ERS), Peter Barnes. "It is crucial that policymakers in Europe take note of these findings and update guidelines in Member States to meet the World Health Organization recommended air quality standards. This will ensure equal protection of all citizens' health across the continent."

The World Health Organization (WHO) estimates that air pollution caused seven million premature deaths in 2012 (.098% of the world's population), 3.7 million of which related to

poor outdoor air quality, which may in part reflect the amount of people in Europe who live in urbanized areas where air quality is poor. The ERS is also currently launching an inaugural Healthy Lungs for Life campaign, in collaboration with the European Lung Foundation (ELF). With the theme "Breathe Clean Air," the campaign is aimed at raising awareness and education for the importance of both healthy lungs and clean air.

Singapore air pollution slips into unhealthy level

Source : *The Times of India*

Date: 15th September, 2014

SINGAPORE: Singapore's air pollution rose to unhealthy levels on Monday, the National Environment Agency said, as winds changed direction and brought in light smoke from forest fires in neighbouring Indonesia.

Singapore is in the middle of its "haze" season, when smoke from forest clearing in Indonesia traditionally chokes the air, but this year has been practically haze free, despite warnings in May it was going to be worse than 2013's record pollution.

The three-hour Pollution Standards Index broke above 100, the level beyond which the air is considered unhealthy, at 1am and remained above that level into the daylight hours, the government agency said on its website.

The NEA warned on Sunday that if the wind blew from the southwest, Singapore could experience occasional haze from fires on Indonesia's Sumatra island.

The smoke blanketed Singapore last June, pushing the air pollution index to a record 401.

In August, Singapore's parliament passed a bill proposing fines for companies that cause pollution regardless of whether the companies operate on the island, though it remains to be seen how the law can be enforced.

City breathes more foul air than Mumbai

Source : *The Times of India*

Date: 13th September, 2014

Thane: Thane residents breathe more polluted air compared to their counterparts in Mumbai. This was revealed from the air quality readings done by the Maharashtra Pollution Control Board (MPCB) in July.

The figures reveal that levels of sulphur dioxide (SO₂), nitrogen oxide (NO_x) and respirable suspended particulate matter (RSPM) in Thane is more than those recorded in Bandra and Sion. Experts attribute the high pollution levels to the rising vehicle population and ongoing construction work in the city.

As per the average readings of the study conducted between July 1 and July 31, some areas

in the city recorded more pollutants in the air compared to Mumbai.

Balkum recorded the presence of 14.80 micrograms per cubic metre (g/m³) SO₂ compared to just 4 g/m³ SO₂ recorded in Sion during the same period. The readings in Naupada and Kopri, too, reflected a similar trend. However, the presence of SO₂ was greater in Bandra.

But Thane scored over Bandra with high presence of NO_x. In Kopri, NO_x was recorded at 56.60 g/m³. The corresponding figure in Balkum was 52.8 g/m³, while in Bandra it was 38.52 g/m³.

The RSPM readings in the city were also higher compared to Bandra. While Bandra recorded an average presence of 53.32 g/m³ RSPM, those recorded in Balkum and Kopri were 57.20 g/m³ and 63.40 g/m³, respectively.

The city has a huge vehicular population and roughly around 200 vehicles on an average are registered daily at the Thane RTO. There is also a steady flow of vehicles - both small and heavy - through the city as the geographic location of Thane makes it a vital intersection point for such traffic. In addition, ongoing construction work in various parts of the city has also led to a considerable rise in pollution levels.

Green activists have expressed concern and said this could prove harmful for the health of residents. "The density of vehicular traffic is high in Thane and the ongoing infrastructure and development activities in the city are responsible for high pollution levels. Heavy transport vehicles are the most responsible as there is no monitoring of the quality of fuel and emissions here. There is an urgent need for plugging this pollution. People are suffocating, but am surprised that not much has been done on this front," said a concerned green activist, M Walavalkar of NGO Paryawaran Dakshata Manch.

Air pollution harming brains of urban young

Source : *The Times of India*

Date: 12th September, 2014



Children living in cities are at an increased risk of developing brain inflammation and neuro-degenerative changes, including Alzheimer's or Parkinson's disease, owing to air pollution.

Researchers at the University of Montana found that when air particulate matter and their components such as metals are inhaled or swallowed, they pass through damaged barriers -

including respiratory, gastro-intestinal and blood-brain barriers - and can result in long-lasting harmful effects.

Lead researcher Dr. Lilian Calderon-Garciduenas' findings are detailed in a paper titled "Air pollution and children: Neural and tight-junction anti-bodies and combustion metals, the role of barrier breakdown and brain immunity in neuro-degeneration".

The team compared 58 serum and cerebrospinal fluid samples from a control group living in a low-pollution city and matched them by age, gender, socioeconomic status, education and education levels achieved by their parents to 81 children living in Mexico City.

"We found that children living in Mexico City had significantly higher serum and cerebrospinal fluid levels of auto-antibodies against key tight-junction and neural proteins, as well as combustion metals," Calderon-Garciduenas said.

"We asked why a clinically healthy kid is making auto-antibodies against their own brain components?" Calderon-Garciduenas noted.

That is indicative of damage to barriers that keep antigens away from the brain.

The results of constant exposure to air pollution and damage to all barriers eventually result in significant consequences later in life.

Air Pollution Harms Children's Brains and Puts Them at Risk of Developing Alzheimer's

Source : *International Business Times*

Date: 12th September, 2014



Children living in polluted cities are at increased risk of developing neurodegenerative diseases such as Alzheimer's or Parkinson's, say researchers at the University of Montana.

The team compared 58 serum and cerebrospinal fluid samples from a control group living in a low-pollution city and compared them by age, gender, socioeconomic status and education to 81 children living in Mexico City.

Children in Mexico City were found to exhibit immune dysregulation or high levels of auto-antibodies that worked against their own brain components, damaging the brain over time. This indicates damage to the blood-brain barrier that keeps antigens and neurotoxins away from the brain.

Brain auto-antibodies are found in the brains of people with neuro-inflammatory diseases like multiple sclerosis. Mexico City has registered many MS cases.

A breakdown in the blood-brain barrier allows not only particulate matter from air pollution but also the harmful neurotoxins like carbon and sulphur to enter the brain and cause long-lasting damage.

The paper appeared in the Journal of Alzheimer's Disease.

Polluted outdoor air caused 620,000 premature deaths in India in 2010, up from the 100,000 deaths in 2000 according to Global Burden of Disease 2013.

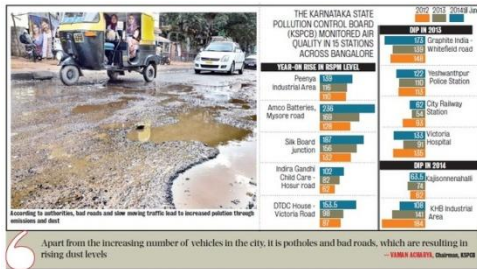
Air pollution killed 7 million people in 2012, causing one in eight of the total deaths globally, says the World Health Organisation. Respiratory ailments and cardio-vascular diseases are the most common fall-outs of long-term air pollution.

City Gasps for Breath as Air Quality Worsens

Source : *Indian Express*

Date: 11th September, 2014

BANGALORE: It is time to clear the air as Bangaloreans have been choking on air pollution. There has been a spurt in the respirable suspended particulate matter (RSPM) levels of pollution over the past six months, compared to 2012 and 2013.



The Karnataka State Pollution Control Board (KSPCB) monitored air quality in 15 stations across Bangalore. According to these statistics, 12 centres in the city, with the exception of Kajisonnenahalli and KHB Industrial Area, have registered a spurt in RSPM levels, which can cause respiratory problems

and could also lead to cancer and lung diseases.

Centres which showed a decrease in RSPM levels in 2013 compared to 2012, have also recorded a remarkable increase in the period from January to June this year. For instance, the RSPM level at Graphite India factory was 148 in 2012, which reduced to 139 in 2013. However, from January to June 2014, the current RSPM level stands at 173.

In 2013, three extra testing stations -- Banaswadi, Domlur and Peenya Gymkhana ---were added to the 12 existing centres. These had levels of 70.5, 44 and 99 respectively in 2013 but have risen to 89.5, 58.5 and 143 respectively till June 2014.

What drives air pollution? It is the vehicles. They account for 86 per cent of pollution, according to KSPCB Chairman Vaman Acharya.

The most urgent need is to bring down the population of vehicles till pollution levels are brought under control, he said. Apart from an increasing number of vehicles, it is potholes and bad roads, which are resulting in rising dust levels, Acharya said.

The KSPCB has now recommended to the Transport Department that registration of vehicles be put on hold till pollution levels are brought under control.

“The number of vehicles should be restricted to one car per family. Two-stroke autorickshaws should be banned. We need to increase the green cover by planting an additional 85 lakh trees to match the population of 1 crore citizens. At present the city has only about 14 lakh trees,” Acharya said.

For now, however, the only solution seems to be conducting regular checks and increase the penalty for violations. The penalty may be increased to `1,000 for the first offence, `3,000 for the second offence.

“Pollution levels would come down if we could increase the speed of vehicles. Most emission happens when vehicles slow down or at signals when engines are kept running. But widening roads is not an option in Bangalore,” Rame Gowda, Commissioner, Transport Department, said.

After an Express report, the transport department is also inspecting flawed emission testing centres, said joint commissioner of the Transport Department R V D’Souza. The department has tasked RTOs to submit a report on spurious software being used at many centres.

Slowing down registration of vehicles does not look like a feasible option for the Transport Department. But Commissioner Rame Gowda said if steps have to be taken, it has to come after an amendment to the Motor Vehicles Act.

Banning two-stroke autorickshaws also may not be possible. There are about 30,000 two-stroke autos in the city, according to the department. While the state government is offering a subsidy of `30,000 to owners to shift to four-stroke engines, the amount is too little, say owners.

“Many of us bought two-stroke autos with all our savings. To buy a four-stroke auto will cost us `1.5 lakh and the government gives us a subsidy that will not even cover the down payment,” said Srinivas, a two-stroke auto driver.

Health Risks

Increase in RSPM levels can have both short-term and long-term effects. In the short term, people could face difficulty in breathing, persistent cough and there could be a spurt in asthma cases, said Dr George D’souza, Medical Superintendent, St John’s Medical College.

"They may become more prone to cancer, lung diseases and in many cases heart diseases too," he said.

Depletion of Green Cover

Depletion of the city's green cover on such a large and rapid scale has also contributed to rise in pollution levels. Said former Indian Forest Service officer and environmentalist A N Yellappa Reddy, "Trees have the ability to absorb the RSPM, which in turn helps in purifying the air. It has been calculated that one person needs at least two to three trees, given the current pollution levels," he said.

GPCB finding: City air is dustier, more unsafe

Source : *The Times of India*

Date: 8th September, 2014

AHMEDABAD: Our air is becoming dustier, infected and now threatens us to affect our respiratory systems. The latest suspended particulate matter pollution data in different areas of the city has clearly pointed fingers at Amdavadis.

Traffic jams, construction work, unchecked diesel vehicles, loading rickshaws, fumes from neighboring industrial clusters, careless habits like burning waste, depleting green cover is costing us our lifeline - air.

The Gujarat Pollution Control Board (GPCB) measured particulate matter (PM) of 10 micron and less and 2.5 micron or less suspended in the city. The findings have revealed that the PM-2.5 levels are exceeding than PM-10 levels in the air.

"The rising concentration levels of PM-10 particles is worrisome because it has potential to get into our respiratory system and affect us," says a senior GPCB official. In places like Satellite, Torrent Power, Nehru Bridge, L D College and Saraspur the PM-10 levels far exceed the national limits. The PM-10 concentration in these areas lies between the range of 71 microgram/cubic metre (g/m³) to 92 microgram/cubic metre. In Nehru Bridge, Satellite and R C Technical School for instance the frequent traffic jams are seen responsible, claim GPCB officials.

Currently, the country's National Ambient Air Quality Standards states 40 micrograms per cubic metre as an annual average for PM 2.5, which is less stringent than WHO's air quality guideline of 20 micrograms per cubic metre. India's recommended levels would qualify as "unhealthy for sensitive groups" under the United States' Air Quality Index. For PM10 India's standards prescribe a 60 microgram/cubic metre annual average. That is within range of WHO's suggested interim air quality targets but far from WHO's air quality guideline of a 20 microgram/cubic metre annual average.

Sources of fine particles include all types of combustion, including vehicles, power plants,

waste burning, green waste burning and some industrial processes. Particles between 2.5 and 10 micrometers in diameter are referred to as 'coarse'. Sources of coarse particles include crushing or grinding operations, and dust stirred up by vehicles traveling on roads.

Low air pollution on Telangana survey day

Source : *The Times of India*

Date: 7th September, 2014

August 19, when the Telangana government conducted the intensive household survey, was among the days when the city's air was least polluted, data from the Andhra Pradesh Pollution Control Board shows.

Air quality measurements from the day show a huge decline in particulate matter smaller than 10 micrometers (PM 10) emitted by automobiles. PM 10 reading from Punjagutta junction, one of the most polluted areas in the city, showed a reading of 65.16 microgram per cubic meter against an average of 115 and 145 microgram per cubic meter in May and June respectively. Carbon monoxide, which is also part of vehicular exhaust, showed a reduction to 1.15 milligram per cubic meter as against the average 2.5 milligram per cubic meter at the junction.

PCB officials could not provide data for Khairatabad and Paradise but said the numbers from these two junctions would also be considerably smaller. In the absence of readily available data for July, August and September this year, officials are unable to say if August 19 was the least polluted day this year. However, they did not discount the possibility.

"As most people remained indoors and a curfew-like situation prevailed, the air quality was much higher. Vehicular pollution is a major cause for concern that can be addressed by judicious use of private vehicles," a senior official said.

Mumbai ranks 12 in air pollution: WHO

Source : *The Asian Age*

Date: 7th September, 2014

The pollution level in the air in the city has risen to 136 micro grams, which is a dangerous indication of the rise in pollution in the city. The level has exceeded the permissible limits set by the World Health Organisation, and it may lead to a rise in diseases.

The availability for clean air to breathe in has taken the front seat after WHO's Global Air Pollution Report of year 2014 was released in which India has been ranked ninth position

out of 95 countries.

The WHO's Global Air Pollution Report for 2014 ranks India ninth out of 95 countries when it comes to air quality. It declares Delhi to be the most polluted city in India with Mumbai at the 12th spot. The world body's Urban Air Quality database reveals that only 12 per cent of people living in cities for which air quality data is available, including Mumbai, are breathing "safe" air. Nearly half of Mumbai's population faces a 2.5 times higher risk of air pollution than the levels recommended by WHO, putting these people at an additional risk of serious, long-term health problems.

Mumbaikars are exposed to an average of 172 micrograms of suspended particulate matter per cubic metre of air. According to doctors, any level above 100 micrograms is harmful to health.

In April 2014, the WHO estimated that outdoor air pollution was responsible for the deaths of some 3.7 million people under the age of 60 in 2012. Dr Ramraje, pulmonary specialist, JJ Hospital, said, "Breathing difficulty can be triggered by allergens, infections and environmental pollutants."

According to the WHO, in cities like Mumbai where there is enough data to compare the present situation with that of the past, air pollution is getting worse.

The contributing factors include growing reliance on fossil fuels such as coal-fired power plants, motor vehicles, inefficient use of energy and use of biomass for cooking and heating.

According to the Maharashtra Pollution Control Board's 2010 reports, the major contributors of air pollution include vehicular emission and power plants, followed by road dust.

"We are getting more number of cases where the condition of patients is worsening due to pollution. In winters, it is almost impossible for asthmatic patients to go out due to the smog and dust. This was not the case a few years ago," said Dr Ramraje.

India's Smog Destroyed Enough Crops In A Year To Feed 94 Million People: Study

Source : *Huffington Post*

Date: 6th September, 2014

India's smog problem could be preventing tens of millions of the country's poorest people from getting the food they desperately need.

According to a new study published in the journal Geophysical Research Letters, ground-level ozone, the main component of smog, damages about 6.7 million tons of India's staple crops, including wheat and rice, in a single year. Researchers say those lost crops, worth an



estimated \$1.3 billion, could feed around 94 million people, or about a third of the country's poor.

Veerabhadran Ramanathan, the study's co-author and a professor of climate and atmospheric sciences at the University of California, San Diego, said in a news release that the sheer amount of

lost crops -- specifically wheat (3.8 million tons lost yearly) and rice (2.3 million tons lost) -- "surprised" him and his colleagues.

Air pollution is a major problem in some parts of India. New Delhi's air, for example, has been found to be the most polluted in the world. In February, Time said Delhi's air pollution had become a "lethal hazard."

Surface ozone -- caused by vehicle emissions, cooking stoves, industrial facilities and other sources -- has long been known to be harmful to human health, but scientists have also been raising the alarm about its devastating effects on vegetation.

Earlier this year, a study by researchers from the Massachusetts Institute of Technology and Colorado State University found that the combination of climate change and ground-level ozone pollution may pose a serious threat to global food supplies in the coming decades. The researchers said air pollution specifically could significantly increase the risk of malnutrition in developing nations.

Agricultural production is "very sensitive to ozone pollution," said Colette Heald, one of that study's authors, in a July news release. As such, it's important, she said, to consider the "agricultural implications of air-quality regulations."

India ozone pollution kills enough crops to feed nearly 100mn poor a year – study

Source : *RT*

Date: 6th September, 2014

Millions of tons of India's major crops get damaged yearly due to air pollution – leaving a third of the country's impoverished people short on nutrition, a joint US-India study reveals. In the space of just one year, ozone pollution has deprived the Indian economy of millions of tons of wheat, rice, soybean and cotton – the country's main crops. Losses of \$1.29 billion translate as food for 94 million people living below the poverty line. These figures were made public in research titled "Reductions in India's crop yield due to ozone", recently published in the journal *Geophysical Research Letters*.

India's Air Monitoring Center has already pointed out the soaring rates of pollution in the



country, comparing the national capital Delhi to Chinese Beijing – one of the most polluted cities in the world – as of years 2011-2014. But rising emissions also worry scientists, who are studying severe ozone pollution in some of India's most populated regions.

Although our planet's ozone layer shields us from most of the sun's ultraviolet radiation, ground-level ozone is, in fact, a plant-damaging pollutant. As a greenhouse gas and the main component of smog, it is formed by the reaction of sunlight on air with emissions from vehicles.

As it turned out, wheat, one of the country's major food sources, suffers from ozone most. In 2005, yields were down by 3.5 million metric tons (3.8 million US tons), according to the new study. It can be compared to another commercial crop, cotton, which lost more than 5 percent of its 3.3 million metric ton (3.6 million US tons) annual output, at a cost of \$70 million to the country's economy.



"The [amount of lost wheat and rice] are what surprised me," said Veerabhadran Ramanathan, a professor of climate and atmospheric sciences at Scripps Institution of Oceanography, at the University of California San Diego and a co-author of the study.

The team of authors from the US and India chose 2005 for their research as "a year representative of the effects of ozone damage over the first decade of the 21st century." That was due to the fact that the researchers managed to get accurate crop production data for that year.

With the help of a computer model, the researchers estimated the ozone levels during crop growing seasons – Kharif and Rabi, autumn and spring – to compare it with data about how much ozone each of the four crops could withstand. Later on, they came up with the average amount of each crop's loss due to ozone pollution.

According to Ramanathan, the study is unique in that it examines how ozone emissions are already affecting crops in India, and not the future possible effects of it, as most studies do. What is more, scientists are quite positive about the policy changes in India, and change is needed in a country where the number of vehicles on the road has nearly tripled in the past decade (the study cites the figures given by the International Council on Clean Transportation).

Sachin Ghude, an atmospheric scientist at the Indian Institute of Tropical Meteorology (IITM) in Pune, India and lead author of the study said that the new paper could help policymakers craft new ozone pollution standards. It is especially important, as the country implements a new law that subsidizes grain for two-thirds of the country's residents, he outlined.

When protecting neighbour's TV was more important

Source : *Indian Express*

Date: 6th September, 2014

It was around 3 pm and some 30 students, all set to listen what Prime Minister Narendra Modi had to say on Teachers' Day, had another trouble at their 'school' — already standing on plastic sheet and bamboo sticks — in Field Ganj of Ludhiana.

A TV set had been arranged from a neighbour, who also agreed to extend wire of cable connection, but the heavy rainfall turned the school into a swimming pool and even the plastic sheet covering the heads tore off. "The electric wires of TV and cable were passing current. Students' safety is more important, so we shifted to a small room in ruins nearby.

Even this place had no roof, so we covered it with torn plastic sheet and stood with umbrellas to cover the TV so that it was not damaged. After all it had to be returned to the neighbour," said Amrik Kaur, in-charge of Government Primary School.

And in the end, the enthusiastic students did listen to Modi. "It was looking quite impossible till yesterday. We were instructed not to use a radio but only television. It started raining heavily and water filled the entire plot. Still we ensured the TV was on," added Kaur.

"Raindrops were louder than PM's voice but we liked that he talked in Hindi. I understood that we should save electricity. But electricity should be there in our school too," said a Class IV student of the school. However, power snag in middle of Modi's interaction cut the cable connection. "I agreed to lend the TV and cable as I too studied in the same school, when its building still existed," said Kaka, the neighbour who immediately got busy in packing his TV set to take it back. School under tree opts for radio Heavy rains that lashed city during PM's address proved spoilsport for Government Primary School, Moti Nagar, where some 35 students, out of 180, had stayed back to listen to Modi on radio. The students had to be shifted inside the 'unsafe' building and radio was turned on. "I liked PM talking to children and teachers, especially his advise to protect environment and saving water. But I request him to arrange a permanent sitting place for us," said Puja, a Class V student. "We tried for television but it was not possible. We also contacted area councillor Sukhdev Singh Gill from Akali Dal but he said he is helpless. At last we teachers contributed

and got a radio set worth Rs 1,000, but due to disturbance in signals the voice was not clear still students listened. They were happy that for first time PM addressed them directly," said a teacher requesting anonymity. Government Primary School, Dharampura, running from a building of dharamshala, without its own building since 53 years, too opted for radio. "We were happy that all 47 students agreed to stay back and they liked when PM talked about his childhood but TV connection was not possible," said the headmistress.

Ozone pollution in India kills enough crops to feed 94 million in poverty

Source : *PHYS ORG*

Date: 4th September, 2014



In one year, India's ozone pollution damaged millions of tons of the country's major crops, causing losses of more than a billion dollars and destroying enough food to feed tens of millions of people living below the poverty line.

These are findings /of a new study that looked at the agricultural effects in 2005 of high concentrations of ground-level ozone, a plant-damaging pollutant

formed by emissions from vehicles, cooking stoves and other sources. Able to acquire accurate crop production data for 2005, the study's authors chose it as a year representative of the effects of ozone damage over the first decade of the 21st century.

Rising emissions are causing severe ozone pollution in some of India's most populated regions. Pollution in Delhi, the nation's capital, has reached levels comparable to Beijing, one of the most polluted cities in the world, according to India's Air Monitoring Center.

The main component of smog, ozone at ground level can cause leaf damage that stifles plant growth, injuring and killing vegetation. There are currently no air quality standards in India designed to protect agriculture from the effects of ground-level ozone pollution, according to the new study. Ground-level ozone is formed when nitrogen oxides, carbon monoxide and volatile organic compounds react with sunlight after the chemicals' release from vehicles, industry, or burning of wood or other plant or animal matter.

According to the new study published Aug.14 in *Geophysical Research Letters*, a journal of the American Geophysical Union, surface ozone pollution damaged 6 million metric tons

(6.7 million U.S. tons) of India's wheat, rice, soybean and cotton crops in 2005.

India could feed 94 million people with the lost wheat and rice crops, about a third of the country's poor, according to Sachin Ghude, an atmospheric scientist at the Indian Institute of Tropical Meteorology (IITM) in Pune, India and lead author of the new study. There are about 270 million Indians that live in poverty, according to the study.

Wheat – one of the country's major food sources – saw the largest loss by weight of the four crops studied in the new paper, with ozone pollution damaging 3.5 million metric tons (3.8 million U.S. tons) of the crop in 2005. Another major food source, rice, saw losses of 2.1 million metric tons (2.3 million U.S. tons), according to the new study.

Cotton – one of India's major commercial crops—lost more than 5 percent of its 3.3 million metric ton (3.6 million U.S. tons) annual output in 2005, costing the country \$70 million, according to the new research.

Policy implications

Ghde said the new paper, which is the first to quantify how much damage India's ozone pollution has caused the country's major crops on a national level, could help policymakers craft new ozone pollution standards.

It could also help India, a country with a high rate of poverty, as the country implements a new law that subsidizes grain for two-thirds of the country's residents, he said. The new food security bill requires the country to provide 61.2 million metric tons (67.5 million U.S. tons) of cereal grains – that include wheat and rice – to India's poor each year at a subsidized rate. The new study found that the 5.6 million metric tons (6.2 million U.S. tons) of wheat and rice lost to ozone pollution was equal to 9.2 percent of the new law's subsidized cereal requirement.

"The (amount of lost wheat and rice) are what surprised me," said Veerabhadran Ramanathan, a professor of climate and atmospheric sciences at Scripps Institution of Oceanography, at the University of California San Diego and a co-author of the new study.

Under the new law, residents who qualify to receive cereal at the subsidized rate can purchase 60 kilograms (132 pounds) of grain per year. Based on these numbers, the 5.6 million metric tons (6.2 million U.S. tons) of wheat and rice lost could therefore feed 94 million people in India, according to the study.

Calculating ozone damage

The researchers calculated the amount of total crop damage from ozone pollution by comparing emissions estimates from 2005 with data about how much ozone each of the four crops could withstand. Plants start to exhibit damage when they are exposed to ozone

levels that reach 40 parts per billion or above, according to previous research.

A computer model used by researchers calculated ozone levels during crop growing seasons that were more than 40 to 50 parts per billion over most of the country. The team ran the model with different emissions estimates to come up with an average amount of each crop that was lost due to ozone pollution.

India's economic loss from ozone's harm to crops amounted to \$1.29 billion in 2005, the study found. Declines in rice and wheat crops made up the majority of the loss, accounting for a combined \$1.16 billion in losses, according to the new research.

Despite air quality standards passed in the 1980s to curb industrial and vehicle emissions, cities in India are some of the most polluted in the world, according to the World Health Organization. The number of vehicles on the road in India has nearly tripled in the past decade, with 130 million vehicles on the road in 2013 compared to 50 million in 2003, according to the International Council on Clean Transportation.

Long-term measurements of surface ozone over India – measured on the ground or by aircraft—are not available, making it difficult to get a clear picture of how ozone levels in the country have changed, Ghude said. But satellite-based studies show ozone has increased over the country in the last two decades, Ghude said. Warmer temperatures that are expected with climate change could also increase ground-level ozone, according to previous research.

Ramanathan said that unlike most studies, which look at the effect emissions will have on agriculture decades in the future, the new study examined how ozone emissions are already affecting crops in India. He said the new study could help spur interest in the issue and help policymakers enact new air quality standards or mandate use of new technology to cut emissions.

Burning trash still major global contributor to air pollution

Source : *EcoSeed*

Date: 3rd September, 2014

Around 40 percent of the world's garbage is still being disposed of by burning, affecting both human health and climate change.

According to a study by the National Center for Atmospheric Research, unregulated trash burning across the globe is resulting in harmful greenhouse gases being released into the atmosphere.

“Air pollution across the globe is significantly underestimated because no one is tracking open-fire burning of trash,” said N.C.A.R. scientist Christine Wiedinmyer.

Trash burning is often most prevalent in developing countries where there are fewer trash



disposal facilities, such as landfills or commercial incinerators.

Unlike emissions from commercial incinerators, emissions from burning trash often go unreported and are left out of many national inventories of air pollution. They are often not incorporated into policy making.

“The uncontrolled burning of trash is a major source of pollutants, and it’s one that should receive more attention,” said Ms.

Wiedinmyer.

The study provides rough estimates, on a country-by-country basis, of pollutants such as particulates, carbon dioxide, carbon monoxide, and mercury that are emitted by burning garbage.

To estimate the pollutant emissions from trash fires, the researchers compared population figures and per capita waste production with official tallies of trash disposal for each country in the world. The estimate is that 1.1 billion tons or 41 percent of total waste generated worldwide is burned annually.

Heavy populated countries with various levels of industrial development were found to produce the most waste. These were China, the United States, India, Japan, Brazil, and Germany. However, it was the populous developing countries that had the greatest emissions from trash burning. These included China, India, Brazil, Mexico, Pakistan, and Turkey.

The study found that trash burning produces about 29 percent of officially reported human-related global emissions of small particulates, 10 percent of mercury and 64 percent of polycyclic aromatic hydrocarbons. These three pollutants have been linked to health problems such as decreased lung function, neurological disorders, cancer and heart attacks. Burning trash was also found to have produced an amount of carbon dioxide equal to an estimated 5 percent of reported human-related emissions. In some developing countries, such as Lesotho, Burundi, Mali, Somalia, and Sri Lanka, trash burning produces more carbon dioxide than is tallied in official inventories. This discrepancy can be important in international negotiations over reducing greenhouse gas emissions.

“This study was a first step to put some bounds on the magnitude of this issue,” said Ms. Wiedinmyer. “The next step is to look at what happens when these pollutants are emitted into the atmosphere—where are they being transported and which populations are being

most affected.” – EcoSeed Staff

3 bn people at risk of early death due to household air pollution

Source : *Times of India*

Date: 3rd September, 2014



Washington: A new research has revealed that household air pollution, sourced by the use of plant-based or coal fuel for cooking, heating, and lighting around, could cause 3 million people to suffer from health risks and early death worldwide.

A third of the world's population use plant-based solid fuels such as wood or charcoal,

or coal, to cook, heat, and light their homes, primarily in Asia and Africa. These smoky, dirty fuels are often used in an open fire or simple stove, resulting in high levels of household air pollution in poorly ventilated homes.

Studies in India have found that in some areas, household air pollution was so high that it actually increases outdoor (ambient) air pollution, leading to pollution levels more than three times higher than a typical London street, and well above WHO-recommended safety levels.

The study led by Professor Stephen Gordon, from the Liverpool School of Tropical Medicine, UK, and Professor William Martin, from The Ohio State University, USA, examined evidence for the effects of household air pollution on health. They concluded that an estimated 600-800 million families worldwide are at increased risk of illnesses such as respiratory tract infections, pneumonia, COPD, asthma, and lung cancer.

Estimates suggested that household air pollution killed 3.5 to 4 million people in 2010. Although overall rates of exposure to household air pollution have been declining slowly in recent years, population growth means that the number of people exposed has remained stagnant, at around 2.8 billion people worldwide.

Professor Gordon said that, although a number of clean cooking technologies, such as advanced cook stoves, LPG or solar power systems, exist, providing affected homes with cleaner ways to cook, heat, and light their homes with biomass fuel would not be the long term solution.

He further added that in communities where solid fuel cooking methods are currently the norm, cleaner fuel and cooking methods need to be at least as affordable, efficient, and

long-lasting as the traditional style methods they replace and they also need to be fit for the different cultures and regions in which they're used.

The study is published in The Lancet Respiratory Medicine journal.

Countries with the worst air pollution ranked by World Health Organisation

Source : *World Travel*

Date: 28th August, 2014

THERE are some countries in the world where the air is so polluted you can forget about coming home with a healthy holiday glow.

The World Health Organization (WHO) released its 2014 report into global air pollution with some concerning finds.

The database looked at the air pollution levels of 1600 cities across 19 countries by using a reading called PM2.5 and PM10. PM2.5 is considered the best indicator of assessing health impacts from air pollution and examines the concentration of fine particulate pollution of 2.5 micrometers or less in diameter (PM2.5).

These particles might be smoke, dirt, mould or pollen and their fine size poses the biggest risks to human health as they can be inhaled and accumulated in the respiratory system. WHO says there is no safe level of PM2.5.

Here are the 10 most polluted countries in the world.

1. Pakistan

Average PM2.5 pollution: 101 ug/m³

With a population of almost 180 million urban air pollution in Pakistan causes thousands of adult deaths each year.

A World Bank report found that outdoor air pollution alone causes more than 80,000 hospital admissions per year; nearly 8,000 cases of chronic bronchitis, and almost five million cases of lower respiratory cases in children under the age of five.

2. Qatar

Average PM2.5 pollution: 92 ug/m³

With a population of 2 million people and growing, Qatar also faces increased pollution from its high rate of construction and busy air traffic making it the second most polluted country in the world.

3. Afghanistan

Average PM2.5 pollution: 84 ug/m³

The Afghanistan government estimates that air pollution is responsible for 3000 deaths every year in the capital Kabul.

With a population of almost 30 million, Afghanistan suffers from traffic congestion, dust and the geographical limitations of a mountainous city.

The city's swelling size has led to illegal homes powered by diesel generators or for those who can't afford electricity, they burn tires and plastic bags for fuel.

4. Bangladesh

Average PM2.5 pollution: 79 ug/m3

Home to nearly 155 million people, the air quality has fallen nearly 60 per cent in the last 10 years. In fact three Bangladeshi cities are in the top 25 cities with the poorest air quality.

5. Iran

Average PM2.5 pollution: 76 ug/m3

With a population of more than 76 million, four cities in Iran make the top 10 list of most polluted cities in the world. A combination of poor political decisions, substandard gasoline and traffic congestion means that its residents inhale a deadly mix of rubber particles, asbestos, sulfur dioxide, nitrogen oxide and carbon monoxide.

6. Egypt

Average PM2.5 pollution: 74 ug/m3

The average resident of Cairo breathes in more than 20 times the acceptable level of air pollution every day according to WHO. The growing number of cars, factories and power plants, and the use of old heating methods such as burning coal and wood are considered to be the main man-made sources of air pollution.

7. Mongolia

Average PM2.5 pollution: 64 ug/m3

It's population may only be 2.7 million but Mongolia's long, cold winters that can drop to minus 40 degrees Celsius means that many Mongolians burn coal for cooking and heating creating a huge air pollution problem. Its capital Ulaanbaatar is one of the most polluted cities in the world.

8. United Arab Emirates

Average PM2.5 pollution: 61 ug/m3

It may be one of the richest regions in the world, but it has made its fortune from the oil and gas industries that are notoriously filthy. With a population of more than 9 million, Dubai launched an annual "car free day" in 2010 to try and tackle its problems with congestion and pollution.

9. India

Average PM2.5 pollution: 59 ug/m3

In the winter of 2013, air pollution in New Delhi was 60 times higher than the level

considered safe according to India's Center for Science and Environment (CSE) and it had the highest rate of air pollution in the world according to WHO.

Pollution from construction sites, industrial emissions, open fires, vehicle emissions and a staggering population of 1.2 billion put India at number nine on the list.

10. Bahrain

Average PM2.5 pollution: 57 ug/m3

Air pollution is not entirely relegated to the world's developing nations. The high income country of Bahrain may only have a population of 1.3 million but it scraped in at number 10 on the list due to its high levels of pollution from energy production, dust, smoke and industrial emissions.

Modi's Faster Green Permits Seen Fueling India GDP Growth

Source : *Bloomberg*

Date: 28th August, 2014

Indian Prime Minister Narendra Modi gave Hindustan Copper Ltd. (HCP) environmental



clearance to expand mining in Jharkhand state less than three months after taking power in May, ending the company's three-year wait.

The approval is part of faster decision-making that's eliminated a backlog of applications for federal green permits, according to Environment Minister Prakash Javadekar. That implies 298 projects from mining to construction

under ministry evaluation as recently as June have been sanctioned, a sign of Modi's push to cut red tape that stifled investment.

"After the new government came to power the process got expedited and within three months we got the environment approval," K. D. Diwan, managing director of Kolkata-based Hindustan Copper, the only miner of the metal in India, said in an interview yesterday. "We still need forest clearances. Given the speed of approvals, we hope to get them in a month's time."

India's economy probably grew 5.5 percent last quarter from a year earlier, the fastest since 2012 as Modi seeks to spur spending on everything from roads to factories, the median estimate in a Bloomberg News survey shows before a release tomorrow. The government is trying to overcome hurdles such as slow land acquisition and coal shortages that are stalling

\$182 billion of projects, even as activists flag environmental risks.

\$101 Million

Hindustan Copper sought in 2011 to renew and expand copper ore mining to 3 million tons a year from 300,000 tons at the Rakha mine in Jharkhand. The Aug. 1 ministry nod brings a project costing 6.1 billion rupees (\$101 million) closer.

Another beneficiary of the green-permit surge is ONGC Petro additions Ltd., a unit of Oil & Natural Gas Corp., India's biggest explorer. It got clearance July 3 for a \$300 million power plant in Gujarat state, after applying in 2011.

"Delay is costly," Alok Kumar Banerjee, finance director at state-run Oil & Natural Gas (ONGC), said yesterday. "The environment approval process for projects needs to be expedited. But I'm not saying the environment should be compromised."

Hindustan Copper's share price, which rose as much as 3.8 percent, closed up 0.7 percent in Mumbai, while Oil & Natural Gas ended 1.6 percent higher, exceeding the 0.3 percent advance in the benchmark S&P BSE Sensex (SENSEX) equity index.

India issued about 420 green permits for mining, industry, infrastructure, construction and power generation projects last year, down from almost 1,000 in 2009. Graft scandals afflicting the previous Manmohan Singh-led government fanned bureaucratic inertia, contributing to the slowdown.

Online Clearances

Javadekar's steps at the Environment Ministry include beginning a new online system for applications on May 29, three days after Modi's inauguration, for transparency and speed.

Javadekar's predecessor, Veerappa Moily, accelerated clearances earlier in 2014 as Singh sought a pick-up in annual economic growth from near a decade low before general elections.

"We have fast-tracked decision-making," Javadekar told Bloomberg News on Aug. 26. "Whatever project was on my table, I've cleared all projects." He said July 17 that 298 proposals were pending in the ministry as of June 30.

For some, a rush to sanction projects poses threats in India, where the World Bank estimates environmental damage costs about 3.75 trillion rupees a year. Outdoor air pollution alone - - Indian cities have some of the world's worst -- costs 1.1 trillion rupees in shortened life spans, the bank said.

Dysfunctional

In one example of the potential risks, families living near uranium mines in Jadugora in Jharkhand have for years seen their children waste away and lose control of their limbs before dying in some cases. State-run Uranium Corporation of India Ltd. and the federal

Department of Atomic Energy have denied the deformities are linked to the mining. “The system is dysfunctional,” said Chandra Bhushan, deputy director general at the New Delhi-based Centre for Science & Environment. “It doesn’t protect the environment, it takes too much time and it breeds corruption. What they are doing is diluting the existing system and simply relaxing it for industries. That’s even worse for the environment.”

Two calls to Javadekar’s mobile phone for a response to the claims went unanswered.

Modi’s Bharatiya Janata Party swept to the first single-party majority in the lower house of parliament in 30 years after vowing to fight graft and revive the \$1.9 trillion economy.

The Sensex has climbed 26 percent this year and the rupee has strengthened 2.1 percent against the dollar, buoyed by the prospect of a growth revival under a more stable government.

Economic Agenda

A 5.5 percent expansion in gross domestic product in April through June would exceed 4.6 percent in the prior quarter and be the fastest since 5.8 percent in January through March 2012.

Steps to unclog the investment pipeline are kick-starting a “broad-based pickup,” offsetting below-average monsoon rains that will curb agricultural growth, said Sonal Varma, an economist at Nomura Holdings Inc. in Mumbai.

Modi has eased curbs on foreign investment in the defense and railway industries to woo inflows, and released some rice and wheat stocks to curb a consumer-price inflation rate of almost 8 percent.

At the same time, he’s encountered setbacks, including failure to get rapid assent in parliament for more foreign-direct investment in the insurance industry. India last month also contributed to the collapse of the biggest trade deal in the World Trade Organization’s 19-year history.

Among larger investments, 210 projects worth 11 trillion rupees -- \$182 billion -- remain stalled, according to the government. While that’s down from \$255 billion in May, it’s still equivalent to the size of New Zealand’s economy.

Modi’s setbacks have raised questions about the prospects for his agenda of reviving economic expansion, as the government nears 100 days in office.

“There’s a gradual pick-up in growth,” said Rupa Rege Nitsure, chief economist at Bank of Baroda in Mumbai. “But there’s no magic wand. The government needs to press forward with reforms. Environmental clearances are an immensely important component as they have held up massive projects.”

Pitch in to Protect Nature, IMD Director Appeals to the Public

Source : *Indian Express*

Date: 26th August, 2014

BANGALORE: The public should actively contribute towards protecting the environment, said B Puttanna, director of the Indian Meteorological Department, Bangalore, on Monday. At a UGC-sponsored workshop on atmospheric sciences, organised at the National Degree College here, he said given the current level of environmental denudation and the fact that the water table is constantly getting depleted thanks to rapid urbanisation, it won't be long before the country's natural resources dry up.

"There is a lack of awareness about the ways to protect the environment. The atmosphere is being polluted due to the rapid levels of urbanisation. Methods to keep it (pollution) in check need to be chalked out," he said.

Let Us Go the Organic Way

Puttanna also said organic farming can help save the environment from further deterioration, but rued that it is not practised enough. "Trees must be planted on a regular basis, and groundwater harvesting and organic farming must be done. Then, over a period of time, the quality of the environment will change for the better."

Earlier, former Bangalore University vice-chancellor K Siddappa said protecting the environment is vital in an agrarian economy like India. Atmospheric sciences, among other streams, is highly inter-disciplinary and requires understanding of subjects like physics, chemistry and biology.

He lauded the college's move to organise the workshop, saying "very little research work has been done on the field".

A H Rama Rao, president of the National Education Society of Karnataka, college principal C R Sampathkumari and others were present at the workshop.

Trash burning worldwide significantly worsens air pollution

Source : *sitename*

Date: 26th August, 2014

BOULDER -- Unregulated trash burning around the globe is pumping far more pollution into the atmosphere than shown by official records. A new study led by the National Center for Atmospheric Research estimates that more than 40 percent of the world's garbage is burned in such fires, emitting gases and particles that can substantially affect human health and climate change.

The new study provides the first rough estimates, on a country-by-country basis, of pollutants such as particulates, carbon monoxide, and mercury that are emitted by the fires. Such pollutants have been linked to serious medical issues.

The researchers also estimated emissions of carbon dioxide, the most common greenhouse gas produced by human activity.

Unlike emissions from commercial incinerators, the emissions from burning trash in open fires often go unreported to environmental agencies and are left out of many national inventories of air pollution. For that reason, they are not incorporated into policy making.

“Air pollution across much of the globe is significantly underestimated because no one is tracking open-fire burning of trash,” said NCAR scientist Christine Wiedinmyer, lead author of the new study. “The uncontrolled burning of trash is a major source of pollutants, and it’s one that should receive more attention.”

Quantifying the extent of burning trash may change how policy makers track emissions, as well as how scientists incorporate air pollution into computer models used to study the atmosphere.

Because trash burning is unregulated and unmonitored, Wiedinmyer said that actual emissions could be larger or smaller than the study’s estimates by a factor of two. Still, the analysis represents the most comprehensive effort to date to account for emissions from trash burning.

The new study, published in *Environmental Science & Technology*, was funded by the National Science Foundation, which is NCAR’s sponsor. It was co-authored by scientists from the University of Montana and the U.S. Environmental Protection Agency who were also involved in measuring the composition of trash-burning emissions.

Shrouded in smoke

Trash burning is a global phenomenon. But it is most prevalent in developing countries where there are fewer trash disposal facilities, such as landfills and incinerators.

The amount of garbage burned in remote villages and crowded megacities is likely on the rise, as more people worldwide are consuming more goods. The trash often contains discarded plastics and electronics as well as traditional materials such as food scraps and wood.

Wiedinmyer began wondering about the impact of burning trash while visiting remote villages in Ghana. The villages were shrouded in smoke caused in part from trash fires that smoldered all day.

To estimate emissions from trash fires, Wiedinmyer and her co-authors compared population figures and per capita waste production with official tallies of trash disposal for each country in the world. They estimated that 1.1 billion tons (1 billion metric tons), or 41 percent, of the total waste generated worldwide is disposed of through

unregulated burning every year.

The countries that produce the most total waste, according to the study's methods, are heavily populated countries with various levels of industrial development: China, the United States, India, Japan, Brazil, and Germany. But the study concluded that the nations with the greatest emissions from trash burning are populous developing countries: China, India, Brazil, Mexico, Pakistan, and Turkey.

By analyzing consumption patterns in each country, the research team then estimated the type and amount of pollutants from the fires.

The study concluded that the fires produce emissions equivalent to as much as 29 percent of officially reported human-related global emissions of small particulates (less than 2.5 microns in diameter), as well as 10 percent of mercury and 64 percent of a group of gases known as polycyclic aromatic hydrocarbons (PAHs). These pollutants have been linked to such significant health impacts as decreased lung function, neurological disorders, cancer, and heart attacks.

Trash burning in some countries accounts for particularly high quantities of certain types of pollutants. In China, for example, the emissions are equivalent to 22 percent of reported emissions of larger particles (those up to 10 microns in diameter).

The global impact on greenhouse gas emissions appears to be less, though still significant, with burning trash producing an amount of carbon dioxide equal to an estimated 5 percent of reported human-related emissions. (By comparison, the Kyoto Protocol strove for a global 5 percent cut among industrialized countries in greenhouse-gas emissions derived from fossil fuels.) In certain developing countries—such as Lesotho, Burundi, Mali, Somalia, and Sri Lanka—the trash burning produces more carbon dioxide than is tallied in official inventories. This discrepancy can be important in international negotiations over reducing greenhouse gas emissions.

Wiedinmyer said the next step in her research will be to track the pollutants to determine where they are having the greatest impacts.

"This study was a first step to put some bounds on the magnitude of this issue," she said. "The next step is to look at what happens when these pollutants are emitted into the atmosphere—where are they being transported and which populations are being most affected."

Cutting-edge pollution monitor for Ghaziabad soon

Source : *The Times of India*

Date: 25th August, 2014

GHAZIABAD: The city will soon get a continuous ambient monitoring system that will display real-time analysis of air pollution levels. In it, levels of commonly used parameters for measuring air pollution ? sulphur dioxide, carbon monoxide, nitrogen dioxide, PM 10 and PM 2.5 ? will be displayed on a digital screen.

Uttar Pradesh Pollution Control Board's (UPPCB) officials said the system is likely to arrive next month.

PCB's regional office in Ghaziabad is currently selecting a site to install the system. It has shortlisted three sites, from which they will zero in on one.

Two of the three probable sites are in Trans-Hindon ? Sector 16 in Vasundhara and the Sahibabad Industrial area. The third is one of the parks belonging to Ghaziabad Municipal Corporation on the other side of the Hindon.

"The final site will be decided after the system arrives. Real-time analysis of pollution levels in the city is necessary, as Ghaziabad is one of India's most polluted industrial clusters," a senior UPPCB official, said.

The project is being jointly undertaken by UPPCB and Central Pollution Control Board (CPCB). The total cost of is pegged at around Rs 1.1 crore. Central and state boards will bear the cost equally.

Ethanol-run green bus set for trial runs in Nagpur

Source : *India Today*

Date: 23rd August, 2014



Nagpur received India's first ethanol-run city passenger transport bus, which has been manufactured by Scania, the Sweden-based commercial vehicle and engine maker, for trial runs on Friday.

Scania Commercial Vehicles India Managing Director Anders Grundstomer handed over keys of

this green bus to Union Minister for Road Transport, Highways, Shipping and Rural Development Nitin Gadkari.

Later, Gadkari flagged off the bus in the presence of Nagpur Municipal Corporation officials and other company executives.

In recent years, Scania has also delivered ethanol buses for commercial service in the UK, Spain, Italy, Belgium, Norway and other countries.

"Public transport on ethanol buses is a cost-effective way to reduce several environmental problems. Solutions we are now developing create the necessary pre-conditions for both more attractive forms of travel and also better living conditions in city centres, without requiring major investments in new infrastructure," Grundstomer said.

With its ethanol-fuelled bus Scania has also introduced an engine complying with Bharat Stage 5, which is a huge step to minimise emissions further, he said.

Ethanol accounts for around 90 per cent of renewable vehicle fuels available in the world today and can be sourced locally, which also reduces the need to import oil.

"The use of ethanol as a vehicle fuel is the best example of what can be done here and now in sustainable development work to reduce greenhouse gas emissions and local air pollution," Anders said.

In India, Scania buses and trucks have been specially designed to meet local conditions and customer requirements.

Protecting tiger means protecting water security'

Source : *The Times of India*

Date: 23rd August, 2014

PANAJI: "That tigers are there in the forests of Goa has been proved beyond doubt repeatedly. We should not forget that by protecting the tiger and its natural habitat, we are safeguarding water security of Goa," said Bittu Sahgal, well-known wildlife activist and editor of 'The Sanctuary Asia' magazine.

Sahgal was speaking as chief guest for the inaugural ceremony of the Goa environmental film festival organised by Kalakruti from August 22 to 24 at the Kala Academy's black box in Pannaji.

He said that Goa is a land of fisherfolks and forest dwellers who have been protecting the coast and the Western Ghats for generations.

"By exporting iron ore to China, we have caused tremendous harm to the sources of water. Goa has inherited assets of survival against climate change. We have to look at Goa as an intensive conservation unit. Like the national flag, we have to protect our national animal tiger in Goa. We cannot argue with nature, it will punish us. We have to take into account eco-system services offered by nature. Protecting forests and environment means controlling floods and droughts. Those who have done mining illegally and violated laws should be banned for at least 10 years," he said.

Sanjit Rodrigues, commissioner of the corporation of the city of Panaji, said, "We are mapping the urban biodiversity. Only after its completion, we will tell people which trees are needed and where they are to be planted. We are planning to make Panaji free from waste through systematic disposal and management of garbage."

Prerna Mainkar, president of Kalakruti, speaking to TOI, said, "We have organized the festival to address some of the most current and critical environmental challenges and also generate reasons for hope and optimism that are relevant to the community."

The festival on Friday was marked by the presentation of environmental films, street plays,

monologue and poetry cum dance presentation on the themes of environment. There has been a demand for declaring a tiger corridor in Goa for the last few years. This was especially after a tiger was killed in Sattari five years ago. The Union ministry of environment and forests had sent a communique to the Goa government a few years ago to pursue the matter.

There was a division in opinion over the issue in Goa with the political class showing reluctance to move ahead in the matter.

A few months ago, MoEF sought a query from the state government on the issue. The Goa government in the assembly made its stand clear by saying that a decision on the proposal for Mhadei tiger reserve will be taken up only in 2017 after submission of Ullas Karanth's findings on the presence of tigers.

There has been a demand for declaring a tiger corridor in Goa for the last few years. This was especially after a tiger was killed in Sattari five years ago. The Union ministry of environment and forests had sent a communique to the Goa government a few years ago to pursue the matter

Mumbai's air more polluted, but water gets cleaner

Source : *The Times of India*

Date: 23rd August, 2014

Data accessed from the BMC's yet to be released environment status report (ESR) for 2013-14 shows that pollutant levels in the air have gone up in a few areas, but the percentage of water samples found contaminated have reduced to 11 this year from 20 last year.

MUMBAI: The level of toxic gases in the air that you breathe has gone up, but the quality of water that you drink has improved.



Data accessed from the BMC's yet to be released environment status report (ESR) for 2013-14 shows that pollutant levels in the air have gone up in a few areas, but the percentage of water samples found contaminated have reduced to 11 this year from 20 last year.

Sulphur dioxide (SO₂), nitrogen dioxide (NO₂), suspended particulate matter (SPM) and ammonia (NH₃) have seen an increase in all sites — Parel, Kalbadevi, Worli, Bandra and Sion — where the air-monitoring device was fitted. NO₂ levels have shown an increase in all five areas, while SPM and

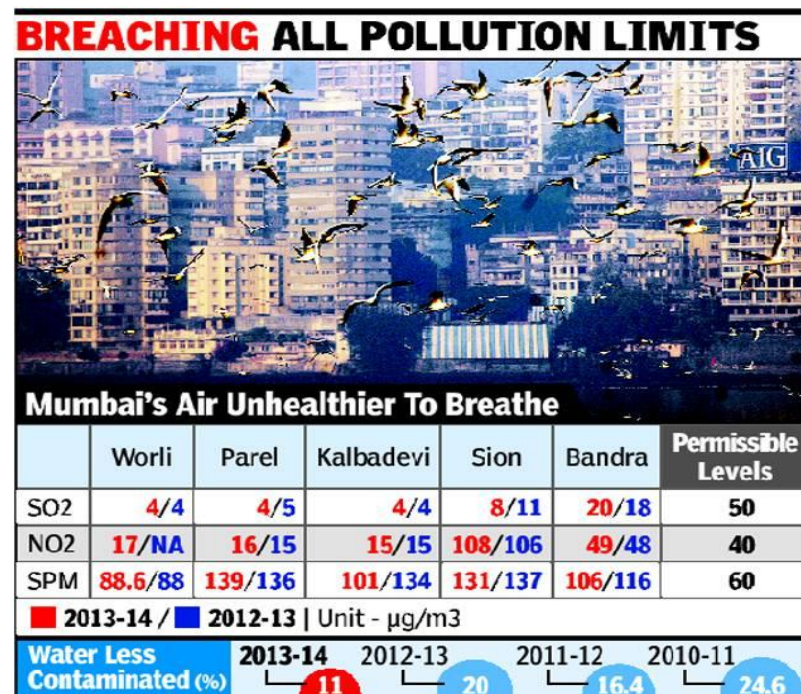
SO₂ increased in three and two areas respectively.

Experts say the levels of these gases have gone up due to increased construction activity and vehicular emissions.

SPM levels were all way above permissible limits prescribed by the pollution board, in fact

in three places it was double that mark. The permissible level is 60µg/m³, whereas in Parel, which was the highest, it stood at 139µg/m³.

Similarly, NO₂ levels in Sion and Bandra were higher than the permissible mark of 40µg/m³. The highest levels of NO₂ were detected in Sion, which was 108 µg/m³.



However, the silver lining in the otherwise gloomy report is that water quality has improved considerably in a year. Last year, 41% of water samples from areas like Dongri and Sandhurst Road were found to be contaminated, the figure has been reduced to 24% this year.

Similarly bad areas like L ward (Kurla) and P-South (Goregaon) are showing an over 10% reduction in contaminated water supply parameters.

Civic officials say several steps have been taken by the BMC to ensure that water contamination complaints are reduced. Old pipelines have been replaced and large underground pipelines have been replaced by tunnels. The BMC has also activated its leak detection units in each ward to tackle complaints of leaks to reduce ingress of dirty water inside the line. "The report gives a lot of data based on research and sampling. The BMC cleaned up its act after contamination complaints continued to increase, but authorities are not taking notice of air pollution levels and hence these are rising every year," said a civic official. According to the report Mumbai's vehicular population is growing steadily. The city has 21.87 lakh vehicles as of March this year, as against 19.06 lakh vehicles last year.

After panchayat election boycott, pollution-hit villages endorse bypoll

Source : Indian Express

Date: 22nd August, 2014

Though Kanakwal village, close to the Bathinda refinery, had boycotted the panchayat elections two years ago, protesting the lack of action to combat pollution from the refinery, the village residents along with neighbours from Phollokhari, which is equally pollution-hit, enthusiastically exercised their democratic rights during the bypoll held here on Thursday. The villages are part of Talwandi Sabo.

While Kanakwal recorded 86.8 per cent polling, Phollukhari fared marginally better with 90.6 per cent polling. Voters however have categorically stated that will be their last polls if they a solution is not found to combat growing noise and air pollution from the refinery. "Skin disorders, asthma are some of the problems being faced by us. The officers should spend at least a week and even the SAD leaders as well. This time we have voted with a hope that we will be heard and some solution will be given to our problems before 2017 or we will not vote in the Vidhan Sabha polls," said Baldev Singh, a resident of Phullokhari. Of the 1,380 votes, Phullokhari polled 1,255 votes while 1,114 of the 1,280 voters exercised their franchise in Kanakwal.

The village residents found sympathy from staff on polling duty who slept inside the Government Elementary School on Wednesday night. "A lot of noise was coming last night as if some aeroplane was taking off. We wonder how the villagers live here," said a police staff member who did not want to be named.

Bhakar Singh, nambardar of Kanakwal village, said, "Already our case of relocation is under consideration and the entire village wants to shift out. Last night sound pollution was very less, the sound when refinery is fully operational is much more. Two months had passed peacefully (the refinery had been shut for renovation) and now it seems that once again we need to bear the sound and air pollution". He added, "We will be staging dharnas and agitations, if the government does not provide us a solution soon".

Air pollution change dramatic across parts of Earth

Source : *Tucson News Now*

Date: 22nd August, 2014

Air pollution impacts health and even contributes to millions of deaths each year. Until now, measuring pollution across the globe has been difficult. Land sensors are few and far between and only give a snapshot of pollution levels for a small area. In recent years, new satellites circling the Earth have instruments on board that can now measure pollution on a global scale. That satellite data is fed into computer models to give scientists a more accurate idea of how pollution is distributed through the Earth's atmosphere.

The below map shows how the distribution of air pollution related to human activity between 2000-01 and 2008-09 change across the Earth. This is a computer simulation based on the satellite data. The simulation focuses on pollution from humans burning fossil fuels and forests. Natural particles in the air, such as blowing dust, volcanic ash, and sea salt, were not included.

According to NASA Earth Observatory, orange shows where pollution increased while blue indicates where levels decreased. Note the significant decrease over much of Europe and eastern North America. However levels increased dramatically over parts of Asia.

"Asian countries, particularly China and India, have been releasing more particulate matter into the air as they urbanize, while European countries and the United States of America have seen pollution levels decline as more efficient, cleaner-burning technologies have become more widespread." says NASA Earth Observatory.

The increase in Africa is not related to fossil fuel burning, but instead from farmers

clearing the land for agriculture by burning the acreage.

Check air pollution control devices in U'khand: NGT to USPCB

Source : Zee News

Date: 20th August, 2014

New Delhi: Heeding a plea to check air pollution from industries in Uttarakhand, the National Green Tribunal Wednesday directed the State Pollution Control Board (USPCB) to inspect all air pollution control devices installed in iron and steel units in Jasodharpur Industrial Area (JIA) near Kotdwar.

A bench headed by Justice U D Salvi directed USPCB to look into the efficacy of air pollution control devices and the electrical interlocking devices installed at these units.

"We direct Uttarakhand State Pollution Control Board to check all these devices installed in respect all the units and report back to us on the next date of hearing," the bench said.

The matter is now listed for next hearing on September 16.

The bench also directed these industrial units to submit an year-wise data regarding annual production of each units, slag produced and disposed from these units.

It also asked these units to place before the tribunal if there was any "commercial" demand for this slag.

"The District Magistrate/Deputy Commissioner and Superintendent of Police of the District Kotdwar shall report about the steps taken by them for removal of the slag dumped in the river or river bed," the tribunal said.

This came after the counsel for industrial units submitted that commercial exploitation of slag was feasible for manufacturing of cement and bricks.

Earlier, the bench had constituted an expert committee to look into alleged violation of prescribed standards for emission by iron industries in the state.

It had also pulled up the USPCB for failing to monitor the industries causing air pollution which already have consent to operate.

The tribunal, on February 18, directed the USPCB to close all industrial units in JIA that are functioning without the consent of the board.

The tribunal had also held that the inspection report shall clearly indicate the functioning of these units along with the stack and ambient air quality samples and the analysis be included in the report.

According to USPCB, out of 18 industries, 10 have been granted consent to operate till 2014-2015, while the other eight have not been granted consent and their applications are pending before the board.

The tribunal was hearing a petition by Shiv Prasad Dabral who had alleged that several industries were operating illegally, without consent from the state pollution control board or an environmental clearance in JIA near Kotdwar.

The petition had said that these industries were also a major source of air pollution in the area and were a public health hazard.

The plea had alleged that the units have also been flouting industrial pollutant discharge

norms by dumping the foundry slag on the banks of Sigaddi Srot river.

GSPCB nod for Panaji's 1.20cr air pollution monitoring station

Source : *The Times of India*

Date: 20th August, 2014

Panaji: The Goa state pollution control board (GSPCB) has approved a decision to set up a continuous ambient air quality monitoring station in Panaji to measure air pollution in the capital city at a cost of 1.20crore. Chairman of GSPCB Jose Manuel Noronha told reporters that the 114th board meeting of the board took the decision. He added that 50% of the project cost would be borne by the central pollution control board (CPCB). GSPCB has also accepted the representation submitted by the Travell and Tourism Association of Goa (TTAG) regarding the installation of a sewage treatment system and dispersal. The system comprises installation of venture aerator in the septic tank and dozing of the sewage by effective micro-organisms. The treated water, thereafter, is released to plants in the premises. The chairman said three hotels in North Goa and three hotels in South Goa will be allowed to start this system on a trial basis. Based on the success of this, a decision to continue this system will be taken. The issue of massage parlours and spas in the state was taken up at the meeting as well. Standalone massage parlours, spas and salons will have to submit all their documents to the board along with the NOC received from the panchayat and the health department. If these spas have ayurvedic massage facilities, then they will have to recruit qualified doctors. The board has also taken a decision to abolish 20 posts from the scientific and technological section, after the government asked the board to conduct a review. During the mid-term review, the board decided to abolish these posts, said Noronha. A decision to charge fees for authorization to factories with hazardous wastes, e-wastes and battery wastes has also been taken. A representation by Goa Pharmacy Medical Association about giving green status to factories producing general tablets and formulations has also been accepted by the board. Standalone massage parlours, spas and alons will have to submit all their documents to GSPCB along with the NOCs from the panchayat and health department. If these spas have ayurvedic massage facilities, they will have to recruit qualified doctors, said the GSPCB chairman

Campuses focus on teaching environment protection

Source : *Zee India News*

Date: 13th August, 2014

Institutions are now focusing on teaching students the importance protecting the environment, finds Prachi Rege.

Teaching the youth the importance of maintaining ecological balance and ensuring

sustainable development has become the new mantra on campuses across India. A Green committee has been formed at Great Lakes, for which applications are invited from interested students at the beginning of each year. While the committee is mentored by a faculty member, other teaching and non-teaching staff members also participate in this activity. "Our students spearhead activities like reducing paper consumption, sapling plantation, creating awareness about environment friendly practices, etc.," informs Bala V Balachandran, founder and dean, Great Lakes Institute of Management.

IIT-B every year celebrates, Vanmahotsav, where students, faculty members and residents of the campus together plant saplings at a designated spot within the campus. "Our initiative is not to save money or reduce our carbon foot-print, but to explore new ways to harness alternate and clean sources of energy," says Devang V Khakhar, director, IIT-B.

Prin LN Welingkar Institute of Management Development and Research, Mumbai too encourages students to come up with environment-friendly product ideas. The institute recently conducted a competition themed 'Humanising A Metropolis' where participants from across the country along with international counterparts came up with innovative products to conserve water, manage household waste and create open spaces in the city. "Smart tap meters that monitor your water use at home, taps with regulators to help fight the laziness of closing the tap are some of the smart and responsible products that the students came up with," says Uday Salunkhe, group director, WeSchool.

Experts are of the opinion that a lot needs to be done in the space of environment sustainance. According to Amit Jathar, member of MOB, an NGO that works on water harvesting and recycling across Maharashtra, institutes restrict their eco-friendly activities only to follow UGC guideline or abide by municipal corporation's norms regarding roof top harvesting. "Willingness to act voluntarily beyond guidelines and diktats is the need of the hour," he elucidates. "The awareness and enthusiasm in this direction is certainly growing and institutions are taking active measures for turning green," says Balachandran.

Experts welcome e-rickshaws guidelines

Source : *The Times of India*

Date: 11th August, 2014

NEW DELHI: Environmentalists and public transport experts are relieved that the Centre has proposed draft guidelines to regulate e-rickshaws under the Motor Vehicles Act. E-rickshaws may have been in the news for all the wrong reasons, but many believe these had the potential to solve the city's last-mile connectivity problem.

Similar paratransit modes are successfully regulated all over the world. Even cycle-rickshaws are regulated and have a licensing mechanism overseen by the municipal corporations. Pedicabs are regulated in most cities in the US and Europe—Philadelphia City Council mandates pedicabs utilize permitted streets, do not operate after dusk or on the sidewalk, and never board or de-board passengers from a roadway travel lane.

In Philippines, tricycles are regulated by the transport department. Its government now plans to put electric tricycles—similar to Delhi's e-rickshaws—on the road to address the issue of air pollution. It has recently released Peso 505.6 million (around Rs 700 crore) to the department of energy for an E-Trikes project for Manila.

"Take the example of Delhi University where students were using e-rickshaws to go to college from Metro stations. Students have told me that they have to spend Rs 40 in an auto against Rs 10 in an e-rickshaw, which is equally or more efficient. People will start opting for motorized transport like cars if e-rickshaws are gone as there aren't many options to travel from Metro stations," said Anumita Roychowdhury, head of Centre for Science and Environment (CSE)'s Clean Air programme.

In fact, Roychowdhury says doing away with e-rickshaws will be like destroying Delhi's public transport system. "We certainly need to make some basic safety checks; we have enough regulations for disposal of batteries. We have a high-powered committee on electric vehicles, then why are we making e-rickshaws an exception? I think this zero-emission mode needs to be celebrated," she added.

To start with, allowing e-rickshaws to run within an 800-1,000m radius of Metro stations can be useful.

Experts say e-rickshaws seemed to meet a latent demand for fast, comfortable para-transit that was not met by autos. E-rickshaws were running short distances due to lack of charging points, some suggest that the government can set up battery charging stations, preferably with solar power, near Metro stations.

"They don't have a battery which is less than 250 Watt, as was thought earlier. Most e-rickshaws have an over 650-Watt battery which make them motor vehicles so they can be regulated under MV Act. There needs to be another regulation to check basic things like visibility, brakes, frame etc. The Delhi environment department can possibly regulate battery disposal. I think e-rickshaws can be an excellent last-mile connectivity mode for the city," said a public transport expert who has studied e-rickshaws in Delhi.

Some suggest that e-rickshaws can be limited to non-motorized transport (NMT) lanes so that they don't disrupt traffic. One e-rickshaw per owner can also help in ensuring that there is no sub-letting or mafia involved.

Ravi Agarwal of Toxics Link said that the existing acid battery management and handling rules have failed due to lack of enforcement. "The rules have to be enforced strictly or it can lead to serious soil and water pollution," he said.

E-rickshaws can also help Delhi deal with its air pollution crisis. The LG's high-powered committee on air pollution has also recommended promotion of battery-run vehicles. "E-rickshaws are important in Delhi because they have zero emissions. I agree that they need conventional power to charge and this leads to pollution elsewhere from power plants. But for a city that's suffering from very poor air quality, it needs to promote non-polluting modes," said Sarath Guttikunda of urbanemissions.info.

As far as livelihood and business is concerned, e-rickshaws have given income options to over 1 lakh people in the capital. The batteries are currently imported from China but can be made locally too.

Still a Lot to Learn About India's Deadly Air Pollution

Source : *BERKELEY LAB*

Date: 11th August, 2014

What exactly is the relationship between exposure to air pollution and its effect on human health? How much cleaner would the air have to be to reduce the health burden of dirty air? Can cities be designed so as to minimize the flow of air pollution?

There is still a lot that scientists don't know about air pollution, but the severe pollution common in much of India offers scientists an opportunity to better understand its causes and effects. The Department of Energy's Lawrence Berkeley National Laboratory researcher Josh Apte is developing some unique approaches to studying air pollution in India and hopes to apply what he learns to developing global strategies for combating it.



(Photos courtesy Josh Apte)

Although India uses the same air monitoring techniques that are standard throughout the world to measure ambient air pollution in major cities, such techniques don't give residents or scientists enough actionable information, in Apte's judgment. "A big limitation with ambient monitoring is it doesn't tell you what people actually breathe," he said. "It gives you some indication of the overall level of air pollution in a city, but it doesn't tell you where the hot spots are, and it doesn't tell you the locations where people are getting the bulk of air pollution exposure."

Air pollution is the number five risk factor for premature death in India, causing three times as many deaths as AIDS and malaria combined. "One thing we can say with quite a bit of certainty is that air pollution is a major risk for premature death in India," Apte said. "Air pollution now kills more people than poor water and sanitation, which historically has been a major cause of death in India."



Specifically, the pollutant that is most harmful to human health is fine particulate matter, or $PM_{2.5}$, for particles that are less than 2.5 micrometers in diameter. These particles are not visible to the naked eye and can be inhaled deeply into the lungs. The U.S. Environmental Protection Agency considers an annual average

concentration in excess of 12 micrograms per cubic meter of $PM_{2.5}$ to be a health concern, whereas average annual levels in India are on the order of 50 to 150 micrograms per cubic meter, according to Apte.

The primary sources of $PM_{2.5}$ in India are similar to those of other countries—vehicle tailpipes, power plants, and certain industrial processes. Indian cities and rural areas also have significant unregulated sources, including brick kilns, diesel backup generators, trash burning, and wood-burning cookstoves.

To better measure the types and levels of pollutants that people are breathing, Apte hired an auto-rickshaw and drove it around the roads and highways of New Delhi for four months. The vehicle was outfitted with sensors placed at face height to more precisely measure what a person would inhale. He took two- to three-hour trips every day during the morning and evening rush hours.



Apte, Berkeley Lab researcher Thomas Kirchstetter, and a group of international collaborators collected more than 200 hours of real-time measurements of three types of pollutants: $PM_{2.5}$, black carbon, and ultrafine particles. “The levels of air pollution are truly astounding,” he said. “These are some of the highest levels of air pollution that have ever been measured in traffic anywhere in the world.”

Concentrations of $PM_{2.5}$ were 50 percent higher on the road than in the ambient air. Concentrations of black carbon and ultrafine particles were 3.6 and 8.4 times higher, respectively. Videos he made while driving through traffic clearly show how a large polluting truck passing by can immediately cause sensors to spike. “Fifty percent is a big increase when you consider that the baseline is already very high,” he said. The results from the auto-rickshaw study were previously published in

Atmospheric Environment. Since then he and other Berkeley Lab researchers have been working on creating a global map showing mortality caused by ambient air pollution and what happens to mortality rates when air pollution is dramatically reduced. "If we have the goal of ultimately removing the burden of disease from ambient air pollution, we need to know how much cleaner we will need to be and what areas of world should be areas of focus," Apte said.

Eventually he hopes to have a real-time map of pollution in Indian cities to decipher how spatial patterns of air pollution vary around cities. "There's a lot we don't know when just looking at air pollution at single points of space," he said.

Apte believes that understanding how urban form is related to air pollution can be a promising way to ultimately design cities of the future to minimize both sources of air pollution and exposure to it. "If we can engineer strategies for 'smart cities' to protect public health, I think it's a tremendous opportunity when we think about the growing cities in Asia," he said. Apte's work has been supported by a Fulbright-Nehru fellowship to India from the US-India Educational Foundation, a US EPA STAR graduate research fellowship, and an ITRI-Rosenfeld Postdoctoral Fellowship from Berkeley Lab's Environmental Energy Technologies Division.

Lawrence Berkeley National Laboratory addresses the world's most urgent scientific challenges by advancing sustainable energy, protecting human health, creating new materials, and revealing the origin and fate of the universe. Founded in 1931, Berkeley Lab's scientific expertise has been recognized with 13 Nobel prizes. The University of California manages Berkeley Lab for the U.S. Department of Energy's Office of Science. For more, visit www.lbl.gov.

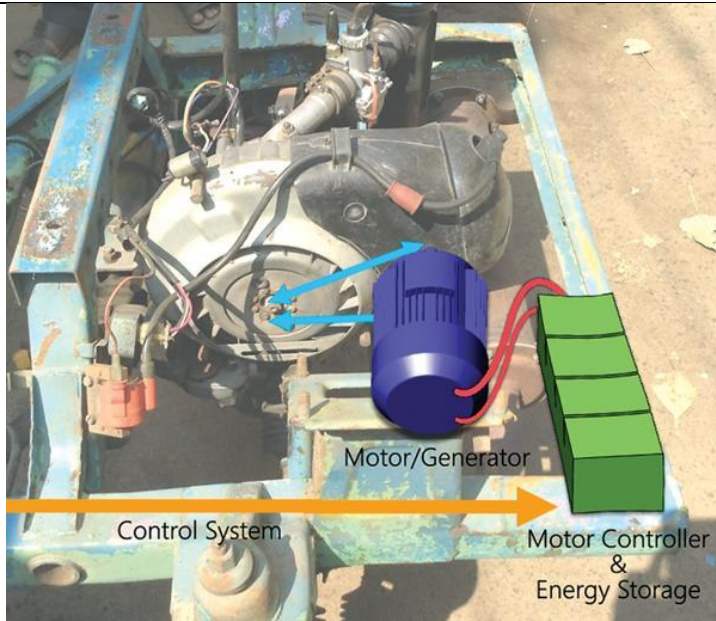
CU-Boulder students design hybrid conversion kits for rickshaws in India

Source : *C U News*

Date: 6th August, 2014

Some University of Colorado students are working to reduce air pollution and put money back into the pockets of drivers in India with kits that turn gas-powered auto-rickshaws into hybrid vehicles.

The students, who've formed a company called Surya Conversions, are raising money online to build a prototype of the kits, which will convert Indian rickshaws into "Prius-like vehicles" and reduce emissions by roughly 33 percent, said founder Maithreyi



Gopalakrishnan. The kits will also cut down on the gasoline used by the cars, which will save the drivers money.

Gopalakrishnan, a senior studying engineering physics on the Boulder campus, was born in Chennai, a coastal city in southeast India. She moved to Colorado with her family when she was 6 months old, but much of her family still lives in India, and she visits them often.

While visiting, she noticed that

rickshaws — small, three-wheeled vehicles — were one of the primary modes of transportation in India, much like taxis in a city such as New York. She also noticed that the drivers were constantly hitting their brakes in traffic.

The hybrid conversion kits, which Gopalakrishnan's new company Surya Conversions hopes to sell for around \$600, will capture the rickshaw's kinetic energy each time the driver brakes. That energy will be converted into electricity through a concept known as regenerative braking, she said.

Advertisement

This type of technology is now used in hybrid cars, such as the Prius, and in electric cars.

"So much traffic in India is stop-and-go, and basically that's when you use the most fuel out of your car," said Kimberlee Ott, a junior studying environmental engineering who has worked on marketing for the company.

There are already hybrid conversion kits on the market, but Gopalakrishnan said they're too expensive for many Indian rickshaw drivers. Gopalakrishnan said Surya Conversions plans to keep its kits affordable by sponsoring some drivers, creating payment plans and selling directly to the companies that rent rickshaws.

What drew many of Gopalakrishnan's peers to the project is the company's focus on social good in addition to profit.

"I wanted to be able to make clean energy more accessible to the masses instead of concentrating on people that could afford it," Gopalakrishnan said. "We're going to be able to help the common man have the opportunity to use clean energy."

Brent Shafer, chief financial officer of Surya Conversions and a junior studying political science, saw the poverty and the air pollution in India firsthand during several internships there.

He said the company's hybrid conversion kits will play an important role until the majority of vehicles on the road around the world are electric or hybrid models.

"We're playing that middle role and giving kits to drivers to increase their efficiency so they can take more trips without spending as much money on gas," he said.

How you can contribute to reducing air pollution in Bengaluru

Source : *Citizen Matters*

Date: 1st August, 2014



In Bengaluru, vehicular pollution and dust are the major contributors to air pollution, and as listed earlier in this series, they cause several health and environmental problems. While the dust is mostly from construction activities, the air currents and constant vehicular motion keep the pollutants in circulation all the time.

There is no single solution to mitigate air pollution given the number of government agencies involved and the heterogenous

mix of vehicle users and commuters.. In this article, we look at the role individual road users play.

On an average, 6734 BMTC buses ferry 49,50,000 passengers in 79677 bus trips across the city. As on March 31st 2014, there were 50,50,057 vehicles registered in Bangalore city of which the two wheelers, cars and jeeps were 44,74,722. As a single unit, a two wheeler maybe adding a lower pollution load but the fact that there are as many as 34,79,208 two wheelers in the city means that collectively, two wheeler riders contribute to air pollution as much as or more than other vehicle users.

Our autophilia shows when a less populous India beats China in automobile travel according to a study, which also says there is no correlation between salary and car usage. Though the need for one to buy a vehicle may vary, one common reason is the convenience it provides - that of not being at the mercy of someone else when one needs to commute.

That being said, when the cons of driving individual vehicles, including increasing air pollution, traffic jams, fuel costs, ill-tempered motorists and reducing parking spots etc. are listed down, maybe it is time to take a step back and consciously make a decision to avoid being a part of the problem - thousands are doing it but there is no significant impact because a larger number are still using their own vehicles to commute.

Why individuals matter?

When individuals choose to contribute there are always options. While proper vehicle maintenance, use of public transport and vehicle pooling are the common known solutions to air pollution, commuter cyclists in Bangalore are beginning to make their presence felt.

Ensuring vehicles are environment compliant

The easiest contribution to a cleaner environment by a vehicle user is good vehicle maintenance. The awareness brochure for vehicle users by the Society of Indian Automobile Manufacturers lists out the Dos and Don'ts for fuel efficiency and economy. The manufacturers have also been mandated to adhere to five details of the fuel economy under standard test conditions (Images from the SIAM site)

Using public transport

It would be wrong to presume that all BMTC or BMRCL commuters do not have a private vehicle and have no choice but to use public transport. Public transport is a tried, tested and adjusted-to mode of transport for many. It would also be wrong to make blanket remarks like buses take a long time to reach a destination, buses are unsafe, bus stops are far away, how will I manage with the kids, I will begin when all Metro routes are functional and other such statements that sound less like justifications and more like procrastinations.

BMTC has come a long way in terms of its infrastructure, areas serviced, special services and customer grievance redressal. Under the Safe Routes to School, the BMTC ferries thousands of students to school and back home and has not only decreased the use of many private vehicles but also decongested several points in the city during peak hours.

The BMTC ezyTrip mobile-friendly site helps commuters plan their trip and get information on bus routes and fares. While BMTC is working on their mobile app, some commuters use Bangalore BMTC Info app for more information. The fact that BMTC will soon introduce a fleet of CNG buses is a reason for the city to cheer. BMTC promotes and creates awareness by organising the Bus Day on the 4th of every month. Even with frequent fare hikes, BMTC continues to ferry as many people as before.

Carpooling

For example, the following factors can decrease your vehicle's fuel economy:



It is a common sight to see single-passenger cars in the city but in reality there are several Bangaloreans who do opt for car pooling. This mode needs some research, many trials and a lot of patience and determination. Though the impact on air pollution will be felt only when the numbers are significant, for every converted car pooler the savings on fuel alone is incentive to keep the car pool going. There are several sites that enable easy carpooling if one doesn't have enough colleagues or neighbours commuting in same direction. The Mapunity Bangalore Traffic Information System's

carpool portal, Car Pooling in India, Carpool.in are some websites that connect

carpoolers. Letsride.in and Lets Drive Along were the two new carpooling options available for the city drivers; Let's Drive Along can also be installed as an app on android phones.

Be a true eco-commuter

Cyclists have been a part of the commuter fabric for decades now, from the milkman, newspaper boy, postman, school / college students and others going to a point of work. Though there is no record of the exact number of cyclists commuting to work, the last couple of years has seen a new wave of

TIPS FOR IMPROVING FUEL ECONOMY

Keep Your Vehicle in Shape

- Servicing of a vehicle that is noticeably out of tune can significantly improve fuel economy.
- Repairing a faulty oxygen sensor can improve fuel economy by much more.
- Replacing a clogged air filter can significantly improve fuel economy.
- Keeping tyres inflated to the recommended pressure and using the recommended grade of motor oil can improve fuel economy. Check and maintain manufacturer's recommended tyre pressure.

Drive More Efficiently

- Aggressive driving (speeding or rapid acceleration and braking) can decrease your fuel economy.
- Avoid over speeding, aerodynamic losses decrease fuel economy considerably near the top speed of the vehicle.
- Avoid idling, idling gets 0 kilometer per litre

Plan and Combine Trips

A warmed-up engine is more fuel efficient than a cold one. Many short trips taken from a cold start can use twice as much fuel as one multipurpose trip covering the same distance when the engine is warmed up and efficient.

Note: Letting your vehicle idle to warm-up doesn't help your fuel economy, it actually uses more fuel and creates more pollution.





bicycle riders earning the city the title of the "Cycle Capital of India". When an individual, who otherwise ride or drive to her / his destination, opts to cycle the contribution to the city is tremendous. The fact that several corporate offices and establishments like Leela Palace and Forum Mall now have parking slots for cyclists shows that there is an

awareness and change in perception about cyclists. Several corporate offices have changing facilities further encouraging these cyclists.

With a little planning and a point to start, individuals can slowly begin moving away towards a more eco-friendly ride. Whether it is one way to work or twice a week, whatever the option may be - public transport, car pooling or cycling, any start point is a good start. Simply put, the amount you saved in fuel costs, be it a few litres of fuel a day or over a week, is also the load of pollutants you saved your air from.

Air Pollution Isn't Just Bad for Your Health—It's Taking Food off Your Plate

Source : *Take Part*

Date: 30th July, 2014



Scientists find that ozone pollution and climate change could reduce global crop production 15 percent by 2050.

Scientists have long predicted climate change would begin to cripple global food production as rising temperatures damage crops. Now a first-of-its-kind study by MIT scientists shows that as the planet warms, ozone pollution will eat into the yields of four crops that

provide more than half the world's calories. By 2050, the double whammy of climate change and ozone pollution could cut the supply of corn, rice, soybeans, and wheat by as much as 15 percent.

The result: Malnourishment in developing countries could spike by 49 percent, according to the study, which was published in the journal *Nature Climate Change*.

Like climate change, ozone pollution is a human-made phenomenon arising from our dependence on fossil fuels.

Ozone is a powerful pollutant, created by the burning of fossil fuels in cars or power plants. It affects human health and plants alike. Ozone levels increase as temperatures rise, and researchers predict Americans face a 70 percent jump in unhealthy summertime ozone events by 2050.

Corn and soybean production may fall between 20 percent and 50 percent in the United States, Europe, and South America owing to higher and more frequent extreme

temperatures and ozone pollution, according to the paper. Ozone exposure is also likely to damage wheat harvests.

At the same time, food production must increase by at least 50 percent by 2050 to meet the demands of a growing global population and the burgeoning middle classes in countries such as China and India.

However, the impact will vary, with climate change affecting some regions of the world more while ozone pollution hits others harder. That's particularly true in developing nations, which lack air pollution controls enacted in the U.S. and Europe.

"This highlights that policies formulated to ensure food security should be developed with local and domestic conditions in mind," said Colette Heald, a professor of civil and environmental engineering at MIT and coauthor of the paper.

While some researchers are trying to create strains of wheat that are more ozone-resistant, it's not likely that new crops will make up for lost food production.

Heald said the findings call attention to the need for government action to control air pollution. "Hopefully our conclusions will motivate policy makers to consider air quality management as a viable option to enhance food production worldwide," she said.

If they do, the researchers found, malnourishment rates could be halved.

Stay safe from pollution generating in your house

Source : DNA

Date: 29th July, 2014

Pune: Monsoon shows an increase in the cases of asthma and other respiratory ailments according to city based doctors even though the city has recorded the lowest emission inventory levels in terms of air pollution this month. The doctors say that the main reason for this is the increase in indoor pollution levels. "The outdoor pollution of the city is well under permissible limits, even in the highly polluted zones of Bhosari and Shivaji Nagar. Rains dissolve the particles and acid in the atmosphere reducing the pollution levels," said Gufran Beig, Chief Project Scientist, SAFAR, Indian Institute of Tropical Meteorology (IITM). During the monsoons there is high moisture level in the air forming fungus on walls, dampness and dust accumulation. "In monsoons, doors and windows are kept close, people also avoid using mechanical ventilation equipments due to cold. No ventilation leads to no air circulation, which in turn increases accumulation of pollutants indoors," added Beig.

Even if the outdoor environment has become pleasant, city based general physicians and pulmonologist say that one should breathe carefully indoors as it may trigger respiratory

ailments and allergies. Avinash Bondhwe, practicing as a general physician said, "Monsoon is the peak time for respiratory ailments. Both existing asthma cases and fresh cases increase. In a week I have around 20 - 25 cases of asthma, out of which 10 are new." While it is not just the asthma patients to get affected by indoor pollutants, senior citizens also get affected. Pulmonologist Himanshu Pophale added, "As rains start, I get 2 to 3 patients a day suffering from Chronic obstructive pulmonary disease (COPD). What happens is the older age group easily get allergic to indoor pollutants like incense stick smoke, fungus, dust particles and damp atmosphere." Environmentalists say that the indoor pollution is rising and causing health scare for people. Small steps need to be taken to keep away from the monsoon effect of indoor pollution. "People susceptible to respiratory ailments should keep away from bad air which is indoor or outdoor and eat a healthy diet to build up immunity. The respiratory ailment in monsoon do not take time to spread as they are bacterial diseases," added D Duggal, pulmonologist at Koregaon Park.

Keep your home pollution free

- Keep doors and windows open as much as possible
- Use either natural or mechanical air ventilation system at home
- Don't keep damp clothes inside your house, it may increase the moisture
- Avoid using incense sticks, mosquito repellents, etc
- Minimize use of air fresheners, deodorants and other chemical sprays
- Plant house plants if you can

Hands-on science contest for a pollution free India

Source : *The Times Of India*

Date: 30th July, 2014

MANGALORE: The Science Forum of St Agnes College, Mangalore, in association with the Centre For Advanced Learning, Mangalore, and Sunday Science School, Bangalore, will organize a hands-on science contest on Sunday at the mini-auditorium of the college for school children. The theme for this competition is 'Pollution Free India - design the most efficient air powered motorized car'. Material kit and instructions is provided to every participant. Sunday Science School starts on August 33 at the college. It was launched in South India in 2012 by L Green Ventures promoted by Dr Sujata Virdhe, former space scientist and photovoltaic expert, to tune children into the habit of hands-on science experimentation by helping them go beyond the theoretical knowledge in the textbooks and has three distinct programmes for children aged between 8 and 15. These programmes are junior level, level 1 and level 2, aimed at primary, middle and high school

students. This is a well researched programme which has evolved over the last 22 years. Children go to the nearest SSS Centre in their respective cities for two hours on Sundays for 16 to 25 Sundays depending on the level and age group. This academic year, Sunday Science School that starts on August 3 here will go on up to February 2015. Sunday Science School arranges all materials along with instruction booklets that are required for these two hours-a-week workshop. In this complete hands-on science package, students are taught to make their own science projects. At the end of the academic session each student will have an incredible display of the science models along with their very own home laboratory. Sunday Science School includes a range of activities. Activities under the above mentioned subjects include levitating pencil, nephroscope, hydro-electricity, solar car, Infinite images, electroscope, among others. Participating students complete between 25 and 75 activities along with making between 16 and 45 take-home projects, depending on the level, across variety of science subjects through SSS Junior, SSS-01 and SSS-02. Each individual level runs from July to February for one academic year. Sunday Science School is motivated by fact that 95% of knowledge learned through hands-on-science activities is retained forever in the brain. With over 20,000 students in the past few years, Sunday Science School initiative across centres in Karnataka, Maharashtra, Tamil Nadu, Madhya Pradesh and Gujarat are receiving a heartening response. SSS now has a sound infra-structure which has enabled it to launch project in rural Karnataka on a better footing. Presently SSS has branches in Bangalore, Mysore, Raichur and Mangalore, with plans to extend to Ramanagar in Mandya.

Soon, breathe clean air around crematorium

Source : *The Times Of India*

Date: 25th July, 2014

NAVI MUMBAI: The civic engineering department invited a tender for an air pollution control system chimney at the Teen Taki crematorium in Koparkhairane on Wednesday. Locals had been demanding for the chimney since long, as the polluted air from the crematorium pose risks of serious health hazards for the people staying in the adjacent residential complexes.

"The focus of Navi Mumbai Municipal Corporation (NMMC) shouldn't be just installing the chimney. It should also have a mechanism so that the smoke can be cleaned of harmful particles before it is released into the atmosphere," said Navneet Desai, a local.

Sources said, the civic body had earlier said that it would spend nearly Rs2.31 crore in developing the crematorium at Teen Taki.

The installation of the pollution control system is not included in the expenses incurred in redeveloping the crematorium.

"The authorities had decided to install the chimney from the very beginning. After Koparkhairane, similar projects will be undertaken at other crematoriums as well," said an official.

Shiv Sena corporator Manoj Haldankar said that the administration has said they will install chimneys at Airoli crematorium as well.

India announce the planting of 2 billion trees along its highways, creating 300,000 jobs

Source : *Blue & Green*

Date: 24^h July, 2014



India's Rural Development Ministry, in an attempt to both improve air quality and stimulate the job market, will potentially employ up to 300,000 youths to plant 2 billion trees along the nation's motorways. In a meeting in New Delhi, Nitin Jairam Gadkari, the road transport, highways, shipping and rural development minister announced the plans –

stating a desire to improve both the chronic air pollution India faces as well aiming to tackle extreme levels of rural poverty.

"The length of National Highways in the country is one lakh kilometer (62,137 miles)," he said. "I have asked officials to come out with a plan to plant 200 crore (2 billion) trees along these stretches which in turn would create jobs for the unemployed on the one hand and protect the environment on the other." Unemployed youth, said the minister, could be assigned up to 50 trees each, which could then provide a sustainable income for them from the trees produce. He has also stressed the need for water conservation, stating that if even 15% of rainwater could be tapped out of the 60% that goes to the sea, water scarcity issues could be avoided. According to data collected in 2010 by the World Health Organisation, youth unemployment in India stands at around 10.2% – while the country is also home to six of the world's most polluted cities. Trees are an effective agent in tackling pollution. It is hoped the roadside woods will act as carbon trappers which will lead to general improvements in the nation's health while gaining ecological

benefits – diversifying India’s expansive environment. This initiative supports the new Indian government’s ambitious plans to both develop the sub-continent’s economy while achieving environmental goals. India is currently investing heavily in solar power, with the intention to supply electricity to India’s 4 million households who currently live without it. India has also announced it will be doubling its tax on coal, to increase funding on India’s vast clean energy and environmental projects, which include the world’s largest floating solar park, and the development of four ultra-mega solar power plant

Water, air pollution: NGT issues notice to Meghalaya

Source : *The Times of India*

Date: 22nd July, 2014

NEW DELHI: The National Green Tribunal's eastern zone bench has issued notice to the Meghalaya government over a Comptroller and Auditor General (CAG) report on air, water and environmental pollution in the state.

Gauhati high court had in 2012 taken suo moto action on the CAG report which had expressed concern over the pollution in the state and subsequently transferred the case to NGT.

A green bench comprising judicial member Justice P Jyothimani issued notice to chief secretary of Meghalaya, secretary, Municipal Board and secretary, Department of Health and listed the matter for next hearing on August 26.

"Issue notice to the chief secretary, government of Meghalaya, secretary, Municipal Board and secretary, Department of Health by the next date of hearing," the bench said.

It directed Meghalaya State Pollution Control Board (MSPCB) to file its latest status report on the industries situated in the urban areas and in respect of air and water pollution in the state.

The CAG report had said the ambient air quality of capital Shillong and the entire state of Meghalaya in general is "far from satisfactory", mainly because of emission of air pollutants from automobiles.

It had, further, said that the extent of pollution of air caused by 481 polluting industries was not monitored by the MSPCB and coal mining activities were carried on in the state without authorisation.

"Water of 28 out of 31 water bodies in six districts of the state was not "fit for drinking".

"In violation of bio-medical waste (Management and Handling) Rules, 139 (out of 178), health institutions were functioning in the state without authorisation from the MSPCB," the CAG had said.

India to plant 2 BILLION trees along its highways, creating jobs for 300,000 youths

Source : *Tree Hungger*

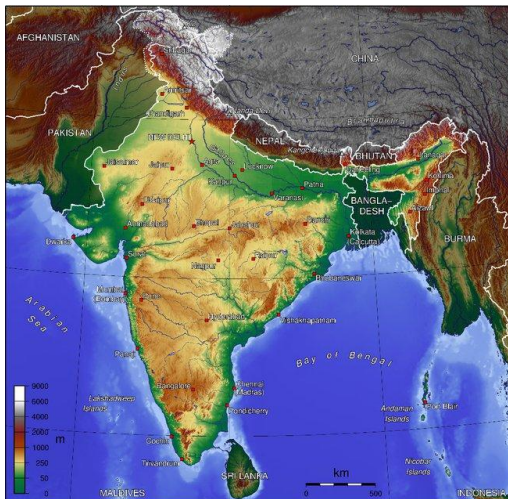
Date: 22nd July, 2014



The rest of the world should plant more trees too

India's Rural Development Ministry has decided to try to tackle two problems at the same time: Youth unemployment and bad air quality. It has unveiled a plan to hire youths - potentially up to 300,000 - to plant 2 billion trees along the country's highways.

"The length of National Highways in the country is one lakh kilometer [about 62,137 miles]. I have asked officials to come out with a plan to plant 200 crore [2 billion] trees along these stretches which in turn would create jobs for the unemployed on the one hand and protect the environment on the other," said Shipping and Rural Development Minister Nitin Jairam Gadkari.

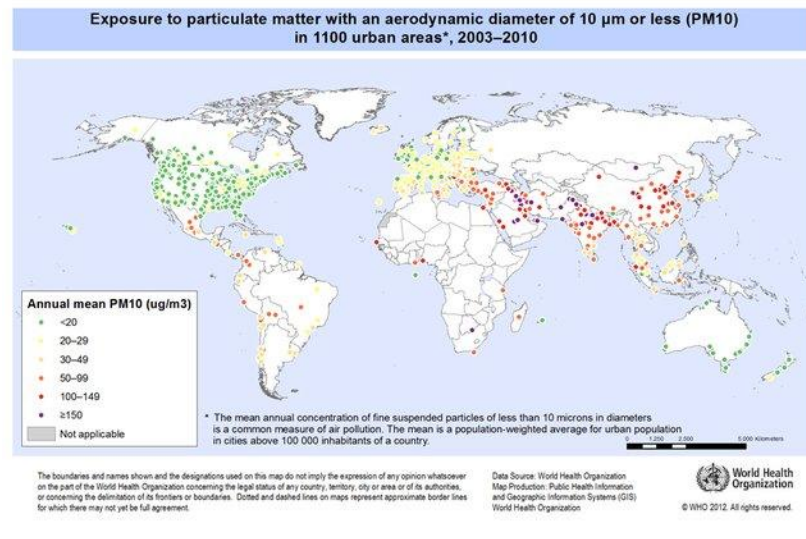


Not only would this help provide jobs to a segment of the population that needs them and make the country more beautiful, but trees are also great at improving air quality. India tends to have big problems with that, as does much of Asia and the Middle-East:

Map of global air pollution compiled by the World Health Organisation/Public Domain

A recent study shows that tree leaves can capture a substantial amount of particulate pollution. The research was conducted in the

UK; The scientists started by measuring how much air pollution go into a certain number of houses in Lancaster using dust monitoring devices and by swiping surfaces and then analyzing what was collected with magnetic remanence, a technique that provides information on concentrations of iron-bearing particles.



Then the team placed a screen of 30 young silver birch trees in wooden planters in front of four of the houses, including one of the control houses, for 13 days. Wipes from all eight houses showed that ones with the tree screens had 52 to 65% lower concentrations of metallic particles. A comparison of all of the dust monitoring data from the two original control houses confirmed that drop, showing a 50% reduction in PM1, PM2.5, and PM10 in the house with the trees in front.

By examining the silver birch leaves with a scanning electron microscope, the researchers confirmed that the hairy surfaces of the leaves trapped metallic particles. Like the particles measured inside the houses, these metallic particles are most likely the product of combustion and brake wear from vehicles passing by. Previous work has indicated a strong correlation between the amount of material identified by magnetic remanence and benzo(a)pyrene, a carcinogenic polycyclic aromatic hydrocarbon found in particulates, Maher says.

To fight unemployment, India to plant 2 billion trees

Source : *Mother Nature Network*

Date: 21st July, 2014

Jadav "Molai" Payeng, the Indian man who single-handedly planted up 1,360 acres of forest, may soon have some competition on his hands. Or allies, depending on which way



you want to look at it. Huffington Post reports that a new afforestation initiative from India's Rural Development Ministry aims to plant 2 billion trees along the nation's 62,137 miles of highways. The idea, says the article, is to both combat rural poverty and youth

unemployment while also improving the environment and helping to clean up India's chronic air pollution:

The country's Rural Development Ministry on Friday announced a new afforestation plan to plant 2 billion trees along the nation's highways in an effort to tackle youth unemployment. The country's Road Transport, Highways, Shipping and Rural Development Minister Nitin Jairam Gadkari said in a meeting in New Delhi that the new initiative would also help preserve the environment.

This plan cannot come soon enough. Not only does India have a youth unemployment rate of 10.2 percent, according to the World Health Organization, it is also home to six of the world's 10 cities with the worst air pollution. Given the deadly impact of air pollution worldwide, and the incredible power of trees to absorb emissions, this plan may have a significant impact not just on the economy and biodiversity, but on health as well.

This isn't the only recent sign of environmental progress in India either. The country's new prime minister, Narendra Modi, has also announced a target of getting electricity to every home in India by 2019, relying largely on solar power to do so. According to The Hindu, the government is also working on plans to clean up the Ganga and Yamuna rivers.

Javadekar to hold 'janata darbar' on green issues

Source : *The Times of India*

Date: 21st July, 2014

NAGPUR: Minister for environment and forests Prakash Javadekar on Sunday pushed for development by clearing stuck up projects with focus on protecting environment. At the same time, he made it clear that there will be no compromise on non-compliance for environment clearance by project proponents either private or government.

Javadekar, who was in the city for a private function at RSS headquarters, was talking to newsmen at Neeri conference hall. He said many projects were stalled and he would see

to it that these projects are cleared in a transparent and time-bound manner. "We have started accepting online applications for clearances for this," he added.

Javadekar said Vidarbha is paying a heavy price for protecting forests. "It will be suitably compensated with a package under Compensatory Afforestation Fund Management and Planning Authority (CAMPA)," he announced.

In a first, the environment minister said after the Parliament session concludes, he will hold 'janata darbar' for environment and forests issues and talk to the people directly. Experts from the field will also be invited. "I used to hold such durbars in the city earlier too when I was not a minister," said Javadekar.

Javadekar admitted that in the last few years image of environment ministry has taken a hit and it is being seen as a hurdle in development. However, to shed this image, prime minister Narendra Modi has come out with a slogan 'Ek Haath Me Vikas, Dusre Haath Me Paryavaran Ka Zenda' (Development in one hand and environment in other). "I will strike a balance and show that both can go hand-in-hand," the minister said.

When asked that several projects sent by the state forest department were pending with his ministry, Javadekar said one of the proposals of Bor tiger reserve has already been cleared. The proposals which are pending before National Board for Wildlife (NBWL) will also be cleared soon as board has been constituted.

During his meeting with head of forest force (HoFF) AK Saxena, the minister said the pending eco-sensitive zone (ESZ) proposals around national parks and sanctuaries will be expedited. He promised full support to Gorewada project.

Javadekar also asked about total forest area in the state and how much of it was degraded. The forest officials told him that one-fourth (15,000 sq km) of the area was degraded. He also asked about forest area in the city, which was around 2,700 hectares.

On a delegation led by district honorary wildlife warden Kundan Hate, the minister also raked up issue of destruction of wildlife trophies by the Central Museum at Nagpur. On rampant tiger poaching in the region, he said it is a serious issue and action will be taken against officials for negligence.

NGT concerned over rampant air pollution in Uttarakhand

Source : *Business Standard*

Date: 20th July, 2014

Concerned over rampant air pollution caused by industrial units in Uttarakhand, the National Green Tribunal has constituted an expert committee to look into violation of prescribed standards for emission by iron industries in the state.

A bench headed by Justice Swatanter Kumar pulled up the Uttarakhand State Pollution

Control Board (UPCB) for failing to monitor the industries causing air pollution which already have consent to operate.

"We are afraid that if this be the state of environmental check and control of pollution by the Pollution Control Board then less say the better," the bench said.

The tribunal had on February 18 directed the UPCB to close all industrial units in Jasodharpur Industrial Area (JIA) that are functioning without the consent of the board

The green bench constituted a special inspection team consisting of the Environmental Engineer from the Central Pollution Control Board (CPCB), senior environmental engineer from the Uttar Pradesh Pollution Control Board (UPPCB) and officer from UPCB.

"This team shall conduct a surprise inspection of all eighteen industries carrying on the business of iron/foundry industries in that area and are allegedly found seriously polluting and it will be ensured that every industry which is inspected is operating at its optimum capacity," the bench said.

The tribunal also held that the inspection report shall clearly indicate the functioning of these units along with the stack and ambient air quality samples and the analysis be included in the report.

"It shall also be stated as to whether the slag used by these industries is being stored and how it is managed," the bench said.

According to UPCB, out of 18 industries, 10 have been granted consents to operate till 2014-2015, while the other eight have not been granted consent and their applications are pending before the board.

The tribunal's order came while hearing a petition by Shiv Prasad Dabral who had alleged that several industries are operating illegally, without consent from the state pollution control board or an environmental clearance in JIA near Kotdwar.

The petition had said that these industries are also major source of air pollution in the area and are a public health hazard.

The plea had alleged that the units have also been flouting industrial pollutant discharge norms by dumping the foundry slag on the banks of the Sigaddi Srot river.

Improper to Label Delhi As World's Most Polluted City: Govt

Source : *Outlook*

Date: 17th July, 2014

The government today said the World Health Organisation's (WHO) recent report describing Delhi as the most polluted city in the world by considering estimated data for fine dust in a select manner was "improper".

On the other hand, Environment Minister Prakash Javadekar said, the ambient air quality, which is regularly monitored in the NCR, shows that although the levels of Sulphur Dioxide (annual average) are within norms in the region, levels of PM10 exceed the limits in the NCR while the levels of nitrogen dioxide are exceeding the norms in Delhi.

"The World Health Organisation has recently released Ambient Air Pollution database update 2014 considering only two pollutants - PM 10 and PM2.5 for 1628 cities at global level..."

"Whereas National Ambient Air Quality Standards (NAAQS) 2009 notified by the government comprised of twelve pollutants including PM10 and PM2.5..."

"The WHO report describes Delhi as the most polluted city of the world while considering estimated data for fine dust (PM 2.5) in a select manner, which is improper," Javadekar said in a written reply in the Rajya Sabha.

PM10 is the particulate matter having the size equal to or less than 10 micron while PM 2.5 is particulate matter having the size equal to or less than 2.5 micron.

In reply to another question, he said while the WHO has ranked cities in the world while estimating the levels of fine dust in ambient air of various cities, a report of Yale and Columbia universities has considered on PM 2.5 as the pollutant relying on satellite data in place of actual monitored data, though the data is available.

"NAAQS notified by government envisages 12 pollutants whereas both the reports have relied on either one or two pollutants," Javadekar said.

A report on Environment Performance Index (EPI) 2014 has been produced jointly by a team of experts from Yale and Columbia recently. The report which has ranked 178 countries on 20 indicators has ranked India's EPI at 155.

Replying to another question, Javadekar said "the levels of sulphur dioxide (annual average) are within norms in NCR but the levels of PM10 exceed the limits in NCR while the levels of nitrogen dioxide are exceeding the norms in Delhi. There is a mixed trend as far as SO2 and PM10 are concerned. NO2 is an upcoming pollutant in Delhi".

He said the government has taken various measures to control air pollution in NCR including supply of cleaner fuels per auto fuel policy, use of gaseous fuel for public

transport, stringent source specification standards, strict compliance of source specific emission standards, use of beneficiated coal in thermal power plants, closure of old coal-based thermal power plants in Delhi and Faridabad amongst others.

Metro Rail work adding to air pollution in Hyderabad, says Pollution Control Board

Source : *The Times of India*

Date: 17th July, 2014

HYDERABAD: The ongoing Metro Rail construction is not only causing widespread traffic chaos in the twin cities, but is perhaps responsible for alarming rise in air pollution over the last two years, AP Pollution Control Board (APPCB) scientists said.

Coinciding with the beginning of the metro construction, particulate matter containing toxic metals was 45 % higher than the standard levels set by government of India both during 2012 and 2013, APPCB officials said after analyzing the latest data.

Scientists say these particulate matter contains lead, arsenic and nickel, besides other dust particles, which are harmful and trigger respiratory diseases, cancer and disorders related to the nervous system. Respiratory diseases are shooting up in the city by around 15 per cent annually.

While no specific survey has been carried out to check the extent of damage on the ambient air quality caused by the Metro Rail construction, officials attribute the sudden and drastic increase in the particulate matter during 2012 and 2013 to haphazard Metro works.

"We cannot deny that Metro Rail construction has led to increase in pollution levels," said Ramesh Chandra, senior environmental scientist, APPCB.

As per the national air quality standards, particulate matter 10 (dust particle) should not cross an annual average of 60 ug/m³ (micrograms per cubic meter of air), but APPCB data shows that Hyderabad recorded an all-time high of 87 ug/m³ in 2012 and 2013, when Metro work was in full swing. The 2013 annual average of 87 ug/m³ is 45% and much higher than the standard level, scientists say.

Studies have shown that nearly 50% of the particulate matter is due to vehicular pollution and combustion of fuels.

This, P Veeranna, a scientific officer with the APPCB, says worsened after haphazard Metro Rail works caused more bottlenecks in the city's roads, leading to traffic congestion and in-turn contributing to higher levels of pollution. Bad roads too are further adding to the problem, he added.

"We had asked Metro authorities to take precautions wherever possible," said Veeranna.

But experts say proper norms to minimize environmental damage were not followed by Metro authorities.

"Metro work is supposed to begin after necessary right of way (road width) is created for free flow of traffic, but the work started even before this. Narrow streets were barricaded and works taken up with no alternative plans in place," said professor C Ramachandraiah of the Centre for Economic and Social Sciences, a city-based think tank.

Ramachandraiah, who has closely followed the Metro Rail project, said nobody bothered about vital issues of public health. "What people should expect in the next few years is increasing respiratory problems and overall degeneration of health by the time the project is completed in 2017."

Officials suggest the urgent need for coordination between transport and roads and buildings departments as well as GHMC, HMDA, RTC and PCB to keep a tab on the rising pollution levels.

When contacted, Metro Rail spokesperson Murali Mohan said there was no question of increase in pollution levels because of Metro works. He said the construction activity started in 2011 with all safeguards in place to protect the environment and added that the 72 km corridor would be completed by 2017. Another senior official said he could not comment until he analysed the APPCB data.

Air you breathe claims 1,800 lives every year

Source : *The Times of India*

Date: 15th July, 2014

INDORE: Air pollution in city claims 1,800 lives every year with around 2,500 others ending up being admitted to hospitals. The shocking revelation has come from transport minister Bhupendra Singh while replying to a query from MLA Sudharshan Gupta over increasing air pollution in the commercial hub of the state. And the primary source of air pollution in the city is the increasing number of vehicles every year.

With over 32 lakh population, as per census 2011, Indore has more than 13 lakh registered vehicles running on the city roads out of which nearly 4.5 lakh vehicles are with expired registration numbers. Registration of the vehicles expires after 15 years from the date of registration.

A Madhya Pradesh pollution control board (MPPCB) officials said the ongoing construction activities, increasing traffic and population are the main reasons behind increasing pollution in the city. The level of RSPM (respirable suspended particulate matter) is more than double the normal level here.

With all these, the city is number one in the country with maximum dust particles in air

and number four in terms of sulphur dioxide in air. "Pollution has emerged as major cause of concern for the city and many people are getting affected," Gupta said, who has raised question in assembly related to increasing number of vehicles and air pollution in the city. RSPM constitutes the most critical pollutant, caused by insufficient fuel combustion. These minute particles, not visible to naked eye, settle in the lungs and cause a variety of respiratory ailments. In Indore, RSPM level is much more than prescribed limit of 60.

"The minister has assured the House that soon a drive against vehicles with expired registration will be carried out and such vehicles would not be allowed to run on the road. The government will also take steps to check level of dust particles in the air," Gupta said. Meanwhile, RTO Jitendra Raghuvanshi said action would be taken against drivers who run vehicles 15 years old without re-registration.

Indore pollution index

- Indore is No. 1 city in the country with maximum suspended particles in air
- Indore is 4th city in the country with maximum sulphur dioxide in air
- Indore is 5th most polluted city in the country
- In Indore 2,500 people get admitted in hospital due to problem related to air pollution
- In Indore 1,800 die due to air pollution
- More than 13 lakh registered vehicles on road in Indore
- Registration of 4.5 lakh vehicle has already expired

Coca Cola China offering expats pollution hazard pay

Source : *Times of India*

Date: 14th July, 2014

BEIJING: Coca Cola is offering its employees in China a hefty 'environmental hardship allowance' as part of its efforts to attract and retain talent. There have been repeated industry reports about highly-qualified and experienced expat workers leaving China as they are unable to bear the high levels of air pollution.

The wage premium, which was introduced recently, is believed to be as high as 15% on the base salary of an employee. It is being described as a "mobility package" to attract quality personnel from other countries.

Coca Cola needs to attract a lot of talent for its new \$100 million plant in Harbin city in China's Heilongjiang province. Work on the 200,000 sq m plant started last month. It will have nine production lines for both sparkling and still beverages, including Coca-Cola, Sprite, Fanta, Minute Maid and Ice Dew.

It is the second major foreign company to offer environmental allowance to its employees after Japan's Panasonic announced it last April.

China's pollution regulators said that only three out of 74 cities met minimum government standards last year.

More foreign companies are expected to offer compensation for pollution because this is being regarded as the biggest human resources challenge in China. A survey by the European Chamber of Commerce in China showed that its members regard pollution as a "business challenge" of a high order.

Many foreign companies are offering better medical insurance benefits, more paid trips home and subsidies for buying air filters. They have also established giant air purifiers in offices and are supplying breathing masks to employees.

Smart electric cars to measure air pollution

Source : *Business Standard*

Date: 13th July, 2014

British scientists are using smart electric vehicles fitted with specialised air monitoring sensors to measure the city pollution levels.

The University of Leicester researchers have designed and installed special sensors into electric vehicles (EVs) that can measure pollutant concentrations around the city.

The information from these sensors will provide insight into the quality of the air people inhale in polluted urban areas, researchers said.

"Electric vehicles are part of the solution to urban air quality issues. A mobile air quality monitoring platform, such as a specially designed electric car, is highly valuable to the scientific study of urban air quality," Dr Roland Leigh from the Department of Physics and Astronomy at Leicester, who is leading the project, said.

"By monitoring air quality as a seamless part of our daily transport system, we are providing a cost-effective way to help inform future policy and operational systems," said Leigh.

Zero emission vehicles such as electric cars are vital in measuring the quality of air in urban environments, as they do not add further emissions of nitrogen dioxide and other key pollutants, which will allow for a more accurate reading of gathered data, said Leigh.

"It is important that we establish how polluted our cities are based on current transportation methods and develop new ways in which we can travel to enable more sustainable cities in the future," Leigh said.

"In order to help bridge the gap between road users and the uptake of EVs, there needs to be a greater understanding of the environmental and economic advantages zero emission vehicles can bring," said Robert Evans, CEO of Cenex, UK's First Centre of Excellence for Low Carbon and Fuel Cell technologies.

"We have no doubt the results of this project will add to the public understanding of air pollution and further encourage the adoption of zero emissions vehicles," said Evans.

Q&A: Air pollution in the city has increased by 47 per cent in last decade

Source : DNA

Date: 13th July, 2014



Rise in population, urbanisation and development are major reasons for the increasing pollution levels of the city. In the last decade the particulate matter and carbon monoxide have increased by two times, which has been a major reason for health issues among citizens. As the Indian Institute of Tropical Meteorology (IITM) has been leading the air pollution monitoring program named SAFAR to detect the rising levels of pollution and monitor pollution level of the city, Anvi Mehta talks to Gufraan Beig, Chief Project

Scientist, SAFAR, IITM about the current air status of the city.

Q Which are the major pollutants that threat the air quality of the city?

Particulate Matter PM_{2.5} and Particulate Matter PM₁₀ are the main pollutants that are causing respiration related health issues. Since a few years, ozone levels are increasing high enough to cause medical threats. The other pollutants like nitric oxides (NO_x) and carbon monoxide (CO) are under permissible level and do not pose direct threat as of now.

Q Is vehicular emission the primary source of pollution in the city?

Primary source of most dangerous pollutant PM_{2.5} alone vehicles are increasing at a high rate in the city, but the systems are changing and thus the emissions from these vehicles are low compared to vehicles manufactured previously. So, vehicles cannot be termed as the primary reason for all pollutants. The primary source for PM₁₀ is wind blown dust from unpaved roads and construction activities. Unpaved road dust get aggravated with increase in traffic and stagnant traffic as motorbike goes off the road and speed-up.

Q Is IITM conducting any researches or developing any technique to measure the

pollutants of the city and their ill effects on human health?

IITM has developed the SAFAR system by which Puneites can get 3 days advance information through LED display boards; SMS alerts for extreme emergency conditions; etc about pollutants to plan their outdoor activities.. IITM is collaborating with various health experts and institutions to explore research linking air pollution with human health. IITM is also working on impact of air pollution on food security (crop yield).

Q What is the current situation of air quality of the city and the future prediction?

Pune has 10 per cent growth in the PM 2.5 and 20 per cent growth in PM 10 pollutants in a decade. Emissions have increased by 47 per cent in the last decade, and if the same trend continues the city's pollution level will be twice in the next decade. The major areas of Bhosari and Hadapsar are polluted in the city majorly because of the industrial belt, Shivaji Nagar is also highly polluted because of the constant traffic in that area.

Beijing's notoriously poor air quality improving: officials

Source : *Business Standard*

Date: 11th July, 2014

China today claimed the notorious air quality of Beijing, containing the most hazardous levels of pollution is improving even though the capital city was choked with a worst smog last week.

The average concentration of fine particulates smaller than 2.5 microns in diameter, the tiny particles in the air that are particularly hazardous to health was recorded at 91.6 micrograms per cubic metre in the first half of this year down more than 11 per cent on levels during the same period lastt year, state-run Beijing News reported.

News of the improved air quality comes only a month after the Beijing Municipal Bureau of Environmental Protection said the public complaints about Beijing's smog has doubled to 12,599 in the first five months of the year, compared to same period last year.

Premier Li Keqiang in a bid to calm the growing public discontent said in March that the capital was on the front line of a "war against pollution".

Public complaints about Beijing's smog doubled to 12,599 in the first five months of the year compared to last year.

Authorities have been trying to highlight the measures being taken to reduce the pollution, but many residents are still to be convinced that they are having much effect, Hong Kong based South China Morning Post reported.

The government said PM2.5 pollution was the worst air pollutant in the city, but levels had fluctuated significantly during the six months because of the change of seasons.

Officials said that the average PM2.5 levels in May and June fell to the lowest on record at

about 60 micrograms per cubic metre.

"Other forms of air pollutants, such as sulphur dioxide and nitrogen dioxide, also reduced. The massive efforts carried out by Beijing and surrounding areas to reduce levels of air pollutants had also contributed to the decline," they said.

Beijing's PM2.5 pollution level was also found to be lower than the levels in all 13 neighbouring cities, including Tianjin and Shijiazhuang, the report said.

The latest government report also found the surrounding cities contributed to between 28 per cent and 36 per cent of the fine-particle pollution that has been affecting Beijing.

Modi govt rejects WHO, Yale study on pollution level in India

Source : *First Post*

Date: 9th July, 2014

New Delhi: The Centre on Wednesday rejected studies of WHO and Yale University which talked about India and its cities being among the most polluted, asserting that the parameters for determining air pollution were not considered by them.



Environment Minister Prakash Javadekar said pollution is caused by many factors and the survey took cognisance of only air pollution and that is why India's ranking in Yale University report has come down.

"Actually, there are 20 indicators to judge pollution like access to drinking water, access to sanitation, waste water treatment, agricultural subsidies, pesticides regulation, change in forest cover, coastal shelf forest pressure, fish stalks, etc.

"So, this ranking which you are citing is not based on all these parameters... The survey of Yale University was also done from the satellite and there was no ground proof," he said, replying a question of BJD member Bhartruhari Mahtab.

Appreciating concerns expressed by members, the Minister said no one should forget that vehicle population has grown from eight crore on roads to 16 crore vehicles on

roads. So, it has doubled in ten years.

Javadekar said the country needed upgradation of diesel, which is a different decision, besides required to give more emphasis to public transport and such other things.

"So, formation of a new Committee at this stage is not required because it will just kill time. Instead, whatever is already established we must go ahead on that part and we are committed to that," he said.

The Minister expressed concern over increase use of diesel despite the gap between the prices of petrol and diesel being reduced.

"So, we are hoping that people will also switch over to petrol vehicles which cause less pollution. As regards diesel also, standards can be upgraded now and that can be done. It is a good suggestion for consideration," he said.

Javadekar said government is measuring pollution, particularly air quality, in at least 240 cities and is giving emphasis on use of public transport.

"Air pollution is caused by many factors. Roadside dust is a major pollutant in many cities, the number of vehicles and vehicular traffic causes air pollution. Apart from that, industries, construction work, secondary particulate, domestic and diesel generator sets cause pollution," he said.

The Minister said government has changed diesel norms. So, the lead and sulphur contents have gone down and it was asking all state governments as well as the corporations concerned to take care of that.

The world's dirtiest cities

Source : *Gulf News*

Date: 30th June, 2014

A look at urban areas that present a health risk not only to their inhabitants but to anyone living downwind

London: For the first time in history, over half the world's population now live in cities. But only 12 per cent of urban dwellers enjoy airborne particle pollution that meets World Health Organisation (WHO) guidelines. Globally, the lowest city air pollution is in Canada and Iceland and the highest in India (Delhi and Patna) and Pakistan (Karachi and Peshawar).

Half off the world's mega-cities have air pollution that is more than 2.5 times WHO guidelines and, in most places, it is getting worse. Even in the wealthiest parts of the world, across Europe and North America, it is not clear that urban air pollution is getting

better. The current emphasis on technical strategies to clean up our air is not working and, in some cases, such progress as has been made is being undone by other trends — Europe's increased use of diesel cars and more wood burning, for example.

Air pollution from cities also harms the people who live around them. The Chinese mega-cities of Beijing and Tianjin, as well as Karachi in Pakistan, cause more harm to the surrounding population than to their own residents. For other, more typical, mega-cities the impact of black carbon particles on people downwind can still be around 40 per cent of that on the city residents. If the pollution resulting from chemical reactions downwind is considered, then impact on surrounding areas is greater still.

With growing urbanisation, political leadership is needed to tackle this growing world health problem. More than ever we need to transform existing cities through design; reducing growing road transport dependency and providing clean home energy.

Air pollution and increasing rate of cancer in Sri Lanka

Source : *The Island*

Date: 30th June, 2014

There have recently been newspaper reports about the increasing rate of cancer in Sri Lanka. This could be attributed to a multitude of factors including contaminated water, food and air and is a complex problem which needs extensive scientific investigations. In modern times, people are continuously drifting from the natural ways of life to highly complicated urban lifestyles. The net result is that they eat food contaminated with pesticides, heavy metals and various pathogens. They drink water contaminated with various chemicals, disease agents and industrial waste. Municipality water schemes which normally get their water from rivers are contaminated with pesticides and other chemicals. In particular, there is an increasing tendency to eat out and these prepared foods such as short eats, fried rice and various 'devilled' dishes are veritable toxic dumps. Oil used for frying short eats are used many times over and this is known to add various toxic aromatic compounds into prepared foods and many of these are carcinogenic.

Urbanisation is the root cause of most of these evils. Even villages are not spared and now the lifestyles of rural areas are increasingly becoming more artificial. Villagers also consume processed foods and drink polluted water.

We think about the quality of water we drink and most people boil water to kill any microorganisms in it before drinking. However, did you ever think about how pure is the air you breathe? People in cities and along main highways breathe dirty and polluted air.

We are all familiar with the sneezing bouts caused by air containing dust particles. In addition, people living in congested areas breathe air polluted not only with dust and soot but also toxic gases generated by automobiles and factories.

Air pollution is the introduction of chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or damages the natural vegetation and structures into the atmosphere. An air pollutant can be defined as a substance present in a sufficient concentration in air to produce a harmful effect on humans and other animals, vegetation or materials.

The main cause of air pollution is the ever increasing vehicle population and the health impacts caused by their emissions will worsen in years to come. The above table gives the number of motor vehicles annually registered in Sri Lanka. It clearly shows how the motorcycles and three wheelers are increasing at an alarming rate. The number of three wheelers has increased by 273% and the number of motorcycles by 223% over a period of just nine years. These values will be much higher now with the increased number of scooters. The government should seriously consider stopping the import of these categories of motor vehicles, particularly the three wheelers since already there already is an adequate number of them to satisfy the needs of the population. They cause more pollution and owing to their two stroke engines they produce more carbon monoxide and fine particles.

Fine particle have attached to them dangerous unburnt carcinogenic polyaromatic compounds which are carcinogens. Recently, Organisation for Economic Cooperation of Development (OECD) has said that by the year 2050, outdoor air pollution will be the World's top environmental cause of mortality ahead of unclean water and urban sanitisation. Urban air pollution also reduces crop growth, affects climatic change, damages concrete structures and contributes to acid rain.

While there are options available to at least partly mitigate problems arising from water and food, polluted air in cities has no such option. People continuously breathe polluted air which has both short-term and long-term effects. In the short term, people may feel easily tired, develop headaches and sore eyes and get frequent flu bouts. Children and elderly are the most affected. Schoolchildren can even become susceptible to deadly chronic obstructive pulmonary disease (COPD) which has irreversible effects on the lung. Long term effects are from breathing foul air are aggravation of asthma, pneumonia, bronchitis, lung cancer and heart diseases.

Another often neglected area is indoor air pollution which is a serious health hazard for people using firewood for cooking, particularly in congested kitchens. The US

environment protection agency (USEPA) has published a list of 370 chemicals present in wood smoke. Urban slum areas with small kitchens are quite unhealthy and burning one kilo of wood produces nearly 80-370 grammes of carbon monoxide and about five grammes of fine carbon particles causing headaches, nausea, shortness of breath and contributes to general ill health. There are also deadly cancer causing substances in wood smoke such as the polyaromatic compounds such as benzopyrene. Years of exposure to such toxic fumes cause lung cancer, a condition commonly found in heavy cigarette smokers after long years of exposure. These polyaromatic compounds accumulate in our fatty tissues and their adverse effects will be felt only after several years of exposure. In one scientific study from India it has been shown that indoor air pollution arising from biomass burning is responsible for 50 % of the ill health among females and over 30% ill health in children who normally spend their time more with their mothers than fathers. Health effects include bronchitis, pneumonia and asthma. There is a need to educate the masses about the ill effects of cooking with firewood and shift such cooking to open air spaces outside the house. Other common forms of indoor air pollution include burning mosquito coils, passive cigarette smoke and household pesticides. In particular, burning of incense sticks and mosquito coils inside bedrooms should be avoided especially where babies are. Another case of indoor air pollution reported from the US is the occurrence of radon, a radioactive gas in homes. This gas when inhaled decays into solid radioactive elements inside the body which then damages body tissues by the radiation they emit. The origin of radon is in granitic rocks which can contain minute amounts of radioactive elements. Therefore, adequate precautions should be taken when granite pantry tops and floor tiles are used in homes. Maintaining good ventilation by opening windows is essential for people exposed to granite.

Latest research indicates that diesel exhaust fumes cause cancer after prolonged exposure. A prominent global cancer research group, International Agency for Research on Cancer (IARC), has worked for a number of years on the possibility of diesel fumes causing cancer and for the past two decades has issued a general warning that diesel fumes 'probably' cause cancer. After extensive research very recently (March 2014) they have decided to lift this classification from 'probably' to a definitive clause that it 'definitely causes cancer'. This organisation works in collaboration with the World Health Organisation (WHO) and it is likely that WHO will take cognisance of these scientific studies and issue a similar warning. Such studies have relevance to those who work in environments where diesel powered generators and furnaces are in operation. Even those continuously exposed to diesel fumes from buses and lorries such as traffic

policemen, wayside boutique owners and others are at risk.

What is the role of government organisations in ensuring that people have clean air to breathe? The Ministry of Environment was created in 1982 to regulate air, water and soil pollution and to enact laws for creating a healthy environment. The Central Environmental Authority (CEA) has a legal mandate to enforce environmental regulations and it is trying to implement these regulations with limited resources in terms of both equipment and manpower.

An important milestone in the history of Environment is the Clean Air Action Plan initiated by the late President R. Premadasa. That had 49 actions proposed but only a handful have been implemented. Air quality monitoring stations were commissioned in 1996 at Colombo Fort and at Bauddhalokamawatha. These provided air quality data round the clock until about 2002 when the equipment became non-operational. Regrettably, we do not have any monitoring done at the moment even in Colombo and there is no way to know whether the air we breathe is safe. Most countries including neighbouring India have several fully automated air quality monitoring stations while Sri Lanka have none. Developed countries give pollution warnings over radio and TV when the pollution levels exceed the safe limits and advise vulnerable people such as asthmatics and people with heart disease to stay indoors. The government is doing a disservice to its people by not providing adequate funds to commission air quality monitoring stations in all major cities.

As Pune adds vehicles, its air gets worse

Source : *The Times of India*

Date: 30th June, 2014

PUNE: The air quality status data for Pune for 2013-14, released by the Maharashtra Pollution Control Board (MPCB) recently, shows that several areas in the city have been recording pollution levels which are considerably above the permissible limits since 2005. The nine-year data in the report also said that in 2013-14, Karve Road recorded annual nitrogen oxide (NO_x) concentrations that were almost double the standard, indicating high pollution levels. NO_x is commonly formed from vehicles during combustion in the engine.

The monitoring station on Karve Road was ranked second among the ten monitoring stations in Mumbai, Dombivli, Ambarnath, Ulhasnagar, Navi Mumbai, Badlapur, and Kolhapur, which exceeded the annual standards for NO_x concentrations.

The report also found high carbon monoxide (CO) and benzene concentrations in Pune in comparison to other cities, including Mumbai. The annual nitrogen oxide concentrations recorded at the monitoring station on Karve Road in 2013-14 was 70 /m³, though the

permissible limit is 40 /m³.

The report, prepared by The Energy and Resources Institute (TERI), said Pune region consistently exceeded the eight-hour standard i.e 2 milligram/cubic meter or mg/m³ for harmful CO pollution in 100% of the observations, while the Bandra and Solapur region exceeded the same for 52.3% and 7% of the observations respectively.

Unusually high levels of CO have been observed in Pune in contrast to the previous two years. Emissions from vehicles and increasing usage of vehicles in Pune could be attributed to the high levels, the report said.

The CO emission in 2013-14 was monitored at the continuous ambient air quality monitoring stations in Bandra, Pune and Solapur.

Benzene pollution was recorded at two continuous ambient air quality monitoring stations in Bandra and Pune. The annual average benzene concentrations were recorded to be 1.3 in Bandra and 151.3 /m³ in Pune, as against permissible limit for benzene, which has been set as 5 /m³ by Central Pollution Control Board (CPCB).

The report said benzene pollution in Pune is a major concern. "Upon segregating the data for eight-hour intervals, high benzene in Pune was recorded between 8am and 4pm sampling. The evening (4pm to midnight) and night (midnight and 8am) sampling recorded average of about 36 and 1 /m³ respectively here," the report said.

In the past ten years, the Mumbai region has recorded annual NOX concentrations in the range of 60-80/m³ which is almost double than the annual standard (40/m³), the report said.

In Pune region, until 2009-10, the NOX concentrations were below the annual standard. After 2009-10, a steady increase in NOX levels has been observed in Pune. Since then the annual NOX concentration here has been around 50/m³.

The annual average respirable suspended particulate matter (RSPM) in 2013-14 in all the stations in residential areas in Pune crossed the maximum permissible limit of 60 /m³ as per the report.

The annual average RSPM in Swargate was 74.8 /m³, while in Pimpri Chinchwad it was 81.5 /m³. The maximum RSPM value recorded here was 230 /m³ at one point in time. Similarly the maximum RSPM levels recorded on Karve Road once were a whopping 363 /m³, while the annual average here was 121.4 /m³.

Pollutionwatch: The world's dirtiest cities

Source : *The Guardian*

Date: 29th June, 2014



For the first time in history, over half the world's population now live in cities. But only 12% of urban dwellers enjoy airborne particle pollution that meets World Health Organisation (WHO) guidelines. Globally, lowest city air pollution is in Canada and Iceland and the highest in India (Delhi and

Patna) and Pakistan (Karachi and Peshwar).

Half of the world's mega-cities have air pollution that is more than 2.5 times WHO guidelines, and in most places it is getting worse. Even in the wealthiest parts of the world, across Europe and North America, it is not clear that urban air pollution is getting better. The current emphasis on technical strategies to clean up our air is not working, and in some cases, such progress as has been made is being undone by other trends – Europe's increased use of diesel cars and more wood burning, for example.

Air pollution from cities also harms the people who live around them. The Chinese mega-cities of Beijing and Tianjin, as well as Karachi in Pakistan, cause more harm to the surrounding population than to their own residents. For other, more typical, mega-cities the impact of black carbon particles on people downwind can still be around 40% of that on the city residents. If the pollution resulting from chemical reactions downwind is considered, then impact on surrounding areas is greater still.

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'Better Fuel, Stricter Norms Needed to Curb Air Pollution'

Source : NDTV Auto

Date: 26th June, 2014

There is an urgent need to improve fuel quality and implement stricter norms to check vehicular emissions and poor air quality in Indian cities, renowned environmentalist R.K. Pachauri said on Monday.

"The unconstrained growth of motor vehicles in recent years has become a major source of pollution, which not only affects air quality adversely wherever vehicles ply, but also adds to emissions of greenhouse gases at the global level," said Pachauri, director general, The Energy and Resource Institute (TERI).

He was speaking at a workshop on "Reducing Vehicular Emissions and Improving Fuel Efficiency".

He said the government has not focused much on adopting new technologies to improve fuel efficiency and is also yet to make stringent norms to curb vehicular pollution.

"The government needs to emphasize on the research work and analysis on such issues so that the impact of the poor fuel quality and the pollution emitted by it can be known," Pachauri said.

"There is a need for India to adopt advanced technology for motor vehicles so that the dependency on oil can be reduced," Pachauri told IANS.

Transport sector at present accounts for 17 percent of the total energy after the industry sector.

Pachauri said the exponential growth in vehicles in India is leading to an increase in pollutants which have an adverse impact on human health, especially on the vulnerable who are most exposed to vehicular pollution.

It also perpetuates our dependence on oil imports, raising concerns about our energy security.

"We cannot become a modern automobile nation merely by producing a variety of modern vehicles. We need to ensure that our vehicles conform to the prescribed emission standards and are fuel efficient," he said.

"There is also a need for the other stakeholders in the society to come ahead and collectively take part in reducing the vehicular emission as 'self regulation' is very important," he added.

The Ugly Cycle of Air Pollution and Climate Change

Source : *Pacific Standard*

Date: 26th June, 2014



Climate change is such a wretched foe that it could be worsening the ground-level effects

of the very thing that caused it: air pollution.

New research reveals that a build-up of greenhouse gases threatens to thicken the clouds of haze that blanket many parts of the world.

Radical climate shifts can alter air circulation and precipitation, both of which affect air pollution levels. That's because rain and snow can wash pollution out of the skies, while winds can disperse thick clouds of it. Stagnant air days, on which precipitation levels are low and winds are calm, are often smoggy days—assuming that engines are busily combusting and power plants are frantically burning fuel nearby.

Stanford University researchers wanted to forecast whether changes underway in the climate would alleviate or worsen the world's air pollution woes.

"Stagnation is a normal thing," says Daniel Horton, a postgraduate researcher at Stanford.

"We have stagnation now; we've always had stagnation. But with increasing greenhouse gas emissions, the occurrence of stagnation will either increase or decrease in different places."

So Horton and his colleagues used an ensemble of climate models to forecast when and where stagnant conditions would prevail around the world as the globe continues to warm.

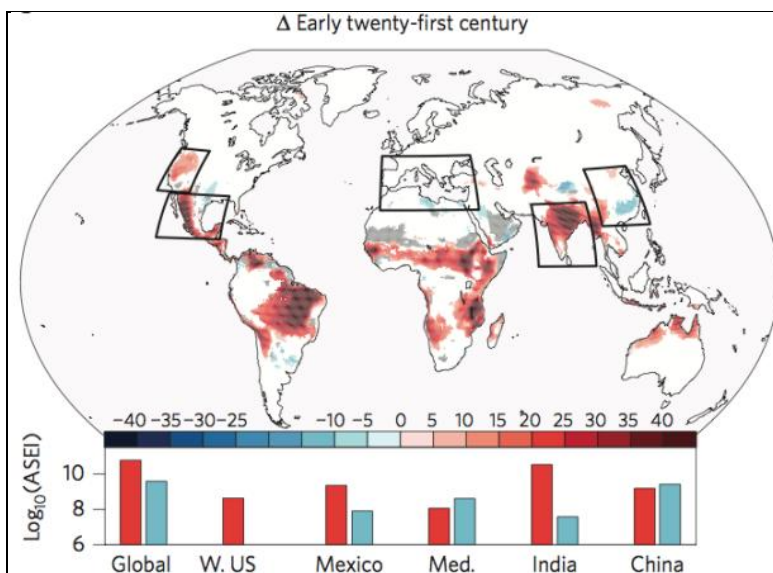
"We're not studying air pollution per se," he says. "We're studying the weather events and the meteorology behind air pollution."

For most of the globe, including many of its most polluted places, the results of the modeling were chest-tighteningly discouraging.

"Some of the world's largest population centers, like India and China, happen to also be places that we see significant changes in terms of the increasing frequencies [of stagnant air days]," Horton said. "These are places that already have very bad air quality problems."

The researchers' findings suggest that population-congested parts of the Western United States are also expected to suffer worsening bouts of air pollution as the climate changes.

"Our analysis projects increases in stagnation occurrence that cover 55% of the current global population, with areas of increase affecting ten times more people than areas of decrease," the scientists wrote in a paper describing their findings, which was published Sunday in *Nature Climate Change*.



“Potential impacts over India, Mexico, and the Western U.S. are particularly acute owing to the intersection of large populations and increases in the persistence of stagnation events, including those of extreme duration,” they wrote. “Robust decreases are few and isolated in the late twenty-

first century, with pockets of more frequent pollutant-dispersing conditions over the southern Arabian Peninsula, central Argentina, South Africa and eastern China.”

Red in the following chart reveals areas where the number of annual stagnant air days is expected to rise during the coming two decades, worsening air pollution. The scant patches of blue show areas where the number of stagnant days is expected to decline.

Of course, this climate-changing consequence of fossil fuel burning will only be an issue if the world continues to pump fossil fuel pollution into the skies.

Research and Markets: Global Air Quality Control Systems Market to 2019: FGD, Electrostatic Precipitators, NOx, Scrubber & Mercury Control Systems

Source : *Digital Journal*

Date: 25th June, 2014

DUBLIN--(Business Wire)--Research and Markets (http://www.researchandmarkets.com/research/qm2kbl/air_quality) has announced the addition of the "Air Quality Control Systems Market by Technology & Geography - Global Trends and Forecasts to 2019" report to their offering.

The global air quality control systems market is expected to cross more than \$60 billion by 2019, with a projected CAGR of 5.8%, (Same as RD) signifying a high demand for AQCS in both developed and developing countries.

The air quality control systems market is at various stages of development and

opportunities are diverse across the regions. In emerging economies such as China and India, the market is tied to rapid industrialization and urbanization activities. Government and regulatory bodies in these regions are implementing stringent regulations to effectively reduce the emission from these industries. However, the matured markets of Europe and Americas are approaching to get the best systems involved and reduce their emissions.

Coal fired power generation: Biggest market by Application

The coal fired power generation industry market accounted for the largest share of the total air quality control systems market in 2013. Coal is the largest source of energy for generation of electricity worldwide. The large scale use of coal pollutes our environment with toxins creating global warming. AQCS are capable of drastically reducing air pollution emissions from coal-fired power plants, in turn driving the demand for these systems at exponential rate.

Some of these include companies such as Alstom (France), Babcock & Wilcox Company (U.S.), Foster Wheeler (U.S.), Mitsubishi Hitachi Power systems America (Japan), Hamon RC (U.S.), KBR (U.S), and Siemens Energy (Germany).

Contracts & Agreements: Key strategy

The leading companies of the air quality control systems market focus on the growth of their contracts & agreements with the key objective of serving various industry sectors with wide geographic presence. The top companies have been able to acquire majority of the contracts with end user industries.

How Climate Change Will Lead to More Deadly Stagnant-Air Days

Source : CITY LAB

Date: 25th June, 2014



Many regions, including the U.S, are expected to experience yet more frequent "still-air

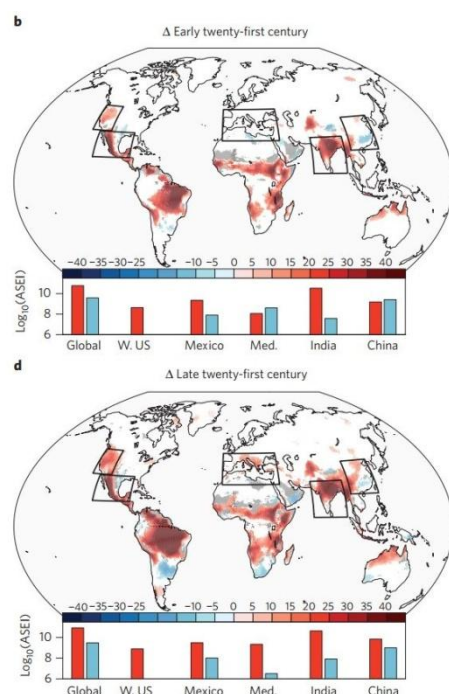
events" later this century.

More terrible news for those looking forward to the weather of tomorrow: If greenhouse-gas emissions stick to their current levels, the world will not only be more ovenlike and full of fire but the air could be so stagnant and foul it'd be like living inside the cavity-ridden mouth of an unkempt dog.

Researchers at Stanford University have modeled the frequency of "still-air events" in the coming decades, and the results are anything but encouraging. The warming climate is predicted to shift historical patterns of precipitation and wind, creating many new regions where rain is scarce and there's not enough breeze at ground level to move a hair on a sweaty head. These doldrums-like conditions are the perfect recipe for air stagnation, an atmospheric condition that often allows pollutants to build up to levels that are harmful to the cardiovascular and respiratory systems.

Roughly 7 millions premature deaths—or one in eight deaths, globally—could be attributed to air pollution in 2012, according to the World Health Organization. The Stanford study, published in *Nature Climate Change*, suggests the lethal plague will only get worse. By later this century, nasty, sluggish air could frequently cover about 55 percent of the planet's population. And some places could see a leap of as many as 40 new stagnant-air days a year, the researchers say. They expect the problem to be at its worst in India and China, though the western United States, Mexico, and the Mediterranean are likely to experience it as well.

Here are two of their simulations they made showing where days of air stagnation are



predicted to increase (shown in red) and decrease (blue) for early and late in the 21st century. The places expected to have an uptick in unmoving air outnumber those that aren't by 10 to one, according to their calculations, which were based partly on info from the National Climatic Data Center:

It's worth noting that several of the stagnation zones are already struggling with dire air pollution. There are China's major urban areas, so smoggy they can appear from space that they're on fire, and of course India, which is where the above photo was taken last February during a particulate-matter storm of 250 micrograms per cubic meter. That's more than 10 times the concentration considered safe by the

WHO.

Should the atmosphere start propagating more and more of these areas of snail-paced air, it won't only be bad news for public health, but would be a headache for regulators as well. Explains the study's lead author, Daniel Horton:

"Since the 1960s, many nations have begun legislation-based initiatives to limit the amount of pollutants that can be emitted into the atmosphere. The U.S. policies have been effective at decreasing concentrations of the six most common pollutants by about 70 percent," Horton said. "Our new research suggests that global warming could impact some of that effectiveness by increasing the occurrence of stagnation. If so the pollutants that do exist could accumulate more frequently, increasing the risk of poor air quality."

Improve fuel quality, implement emission norms: TERI

Source : *The Hindu*

Date: 25th June, 2014

The unconstrained growth of motor vehicles in recent years has become a major source



of pollution. Photo: S. Subramaniam To curb growing vehicular emissions and poor air quality in Indian cities, environmentalists have called for immediate implementation of vehicular emission norms and improvement of fuel

quality. Participating in a workshop organised earlier this week by The Energy and Resources Institute (TERI) in collaboration with the International Council on Clean Transportation (ICCT), participants discussed the roadmap to control emissions and improve efficiency in the transport sector. The workshop titled 'Reducing Vehicular Emissions and Improving Fuel Efficiency' was supported by the Shakti Sustainable Energy Foundation.

TERI Director-General Dr. R.K. Pachauri said: "Motor vehicles have provided human society with a convenient and almost ubiquitous opportunity to travel anywhere at will. However, with the unconstrained growth of motor vehicles in recent years these have become a major source of pollution, which not only affects air quality adversely wherever vehicles ply but also add to emissions of greenhouse gases at the global level. Reducing vehicular emissions and improving fuel efficiency are essential directions for India to take with a sense of urgency. This workshop, which involves scientists and experts from other countries, would help develop a roadmap for India by which the negative impacts of vehicular transportation can be limited." Stating that India is rapidly motorising and this

was resulting in the increase in criteria pollutants like PM 2.5 and NOX, which have an adverse impact on human health especially of the vulnerable who are most exposed to vehicular pollution, TERI fellow Mr. S. Sundar noted: “It also perpetuates our dependence on oil imports, raising concerns about our energy security. We cannot become a modern automobile nation merely by producing a variety of modern vehicles. We need to ensure that our vehicles, not only when new but also when in use, conform to the prescribed emission standards and are fuel efficient.” Experts at the workshop agreed that India should immediately move towards Euro VI norms once 10 PPM ultra-low sulphur fuel is available. The workshop assumed significance in the wake of the Auto Fuel Vision Committee developing a roadmap for further advancement of vehicular emissions and fuel quality norms, and has now come up with a report.

WHO guidelines violated in Indian cities, air pollution

Source : *RUSH LANE*

Date: 25th June, 2014

Among concerns sidetracked in India are quality education, progress, population control, poverty, and many others. Fuel quality also features in this list. Vehicular emission norms should be made stringent and adhered to if the government is serious about curbing growing vehicular emissions and poor air quality.

‘Reducing Vehicular Emissions and Improving Fuel Efficiency’ workshop was organised by The Energy and Resources Institute (TERI) in collaboration with International Council on Clean Transportation (ICCT), held discussions on emission control and improving transport sector efficiency. Shakti Sustainable Energy Foundation supported the event.

R K Pachauri, Director General, TERI referred to unconstrained growth of motor vehicles in recent years as a major source of pollution, which adversely affects air quality and emission levels. he emphasised the India needs to address these issues with a sense of urgency. Involvement of scientists and experts from other countries helps develop a roadmap for India to limit negative impacts of Indian vehicular transportation.

S Sundar, Distinguished Fellow, TERI spoke of India’s rapid motorising. Exponential growth in vehicles here has led to increase in criteria pollutants like PM 2.5 and NOX. Apart from playing truant on human health of those who are most exposed to vehicular pollution, India’s dependency on oil imports has increased raising concerns about energy security.

India can’t be termed a modern automobile nation merely on the basis of production increase. Current situation necessitates urgent adherence to prescribed emission standards through fuel efficient vehicles. India should move towards Euro 6 norms once 10 PPM Ultra Low Sulphur Fuel is available.

Currently, penetration of BS IV fuels in India is at 24% and BS IV grade high speed diesel (HSD) is 16%, despite having been introduced in major cities here back in 2010-11. In reference to diesel low penetration, BS III vehicles being registered in the periphery of designated BS IV cities acts as a deterrent. BS IV vehicles (especially heavy duty vehicles) are more expensive and BS III fuel was cheaper.

Auto Fuel Vision Committee's roadmap suggests that retail price of BS III fuel should be made equal to BS IV fuel. Quality differential in price between both fuel grades should be 75 paise. Excess collected by re-pricing BS III fuel would be 75 paise per litre, and the amount collected should be accrued as cess to OI DB.

Money collected as "high sulphur cess" will rapidly decline as the BS IV 3-phase rollout is completed in early 2017. If price differential is made effective from July 2014, total collections before BS IV full rollout will stand at Rs 10,000 crore. The best situation however would be rolling out BSIV at one go within a year. However, limitations thwart such an attempt as even if refineries work to full capacity, it would take much longer to completely switch to BS IV output.

Keeping in mind the pace at which things are implemented in India, changeover to BS IV will take a couple of years, and that to BS V may extend to 2025 and beyond. Changeover to BS V remains on course to be rolled out in India between April 2019-2020.

Focus on severely polluted urban air quality remains a priority as more than 80% of Indian cities where air quality monitoring was carried out reported particulate matter concentrations higher than prescribed standard. World Health Organization (WHO) guidelines are grossly violated in many Indian cities.

Dr. Michael Walsh, ICCT Founding Chairman pointed to widespread adverse impact on public health with with upward of 600,000 people dying pre-maturely each year in India resulting from of exposure to outdoor air pollution. It is imperative that India makes headway in cleaning up vehicles and fuels here.

Energy efficiency in transport sector needs constant monitoring. Though fuel efficiency standards for cars have been notified recently, implementation is another story. Heavy duty vehicles (HDV) sector play a majority role in overall fuel consumption, and regulation through introduction of fuel efficiency standards is suggested.

BRT system will save 27,000 lives in India: World Bank

Source : *The Hindu*

Date: 24th June, 2014

"If India built 1,000 kilometres of new, bus rapid transit lanes, over 20 years, that could save more than 27,000 lives by reducing air pollution and accidents and create more than

128,000 jobs,” Jim Young Kim (pictured) said.

World Bank President Jim Young Kim has said India can save more than 27,000 lives and create over 128,000 jobs if it builds 1,000 kilometres of new bus rapid transit (BRT) lanes in the next 20 years.



“If India built 1,000 kilometres of new, bus rapid transit lanes, over 20 years, that could save more than 27,000 lives by reducing air pollution and accidents and create more than 128,000 jobs,” Jim Young Kim said.

Speaking at the release of a report “Climate-Smart Development”, according to which \$3-4 billion is needed to develop 1,000 km of BRT corridors in about 20 cities across India within 6-12 years, Mr. Jim said India could also reduce “greenhouse gas emissions by about 42 million tons”.

Released in advance of the UN Secretary General’s Climate Summit in September, the report that focuses on five countries — Brazil, China, India, Mexico and the US, along with the European Union — shows the potential economic, health and other gains from scaling up climate-smart policies as well as projects already in place in developing countries like Brazil, India and Mexico.

“The report’s findings show clearly that the right policy choices can deliver significant benefits to lives, jobs, crops, energy , and GDP — as well as emissions reductions to combat climate change,” he said, adding the report is good news for the global economy and the planet.

Policies promoting clean development in transport and energy efficiency will lead to global growth.

“We already know that we need to make smart policy choices to combat climate change.

What we didn't know is that these policies make economic sense, as well. This report removes another false barrier, another false argument, not to take action against climate change. Taking action to preserve our planet is what we need to do for future generations, and this modelling shows that smart choices will also improve local and global economies," he said.

According to the President, the report looked at the impact of shifting to the cleaner policies across five countries and the European Union.

It found that they could increase global GDP by \$1.8 trillion per year by the year 2030. "That's a 1.5 per cent increase over a business-as-usual scenario that assumes average economic growth where emission reductions are not pursued. Annual gains would come from improved productivity and efficiency, including saving almost 16 billion kilowatt-hours," he said.

He said the policy shifts would also avert 94,000 premature deaths from air pollution each year by 2030 and improve crop productivity.

The greenhouse gas reductions from those policy changes would account for about 30 per cent of total emissions reductions needed in 2030 to limit global warming to 2 degrees, which is the current global target, he said.

"If financing and technology investment increased, the potential benefits could reach as high as \$2.6 trillion or 2.2 per cent additional global GDP by 2030," he said.

The report says recent work by the World Bank in India finds that the combined cost of outdoor and indoor air pollution is more than \$40 billion annually, or more than three per cent of India's 2009 GDP.

When other environmental degradation is factored in, including crop, water, pasture, and forest damage, the total is closer to 5.7 per cent of India's GDP affecting mostly the poorest members of society, it added.

Noting that affordable, low-emissions transport is crucial for development, the report said people need effective transit options for access to jobs, education, and health services adding that economic activity requires the transport of goods.

"Well-designed and -enforced bus rapid transit (BRT) is a relatively inexpensive way to get people out of high-emitting vehicles and to reduce traffic congestion and pollution. In 2009, the World Bank approved a sustainable urban transport project for India that included BRT in three pilot cities," it said adding that the Pimpri-Chinchwad BRT may serve as a model for replication across India.

The Bank said the results of the Pimpri-Chinchwad BRT analysis and a Ministry of Urban Development (MOUD) study of more than 87 cities across India were used to estimate

the length of viable BRT routes that could realistically be developed across India, as well as the per-kilometre costs and benefits of such development.

For this case study, the length was estimated at approximately 1,000 km, including more than 422 km that is already included in government plans.

The analysis estimates that investment of \$3-4 billion would be needed to develop 1,000 km of BRT corridors in about 20 cities across India within 6-12 years, the bank said.

Researchers seek to reduce deadly air pollution from open-fire cooking

Source : *Atmos News*

Date: 24th June, 2014

BOULDER - A \$1.5 million grant from the Environmental Protection Agency will help



researchers measure pollution from residential open-fire cooking and better understand a problem that kills millions of women and children each year in the developing world.

According to the EPA, more than 3 billion people worldwide rely on the burning of wood, plant matter, coal and waste for cooking or heating. Exposure to cooking emissions, particularly indoor exposure, ranks as one of the five worst overall health risk factors in poor developing countries, with the World Health Organization estimating 4.3 million

premature deaths per year due to exposure to smoke from traditional cookstoves.

"You can see the air quality impacts from cooking over open fires, as there is often a haze hanging over remote villages during certain times of day," said NCAR scientist Christine Wiedinmyer, a principal investigator on the project. "This not only affects health, but can cause poor air quality regionally and impact the climate."

"We're hoping to figure out how to reduce women and children's exposure to air pollutants in sub-Saharan Africa through technology and getting people to think about changes to their behavior," said Mike Hannigan, associate professor of mechanical and environmental engineering at the University of Colorado Boulder and principal investigator on the project.

Researchers from NCAR, CU, and the Navrongo Health Research Center in Ghana will study 250 households in northern Ghana to measure the levels of pollutants to which adults and children are exposed from cooking as well as from burning trash and car pollution. They will also look at the potential health benefits of modern, low-polluting cookstoves.

Chicago's New Lamp Posts Will Track Pollution and Count People

Source : GIZMODO

Date: 23rd June, 2014

The walls-or lamp posts, at least-have ears. Chicago is rolling out some new street furniture, and it will be able to measure air quality, monitor noise and even count pedestrians.

The Chicago Tribune explains that the "curled metal fixtures" will appear on Michigan Avenue lamp posts as soon as July, and will measure air quality, light intensity, sound volume, heat, precipitation, and wind. They'll also monitor cell phone traffic to count the number of people passing by.

A joint initiative between the University of Chicago and Argonne National Laboratory, the idea is to gather fine-grained detail about what's happening within the city, to understand how people use it-and impact upon it-better. In turn, it should help show where air pollution is on the rise, or if narrow sidewalks are creating choke points.

Residents worried about privacy should be able to rest fairly easy, though: the project is designed to store the data it collects in anonymous forms. "Most companies don't care about you, they care about people like you," Gary King, director of the Institute for Quantitative Social Sciences at Harvard University, told the Tribune.

It's not the first time a city has gathered Big Data from its streets, but it could be first time permanent infrastructure has rolled out across an entire urban landscape. If initial trials go to plan, there will be "hundreds more across the city in years to come as the project expands into neighborhoods," and planners hope it will provide a permanent system of data collection boxes for researchers.

'Better fuel, stricter norms needed to curb air pollution'

Source : Zee News

Date: 23rd June, 2014

New Delhi: There is an urgent need to improve fuel quality and implement stricter norms to check vehicular emissions and poor air quality in Indian cities, renowned environmentalist R.K. Pachauri said here Monday.

"The unconstrained growth of motor vehicles in recent years has become a major source

of pollution, which not only affects air quality adversely wherever vehicles ply, but also adds to emissions of greenhouse gases at the global level," said Pachauri, director general, The Energy and Resource Institute (TERI).

He was speaking at a workshop on "Reducing Vehicular Emissions and Improving Fuel Efficiency".

He said the government has not focused much on adopting new technologies to improve fuel efficiency and is also yet to make stringent norms to curb vehicular pollution.

"The government needs to emphasize on the research work and analysis on such issues so that the impact of the poor fuel quality and the pollution emitted by it can be known," Pachauri said.

"There is a need for India to adopt advanced technology for motor vehicles so that the dependency on oil can be reduced," Pachauri told IANS.

Transport sector at present accounts for 17 percent of the total energy after the industry sector.

Pachauri said the exponential growth in vehicles in India is leading to an increase in pollutants which have an adverse impact on human health, especially on the vulnerable who are most exposed to vehicular pollution.

It also perpetuates our dependence on oil imports, raising concerns about our energy security.

"We cannot become a modern automobile nation merely by producing a variety of modern vehicles. We need to ensure that our vehicles conform to the prescribed emission standards and are fuel efficient," he said.

"There is also a need for the other stakeholders in the society to come ahead and collectively take part in reducing the vehicular emission as 'self regulation' is very important," he added.

Global Warming: Millions to Die from Worsening Air Pollution, Smog; India Most at Risk

Source : *International Business Times*

Date: 23rd June, 2014

Vehicles drive through the Guomao Bridge on a heavy haze day in Beijing's central business district January 29, 2013. China plans to take more than 5 million ageing vehicles off its roads this year in a bid to improve air quality, with 330,000 cars set to be decommissioned in Beijing alone, the government said in a policy document published on Monday. REUTERS/Jason Lee REUTERS/Jason Lee

The worsening quality of air around the world is set to become the leading cause illness

and death of over half of the world's population by end of the century, a study published in Nature Climate Change said.



Smog caused by climate change that give off stagnant "dead" air will lead to the illnesses and deaths of 55 per cent of the world's population by 2099.

India, Mexico and the western US are the highest at risk from these "atmospheric stagnation events".

"Large swathes of India, Mexico and the Amazon could see up to 40 more stagnant air days per year compared to the average annual tally from 1986 to 2005, representing increases of 40 per cent, 19 cent and 28 cent respectively," portal nature.com said. The three areas were most noted in the study because of the intersection of large populations and increases in the persistence of stagnation events. Scientists defined such atmospheric stagnation events as a serious pollution threat, in which an air mass remains over an area for an extended period. The effect can lead to soaring rates of heart and lung disease.

"The potential public health impact increases as the duration of stagnation events lengthens," US scientist Dr Daniel Horton, from Stanford University, wrote in the journal Nature Climate Change. "Multi-day stagnation episodes can lead to prolonged hazardous air exposure associated with extreme air pollution, severe outbreaks of acute cardiovascular and respiratory illness, and increased incidence of mortality." According to the World Health Organisation, in 2012, at least 3.7 million people died prematurely around the world because of air pollution impacts. Outdoor air pollutants are a major contributor to stroke, heart disease, lung cancer and respiratory diseases including asthma. "Considering the strong links between air stagnation, air quality and public health impacts, our results suggest that continued increases in greenhouse gas concentrations are likely to alter the atmosphere in ways that impact efforts to protect public health."

Air quality to suffer with global warming

Source : *Nature*

Date: 22nd June, 2014

Climate change is poised to worsen air quality in many parts of the globe, according to a study published today in Nature Climate Change¹. By the end of the century, more than

half of the world's population will be exposed to increasingly stagnant atmospheric conditions, with the tropics and subtropics bearing the brunt of the poor air quality.



A team led by Daniel Horton, a climate modeller at Stanford University in California, used 15 global climate models to track changes in the number and duration of atmospheric stagnation events, in which stationary air masses develop and allow soot, dust and ozone to build up in the lower atmosphere. "Much of the air-quality community focuses on pollutants," says Horton. "This study takes a step back and looks at the weather or climate component that can lead to the formation of hazardous air quality."

How worsening air quality due to stagnation would affect different regions has been poorly studied, and there are few estimates of human impact. The new study shows just how widespread the effects will be, says Jason West, an environmental scientist at the University of North Carolina at Chapel Hill. Hot and stuffy

Air stagnation arises from three meteorological ingredients: light winds, a stable lower atmosphere and a day with little or no precipitation to wash away pollution.

In a high greenhouse gas emissions scenario, Horton and his colleagues calculate that 55% of the global population will experience more air stagnation by 2099. Large swathes of India, Mexico and the Amazon could see up to 40 more stagnant air days per year compared to the average annual tally from 1986 to 2005, representing increases of 40%, 19% and 28% respectively. The team did not find major changes in the globe's high northern latitudes, Saharan Africa or most of Australia.

The researchers then factored in current population size to quantify human exposure to daily stagnation events and air pollution. The impacts are especially intense in India, Mexico and the western United States. By far, the largest uptick in overall human

exposure will be in India, says Horton, due to the country's enormous population, along with the increases in atmospheric stagnation.

Outdoor air pollutants are a major contributor to stroke, heart disease, lung cancer and respiratory diseases including asthma. The World Health Organization estimates that outdoor air pollution caused 3.7 million premature deaths globally in 2012. Nations could mitigate the air pollution impact by limiting emissions of greenhouse gases, particulate matter and the precursors to ozone, including nitrogen oxide, nitrogen dioxide and volatile organic compounds, says Horton.

The latest study does not account for changes in population size or distribution, or for changes in the amount of pollution entering the atmosphere.

But it nevertheless portends dire consequences, says Susanne Grossman-Clarke, an urban climatologist at the Potsdam Institute for Climate Impact Research in Germany. "Combine these stagnant air masses with extreme heat and a great number of people may end up sitting in emergency rooms," she says.

Charminar most polluted area in Hyderabad

Source : *The Times of India*

Date: 19th June, 2014

HYDERABAD: The reinvention of Charminar as a constituent of the new logo of Telangana may have given the monument a boost in terms of cultural brand value, but it has done little to clean up the foul air which envelops it.

Levels of air pollution in the area this year have peaked, averaging 127 micrograms per cubic metre, pipping residential areas across the city and even heavy traffic zones like Panjagutta.

An analysis of data obtained from the Pollution Control Board (PCB) shows that air pollution in Charminar has breached the acceptable annual limits of 100 micrograms per cubic metre and is only second to industrial areas of Balanagar and Jeedimetla, with 178 micrograms and 128 micrograms per cubic metre respectively. A dubious distinction for any non-industrial area, experts say. In fact, the condition of air has worsened since 2011. According to PCB officials, the levels of Respirable Suspended Particulate Matter (RSPM) have increased from 105 micrograms per cubic metre in 2011 to 127 micrograms per cubic metre this year. The levels dipped to 95 micrograms per cubic metre in 2013 on account of traffic restrictions imposed to facilitate the Charminar Pedestrianisation Project (CPP), which however finds itself stuck in bureaucratic wrangles.

According to PCB senior official W G Prasanna Kumar, the low dispersion of air and lack of green spaces in the area accounts for the spike in levels. "The area is a cluttered concrete jungle which reduces the dispersion possibility and the traffic speed is slower than in many other places. This contributes to the high pollution levels," Kumar said. Visibly polluting vehicles should be checked, and their access restricted to bring down RSPM levels.

Experts pointed out that spike in air pollution could not only cause pulmonary ailments among residents but also pose a threat to the monuments in the area. Worst among the affected is Charminar, the Archaeological Survey of India's mascot, which lost its bid to showcase the monument as a world heritage site on account of a layer of soot eclipsing its splendour and encroachments. The imposing edifice of the Mecca Masjid, now in the custody of the Department of Archaeology and Museums, too had to be re-sanctified by chemical cleaning last year.

"Vehicular pollution and vibration has always endangered monuments. Restricting traffic is the only way to protect them," said ASI superintending archaeologist R Krishnaiah.

Environmentalists said that the rise in RSPM levels are forebodings of disaster unless substantial corrective measures are taken. While Krishnaiah's observations found resonance with them, they pointed out that the cluttered growth had failed to leave space for tree plantation. "Trees which can reduce pollution and temperature are very few here. The new government must chalk out a plan to see what can be done to increase lung spaces in the Old City," he said.

An environment for reform

Source : *The Indian Express*

Date: 17th June, 2014



It has been about three weeks since Narendra Modi's government was sworn in, and the ministry of environment and forests has already begun to make news. Day one saw a

welcome step forward, with the MoEF changing its name to include the words “climate change”. Later, the new minister, Prakash Javadekar, announced that a number of steel and mining projects would immediately be given clearances. This is at best a symbolic step. The challenges before him are larger than simply clearing projects. On environmental regulation, we are still stuck in 1991. If sustainable development is to become a reality, we must think about major reforms in environmental regulation.

Before liberalisation, the licence raj was blamed for preventing fast and equitable growth. Similarly, although environmental regulation is blamed for creating roadblocks for industrial activity, we are simultaneously failing to protect the environment. A 2014 study by Yale University ranked India 155th out of 178 nations on an overall environmental performance index. On air pollution, we ranked last. The costs of these failures are high. A recent report in the New York Times estimated that air pollution in India may cost us over three years in life expectancy. This does not even count the costs of air pollution in infant mortality, disease and reduced productivity. We need to recognise the need for reform. The new government has a unique opportunity to revisit environmental law and regulation, left stagnant for decades. The MoEF should introduce a structured programme of regulatory reform and follow a three-pronged approach of identifying innovative ideas, testing them in the field to rigorously establish their usefulness, and then scaling up the changes that work well. This is a pathway that both environmentalists and industry would support. There are many areas where reform can begin. Take air pollution. India’s flagship environmental laws, the air and water acts, are built on a dated criminal system where draconian penalties such as imprisonment or industry closure are the main recourse available to regulators. These penalties are so severe — and so time consuming to impose — that they are seldom used. This leads to non-compliance by industry and a bad name for environmental regulation. The solution is to introduce civil fines for environmental offences, and to allow regulators to calibrate fines to the severity of the offence. This would ensure that all violations are punished, but penalties are proportionate and easily imposed. We also need to take a hard look at the rules themselves. India’s command and control regulations impose steep costs on industry, discourage innovation, place a heavy monitoring burden on regulators. They also do a poor job targeting the total load of pollutants released in an area, the quantity that ultimately matters for health. As new plants are set up continued...

Map Monday: 50+ Shades of Air Pollution

Source : *Scientific American*

Date: 16th June, 2014



In today's installment of Map Monday, I wanted to focus on air pollution as mapped by Hsu et al and The Atlantic. Go to this link to see the full interactive map, which details air pollution by country and city. Below, I have copied in a global snapshot with some perhaps unsurprising shades of pollution severity,

including China and India in dark hues. Over the past year, you have probably seen numerous news stories detailing Beijing's and other Chinese cities' attempts to grapple with air pollution, as well as those pointing out that New Delhi actually has worse air pollution than Beijing. In fact, according to the World Health Organization (WHO), 13 of the 20 dirtiest cities in the world are in India. In both countries, some blame has been put on food vendors cooking in open-air and others have pointed to emissions from industrial pollution, but certainly the power and road transport sectors are significantly contributing towards air pollution; but what are those shares exactly? The short answer is: it's hard to measure without proper monitoring. This is a global problem with wide-ranging local effects. However, there has been some good progress in analyzing these issues recently. Here are some of the headline findings: WHO concluded once-and-for-all that diesel exhausts do in fact cause cancer;

MIT's Laboratory for Aviation and the Environment found that about 200,000 Americans die a premature death each year due to air pollution, with road transport being the most significant with 53,000 premature deaths; A recent World Bank report found that globally 79.6 million health years of life are lost annually due to pollution from motorized transport; and A recent report from the OECD found that outdoor air pollution kills more than 3.5 million people per year, worldwide, and about half of that is attributable to road transport. These items together paint a grim picture, but they also highlight the substantial work now going into data collection and analysis: important steps towards combating air pollution. However, I'd be interested in hearing what you find surprising from the map above? Check out the time series function, and toggle between cities and countries and you might come up with some unanticipated results. For example, have a look at Norway versus Oslo in 2012, and you'll see what I'm getting at.

Australian natural wonders under Unesco spotlight

Source : *The Times of India*

Date: 15th June, 2014

SYDNEY: Australia is home to some of the most pristine environment on Earth, but two of

its most high-profile protected areas face threats to their status as World Heritage Sites at a Unesco meeting starting Sunday in Doha.

In such a vast country that boasts large tracts of desert, rainforest and coast, many of Australia's natural wonders have won Unesco World Heritage listings.

They include Fraser Island, Shark Bay, the Wet Tropics of Queensland, the Greater Blue Mountains, Kakadu National Park and Uluru.

Perhaps its best-known masterpiece is the Great Barrier Reef, one of the most biodiverse places on the planet that sprawls across an area roughly the size of Japan.

But all is not well on the reef, which is considered to be in "poor" health.

It is under growing pressure not just from climate change and the destructive coral-eating crown-of-thorns starfish, but agricultural runoff and rampant coastal development linked to mining.

For these reasons, Unesco is considering downgrading its status to "World Heritage in Danger" at its annual meeting, in the absence of Australia showing "substantial" progress in dealing with the problems.

Environment Minister Greg Hunt insists Australia has thrown millions of dollars at protecting the reef, bolstering its resilience to the major threats of extreme weather events and climate change.

Working to reduce outbreaks of the crown-of-thorns starfish was also being tackled, as was reducing nutrient and sediment run-off from land-clearing and agriculture, he said.

Queensland state Environment Minister Andrew Powell, who released a report Thursday on water quality that he will take to the Doha meeting, said he was confident a downgrade would be avoided.

"The reef is now on the pathway to long-term improvement," he said, pointing to improved land management practices that had reduced pesticide loads by 28 percent since 2009.

"In terms of nitrogen — that's what causes those crown-of-thorn starfish outbreaks — we've reduced it by 16 percent overall," he added.

While improvements to water quality had been achieved, Powell conceded that the overall health of the reef still needed more work.

The report did not deal with port developments linked to mining, which conservationists have warned could hasten the demise of the reef.

There has been particular concern from Unesco about the approval in December of a massive coal port expansion in the region, and allowing the dumping of millions of tonnes

of dredge waste within the marine park waters.

The Australian Marine Conservation Society said while a reduction in sediment from farming was good news, dredging was ruining the reef.

"The mining industry, backed by the state government and the state-owned ports corporations, are treating the reef as a dumping ground," said spokeswoman Felicity Wishart.

Another of Australia's natural wonders under threat is the Tasmanian Wilderness, one of the last expanses of temperate wilderness in the world that covers nearly 20 percent, or 1.4 million hectares, of the southern island state.

Prime Minister Tony Abbott believes too much forest is locked up, and favours more access for loggers.

He has requested Unesco remove its World Heritage status for 74,000 hectares of the area, claiming it was not pristine -- the first time a developed country has asked for a delisting.

The move has been labelled "environmentally reckless" by green groups. "Logging World Heritage forests is as reckless as destroying any other World Heritage site, like using the Grand Canyon as a garbage dump, knocking down the Sydney Opera House for harbourside apartments or selling the Eiffel Tower for scrap," said Wilderness Society spokesman Vica Bayley said.

"If Tasmania's World Heritage forests aren't safe, neither are our other iconic World Heritage sites, such as the Great Barrier Reef, the Daintree rainforest, Kakadu and the Blue Mountains."

Tough pollution regimen on the cards for Delhi

Source : *The Times of India*

Date: 14th June, 2014

NEW DELHI: A high-powered committee set up by the LG recently has listed a slew of measures to counter air pollution in the city. Key recommendations include linking the pollution under control (PUC) and vehicle registration databases so that notices are issued automatically to violators, upgrading the PUC system to track polluting vehicles and directing the traffic department to crack the whip on visibly polluting vehicles.

Among long-term plans are a parking policy and higher parking fees as a disincentive to car users. "People are not using parking lots as surface parking is much cheaper. This is leading to traffic congestion," said a senior official from the environment department. Sources who attended the meeting said there were recommendations to treble or double

the current surface parking rates. The committee has also recommended advancing the implementation of Euro V fuel standards in Delhi.

There are action-points on increasing last-mile connectivity by introducing more minibuses and integrating the existing suburban ring rail service. But Centre for Science and Environment (CSE), the only non-government body that was co-opted in the meetings of this committee, on May 28 said listing out broad points will not help as the devil lies in the detail.

Anumita Roychowdhury, head of CSE's air pollution programme who was present in the meeting, said, "They have made a list of what needs to be done. But to make sure that it has some impact, there needs to be a very strong monitoring mechanism". She added that continuous adjustments and deeper structural reforms are needed.

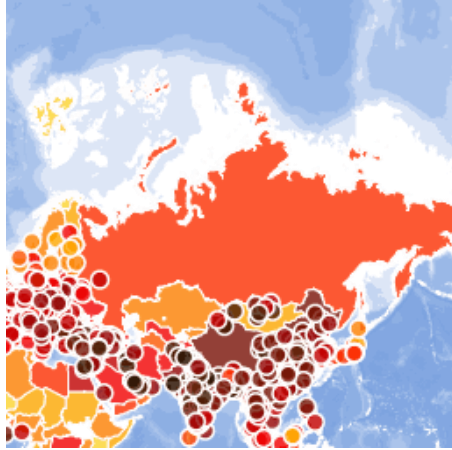
The plan seems to have many loose ends. It stresses on the existing mechanism of PUC certificates. Macro solutions were not discussed despite the presence of the Union ministries of earth sciences and petroleum and natural gas in the meetings. Neither was the plan to introduce an air quality index and a health alert system. The draft second-generation air pollution action plan that was prepared to deal with the post-CNG air pollution issues in Delhi was also not included in the discussions. "The current listing is more of an improvement of all the mechanisms that exist. But no broad long-term plans have been discussed yet," said an official who was part of the meeting.

The LG had set up the high-powered committee chaired by the chief secretary with special CP (traffic), Delhi Police; secretary (environment); commissioner (transport) and additional secretary (DPCC) as its members after a WHO air quality database last month showed Delhi is the most polluted among 1,600 global cities. The concentration of PM2.5 (fine, respirable particles) was said to be the highest in Delhi at 153 micrograms per cubic metre while the WHO standard is 10 micrograms per cubic metre. In Beijing, the level was 56 micrograms.

An Interactive Air-Pollution Map

Source : *The Atlantic*

Date: 11th June, 2014



In March, the World Health Organization estimated that air pollution was responsible for 7 million premature deaths in 2012. That's one out of every eight total deaths in the world. Air quality has gotten worse over the last decade, and for more people. The 2014 Environmental Performance Index (EPI), a biennial global ranking that compares countries on high-priority environmental issues, shows that over the last decade, the number of people breathing unsafe air has risen by 606 millionn and now totals 1.78 billion. That's one quarter of the global population.

But where are people suffering the worst air pollution, and how do we know? To help answer this question, we've compiled a map that shows national and city-level exposures to air pollutants that have the greatest effect on human health, fine particulate matter (PM2.5). PM2.5 originates from combustion of fuels from both mobile sources like vehicles and stationary sources, including power plants, industry, and household biomass burning. Although invisible to the human eye, PM2.5 contributes to acute lower respiratory infections and other diseases such as cancer. It can penetrate human lung and blood tissue, leading to higher incidences of cardiovascular and lung disease.

The map overlays two sources of data on air pollution: for cities, the WHO's recent release of its Ambient (outdoor) air pollution in cities database 2014; for countries, ground-level exposures to PM2.5 are derived from satellite measures in the 2014 EPI. For the first time, both national and city-level data can be compared to see how air pollution is distributed globally. Here are some observations we made using the map.

There are differences in where air pollution is being monitored.

Many countries still don't have ground-based monitors to measure fine particulate matter (PM2.5). Nearly 70 percent of the air monitoring stations are disproportionately located in wealthy countries. Especially in Africa, Southeast Asia, and South America, there are major gaps in monitoring. These are also areas that are industrializing pretty rapidly. Scientists predict that nearly half of the projected growth in urban areas by 2030 will be in China and India alone, while urban areas in Africa are expected to grow a whopping

590 percent from 2000 levels.

Many of these countries that are industrializing and urbanizing so quickly lack ground monitors and tools to communicate to citizens the dangers of different levels of exposure. India, for example, still lacks any index like the U.S.'s Air Quality Index that communicates daily health warnings of various levels of air pollution to the public.

Poor air quality affects all countries, regardless of wealth.

From the country-level data in the map, it's easy to see that most countries in Europe have annual averaged exposures to PM_{2.5} that exceed levels the WHO deems as "safe" (i.e., 10 micrograms/cubic meter). Paris in March of this year had to impose major restrictions on motor vehicles when air pollution hit dangerously high levels. Salt Lake City in the United States regularly experiences severe smog in the winter time, leading to public health and economic concerns among residents there. What this troubling trend demonstrates is that there isn't an "Environmental Kuznets Curve" necessarily between wealth and air pollution: As countries get richer, we're not seeing a decrease in air pollution, suggesting its severity as a global problem.

Cities have it worst.

Comparing the range of observed values between the country-level and city-level data, it's easy to see that air pollution is worse in cities than when averaged across a whole country. New Delhi, the capital of India, for instance, is the city with the worst air pollution. Many other cities in South Asia, including in Pakistan, Iran, and Bangladesh, all suffer pollution levels more than 10 times higher than the safe threshold. These data further corroborate reports made earlier this year that suggested India, and in particular New Delhi, has severe air pollution that is often overlooked in lieu of China's air pollution problem (see The New York Times, The Wall Street Journal, and Time).

While India's air comes out worst among cities, China's air quality at a national scale is the worst globally. Compared to India, part of this difference in results is due to the fact that China has more people living in cities (more than half) than India (around one-third). More people living in cities where air pollution is worse means more people exposed, which is reflected in the national aggregate average exposure numbers. In May 2014,

China announced that it will remove 5 million older, polluting cars from roads, over half just in Beijing, to address air pollution problems, but the question remains as to whether this number is enough. Statistics for China's vehicle ownership have grown exponentially over the last decade and topped 240 million at the end of 2012.

While this map provides a baseline understanding of air pollution in your city or country, it's important to keep in mind that these data represent annual averages or longer term trends. Checking local readings of air pollution levels where available, particularly for groups sensitive to air pollution, such as those who suffer from asthma, can help one decide whether to limit outdoor activities on high-pollution days. Others have taken matters into their own hands, including a proliferation of smartphone apps that compile air quality data (like this one). A DIY home air pollution filter movement has also become popular in major cities in China.

Taj Mahal to get beautifying mudpack treatment

Source : *Mother Nature Network*

Date: 9th June, 2014

The most grandiose monument ever to be erected in memory of a dead third wife, the Taj Mahal, will soon undergo a cleansing spa treatment of sorts for buildings, a process that involves archaeologists applying a layer of lime-rich clay over areas of the milky white marble mausoleum-cum-tourist magnet that have been yellowed by air pollution and smoke generated by a nearby oil refinery.

As reported by the BBC, this isn't the first time that the Taj Mahal has undergone a beautification ritual "based on a traditional recipe which is used by Indian women to restore a natural glow to their faces."

In 2008, a mudpack was applied to the exterior of the iconic domed 17th century tomb and the minaret-heavy complex surrounding it as part of an effort to reverse the telltale signs of air pollution that have ravaged the iconic edifice. And while the 2008 treatment, along with two similar previous mudpack applications in 1994 and 2001, have indeed helped to erase yellow staining and restore the Taj Mahal's distinctive "glow," the air pollution situation in the heavily industrial city of Agra, located in India's northern state of Uttar Pradesh, is so bad that the mudpack application has turned into an every-few-years type of affair.

"Due to increasing pollution in the city, the white marble is yellowing and is losing its sheen," B M Bhatnagar of the Archeological Survey of India explained to the Press Trust of India. Bhatnagar goes on to explain that after the clay is plastered over yellowing areas of



the monument, it's left to dry overnight. "When it dries the flakes are removed from the surface with soft nylon brushes and washed with distilled water to remove impurities sticking to the surface."

Bhatnagar notes that the 2008 mudpack treatment cost around \$24,000 and was carried out over the span of several months as to not interrupt normal tourism operations at the bustling UNESCO World Heritage Site which receives roughly 3 million visitors annually.

Situated on the banks of the Yamuna River, the uber-bucket list-y Taj Mahal was completed around the year 1653 as a tribute to Mumtaz Mahal, a Persian-born empress who died while giving birth to her fourteenth child with Mughal Emperor Shah Jhan. She was 40. The construction process, overseen by a grief-stricken Shah Jhan, is believed to have taken over two decades.

Over at sister site TreeHugger, you'll find more sobering info on how years of unchecked development and pollution in and around Agra have taken a toll on the crown jewel of India.

Delhi heat wave is result of increased pollution in the capital city

Source : DNA

Date: 9th June, 2014

"There is a link between rising pollution levels and hotter days," said Dr Gufran Beig, Program Director at System of Air Quality Weather Forecasting and Research (SAFAR). Temperature recorded at the Palam observatory on Sunday broke all records since the establishment of the centre in 1952. Mercury touched 47.8 degrees Celsius in Palam, which is the highest in 62 years.

According to Dr Beig, air pollution in Delhi is creating localised temperature hot spots and is one of the main reasons behind the sweltering heat in the city. "This happens due to the heat island effect," he added.



SAFAR, located in Pune is an expert body run under the Ministry of Earth Sciences, Government of India. "Our data shows that Palam also recorded the highest levels of air pollution in Delhi at around 85 ppb (parts per billion)," said Dr Beig. "The permissible limit is 50 ppb," he added.

A study was done by SAFAR on the air quality of Delhi before the Commonwealth Games in 2010 and in 2014. "There is an increase of 30 per cent in vehicular emissions during this period while industrial emissions increased by 3-5 per cent," said Dr Beig. "Our research tells us that the biggest reason for the massive increase in the air pollutants in Delhi is the widespread usage of diesel and adulterated fuel. The smoke emission by a truck running on diesel is equivalent to the same emission by five trucks running on petrol," said Dr Beig.

The city had a vehicular population of 31.64 lakh in 1999-2000, while it touched 74.53 lakh in 2011-12, a rise of almost 136%, Delhi Economic Survey said, adding that the urban transport scenario in the city is "fast warming up".

Because of the increase in per capita income, the number of vehicles now grows at 7.2 per cent annually as compared to 4.72% in the last decade. The Centre for Science and Environment (CSE) has compared data from the Delhi Pollution Control Board from 2000 to 2013; in Delhi, PM 10 and PM 2.5 levels rose 50 per cent during this period. At 10 am on December 16, 2013 the monitoring station at R K Puram recorded PM 2.5 levels at 985 micrograms per cubic meter, Delhi Pollution Control Board officials concede. The standard set by the Indian government is 60.

Air quality is represented by annual mean concentration of fine particulate matter (PM10 and PM2.5, – particles smaller than 10 or 2.5 microns). Delhi is the most polluted city in the world, said a study released by World Health Organisation (WHO) report which came in May 2014. "Many factors contribute to this increase, including reliance on fossil fuels such as coal fired power plants, dependence on private transport motor vehicles, inefficient use of energy in buildings, and the use of biomass for cooking and heating," the report said.

The previous UPA government had decided in January 2013 to increase diesel prices in

small monthly doses until the difference between the retail price and the cost of production is bridged. The price of diesel in Delhi has gone up to 57.28 Rs/Ltr (June 01, 2014) from 50.25 Rs/Ltr (June 01, 2013). The latest petrol price in Delhi is 71.41 Rs/Ltr (April 16, 2014) while that of CNG is 38.15 Rs/Kg (May 03, 2014).

Although the gap between the price of diesel and petrol is slowly reducing yet the gap between number of diesel and petrol vehicles is not coming down.

In 2000, diesel cars accounted for only 4% of all car sales. Today, half the cars sold run on diesel, according to CSE report. Also, the price of a diesel vehicle normally costs much more than that of petrol. For example, the cost of Swift VXi-petrol is Rs. 6.34 lakhs on road while the cost of Swift VDi-diesel is Rs. 7.71 lakhs on road. Maruti which traditionally made petrol cars is now having 17 diesel car models in its showrooms.

There was a small advantage in Delhi's air quality after CNG was introduced but the rate of increase in diesel cars was just too fast for any significant change to occur. The monthly diesel price hikes of 40-50 paise a litre are likely to continue as the Narendra Modi government is keen to cut the subsidy bill, a top Oil Ministry official had said in an official statement. This is part of the fuel price rationalisation policy of the previous government. This year also saw one of the coldest winters.

MSU to hold seminar on environmental issues and climate change

Source : *The Times of India*

Date: 6th June, 2014

VADODARA: MS University's Department of Environmental Studies of Faculty of Science will organize a seminar on - Environmental issues and climate change - as part of the world environment day celebration - 2014.

The seminar will be organized in association with members of the Indian Association for Air Pollution Control, Central Pollution Control Board (west zone), Baroda chapter of ISCA, Vadodara chapter of Vigyan Parishad, the Baroda local center of the Institution of Engineers, the Indian Water Works Association and the Indian Environmental Association.

The seminar will be held on Sunday at Vasvik Auditorium from 10.30 am onwards.

MSU vice-chancellor professor Yogesh Singh has consented to be the chief guest.

Chairman of Biodiversity Board, Government of Gujarat, Dr J A Khan (IFS, APCCF), B R Naidu (additional director and zonal officer of CPCB), Babubhai C Patel (chairman of GIDC,

Gujarat), professor V S Patel (vice chairman of IWWA, Vadodara) have been invited as guests of honor at this celebration.

Professor A C Sharma, dean of MSU's Faculty of Science will preside over the function.

On Sunday, prizes for the elocution and drawing competition which were held on June 5 and June 6 as part of World Environment Day celebrations will be given to the winner participants by Singh.

Air we breathe is dense with pollutants

Source : *The Times of India*

Date: 6th June, 2014

LUCKNOW: Level of air pollution in the city is higher than it was in previous pre-monsoon assessments. Ambient air quality prior to onset of rains, according to report released by the Indian Institute of Toxicology Research on World Environment Day, does not bode well for health of Lucknowites.

"Pollutant concentrations in terms of respirable particulate matter (RSPM), including heavy metal (traces) nickel, in urban atmosphere of Lucknow has been found to be two to three times higher than national standards, while on the other hand, concentration of gaseous pollutants sulphur dioxide and oxides of nitrogen (SO₂ & NO_x) were well below the prescribed National Ambient Air Quality Standards (NAAQS) at all the locations," said the study report.

Talking to TOI, Dr Shyamal Chandra Barman head of environment monitoring division of IITR said, "continuous rise of population and growing urban activities, along with lack of suitable measures for air pollution control, are primary reasons for increase in air pollution."

He said "densely populated areas leave hardly any space in the city for air to circulate. Air pollution is caused by construction activities which contribute fine particles to the air. Diesel operated automobiles and metals used in making batteries like lead and nickel don't get dispersed in the air, raising the level of pollution."

"Contrarily, gaseous pollutants like SO₂ and NO_x have not increased because of technological upgrading and scientific knowhow to control them. Most vehicles are now fitted with scrubbers and eco-friendly devices," he added.

The assessment of ambient air quality in the city was carried out in Aliganj, Vikasnagar, Indiranagar, Gomtinagar, Charbagh, Alambagh, Aminabad, Chowk and Amausi, during April-May 2014 with respect to RSPM, SO₂ and NO_x." All locations recorded air pollution levels higher than prescribed national standards.

Senior cardiovascular surgeon at SGPGI Dr Nirmal Gupta said "Presence of lead and nickel will severely affect pregnant women, children and patients of asthma and cardiovascular problems and may even lead to chronic obstructive pulmonary diseases. Chances of lung cancer rise with increase in air pollution."

Do these DISTURBING IMAGES show the bitter truth of India?

Source : *Daily Bhaskar*

Date: 6th June, 2014



New Delhi: World Environment Day is celebrated every year on June 5 to raise global awareness for the need to take positive environmental action. The United Nations Conference on the Human Environment also began on the same day. The World's first Environment Day was celebrated on June 5, 1973.

According to a WHO study that was released recently, Delhi is the most polluted city in the world when it comes to air quality. According to a PTI report, the 2014 version of the Ambient Air Pollution (AAP) database contains results of outdoor air pollution monitoring from almost 1600 cities in 91 countries.

Dailybhaskar.com brings you some pictures of India that a Chinese website posted recently. (We do not take responsibility of these pictures. These were posted on a Chinese website chinaSMACK.com).

According to a Chinese website chinaSMACK, a writer has posted several pictures claiming them to be of India and has termed India to be the dirtiest country. He posted, "India is the dirtiest country I have ever been to. I have heard people say that Pakistan, which is to the west and Bangladesh, to the east, are worse, but that is probably beyond the limits of my imagination. In two months in India, I went from south to north, visiting some tourist towns that I had read about. I also went by train and bus to countless towns and open fields that weren't so famous, and everywhere there were people had something in

common — dirty, messy and stank. Interestingly, I also saw countless foreigners having a great time.”

The report said, “Tourists have been coming for years to the small town of Bodhgaya , the place where 2500 years ago Buddha achieved enlightenment, bringing their foreign money to the pockets of a few hotels and tourism operators, but still they live in abject poverty. The streets are lined with rubbish, wild animals squabble to find their breakfast in it. Look carefully and find wild pigs, dogs, mountain goats, and sometimes even cows, which are considered sacred, make an appearance. No wonder the locals don’t eat much meat, these animals depend on trash to survive.”

Many readers have commented on the article. One of the readers commented, “This kind of filthy country doesn’t think it is a shame but instead thinks it is glorious. Truly speechless.”

“How is India a democratic country? Would a democratic country divide society into four levels [castes]?” “There’s truly something wrong with Indian people.”

Huge cost of inaction on the environment

Source : *The Economic Times*

Date: 6th June, 2014

As the government prepares new policies for a better, more prosperous India, it would do well to take a look at a small report brought out by The Energy and Resources Institute (Teri) on the costs of environmental inaction.

It puts numbers to the cost that the nation bears on account of air pollution, unsafe drinking water and lack of sanitation, and to the scale of the problem of solid waste management as India urbanises. The cost of outdoor air pollution is estimated to be Rs 1,00,000 crore.

The World Bank estimates the cost of inadequate sanitation, working its way through contaminated drinking water, parasites that induce malnutrition, higher morbidity and mortality, lost days of work, lost education and productivity and forgone tourism earnings to be 6.4 per cent of GDP (evidently, the cost of girls getting abducted, raped and hanged has escaped the World Bank's calculations on inadequate sanitation). That is a whopping Rs 6,70,000 crore.

Given these kinds of costs, investing in, and tailoring policy for, reducing and mitigating water and air pollution would be an obvious choice. In rural areas, treatment of sewage is hardly ever seen as a problem.

It must be seen as a public health engineering challenge. The ongoing Nirmal Gram Yojana

to rid the country of open defecation must be enhanced. As the Teri report serves to highlight, a whole lot of pollution control policy has to do with better urban planning and design.

Mixed land use can minimise commutes, extensive deployment of efficient public transport can save a whole lot of energy, as can green building norms. Stepping up the share of renewables in overall energy generation and clean coal technology will address air pollution. Traditional stoves can be redesigned to reduce indoor air pollution. The point is to summon political will to do the eminently doable.

Air pollution may cause autism, schizophrenia

Source : *The Times of India*

Date: 6th June, 2014

A new study has revealed that exposure to air pollution early in life makes people highly prone to autism and schizophrenia.

Deborah Cory-Slechta, Ph.D. said that these findings raise new questions about whether the current regulatory standards for air quality are sufficient to protect our children. The research stated that air pollution is made up mainly of carbon particles that are produced when fuel is burned by power plants, factories, and cars and different-sized particles produce different effects like Larger particles are least harmful because they are coughed up but it is believed that smaller particles known as ultrafine particles which are not regulated by the EPA are more dangerous, because they can produce toxic effects throughout the body.

The assumption led Slechta to design a set of experiments that would show whether ultrafine particles have a damaging effect on effect on the brain, and if so, it will further help reveal the mechanism by which they inflict harm. Slechta had affirmed in her earlier study that the findings add to the growing body of evidence that air pollution may play a crucial role in autism, as well as in other neuro developmental disorders. The study is published in the journal Environmental Health Perspectives.

Eco day alert on air pollution

Source : *The Times of India*

Date: 6th June, 2014

GURGAON: A deadly pollutant, respirable suspended particulate matter (RSPM), has been found to be almost double the permissible limits in the city.

According to a scientist at the Pollution Control Board, the permissible limit of RSPM is 50

micrograms per cubic metre. However, it has been recorded above 100 micrograms per cubic metre in Gurgaon. The major causes of high RSPM are increasing usage of diesel generators, rapid construction and vehicular pollution. High RSPM can lead to respiratory diseases like asthma. Continuous exposure to it can also cause lung cancer and increases the risk of cardiac attack. "We receive at least 30 to 40 % cases of respiratory complaints in the OPD every day. Five to six patients come with chronic cough which persists for more than three weeks and does not respond to normal anti-allergens. This is definitely a matter of worry," said Dr Satish Koul of Columbia Asia Hospital.

Dr Tapan Ghosh, cardiologist at Paras Hospital said, "Compared to Delhi, cases of high blood pressure, respiratory and cardiac diseases are higher in Gurgaon. The main reason is that half of the city is under construction. Vehicular pollution is increasing. Besides, people don't step out as there are no good parks here. This has resulted in the limited exposure to Vitamin D which causes several diseases," he said.

Calling for more attention to the environment, Vivek Kamboj, who runs NGO Haryali, said, "Delhi has more parks than land for residential and commercial use. But in Gurgaon, we have more land which unfortunately is always sold to the builders."

Narendra Modi bats for cleaner, greener planet

Source : *IBN Live*

Date: 5th June, 2014

Prime Minister Narendra Modi on Thursday asked the people to serve as "trustees" in protecting the environment and utilising natural resources for the present while ensuring happiness of future generations.

On the occasion of the World Environment Day, he said there is a need to reaffirm the pledge to protect environment and make the planet cleaner and greener. "We are blessed to be a part of a culture where living in complete harmony with the environment is central to our ethos. Let us serve as trustees, where we utilise our natural resources for the present ~~~~ at the same time ensure happiness of future generations," Modi tweeted. He said along with government's efforts, people's participation can make a big difference in creating a cleaner and a greener planet. "Let us ensure that even the smallest step we take in our daily lives will be an effort towards conserving nature and natural resources," he said.

Tata Housing collaborates with sand artist Sudarsan Pattnaik to celebrate World Environment Day

Source : *Disha Diary*

Date: 5th June, 2014

Report by Odisha Diary bureau, Puri: Keeping in line with its vision to create awareness on



sustainable living, environment protection and ecological conservation, Tata Housing, India's fastest growing real estate Development Company tied up with the internationally renowned Sand Artist Sudarshan Patnaik to celebrate World Environment Day through his art work in Puri.

Based on United Nation's theme for World Environment day 2014, 'Raise your voice, not the

sea level' esteemed aartist Sudarshan created a unique sand sculpture depicting the importance of protecting the environment and building eco-friendly homes at Sudarsan Sand Art Institute, Puri. The objective of this initiative was to spread the message of conservation and enhancement of nature, raise awareness and encourage citizens to take action and help reduce the potential impacts of climate change.

Speaking on the Tata Housing's initiative, Mr. Rajeeb Dash, Head-Marketing, Tata Housing said, "As a member of the Tata Group, Tata Housing aims to abate climate change with a sense of shared responsibility and has started tracking its own carbon footprint in order to reduce carbon emissions. We at Tata Housing have pioneered the concept of sustainable living with development of green homes since it's revival in 2007. In-line with our continuous efforts towards conservation of nature and ecological growth, we have joined hands with Padma Shri Sudarshan Patnaik to create awareness about environment conservation through art." Tata Housing has always remained committed to environmental sustainability across the value chain and beyond. It is in our constant endeavour to optimise utilization of scarce natural resources and adopt latest eco-friendly technologies for construction. Tata Housing is the first real estate player to bring in the concept of biophilic design in India. An initiative of United Nations Environment Programme (UNEP), World Environment Day is an annual event that is aimed at being the biggest and most widely celebrated global day for positive environmental action.

SAFE celebrates World Environment Day with automobile dealers

Source : *The Times of India*

Date: 5th June, 2014

CHENNAI: The Society for Automotive Fitness & Environment (SAFE), an initiative by the Society of Indian Automobile Manufacturers (SIAM), celebrated the World Environment Day at 4,700 automobile dealers across the country on Thursday.

SAFE organized various activities related to environment safety and conservation with a pledge to spread awareness around environment protection, sustenance and eco-conscious growth.

It organized several mass awareness campaigns with specific focus on safety, environment and technology to promote safety and environment protection.

The specific activities, including free daylong PUC check-ups and issuing of free PUC certificates, were organized at various dealers across India to serve the purpose of protecting the environment by maintaining vehicles and minimizing pollution.

There were also other unique initiatives like drawing competition for kids and environment conservation tips to customers sapling distribution, tree plantations, green processions, awareness rallies, etc. which were conducted at the dealership outlets.

For effective organization of the camp, all dealers displayed material at individual workshop and were covered under a common environment day banner. These campaigns had active public participation and the involvement of several stakeholders like the Transport Department, Environment Department, Traffic Police, Research Institutes, NGOs, Petroleum Conservation Research Association, Municipal Corporation, and Automotive Component Manufacturers Association, apart from vehicle manufacturers.

Vishnu Mathur, director general, SIAM, said, "The Indian automobile Industry has always been committed to its care for the environment and it is our endeavour to enhance public awareness towards key environmental issues. SAFE firmly believes that the community education is a key contributor in this direction and all members come together to spread awareness about cleaner environment among vehicle owners and society as a whole. On the occasion of World Environment Day we expect enthusiastic response and support from vehicle owners to make it a huge success and hope that this initiative creates an impact ensuring proper maintenance of their vehicles while looking at safety."

S V Suderson, president, SAFE, said, "SAFE is proud to organize Free PUC Camp programmes during World Environment Day in association with automobile manufacturers and their dealers network with the objective of giving proper knowledge to customers for proper maintenance of their vehicles which will provide benefit to them as well as to environment. This activity is just a step further to our continuing commitment towards a clean and green environment initiative."

Various member companies that participated in the celebration of World Environment Day were Ashok Leyland, Bajaj Auto, Ford, General Motors, Hero Motorcorp, Honda Car India Ltd, Honda Motorcycle & Scooter India, Mahindra & Mahindra, Maruti Suzuki,

Renault Nissan, Tata Motors, TVS, Toyota Kirloskar and Skoda India amongst others.
Cleaning and protecting Ganga - a forgotten pledge
<p>Source : <i>The Times of India</i></p> <p>Date: 5th June , 2014</p>
<p>VARANASI: Every year people observe the World Environment Day on June 5 and pledge to protect the environment and keep the rivers clean but fail to follow it in a long run. Many people are not even aware of how they are harming the environment.</p> <p>People who come to take holy dip in the river Ganga use soap, wash clothes and also dump flowers and devotional articles knowingly and sometimes unknowingly causing great harm to a river they respect most.</p> <p>"What is wrong in it," wondered a man bathing at Dashashwamedh Ghat when asked as to why he was using soap in the Ganga. He was not alone but many people like him used soap without realizing that they were polluting the river. It seems that the call of new Prime Minister Narendra Modi, who promised to clean Ganga, went in vain.</p> <p>"Any activist that pollutes the river should be denounced and discouraged. Besides, the discharge of sewage and industrial waste, which adversely affect the river and its aquatic life, should be stopped," said Prof BD Tripathi, noted environmental scientist at Banaras Hindu University and expert member of National Ganga River Basin Authority (NGRBA), adding that the middle stretch of the Ganga from Haridwar to Varanasi is biologically very productive.</p> <p>A study conducted under Ganga River Basin Environment Management Plan by a consortium of seven IITs suggests that the productivity of the middle Ganga is due to the presence of higher concentration of nutrients, warm water and meandering river, flood plains and reduced flow velocities. According to the study on 'Floral and faunal diversity in middle Ganga segment from Haridwar to Varanasi,' it supports over 700 species.</p> <p>But, the study report of Japan International Cooperation Agency (JICA) suggests that the Ganga water is highly polluted between Kanpur and Varanasi.</p> <p>According to Tripathi, discharge of wastewater is the major reason behind the increasing pollution of the Ganga. In Varanasi alone, over 200 MLD untreated sewage is discharged into the river. Besides, the reducing flow is another factor that harms the river. "Proper policy should be adopted to increase water quantity and maintenance of ecological flow, rainwater harvesting, groundwater recharging, natural cleaning, extraction of water directly from the river and groundwater and land use near banks," said Tripathi further adding that there was also an urgent need to educate people about the protection of river and environment</p>

Now, house roof tiles to fight air pollution

Source : *Business Standard*

Date: 5th June , 2014

An innovative and inexpensive way to fight air pollution has been developed - a roof tile coating that removes up to 97 per cent of smog-causing nitrogen oxides.

A team of University of California, Riverside's Bourns College of Engineering students created a new titanium dioxide roof tile coating that when applied to an average-sized residential roof breaks down the same amount of smog-causing nitrogen oxides per year as a car driven 17,703km.

They calculated 21 tonnes of nitrogen oxides would be eliminated daily if tiles on one million roofs were coated with their titanium dioxide mixture.

They also found it would cost only about USD 5 for enough titanium dioxide to coat an average-sized residential roof.

Nitrogen oxides are formed when certain fuels are burned at high temperatures. Nitrogen oxides then react with volatile organic compounds in the presence of sunlight to create smog. Currently, there are other roofing tiles on the market that help reduce pollution from nitrogen oxides. However, there is little data about claims that they reduce smog.

The students set out to change that. They coated two identical off-the-shelf clay tiles with different amounts of titanium dioxide, a common compound found in everything from paint to food to cosmetics. The tiles were then placed inside a miniature atmospheric chamber that the students built out of wood, Teflon and PVC piping. The chamber was connected to a source of nitrogen oxides and a device that reads concentrations of nitrogen oxides. They used ultraviolet light to simulate sunlight, which activates the titanium dioxide and allows it to break down the nitrogen oxides.

They found the titanium dioxide coated tiles removed between 88 per cent and 97 per cent of the nitrogen oxides. They also found there wasn't much of a difference in nitrogen oxide removal when different amounts of the coating were applied, despite one having about 12 times as much titanium dioxide coating.

Survey shows pollution still plaguing India's financial capital

Source : *Channel New Asia*

Date: 5th June , 2014

MUMBAI: A survey has painted a grim picture of the state of pollution in India's financial capital. Of more than 80,000 industries surveyed in Mumbai, 23 per cent "were air

pollution prone" and 21 per cent "were water pollution prone".

Residents are calling for stronger action from the government and polluters to clean up the situation.

India's financial capital Mumbai has been battling high levels of air pollution -- a major source of which is the construction industry.

Some residents feel it can only be countered with regulation.

"This construction activity and demolition activity creates a lot of dust... and people are facing this pollution," said Kundali Kishan Kamble, a resident of Mumbai.

"This pollution can be reduced by the contractor, by the owner, by the builder, or the government agency. They should formulate some rules so that this dust can be reduced by any means."

Water pollution is another concern, particularly with the impending monsoon season.

"The gutters get blocked by garbage, and there's a lot of overflow, and we have to cross that water when we go out," said Sainaz Bilakhia, also a Mumbai resident.

"During the rainy season disease becomes more prevalent, because of all the standing water, and then we have to walk in it... That causes a lot of difficulty."

Fellow Mumbai resident Mariam Raees Khan said: "Children fall ill; the elderly are also vulnerable... There should be some control over this. Every year there's flooding. This year something different should be done about it." But even as Mumbai authorities tackle air and water pollution, there is also noise pollution to consider.

A survey has found that noise pollution in Mumbai -- as well as in five other major cities in the state of Maharashtra -- exceeded permissible limits for two consecutive days last year.

This may be a harder problem to resolve as India tries to balance the needs of the environment with the needs of a growing economy.

For greener India, public participation is important says PM Narendra Modi on World Environment Day

Source : *DNA India*

Date: 5th June , 2014

Prime Minister Narendra Modi took to twitter and expressed his keen desire to witness a public-government participation in future to handle the issue of damage to environment in India. On occasion of 'World Environment day', Modi said, "We are blessed to be a part of a culture where living in complete harmony with the environment is central to our ethos." India's tryst with environment problems continues as Public Health index witnesses increase in ailments with increasing scale of pollution. New delhi was rated as



one of the worst polluted cities to live in across the globe recently.

According to reports, outdoor air pollution has become the fifth largest killer in India after high blood pressure, indoor air pollution, tobacco smoking and poor nutrition, according to a Global Burden of Disease (GBD) report. The report says that about 620,000 premature deaths occur in India from air pollution-related diseases. It also highlights that annual premature deaths caused by particulate air pollution have increased by six times since 2000 and accounts for one fifth of global deaths. Hence a strong emphasis on restoring and safe-guarding environment is critical for India as various civic activist groups and citizens seek environment safety over development in Delhi. An environment survey, conducted by The Energy and Resources Institute (TERI) across eight cities recently has revealed that over 50% of respondents in the national Capital favour prioritizing environment over development as against 44% of their counterparts in Mumbai and 19% in Pune. More people in Mumbai and Pune feel that environment and development can go hand in hand according to the report.

With public awareness and questioning, even BJP's manifesto spoke largely about environment safety. The biggest agenda was set for safe-guarding and cleaning up the massive 'Ganga river'. Uma Bharti has been charged with the responsibility to dispense duty in Ganga cleansing and restoration efforts.

Time to clean up Mumbai's air

Source : DNA India

Date: 5th June , 2014



Burning of leaves and a dead tree right in the middle of WEH are perfect examples of lack of greenery in the city *Swapnil Sakhare, Puneet Chandhok dna*

Only 10 days between January1-June4, 2014, the air samples collected by the air quality monitoring station of Maharashtra Pollution Control Board (MPCB) at Sion, were found to have the levels of Respirable Suspended Particulate Matter (RSPM) falling in the

prescribed standard of 100 ug/m³. That means on remaining days, the air you breath was loaded with pollutants, much above the prescribed standards. Going by the data updated by the MPCB on its official website for the Mumbai Sion staation, out of 119 days on which the air quality standards were measured, on 109 days the RSPM levels consistently remained much higher than the prescribed standard to the extent of touching up to 370 ug/m³ during winters. Not just that, even the levels of Nitrogen Oxide in the air has been on a much higher side than the prescribed standard of 80 ug/m³ throughout the first three months of the year. The results are just marginally better for the Bandra station, which is closer to the sea and witness more wind action. The RSPM levels here were found in control on close to 25 days for the same period between January -June 4. Experts, however, say the real test for the air quality is required to be done closer to the Western Express Highway (WEH), particularly on the Borivali side, which is expected to be the most polluted part of the city. However, the MPBC only updates data collected from the two stations situated in Sion and Bandra, which are directly managed by it. But a recent study conducted by three city professors throws alarming facts about the air quality around Borivli region of WEH. The stretch was found to be most polluted as it see the highest traffic density with 76 vehicles crossing the test spot every minute as against the 27 vehicles a minute at Marine Drive, which has the lowest presence of dust particles in the air. The study was a part of a research paper accepted by the international journal, Annals of Plant Sciences, in May this year.

"This is where the unhappiness starts. The MPCB is merely fulfilling a formality by updating the air quality standard monitored at Sion and Bandra alone. The two spots cannot represent the entire city. Moreover, there is no questioning on how this data is collected? What mechanism is used?," said Rishi Aggarwal, a leading environmentalist. Experts also blame heavy "unchecked" construction activities as one of the major factors that adds to the air pollution. "In most developed countries of Europe, North America and Australia, government imposes a heavy penalty on builders if the construction remains are left unattended during or after the construction work. It is the lack of a stringent law in India that makes it so easy for builders to get away despite adding so much nuisance to the air," said Aggarwal.

Also, in most developed countries the vehicles loaded with construction materials are sprayed with a chemical dust suppressant, which restricts the dust particles from re-suspending in the atmosphere, added Rakesh Kumar, scientist and head, Mumbai zonal center of National Environmental Engineering Research Institute (NEERI).

Despite repeated attempts MPCB officials could not be contacted.

Ambient air quality in residential areas at major monitoring stations, January - December, 2013, released by govt in Economic Survey of Maharashtra on June 4, 2014

Station	Sulphur dioxide	Nitrogen Oxide	Respirable suspended particulate matter	Limit
Mumbai	9.1	116.9	137.9	(Sion)

Health impact of air pollutants

The level of effect mostly depends on the length of time of exposure, as well the kind and concentration of chemicals and particles exposed to. Broadly the effects are divided into two sub-heads:- Short-term health effects include irritation to the eyes, nose and throat, and upper respiratory infections such as bronchitis and pneumonia. Others include headaches, nausea, and allergic reactions. Short-term air pollution can aggravate the medical conditions of individuals with asthma and emphysema. Long-term health effects include chronic respiratory disease, lung cancer, heart disease, and even damage to the brain, nerves, liver, or kidneys. Continual exposure to air pollution affects the lungs of growing children and may aggravate or complicate medical conditions in the elderly.

KNOW YOUR FACTS

A recent WHO report reveals that in 2012 around 7 million people died - one in eight of the total global deaths – as a result of air pollution exposure. Air pollution is the fifth leading cause of death in India, after high blood pressure, indoor air pollution, tobacco smoking and poor nutrition, revealed an analysis done by the Centre for Science and Environment's (CSE) based on government data. The 2013 report found 620,000 premature deaths occurring in India due to air pollution-related diseases. Increasing air pollution has an impact on global climate change. "Growing air pollution in mega cities is adding to the global climate change. The carbon dioxide and particulate matter, which are added to the atmosphere due to vehicular use is directly responsible for global warming," said Dr Rakesh Kumar of NEERI. In most developed countries of Europe, North America

and Australia, government imposes a heavy penalty on builders if the construction remains are left unattended during or after the construction work. The construction dust is one of the major contributor of the air pollution.

An Environmental Agenda For The New Government

Source : *Business World*

Date: 5th June , 2014

As far as air pollution is concerned, India sits on a ticking time bomb. Thirteen out of the 20 worst polluted cities across the world are in India

The NDA government need to have a proactive and positive environment agenda. It must strengthen environmental oversight and not weaken regulations and must go beyond clearance of projects to take urgent steps for fixing air and water pollution as well as sanitation and regeneration of forests and water bodies and provide access to clean energy to all, said the Centre for Science and Environment (CSE) on the eve of the World Environment Day.

“On the eve of this World Environment Day, we are presenting our agenda for urgent action that we hope the new government will take on. We need to move beyond the rhetoric of environmental protection to implementing a tough action plan for change and this is what we want the government to do,” said Sunita Narain, director general of the New Delhi-based research and advocacy body and think-tank Centre for Science and Environment (CSE) in New Delhi on 4 June.

Narain was releasing an ‘Environment and Development Agenda’ for the newly elected NDA government at the Centre. This agenda is based on years of research by CSE on key environmental challenges.

Asserted Narain: “This agenda, we believe, will give us what we have always fought for -- an inclusive, sustainable growth. It will also show us how concerns of environment and development can be taken care of together, without being in opposition to each other. It is important that the new government has a proactive and positive agenda for environmental change.” Clean the air

As far as air pollution is concerned, India sits on a ticking time bomb. Thirteen out of the 20 worst polluted cities across the world are in India, according to a recent World Health Organization study. An estimate by the World Bank shows that the health cost of particulate matter pollution accounts for 3 per cent of the country’s GDP.

So what should the nation do? CSE’s advice is:

- Introduce Bharat Stage IV fuel and emission standards across the country by 2015.

Advance the roadmap for clean fuel and emission standards to leapfrog to Euro VI by 2019-2020. • Implement a favourable taxation policy for promoting clean fuels like CNG and in Budget 2014, introduce a tax on diesel vehicles. • Increase Central funding substantially to scale up affordable modes of public transport system in cities. Introduce the 'million bus programme' and make the right to walk and cycle non-negotiable. • Restrict the use of personal vehicles by introducing higher taxes and use the urban reform agenda for higher parking charges Healthy rivers are crucial

Every river in India is like the Ganga -- either dying or already dead-- as cities take water from them and return sewage, and industries discharge effluents into them. The strategy of river cleaning by building sewage treatment plants has proved to be inadequate. The Ganga revival programme will only work if we learn to do pollution control differently. Reinventing the strategy for river pollution control is the agenda, not cleaning rivers in the business as usual mode.

This is what the government needs to do to plug the gap • Make ecological flow mandatory in all stretches of a river. • Accept that urban areas cannot build conventional sewage networks at a required pace. • Ensure treated effluent is reused or discharged directly into rivers for dilution. • Go for affordable water and sanitation solutions. • Design a garbage disposal system to segregate waste and make a resource out of it. • Learn that controlling industrial pollution demands effective enforcement of laws and appropriate technologies for small-scale industries. • Aggressively implement the national sanitation programme – make it a top governmental priority. Make it clear that toilets are more important than temples. Reinvent the way green clearances are managed

Says Chandra Bhushan, deputy director general of CSE, "The new government must reform and strengthen the environment management systems and green clearance processes to safeguard people's concerns, and we have a prescription on how they can do it."

- Consolidate all green clearances – environment, forests, coastal and wildlife -- so that decisions can be taken understanding the overall impact of projects. • Instead of several regulators, set up an independent body to grant green clearances. • Utilise the resources of State Pollution Control Boards (SPCBs) to monitor compliance with clearance conditions. Focus on project monitoring, not just project clearance. • Build capacity and reform institutions for better implementation of regulations. Immediately strengthen pollution control boards. • Strengthen the process of public hearings and public participation in green clearances. Make these processes more transparent and accountable. • Set up urgent task force to look at how enforcement and penalties for

environmental non-compliance can be vastly strengthened. Need tough action that hurts. Not words. Harnessing the development potential of the Forest Rights Act

Ensuring livelihood and food security of the poorest of the poor is at the core of this legislation. Seven years on, the Act is yet to live up to expectations. The new government must implement FRA in letter and spirit and include it in its key development agenda, says CSE.

- Implement the next phase of FRA focusing on community forest rights and forest regeneration with people.
- Introduce minimum support price for all minor forest produce and make it a mission to bring livelihood benefits of forests to people.
- Provide new direction for forest protection that builds green wealth in the hands of people; measure and account for forest wealth in order to provide protection to natural habitats and to share wealth with people and build an effective agenda for co-existence, so that benefits of conserving wildlife are shared with local people and conservation is durable and effective

Tap renewable energy to ensure energy access

About 306 million Indians, mostly in rural areas, do not have access to electricity. Though energy access issues need to be addressed, coal-based power generation is the largest source of carbon emissions in the country. The new government must strike a balance between energy security and its impact on health and climate.

- Work to achieve the goals of the Rural Electrification Policy to provide at least one unit (1 kiloWatt-hour) of electricity per day to every rural household by 2019.
- Frame policies so that the share of renewable energy increases from 3 per cent to 25 per cent by the end of the 12th Five Year Plan.
- Frame a policy for decentralised energy generation through mini-grids so that clean energy can be used to bring energy access to millions without lights. Use the Clean Energy Funds for this clean energy revolution.
- Frame a policy for roof top solar so that people can bring in the new revolution from their homes.

Rural development

Programmes for rural development are in place -- the challenge is to match the UPA's rural development budget and to fix the shortcomings in the delivery of development benefits to the right people.

- Reform MGNREGA for development so that assets are created and employment is used productively.
- Build climate resilience and water security through the MGNREGA programme. Focus on how water harvesting systems can be used for food, nutrition and livelihood security in an increasingly climate-at risk world.

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World Environment Day 2014: Top Five Most Polluted Countries

Source : *International Business Times*

Date: 5th June , 2014



May 24, 2013: A man bathes in part of the Yamuna River polluted by industrial waste, on the outskirts of New Delhi. Half of the 20 most polluted cities in the world are in India
Daniel Berehulak/Getty Images

To celebrate the World Environment Day on 5 June, a day designated by the UN to raise awareness of environmental issues, IBTimes

UK looks at some of the countries with the highest rates of pollution.

According to World Health Organisation (WHO) air pollution - both indoor and outdoor – is the leading cause of death worldwide.

The main causes of pollution are: uncontrolled emissions from motor vehicles, dust, industrial waste, garbage, brick kilns, cooking stoves, burning of wood, coal and biomass.

WHO examined the concentration of fine particulates - tiny pieces of solid or liquid matter suspended in the atmosphere - of 2.5 micrometres or less in diameter (PM_{2.5}).

These particulates are small enough to pass into the bloodstream and cause diseases such as emphysema and cancer.

PM 2.5 is the best indicator of assessing health impacts from air pollution.

The concentration of air pollution is measured in micrograms per cubic metre of air (ug/m³).

India

The levels of air pollution in Delhi were measured at 163 ug/m³ - the worst air conditions in the world.

This concentration of air pollution is far greater than what is usually considered safe.

"Too many urban [centres] today are so enveloped in dirty air that their skylines are invisible," Flavia Bustreo, WHO Assistant Director-General for Family, Children and Women's Health, said.

Half of the top 20 cities in the world with the highest levels of PM_{2.5} are in India, according to WHO.

Bangladesh

The Bangladeshi city with the highest air pollution rate was Narayonganj with a rate of 89 ug/m³, followed by Gazipur (87 ug/m³) and Dhaka (86 ug/m³).

An estimated 15,000 premature deaths, as well as several million cases of pulmonary,

respiratory and neurological illness are attributed to poor air quality in Dhaka, according to the Air Quality Management Project (AQMP), funded by the government and the World Bank.

Pakistan

The Pakistani city with the highest pollution levels was Karachi, which is the fifth city with the worst level of air pollution (117 ug/m³). Peshawar (111 ug/m³) and Rawalpindi (107 ug/m³) came in at 6th and 7th respectively.

"Pakistan has one of the highest childhood death burdens in the world, and pneumonia is the main single cause of death. As a contributor to the pneumonia burden, the country has a significant indoor air pollution (IAP) problem," WHO said.

Iran

Iran city with highest level of air pollution was Khoramabad with a PM2.5 average of 102 ug/m³. It was ranked 8th in a list of cities with high air pollution.

According to city officials, some 270 people die each day from blood cancer, heart and respiratory diseases, and other pollution-related illnesses.

Qatar

The air in the country's capital, Doha, was ranked 12th most polluted, with a PM2.5 of 93 ug/m³. Al Wakrah came was 25th with 85 ug/m³.

According to a 2013 research by Qatar University, the level of fine particles in the air in Qatar is almost six times above the permissible limit.

Indian environment minister observes environment day, gifts plants to co-ministers

Source : *Business World*

Date: 5th June , 2014

On World Environment Day, Indian Minister for Environment Prakash Javadekar said that people should preserve environment for future generations.

"Today is World Environment day: Let's take oath to put collective efforts to make the Environment Safe & Sustainable," Javadekar tweeted.

"Let's preserve the Environment, Let's secure the future," he added.

Javadekar also voiced his concern for the coming generation, and asked the masses to protect the environment. "Healthy Environment is our gift to the children. Let's protect Our Environment! ," he tweeted. India's tryst with environment problems continues as Public Health index witnesses rise in ailments with increased level of pollution. New Delhi was rated as one of the worst polluted cities to live in across the globe recently. According to reports, outdoor air pollution has become the fifth largest killer in India after

high blood pressure, indoor air pollution, tobacco smoking and poor nutrition, according to a Global Burden of Disease (GBD) report. The report says that about 6,20,000 premature deaths occur in India due to air pollution-related diseases. It also highlights that annual premature deaths caused by particulate air pollution have increased by six times since 2000 and accounts for one fifth of global deaths.

Govt panel proposes cess of 75 paise per litre on petrol, diesel

Source : *Live Mint*

Date: 4th June , 2014

New Delhi: A high-level government panel has proposed sharing the burden of stricter green fuel norms with consumers by imposing a cess of 75 paise per litre of diesel and petrol.

India plans to introduce the stricter Bharat Stage V emission norms across the country by 2020 to curb growing air pollution. With Rs.80,000 crore to be spent for upgrading refineries to meet the stricter fuel emission norms, the panel on automobile fuel emissions standards has recommended imposing the “special fuel upgradation cess”.

The panel, formed in December 2012 to revise India’s auto fuel emission standards, submitted its report to the petroleum ministry on 3 May. The Bharatiya Janata Party (BJP)-led National Democratic Alliance government will have to take a call on the report.

Petrol now costs Rs.71.41 per litre in Delhi and diesel is sold at Rs.57.28 per litre.

According to documents reviewed by Mint, the cess to be levied on all petrol and diesel sold in the country and collected by Oil Industry Development Board would create a corpus of around Rs.64,000 crore between 2014-15 and 2021-22.

This fund would then be used to lend to refiners at concessional rates with extended loan tenures of more than 10 years.

“India will move to Bharat Stage IV emission standards by 2017, which is equivalent to Euro IV standards. The Bharat Stage V emission standards will be in place by 2020-21, subject to the availability of the fuel,” said a senior government official requesting anonymity.

“This will require an investment of around Rs.80,000 crore for the upgradation of refineries, of which Rs.20,000 crore will be towards gasoline (petrol) and Rs.60,000 crore for diesel. Some refineries are already producing fuel which ranges from 20% to 50% of the Bharat Stage IV emission standards. This has to be upgraded to 100%,” this official said.

Such a transition would strengthen India’s stand at climate change negotiations.

According to a recent World Health Organization (WHO) study, India is home to 13 of the

world's 20 dirtiest cities based on air quality.

In comparison, Euro V standards have been in place in Europe from 2009-10, with Euro VI standards to be implemented from 2014-15, which will require improvement in vehicle technology such as filters and efficient catalytic convertors.

India has a refining capacity of 215 million tonnes per annum (mtpa) through 22 refineries and has become a refining hub, ranked fourth in the world. This is expected to increase to 310.9mtpa by 2016-17. India is a net exporter of petroleum products such as petrol, diesel, jet fuel and naphtha.

Bharat Stage V standard specifies a maximum of 10 parts per million (ppm) of sulphur in fuel as against 50ppm in Bharat Stage IV and 150ppm in Bharat Stage III. Sulphur in fuel makes it dirtier and lowers the efficiency of catalytic converters that control emissions.

Going forward, the plan is to implement Bharat Stage VI standards by 2024, which will require automobile manufacturers to put in place technological improvements.

While the WHO study has been challenged by the government, automobile fuel emissions are seen as a leading cause of deteriorating air quality.

According to the International Energy Agency (IEA), the world will need \$48 trillion in investment to meet its energy needs to 2035 with investment decisions increasingly being shaped by government policy measures and incentives.

"Today's annual investment in energy supply of \$1.6 trillion needs to rise steadily over the coming decades towards \$2 trillion. Annual spending on energy efficiency, measured against a 2012 baseline, needs to rise from \$130 billion today to more than \$550 billion by 2035," IEA said on Tuesday at the release of an investment report, part of the World Energy Outlook series.

"The reliability and sustainability of our future energy system depends on investment," said Maria van der Hoeven, executive director of IEA, in a press statement.

"But this won't materialize unless there are credible policy frameworks in place as well as stable access to long-term sources of finance," she added.

'Mumbai is noisiest city in the world'

Source : *The Times of India*

Date: 4th June , 2014

MUMBAI: Mumbai is hostage to air and water pollution at dangerous levels, and is probably the noisiest city in the world, ahead of Delhi and Kolkata. Maharashtra's economic survey, released a day before World Environment Day (Thursday), paints a grim picture for the rest of the state as well. Of particular concern is growth in solid waste, which needs incineration, against a decline in waste that is recyclable or can be used as

landfill. This is a threat to soil and groundwater.

"The data shows that the city is the noisiest in the world and poses a serious threat to one's ears, brain and heart. Almost every area in Mumbai has high sound levels. The administration should have the strong will to implement a stringent enforcement mechanism," said environmental activist Sumaira Abdulali.

Air pollution has serious health implications, including strokes and heart attacks, and in extreme cases lung cancer, said Dr Altaf Patel, former professor at J J Hospital and presently a director of medicine at Jaslok Hospital. "The more you breathe fresh air, the more is your life expectancy," he said. "As for water pollution, especially by heavy metals, it can lead to heart attacks and cancer, besides causing hypertension and mental disturbance."

Skoda Auto India to organise free pollution check

Source : *Over Drive*

Date: 4th June , 2014

Skoda Auto India will be holding a free pollution check program on June 5, 2014 to mark World Environment Day. Skoda owners can avail this opportunity to get their cars checked at any of the 88 sales outlets across the country. The event will be a follow up on a similar camp carried out by the auto maker last year.

Apart from checking equipment, there would also be arrangements for engine clean-up. Furthermore, customers visiting this camp will be entitled to free PUC certification for their vehicles from Skoda and SIAM (Society of Indian Automobile Manufacturers).

Still need more reasons to get your car checked? Air pollution is currently the fifth largest killer in India. Of this almost one-third can be attributed to automobile exhausts. This is known to cause more than five lakh fatalities every year. So even if you don't own a Skoda, we recommend that you get your car checked as soon as possible.

Skoda India announces free pollution check on Environment day press release

ŠKODA Auto India announces "Free Pollution Check" program on the World Environment Day

Mumbai June 02, 2014: To commemorate the World Environment Day, ŠKODA Auto India in association with SIAM announces "Free Pollution Check" program on June 5th 2014. Aimed at spreading awareness on environment, this initiative by ŠKODA India substantiates company's commitment towards the society and the environment. ŠKODA customers can get a "Free Pollution Check" done on June 5th at any ŠKODA dealership across the country.

The "Free Pollution Check" will incorporate emission checking equipment and devices to

clean the engine. The customers availing of the unique initiative will be assisted by technical personnel at the ŠKODA Auto dealerships across India.

All ŠKODA dealers have pledged to actively participate by giving their valuable tips on car maintenance and longevity. ŠKODA customers visiting the "Free Pollution Check" camp will be entitled to a free PUC certificate by the ŠKODA Auto dealers in association with SIAM.

Delhi air pollution: Breathe at your own risk!

Source : Zee News

Date: 4th June , 2014

"There`s so much pollution in the air now that if it weren`t for our lungs there`d be no place to put it all". -Robert Orben

The quote speaks volumes about the sheer magnanimity of the `dreadful` times we are living in. Recent studies and analysis of the air which we breathe in, present a very disturbing picture and shocking data.



As per WHO (World Health Organisation) study, our very own Delhi has earned a not so very admirable tag. Delhi is the number one, but for all the wwrong reasons. New Delhi has been rated as the world`s worst city for air pollution, with an annual average of 153 micrograms of small particulates, known as PM

2.5, per cubic metre.

Adding to the complete picture, India has slipped 32 ranks in the global Environment Performance Index (EPI) 2014 to rank a lowly 155.

The high PM 2.5 pollution caused by high vehicle density and industrial emissions is the reason for the dense smog that has been engulfing Delhi and has adverse health implications.

Carbon monoxide (CO) is touching 6,000 microgram per cubic metre- way above the safe level of 2,000 microgram per cubic metre. Levels of nitrogen dioxide (NO2), though lower than the standard in most areas as yet, have also been increasing marginally.

Delhi, with 8.1 million registered vehicles, has repeatedly beaten Beijing on particulate matter pollution. The city adds over 1,000 new personal vehicles each day on its roads. Also the rider ship on Delhi buses are constantly decreasing. Growing traffic on city streets is a major cause of air pollution.

As per environmentalists, the number of vehicles has increased exponentially and the number of diesel vehicles has grown. Diesel is particularly, extremely toxic. It is also the

key reason why there are such high levels of particulate pollution in the city of Delhi. Diesel vehicles are known to emit higher smoke, particles and NO_x than their petrol counterparts. According to WHO and other international regulatory and scientific agencies, diesel particulates are carcinogens. Even the so-called 'clean' diesel running on fuel with 350 ppm of sulphur, allows higher limits for NO_x and particulate emissions compared to petrol cars.

Due to this adverse environmental health hazard, health of Delhiites is seriously at risk. Statistics reveal that as many as 10,000 people a year may die prematurely in Delhi as a result of air pollution. A 2013 study found air pollution to be the fifth largest killer in India, causing more than 600,000 premature deaths -- up six times from 2000.

Doctors have been witnessing an increased number of cases of respiratory disease which they attribute to air pollution. There has been rising number of cases of respiratory diseases, especially in children. Air pollution also leads to the possibility of organ malfunction in new born babies if expectant mothers are exposed to pollution for a prolonged time.

If the above factors didn't outrage you, think again and act! Evo Morales has very well predicted our fate: "Sooner or later, we will have to recognise that the Earth has rights, too, to live without pollution. What mankind must know is that human beings cannot live without Mother Earth, but the planet can live without humans."

Do you want your future generations to struggle in this unbreathable air? Do you want to hear the noise of incessant coughing instead of roaring laughter? If your answer is no, take a pledge to do what each of you can for your environment. Even a small action counts. Make it happen.

Sikkim at forefront of environmental protection: Governor

Source : *Business Standard*

Date: 4th June , 2014

On the eve of World Environment Day, Sikkim governor Shrinivas Patil today said the Himalayan state was leading in protecting the environment.

"It is indeed heartening to note that the small state of ours and its people, over the years are in the forefront to the cause of environmental protection and preservation," Patil said in a statement.

The sustained green initiatives and policies taken by the state government over the last two decades, he said transformed Sikkim into a champion state in the country toward this cause.

Patil pointed out that green initiatives such as 'Ten Minutes to Earth' pioneered by the

state resulted in massive increase in forest cover.

The regular feature of Sikkim's schools receiving prestigious green awards from national and international platforms over the last five years only reflected the inclusive and sustained campaign with eco-friendly policies of the state government, the Governor added.

China to remove over 5 million cars to cut air pollution

Source : *Autocar India*

Date: 1st June , 2014

The Chinese government is planning to remove over five million vehicles that are past their shelf lives in 2014 in an effort to improve the quality of air in the country. About 330,000 cars are set to be decommissioned in Beijing alone.

A Reuters report noted from a Chinese government document that as many as 5.33 million vehicles that fail to meet fuel standards of the country will be “eliminated” this year. Apart from 330,000 cars to be removed from Beijing roads, another 660,000 will also be withdrawn from Hebei, one of China’s seven most polluted cities in 2013.

The Chinese government has also set new targets for closure of coal-fired heating systems and have installed equipment to reduce sulphur dioxide and nitrogen oxide emissions at power stations, steel mills and cement plants.

China aims to cut carbon emissions per unit of economic growth by more than 4 percent this year and more than 3.5 percent in 2015 as it tries to meet a binding 17-percent target set in its 2011-2015 five-year plan.

While many Indian cities ban the operation of vehicles (including taxis and buses) that are over 15 years old, the addition of new cars continues to add to air pollution in cities like Delhi and Mumbai. What worsens the situation is that the lack of monitoring of in-use vehicles.

New Delhi still remains one of the worst affected cities despite being the only one in which public transport has shifted totally to CNG thanks to a Supreme Court order of 2004

Friday's storm shoots up air pollution levels in Delhi

Source : *The Times of India*

Date: 1st June , 2014

NEW DELHI: Friday's storm has raised pollution levels particularly PM10 (coarse particles) dramatically.

PM10 levels rose from 168 microgram per cubic meter on Thursday to 230 microgram per

cubic meter on Saturday.

There was no significant increase in PM2.5 (fine, respirable particles) on Saturday, which was about 120 microgram per cubic meter-way higher than the standard of 80 microgram per cubic metre. "Every year PM10 levels go up during dust storms. But this dust was not coming from Rajasthan. It was blown from the Indo-gangetic region. The brief rainfall on Friday was not enough to wash away the particles. That is why we saw a huge rise in PM 10 levels on Saturday. This condition will prevail till Monday unless there is heavy rainfall," said Gufran Beig, chief project scientist, System of Air Quality Weather Forecasting and Research (SAFAR).

Hookah bars have higher indoor air pollution

Source : *The Times of India*

Date: 30th May , 2014

Are you a frequent visitor to one of those hookah bars that have mushroomed in the city? Beware that those closed spaces have elevated levels of carbon monoxide and nicotine - diminishing the air quality to a great extent.

In an analysis of air quality in seven Baltimore hookah bars, researchers found that airborne particulate matter and carbon monoxide exceeded concentrations previously measured in public places that allowed cigarette smoking and that air nicotine was markedly higher than in smoke-free establishments.

"There is a mistaken notion that tobacco smoking in a water pipe is safer than cigarettes," said Patrick Breyse, a professor from the institute for global tobacco control at the Johns Hopkins University's Bloomberg school of public health.

"Our study found that waterpipe smoking creates higher levels of indoor air pollution than cigarette smoking, placing patrons and employees at increased health risk from second-hand smoke exposure," Breyse cautioned.

Indoor airborne concentrations of PM2.5 and carbon monoxide were markedly elevated in Baltimore waterpipe cafes, confirming that waterpipe smoking severely affects indoor air quality.

Air nicotine concentrations were also elevated and markedly higher than levels previously found in smoke-free bars and restaurants.

"We need to educate users about the hazards of water pipe use and tobacco control policies need to be strengthened to include water pipes," said Christine Torrey, a senior research specialist in the department of environmental health sciences at Johns Hopkins.

The study appeared in the Journal of Exposure Science and Environmental Epidemiology.

Delhi to have bad air quality for the next three days

Source : *IBN live*

Date: 29th May , 2014



New Delhi: The MET department on Friday predicted bad air quality in the national capital for the next three days. System of Air quality Forecasting And Research (SAFAR), a constituent of Indian Institute of Tropical Meteorology (IITM), recorded PM10 level as 164 microgram per meter cubic while PM2.5 (particulate matters less than 2.5 microns in size)

level was 98. PM2.5 level should be around 40 and PM10 level should be around 60 microgram per meter cubic. These levels are likely to increase as the department has forecast "dust storm" for the next two days with temperature to be 42 degrees Celsius. The national capital has the highest concentration of PM2.5 form of air pollution, which is considered most serious. PM2.5 can easily enter the body through inhaling. It can cause chronic bronchitis, lung cancer and heart disease. A massive thunder storm coupled with dusty winds hit the national capital this evening severely affecting road traffic, metro services, flight operations and power supply. Met department termed the storm as "cumulonimbus" and attributed it to western disturbance over Pakistan. NCR areas of east Delhi, Noida and Ghaziabad were most affected by the storm.

10-day delay in monsoon, Indian Institute of Tropical Meteorology says

Source : *The Times of India*

Date: 28th May , 2014

PUNE: The monsoon is likely to be delayed by 10 days, according to scientists at the Indian Institute of Tropical Meteorology (IITM) here. The IITM's third experimental real-time forecast says that a feeble monsoon will reach central India after June 20 as against the usual June 15. Last year, the monsoon had covered the entire country by June 15.

The scientists had earlier forecast that the southwest monsoon would set over Kerala on June 3. "The low pressure system currently over the Bay of Bengal will move northwards and dissipate after May 30. It was this low pressure system that caused the present heavy rainfall in Orissa, Bihar and West Bengal. These heavy pre-monsoon showers will continue for another two days in these parts. Once the low pressure system over the Bay of Bengal dissipates, pre-monsoon showers in these parts will diminish," an IITM scientist said.

The scientist, however, said that the pre-monsoon showers in Pune on Tuesday had nothing to do with the low pressure system over the Bay of Bengal.

With the advent of supercomputers, the IITM is developing, upgrading and modernizing the long sought-after ERPS (Extended Range Prediction System) with the help of state-of-the-art operational climate models under the National Monsoon Mission. As a result of this, it has come up with an experimental real-time forecast of the active-break spells of the monsoon for up to 20 days in advance.

Consistent with the IITM forecast given on the basis of the conditions on May 16, the recent forecast indicates that the monsoon will reach the Kerala coast by June 3. Rainfall will be confined to the west coast, north-east India and Gangetic West Bengal till June 15. The forecast says that the surface pressure gradient pattern will be weak till June 12. This pattern, however, seems to become well-defined thereafter. The upper level Westerlies might move northwards slowly after June 12 and reach the northernmost part of India by June 20, the forecast says.

"Thus, the strengthening and progression of the monsoon seems to be slackened till June 15, with the monsoon reaching central India after June 20 as a feeble current. The large-scale forecast also suggests that the monsoon will be over southern tip for the next 25 days," the IITM scientist said.

Air Pollution Costs Rich Nations \$800 Billion Annually

Source : *Jobs & Hire Staff Reporter*

Date: 28th May , 2014

Every year, wealthy nations lose 800 billion dollars in health care and premature loss of life due to air pollution, with traffic smog being the worst culprit.

In a survey conducted by the Organization for Economic Cooperation and Development or OECD, air pollution costs 34 rich nations over \$1.7 trillion dollars in healthcare for pollution-caused ailments and early deaths. Smog from road transport reportedly contributes \$800 billion to that amount.

The OECD further reports that most traffic-related pollution comes from vehicles that run on diesel. The organization discourages all future purchases of cars with diesel engines and encourages governments to assist in this effort. Solutions proposed by OECD includes implementing urban bicycle rental or sharing programs, promoting use of electric cars, and increasing toll fees on use of certain highways and roads.

In countries like China and India where air pollution costs \$1.4 trillion and \$500 billion respectively, annually, deaths relating to air pollution and vehicular smog are increasing by the year. While there have been attempts to minimize road pollution in the two largest

nations in the world, trends show that pollution in these countries are reaching an all-time high, higher than the global average.

According to Darby Jack, an assistant professor and Earth Institute fellow of Columbia University in New York, OECD's practice of estimating possible losses nations may incur due to pollution is an effective way to encourage governments to take environmental problems seriously. "That's the language they speak. When it's done right it can really make an impact," he adds.

Heat, emissions raise Delhi's ozone levels

Source : *The Times of India*

Date: 24th May , 2014

NEW DELHI: Air pollution is once again at worrying levels in the capital. But this time it is not particulate matter but ground-level ozone, associated with severe health impacts, that has breached the safe limit.

On Friday, the average ozone level went over 71 parts per billion in Lodhi Road and Delhi University, compared to the standard of 50ppb. Interestingly, ozone levels are way higher around certain monitoring stations than others. Scientists say these spots could be experiencing the urban heat island effect where a mix of soaring temperatures, built-up area and emissions from various sources like traffic cause ozone levels to go up.

This ozone is different from stratospheric ozone that protects the earth from harmful ultra-violet rays. The ground-level ozone that's currently wreaking havoc in certain parts of Delhi is created due to chemical reactions between oxides of nitrogen (NOX), volatile organic compounds (VOC) and carbon monoxide (CO) in the presence of sunlight and heat.

Sources of NOX and VOCs are usually industrial facilities, motor vehicle exhausts, power plants and others. Ozone levels are usually measured in eight-hourly averages (during daylight) and hourly averages. When Indian Institute of Tropical Meteorology under ministry of earth sciences calculated the average for eight-hourly averages from May 11 to May 20, ozone levels were significantly high around Delhi University and Lodhi road. The temperature during this phase has been hovering around 40-43 degrees. Hourly average of ozone at 2 pm at these two spots peaked to about 103ppb on Thursday and Friday when the standard for hourly average is 90ppb.

"The variability of ozone levels is very high in Delhi. Certain areas are more affected than others which is why we are calling them urban heat islands. The temperature in these areas is also possibly higher than other parts of the city," said Gufran Beig, chief project scientist at System of Air Quality Weather Forecasting and Research (SAFAR), IITM.

Every summer between April and June, ozone levels go up in Delhi. "We see a clear trend of ozone levels rising around this time every year. Ozone has an immediate effect on people suffering from asthma. Which is why ozone levels are always given as part of smog alerts as school children and vulnerable population need to aware of it and stay indoors if required. Ozone is the only gas which has two sets of standards-hourly and eight hourly because high levels of ozone can have very serious health impacts," said Anumita Roychowdhury, head of the clean air programme at Centre for Science and Environment. Last year the eight-hourly average for ozone had peaked to 80-85ppb according to records with IITM. This year, too, ozone levels may increase next month.

This toxic gas which is "temperature dependent" according to scientists can have a slew of health impacts. It is associated with breathing difficulty, coughing, and sore throat, aggravate lung disease like chronic bronchitis, increased frequency of asthma attacks, damage lungs says environment protection agency.

Many urbanized parts of US and Europe are known to suffer due to high ozone levels. While PM2.5 (fine, respirable particles) levels go up in Delhi during winter, the city is now experiencing high ozone levels every summer making the population vulnerable in both seasons.

Environment: Clear the air on green clearances

Source : *The Times of India*

Date: 23rd May , 2014

The new government needs to bring in second-generation reforms for environment which can strike a balance between the need for economic development and rights of a local community. This is a tough job, but necessary. At present, green issues are being handled both at the central and state levels. This needs to be streamlined. The top priorities for the environment ministry are: Set up a 'national environmental regulator' that carries out appraisal of projects and provide clearances in a transparent and time-bound manner. Government is bound by a Supreme Court order to set up such a national regulator.

The target of increasing forest cover from 21% to 33% of the geographical area must be met under the 'Green India Mission'.

The level of air pollution in cities is alarming. Measures like reducing consumption of fossil fuels, monitoring vehicular pollution and improving public transport are essential. Build sewage treatment plants across the country to deal with river and groundwater pollution.

'Waste to Energy' concept must be popularized through incentives to private players.

Bring strict effluent control laws in line with the 'polluter pays' principle and ensure rigor

ous enforcement.

Focus on renewable (solar and wind) energy through incentives and investment under a national energy policy which may reduce the dependence on fossil fuels.

This will cut India's import bills as well as reduce air pollution.

India raises concern at World Health Assembly on lack of coherence in public health messages

Source : *Pharmabiz*

Date: 21st May , 2014

India has told the World Health Assembly that there existed a lack of coherence globally in terms of clear public health messages about climate aimed at population in general.

India raised this concern at the plenary session of the ongoing World Health Assembly in Geneva where the general discussion this year was on 'link between climate and health,' said an official release here. Addressing climate change is not just an issue of international agreements or economic costs - it is a choice of what kind of world we all want to live in. In this context, the principle of Common But Differential Responsibilities (CBDR), under the banner of the United Nations Framework Convention on Climate Change (UNFCCC), is an ideal way forward, pointed out additional secretary in Health C K Mishra, while representing the country. Mishra said that there is a major challenge for the public health community to identify best individual and local strategies as there is lack of coherence globally in terms of clear public health messages about climate aimed at populations in general. He emphasized that the need of technology transfer as a means to empower developing countries, the important role of generic medicines, need for appropriate international policy space to facilitate equitable access to affordable, quality, safe medicines, vaccines and advanced medical technologies for combating various diseases and the value and importance of traditional medicine and need of experience and knowledge-sharing for securing public health needs were the key areas that need to be focused. He noted that in India "Health" has been given a central position in the national plan, running from 2012 to 2017. India has been successful in achieving remarkable reductions in Maternal Mortality Rate, Infant Mortality Rate, Neo-Natal Mortality Rate and the Total Fertility Rate, following strategic investments made under the National Rural Health Mission. Also India has been successful in the eradication of polio. India has recently constituted a Steering Committee of experts on health related issues pertaining to air pollution which comprises two subgroups on household air pollution and outdoor air pollution. We are committed to carry this forward to a logical conclusion, he added. Mishra said that for effective global action on the social, economic

and environmental determinants of health, adequate funding support to the countries with huge disease burden, poverty and scoring low on these determinants must be prioritized and ensured. In this context, the work being done by the PBAC working group to develop a new strategic resource allocation methodology is a welcome step. To succeed on Public Health Agenda concerted and collaborative world action with unconditional and equitable technical and financial support from all quarters is required, he added.

Dirty air blame on transport

Source : *The Times of India*

Date: 21st May , 2014

NEW DELHI: Emissions of fine particulate matter or PM2.5 in Delhi have increased by 11.5% over the past four years, according to a GIS-based inventory prepared by Indian Institute of Tropical Meteorology (IITM), an autonomous body under the ministry of earth sciences.

The transport sector appears to be the worst culprit as it's the biggest contributor to this jump followed by manufacturing industries and power plants. After a World Health Organization urban air quality database released early this month said Delhi has the highest PM2.5 levels among 1,600 global cities, IITM scientists had claimed that WHO has 'overestimated' Delhi's pollution problem. IITM scientists told TOI that they are sticking to their stand on the WHO data being incorrect but said their emission inventory shows air pollution levels in Delhi had gone up substantially, particularly due to emissions from the transport sector. While transport emissions-especially from diesel cars and vehicles that use adulterated fuel-rose by a whopping 30% in the last four years, industrial emissions increased by just 5.7% during the same time. "Surprisingly, some sectors did not record much increase. In fact, contribution from burning of bio-fuels like wood and dung, decreased marginally. PM2.5 emissions from the power sector increased only by 3.14%," Gufran Beig, chief project scientist at System of Air Quality Weather Forecasting and Research (SAFAR), IITM, said. In 2013, the transport sector was responsible for 38% of the PM2.5 emissions in Delhi compared to 26% from 'others'-paved and unpaved roads, construction activities, brick kilns and wind-blown dust. "This is an interesting finding as we usually assume that these sectors can't contribute much. But in Delhi, dust from these activities is playing a huge role," added Beig. Strangely, industries contributed to about 16% of emissions and the power sector only 3%. The transport sector is contributing majorly to black carbon (pollution caused due to incomplete combustion of fossil fuels)-a leading contributor of climate change. About 50% of black carbon emissions

were from the transport sector compared to 38% from the industrial sector, in 2013. Beig said that the inventory can be used to understand which sectors need to be addressed but maintained that WHO's assessment of Delhi's air pollution was grossly incorrect. "Air quality is a problem in Delhi. We have reported that earlier, too. The issue is not about whose air quality is worse, Beijing's or ours. We are concerned about India's representation by an international body like WHO. It has put out misleading information about us," he said, explaining Delhi's annual PM2.5 average was high but not what WHO has estimated.

'Urgent need for pollution action plan'

Source : *The Times of India*

Date: 20th May , 2014

NEW DELHI: Central Pollution Control Board chairman Susheel Kumar on Monday said that he had written to the chief secretary in April asking him to urgently formulate an air pollution action plan.

Susheel Kumar said air pollution levels in Delhi are a serious concern and need to be tackled quickly. He clarified that the pollution watchdog disagreed with the World Health Organization's recent report which estimated that PM2.5 (fine, respirable particles) was the highest among 1,600 global cities. "Although the actual average in Delhi, as measured by our monitoring stations, are lower than the values in the WHO report, the variation does not undermine the fact that particulate matter (PM10 and PM2.5) has been a matter of concern," he said. "The situation becomes more critical with municipality and complexity of sources and unfavourable meteorological conditions, especially low winds and mixing height during winter months," Kumar added.

Prominent sources of PM emissions in Delhi according to him include road dust re-suspension, vehicular exhaust emissions, and industries including power plants. "It appears that the pace of growth has offset the benefits of mitigation actions," Susheel Kumar said. The WHO data had revealed annual mean PM2.5 level is 153 micrograms per cubic metre and PM10 level is 286 microgram per cubic metre-far above the limit. But, according to CPCB data for 2013, the PM10 concentration in Delhi was 237 and PM2.5 was 112. The permissible limit for the two, according to Indian standards, is 60 and 40, respectively, as against the WHO standard of 20 and 10, respectively.

Pollution rampant around bus stations

Source : *The Times of India*

Date: 20th May , 2014

BANGALORE: Ashima R (name changed), a resident of Shantinagar in Central Bangalore, is fed up of polluted air she and her family have to endure through the day. All because her house is a few metres from the Shantinagar bus station which sees 3,400 bus trips every day. The scene is not very different at other bus stations. Not only do hundreds of buses arrive and depart from the station, there are private vehicles of passengers as well which come there. On some days, nearby residents get the suffocating smell of paint and lubricants, when the depot attached to this bus station undertakes servicing work. When the problem of pollution and noise at the Shantinagar TTMC went out of control, some residents of the area lodged a complaint with the Karnataka State Pollution Control Board (KSPCB). The board, which had received complaints from residents near other bus depots, analyzed the ambient air quality at major BMTC depots. The study found that the carbon monoxide (CO) level exceeds the permissible limit by 220%. While the national standard set for the ambient air quality is 2 mg/m³, when the measurement was done, it was found to be 8.1 mg/m³. The situation at Yeshwantpur and Basaveshwaranagar bus stations, where the study was carried out, was not very different.

Dr Pragati R, a physician, said excessive intake of CO can be dangerous as it reduces oxygen supply to body organs, especially the heart and brain. "People continuously exposed to carbon monoxide start experiencing chest pain and breathing problems," she added.

CD Kumar, senior environmental officer, KSPCB, said they have also received complaints by residents alleging that staff at depot doing servicing work use chemicals with a bad odour. "In Yeshwantpur, people working in different floors of the TTMC, nearby shops and restaurants have complained about the deteriorating air quality," he added.

Anand CG, chief mechanical engineer, BMTC, said carbon monoxide is a problem due to petrol vehicles and one can't blame public transport buses, which run on diesel, for it. "The rise in carbon dioxide could be due to private vehicles which come to the premises. As for servicing works at the depot, we take enough precautions," he added.

Apart from carbon monoxide, the noise level at all three bus stations has gone up. While the standard for a bus station, a commercial area, is 65 dB(A), at Shantinagar it was observed to have gone up by 14%, Yeshwantpur by 23% and Basaveshwaranagar by 8%. However, the levels of other air pollutants like Respirable Suspended Particulate Matter, sulfur dioxide, nitrogen dioxide and ground-level ozone are well within the permissible limits.

U.S. Air Pollution Control Companies Can Adjust to the Shrinking Coal Market

Source : *Environmental Technology Online*

Date: 19th May , 2014



Suppliers of air pollution control systems in the U.S. have relied on huge purchases by owners of coal-fired boilers as the leading source of business since the 1920s. More than 50 percent of U.S. air pollution control purchases have been by the power companies. There are not likely to be any new coal-fired boilers in the next decade. This creates a significant challenge but one that can be met, says the McIlvaine Company in Air Pollution Management. There are several routes:

Divestiture: One option for large multi-product companies is to sell their air pollution control division. This was the route taken by Siemens when it sold Wheelabrator to Foster Wheeler.

Acquisition: Another option is to diversify into non-power related industries. This was the route taken by Babcock & Wilcox when it purchased MEGTEC earlier this month. MEGTEC is a major air pollution control system supplier to the chemical industry and to many plants which utilise solvents.

International Expansion: The market for air pollution control systems in China is more than twice as large as the U.S. market was at its peak. India is a generation or two behind China but has extensive needs.

Total Solutions: The world's knowledge is expanding geometrically, whereas individual ability remains relatively static. The increasing knowledge gap can be eliminated through outsourcing. Suppliers of air pollution control systems can become the virtual operators of those systems. Remote monitoring of operations along with smart valves, pumps, neural networks, optimisation software and many other digital innovations allow the offsite experts to perform at a level which was, heretofore, impossible.

Maintenance should be anything but routine. All the digital tools can reduce the cost and increase reliability by focusing on the components likely to fail if not attended. The air pollution system supplier can also minimise the aggregate inventory of parts by storing them for multiple systems. Typically, 80 percent of the components of air pollution control systems are supplied by third parties. This includes fans, dampers couplings, nozzles, dust valves, pumps mist eliminators, motors, PLCs, DCS, bags, etc. The system supplier can generate significant profits by supplying the repair parts for all of the components in the system.

The major contribution of the system supplier can be to take responsibility for the results.

The system has to meet emission limits. It should do so with minimum expense and with the least effect on production. Plant operators can afford significant payments to achieve these goals.

Over 250,000 MW of coal-fired boilers will remain in operation in the U.S. for the next forty years (McIlvaine and DOE forecasts). The absurdity of retrofitting and upgrading ancient boilers is a political reality. It is also a very big opportunity. Building new boilers for the forty year run would be much less expensive. Instead, the large outlays for keeping the old fleet running can be converted to profits by the APC companies.

World's first air-cleansing poem created in UK

Source : *The Times of India*

Date: 19th May , 2014

LONDON: The writing is on the wall for pollution!

UK researchers have developed the world's first air-cleansing poem printed on a material that can eradicate the air pollution caused by 20 cars, every day.

The specially treated material, devised by the University of Sheffield, removes harmful nitrogen oxide from the atmosphere.

Renowned writer Simon Armitage, Professor of Poetry at the University, and Pro-Vice-Chancellor for Science Professor Tony Ryan, have collaborated to create a catalytic poem called 'In Praise of Air'- printed on material containing a formula which is capable of purifying its surroundings.

The cheap technology could also be applied to billboards and advertisements alongside congested roads to cut pollution, researchers said.

The 10m x 20m piece of material which the poem is printed on is coated with microscopic pollution-eating particles of titanium dioxide which use sunlight and oxygen to react with nitrogen oxide pollutants and purify the air.

"This is a fun collaboration between science and the arts to highlight a very serious issue of poor air quality in our towns and cities," Ryan, who came up with the idea of using treated materials to cleanse the air, said.

"The science behind this is an additive which delivers a real environmental benefit that could actually help cut disease and save lives.

"This poem alone will eradicate the nitrogen oxide pollution created by about 20 cars every day," said Ryan.

"If every banner, flag or advertising poster in the country did this, we'd have much better air quality. It would add less than 100 pounds to the cost of a poster and would turn advertisements into catalysts in more ways than one.

"The countless thousands of poster sites that are selling us cars beside our roads could be cleaning up emissions at the same time," he said.

The poem will be on display at the University's Alfred Denny Building, Western Bank, for one year, researchers said.

Ryan has been campaigning to have his ingredient added to washing detergent in the UK as part of his Catalytic Clothing project.

Clearing the Smog: Media Err on Israeli Pollution

Source : CAMERA

Date: 18th May , 2014

Last week, Ynetnews, an English-language Israeli news site, published an article ("Who report: Israel ranks 12th in air pollution") claiming:



Israel is one of the countries with the highest level of air pollution in the world, according to a report released Wednesday by the World Health Organization (WHO).

The report, which surveyed 1,600 cities in 91 countries, revealed that the world's air quality is deteriorating.

Israel ranked 12th in levels of PM10, tiny

particles of solid or liquid floating in the atmosphere which affect our health.

The country with the worst air pollution in the world is Afghanistan, where the average levels of polluted particles measured was 334, followed by Iran (320), India (200), Bangladesh, Senegal, Mongolia and Mauritius. Yet, none of Ynet's figures accurately reflect WHO's data. The full data can be downloaded in a spreadsheet here, or seen in an interactive map on the WHO's website. Several mistakes and exaggerations are immediately apparent. First, the article fails to mention that no data was available for 107 countries. Thus, the article should have made clear that the rankings only relate to countries that compile data on air pollution, and not the entire world. Moreover, even if the writer intended to count only countries for which data is available, Israel would not be 12th. The following table (which does not include countries for which there is not data) is from the WHO's Web site: Thus, according to WHO, Israel ranks 24th (together with Peru and Lebanon), not 12th, as claimed by Ynet.

But this isn't the only mistake. Ynet also erroneously reported the figures for each country. For example, Ynet cited Afghanistan's pollution figure as 334 PM10, while WHO's

table shows it had only 268 PM10. Pakistan, which, at 282 PM10, is the most polluted, isn't even cited in the Ynet article.

So how did Ynet get its figures so wrong? The answer lies in Ynet's inconsistent methodology. Instead of citing the country-wide average, as WHO itself did, Ynet picked the pollution level of a single city in each country. At times, that city was the most populated in that country. In other cases, it wasn't.

Thus, Ynet put Israel's pollution figure at 74 PM10, but that is actually the number for Ashkelon, Israel's most polluted city. Israel's country-wide average, however, is 63 PM10. In contrast, for India, Ynet cited 200 PM10, which represents neither the country's average 134 PM10, nor the country's most polluted city (which is Gwalior, with an air pollution rating of 329). 200 PM10 is the pollution level for the Indian city of Agra, which happens to be first in WHO's alphabetical list of Indian cities.

Ynet cited China's pollution level at 120 PM10, whereas WHO put that figure at 90. Yet, 120 PM10 falls short of China's most polluted city, which is Lanzhou (151 PM10).

In summary, Ynetnews's figures were a compilation of errors demonstrating a fast and loose approach to the data.

Shortly after the publication of Ynet's error-riddled story, the erroneous statistics appeared in numerous other Israeli media outlets. For example, the English-language "Israel Hayom reported the next day ("Hold your breath: Israel ranks poorly in WHO air pollution study"):

Israel has the 12th worst air quality among the 91 countries included in a World Health Organization report, issued Wednesday.

The study measured the concentration of fine particulate matter for particles smaller than 10 microns and smaller than 2.5 microns, in 1,600 cities around the world. Based on the 10-micron or less measurements, the country with the highest air pollution is Afghanistan, with a concentration of 334 micrograms per cubic meter.

In second-to-last place is Iran at 320, followed by India at 200, Senegal at 179, Mongolia at 174, Bangladesh at 160, Egypt at 140, Mauritius at 131, Jordan at 128, China at 120, Turkey at 115 and Israel at 74.

Similar erroneous articles appeared in the Hebrew media websites of Reshet Bet and Nana10 . Representatives of nearly all the various media outlets did not respond to requests to clarify how they reached their figures. Given the lack of any other explanation, the most plausible reason for the repetition of the misinformation is that the various publications all copied their report from the original Ynetnews piece.

Following queries from Presspectiva – CAMERA's Hebrew language affiliate – only Nana10

responded:

The article published in Nana10, suffered from various errors – for example data referring to cities was presented as representing whole countries.

Despite the claims by the World Health Organization, the editor of the article believes that originally the report was published with somewhat different data, or it was represented differently than its current form.

However, following your inquiry, we have corrected the regrettable mistake, and hope that it will not recur. The Hebrew version of the article, which was shared thousands of times on Facebook and which received hundreds of talkbacks, was illustrated with the following graphic listing the worst offending countries:

Delhi Has Dirtiest Air In The World, Says WHO Study

Source : *Link Newspaper*

Date: 17th May , 2014



GENEVA – An effort by the World Health Organisation to measure pollution in cities around the world has found New Delhi admits to having the dirtiest air, while Beijing's measurements, like its skies, are far from clear.

The study of 1,600 cities found air pollution had worsened since a smaller survey in 2011, especially in poorer countries, putting city-dwellers at higher

risk of cancer, stroke and heart disease, reported Reuters.

Air pollution killed about seven million people in 2012, making it the world's single biggest environmental health risk, the WHO, a United Nations agency, said last month.

Thirteen of the dirtiest 20 cities were Indian, with New Delhi, Patna, Gwalior and Raipur in the top four spots. New Delhi had an annual average of 153 micrograms of small particulates, known as PM2.5, per cubic metre.

Beijing, notorious for the smog that has prompted some Anglophone residents to dub it "Greyjng", was in 77th place with a PM2.5 reading of 56, little over one-third of Delhi's pollution level.

WHO experts said the Chinese data was from 2010, the most recent year made available to them by China. But Beijing's city government began publishing hourly PM2.5 data in January 2012.

A year after it started publishing data, Beijing's air quality hit the "worst on record" according to Greenpeace, with a PM2.5 reading as high as 900 on one occasion.

Beijing's government said last month that PM2.5 concentrations stood at a daily average of 89.5 micrograms per cubic metre in 2013, 156 percent higher than national standards. Such a reading would put Beijing 17th in the WHO database. The WHO says there is no safe level for PM2.5 pollution.

At the cleaner end of the table, 32 cities reported a PM2.5 reading of less than 5. Three-quarters of those were Canadian, including Vancouver, one was Hafnarfjordur in Iceland and the other seven were American.

WHO experts insisted the survey was not intended to name and shame the dirtiest cities, since the cities involved were volunteering the information to try to help themselves clean up. Read: Meet Delhi University's green crusaders

Maria Neira, WHO Director for Public Health, Environmental and Social Determinants of Health, said the aim was to "challenge" cities and thought the survey would help them to become more open about their dirty air, which is often caused by burning coal, smokestack industries and heavy traffic. She rejected any suggestion that China might be cheating and said it was becoming much more sophisticated about collecting air pollution data, with a new push to clean up the big cities. "We are very much discussing with China putting on the table the issue of air pollution. Our director general (Margaret Chan) was recently there and she declared that China was one of the countries with major problems with air pollution. We will continue discussions on that to make sure that relevant measures are in place to reduce air pollution." HT had in January reported India had slipped 32 ranks in the global Environment Performance Index (EPI) 2014 to rank a lowly 155 and its capital Delhi had earned the dubious tag of being the world's most polluted city. A comparative study of 178 countries on nine environmental parameters released earlier this month by the US-based Yale University showed that one of the world's fastest growing economies was a disaster on the environmental front.

What was worse, India's pollution levels were believed to be playing havoc with the health of its citizens. "A bottom performer on nearly every policy issue included in the 2014 EPI, with the exception of forests, fisheries and water resources, India's performance lags most notably in the protection of human health from environmental harm," said a statement issued by Yale.

New Delhi Becomes Most Polluted City

Source : *About .com*

Date: 16th May , 2014



India's Center for Science and Environment announced in January that levels of PM2.5 -- the most dangerous airborne particulate matter -- had reached 575 micrograms per cubic meter. That means the air quality in New Delhi is 60 times worst than what is considered safe. Beijing held the ominous title of most polluted city, with peak levels of PM2.5 at around 400 micrograms per cubic meter. I was there on several occasions when air quality became so

dangerous that officials advised people to stay indoors. 'No-drive' days were initiated by the government to try to force pollutant levels down before the 2008 Summer Olympics. Athletes such as swimmers and runners, people who traditionally make every breath count, had their work cut out for them. For comparison, London, even with their world-famous traffic, usually sees an average PM2.5 level of 20 micrograms per cubic meter. So what's all the fuss about PM2.5? The label refers to the size of pollution particles. PM2.5 particles are small enough to enter the bloodstream when inhaled, unlike larger particles that get trapped and hopefully hacked out of your lungs later in a fit of mucus.

While visiting New Delhi in 2012, I noticed how my eyes were constantly stinging. But the air quality situation has deteriorated further since then. One of the worst culprits for pollution is the limitless fleet of three-wheeled auto rickshaws, India's version of the tuk-tuk. Most of the vehicles spend far too much time idling unproductively in an endless clog of traffic. Several Asian companies are in a race to bring practical electric tuk-tuks to widespread market. While electric versions of the tuk-tuk and even the Philippine Jeepney exist today, adaptation has been limited.

Travelers with respiratory problems may want to carry a mask, or even give New Delhi a miss altogether. Sadly, Agra -- the home of the famous Taj Mahal -- isn't far behind and also ranks among the world's most polluted cities. Instead, consider heading north to Manali, McLeod Ganj, and the cleaner air of the Himalayas.

Air pollution aside, India is still a fascinating place to visit. And hopefully the new visa regulations set to take effect this October will make visiting the subcontinent even easier.

8 Urban Centres in State Breathe Filthy Air: WHO Report

Source : *Indian Express*

Date: 15th May , 2014

If the latest urban air quality database released by the World Health Organisation (WHO) is any indication, the state has every reason to worry.

Analysis of the report indicates that eight urban centres in Kerala - Thiruvananthapuram, Kollam, Alappuzha, Pathanamthitta, Kottayam, Kochi, Thrissur and Kozhikode - exceeded

the WHO safe limit for Particulate Matter (PM) levels. The database, titled 'Ambient (outdoor) Air Pollution in Cities Database 2014', finds that all the above said cities except Pathanamthitta exceeded the WHO limit of 10 microgram per cubic metre for PM2.5 levels during the assessment.

PM2.5 refers to the concentration of small particles of less than 2.5 micrometres in diameter, which is believed to pose the greatest health risk owing to its penetration deeply into lungs. The database, covering the 2008-2013 period, found that Thrissur has the dirtiest air among the urban centres in the state with PM2.5 level recording an annual average of 32 microgram per cubic metre.

It is followed by Kochi and Kozhikode with PM2.5 level recording 28 and 25 micrograms per cubic metre respectively. In the state capital, the annual mean of PM2.5 was 23 microgram per cubic metre. Analysis of the database further reveals that the eight urban centres, including Pathanamthitta, exceeded the WHO limit of 20 microgram per cubic metre for PM10 level.

Like in the case of PM2.5 level, Thrissur also topped the PM10 level, with 73 microgram per cubic metre annually. This was followed by Kochi with a PM10 level of 64 and Kozhikode with a PM10 level of 57 microgram per cubic metre. PM10 causes diseases like asthma and other respiratory disorders.

"All these measurements may not be correct, but it is a fact that the air pollution is on the rise in many urban centres in the state. One of the major reasons for this is the increase in the number of private vehicles hitting the roads every year," said environmentalist C R Neelakandan. He called for a policy decision to deal with the matter. "We should take the issue seriously and initiate steps to bring down the pollution level. One way we can achieve it is through improving the public transport system, which will help reduce the number of private vehicles on our roads," Neelakandan said.

The WHO's urban air quality database covers a total 1,600 cities, including 124 in India, across 91 countries, which exceed the WHO guidelines for PM levels.

25 Other Indian Cities Are Just As Polluted As Delhi: WHO

Source : *Silicon India News*

Date: 15th May , 2014

BANGALORE: India's capital city Delhi, with an annual average of 153 micrograms of small particulates, known as PM 2.5, per cubic metre, witnesses the worst air pollution among all the major cities in the world. To make the situation grievous, the PM10 levels have increased during the last few years in many other Indian cities including Pune , Jammu and Dehradun, according to the study conducted by WHO entitled Ambient Air Pollution,

reports The Financial Express.

As per the study of 1,600 cities, air pollution had been worsened since a smaller survey in 2011 and this put city-dwellers at a greater risk of cancer, stroke and heart disease. And also environmentalists said that plan to combat vehicular pollution was very much a need of the hour.

Director-General of the Centre for Science and Environment, Sunita Narain said, "The number of vehicles has increased exponentially and the number of diesel vehicles has increased. Diesel is particularly, extremely toxic, it is also the key reason why there are such high levels of particulate pollution in the city of Delhi," reports Business Standard.

On the other hand, the Indian Institute of Tropical Meteorology, functioning under the Ministry of Earth Sciences, denies the WHO's study and exclaimed that the WHO overrated Delhi's pollution levels. Also, the Delhi government pointed out that there was vagueness in the data available to WHO on pollution in China.

"We may not be as bad as Beijing. We are not here in a match where we have to score over each other. But the fact is Beijing is bad and Delhi is bad. The fact also is that Beijing is taking tough steps to reduce its emissions and Delhi is not," added Narain.

All the aforementioned facts are disclosed in the AAP data of outdoor air pollution taken from almost 1,600 cities in 91 countries.

Hadapsar most polluted in Pune

Source : *The Times of India*

Date: 15th May , 2014

PUNE: Breathing in areas such as Hadapsar, Shivajinagar or Katraj, can pose health problems, particularly to those vulnerable to respiratory conditions as pollution levels have been found to be the highest in these parts of the city. The Indian Institute of Tropical Meteorology (IITM), in its system of air quality forecasting and research (SAFAR) programme to map pollution levels, has found alarmingly high pollutant levels in these areas. "At SAFAR, we have been monitoring eight pollutants, but for the city of Pune the most alarming levels have been those of PM 2.5. This is the level of particles that are less than 2.5 microns in size, which are considered dangerous as these can penetrate deep into the lungs and also the bloodstream," said SAFAR programme director and IITM scientist Gufran Beig.

The SAFAR programme was launched in Pune on May 1, 2013 and the pollution data collected over last year has been analysed by Beig and his team for seasonal variation in pollution levels. "The only time during the year that PM 2.5 levels remained within permissible limits across the city was during the monsoon months of July, August and

September. During winter, the levels exceeded permissible limits in all 10 monitoring stations," said Neha Parkhi, programme officer. At Hadapsar, Shivajinagar and Katraj, the average of the maximum PM 2.5 recorded in these months even exceeded the moderate category, shooting up to poor air quality zone, the air quality index prepared at SAFAR reveals. Through the months of November, December and January, the air quality was such that it could pose serious problems to those vulnerable to respiratory problems, infants and the elderly. At times, it can cause discomfort to healthy individuals as well, she explained.

"When the temperature is colder and winds are calm, the air becomes heavy and the dispersal of pollutants from various sources of emissions slows down. This means the mixing from surface to upper part of atmosphere slows down. Pollutants tend to accumulate near the earth's surface creating a haze like situation," Beig said.

In Hadapsar, the air quality remained in the poor zone in summer as well. The average maximum PM 2.5 levels recorded was 90.99 ppm - 30 units above the permissible limits.

"In summer the air is not heavy, but the winds blowing in the region are stronger. Often pollutants generated from industrial areas nearby are blown towards the urban areas as well," Beig said adding that this is often the season when sugar mills are in operation.

Death by pollution: New Delhi mortality rate doubles since 1991 due to dirty air

Source : *Tech Time*

Date: 14th May , 2014

Latest report from the World Health Organization reveals New Delhi as the city with the worst air pollution, but the Indian government says it has overestimated the global data. In the picture is Kolkata, India cloaked in dense smog.

In the 16,000 cities all over the world affected by air pollution, it is New Delhi in India that is hit hardest by its sordid air quality, recording deaths as high as 100 percent since 1991. This is based on the latest report released by the World Health Organization (WHO). Data showed that New Delhi has an annual average of 153 micrograms of small particulates or PM 2.5 per cubic meter, triggering mortality rates in the city to reach soaring heights that is mainly due to illnesses associated with the dirty air such as cardiovascular and respiratory diseases. "Too many urban centers today are so enveloped in dirty air that their skylines are invisible," said Dr Flavia Bustreo, WHO Assistant Director-General for Family, Children and Women's Health. "Not surprisingly, this air is dangerous to breathe. So a growing number of cities and communities worldwide are striving to better meet the

needs of their residents - in particular children and the elderly." The findings from WHO were backed up by a study [pdf] conducted by a team of researchers from Indian Institute of Technology (IIT)-Roorkee, University of Minnesota and University of Colorado noting that mortality due to "chronic obstructive pulmonary diseases" (COPD) is caused by air pollution. In 1991, there were 8,945 cases of deaths in the city of New Delhi alone. A total of 3,413 of them are caused by cardiovascular disease while 1,302 cases are due to respiratory ailments. In sum, around 12,890 residents were admitted to the hospital because they were diagnosed with COPD. At the turn of the second millennium, the number of total mortality grew to 11,394 and 3,912 of them were cases of cardiovascular mortality. A total of 1,697 cases were due to respiratory illness while the number of New Delhi residents admitted to the hospital rose to 16,253. More than a decade after, a hundred percent growth was seen. A whopping 18,229 number of deaths were recorded, with 6,374 and 2,701 cases of cardiovascular and respiratory deaths, respectively. Hospital admissions due to COPD plummeted to 26,525. "From 2002 onwards, the excess number of mortality rate is continually higher in North West district [of New Delhi] because of higher concentration of pollutants and higher population," wrote the researchers led by Bhola Ram Gurjar of the Department of Civil Engineering of IIT. "In 2010, the excess number of total mortality in North West district is 4,035, which is highest among all districts."

The findings were published in the Atmospheric Pollution Research journal.

However, the Indian government opposed the findings, saying that the data has been "overestimated."

"Delhi is not the dirtiest ... certainly it is not that dangerous as projected," A.B. Akolkar, a member secretary of the Central Pollution Control Board of India, told Reuters.

Indian Institute of Tropical Meteorology chief project scientist Gufran Beig added that New Delhi's air was better than Beijing's, especially during the summer and the monsoon seasons. The extreme weather adds to the air pollution in the city as well, he said.

New Delhi is just one of the 13 cities in India that entered the top 20 list of the cities with worst air pollution. WHO revealed Patna, Gwalior and Raipur as cities joining India's capital in the top four.

Why is there no reaction to WHO's take on Delhi's air pollution?

Source : *Hindustan Times*

Date: 14th May , 2014

Why is there no reaction to the World Health Organization's May first-week announcement about Delhi's skies being the most polluted in the world? This collective

indifference of a great mass of people to the certainty of their doom has few parallels in world history. It is as if Delhiites have become inured to criticism. After all, what label can be worse than 'rape capital' or 'fountainhead of corruption'?

I think that this culture of apathy to global condemnation as a wholesale environment degrader has much to do with typical Delhiite self-delusion. The last two decades have acted as an opiate, reducing Delhiites to a lot of walking, talking and unthinking victims of marketing strategies. The articulate section of Delhiites like their city to be defined by its symbols of macro prosperity: The shopping malls, car population and fashion shows. In their reaction to rape, corruption and environment degradation, Delhiites tend to disown their own responsibility behind the rise of the phenomena. For the first two, they have the comfort of blaming the government. And the environment? That's for the jholawallahs.

The India Against Corruption (IAC) campaign and the movement against the Delhi gang rape showed to the world that Delhi has a heart that ticks. But we are unlikely to see a similar upsurge against rampant abuse of the environment which is by far more intimate with the popular Delhi culture than rape and corruption. Why? Because unlike with IAC and the Delhi gang rape, Delhiites will not have the political system to publicly whip — they would need to turn the searchlight on themselves.

This is not the first time that Delhi has been declared the world's most polluted city. We had that dubious distinction up to the mid-1990s. But the regime then in power decided to do something about it. As part of a long-term measure it decided first to focus on the three biggest sources of air pollution — DTC buses, two-stroke engine auto-rickshaws and diesel taxis. Thanks to the advocacy of NGOs, the reluctance of the subsequent regime to implement that policy was smashed by the Supreme Court. Resultantly, by 2005, Delhi's skies became much cleaner and the new generation could look forward to a future without premature visitations by respiratory and heart diseases, cancers, infertility and other consequences of particulate matter bombarding their lungs.

The rest was up to the people, but the people failed Delhi. There was no protest to the emasculation of Delhi's once proud public transportation by a government that surrendered to the car lobby. In many progressive nations, common citizens take up the cudgels against the government for policies that fail to address environmental concerns. In the Scandinavian countries, most of Western Europe, Singapore and even next-door Bangladesh, we have instances of vibrant movements demanding an end to mindless consumption. In Denmark, it was civil society that forced the government to ban fossil-

fuelled vehicles from city interiors and the people themselves pooled resources to launch thousands of free bicycles. In Dhaka, ordinary people came out on the streets to demand strict fines to enforce a no-plastic bag rule. But will we see Delhiites protest against the unregulated and frankly crazy rise of the car to population graph, which is choking our streets and arteries?

Many would say that lack of awareness is to blame. I don't think that is entirely true of Delhi. Environment education was factored into the curriculum of schools in the early 1990s and it is unreasonable to expect a population so aware of fashion trends to be abysmally ignorant of some the most basic ecological truisms. I think there is a general consensus not to admit to the presence of the elephant in the room — greed.

Greed is at the root of civilisational decay. There must come a time when Delhiites will realise that they are foolishly condemning their own children to destruction by emulating unsustainable models of development. Governments rarely take pro-active steps to change consumption patterns. Every piece of statistics flying out of government departments foretells a gloomy picture. The Directorate of Economics and Statistics, Government of India, recorded between 2006 and 2009 an increase from 11.4% to 20.4% in certified deaths in Delhi due to diseases that affect the cardiovascular system, and a hike from 3.8% to 4.6% in certified deaths due to diseases that affect the respiratory system, both of which have direct linkages to air pollution. Numerous other studies have established the linkage between air pollution and cancer, even infertility.

Then why is the government not acting? The rules of party politics demand that the Opposition blame everything on the government. As a medical practitioner who is into politics, I think I understand the delivery deficit. Politicians are aware that Delhi is gasping for breath under the car deluge. The craze for new houses is congesting the air with particulate matter. But they shy away from saying so. So do the people. But this compact of silence is left undisturbed.

It's not that politicians don't want to take steps, but legislating against air pollution is not a simple matter. We have learnt from global experience that progressive laws on the environment need to be backed by consensus for sacrifice and self-discipline. The ban on mink coats and ivory was declared only after rich people in the West declared that they will no longer tolerate cruelty to wildlife. In Dhaka, even poor people declared they would rather pay to buy jute bags than accept free plastic packaging. In 2008, the then Lieutenant-Governor and I joined a noble endeavour of the Delhi Catholic Archdiocese to popularise jute 'thailas' (bags) in Delhi, but we failed to mobilise the rich people of Delhi to act responsibly by refusing the ubiquitous free plastic bags. Even the government-

owned Mother Dairy balked from upsetting its customers at its Safal outlets.

The fear of a brush with the status quo makes the political class patiently wait for unequivocal pro-change impulses. For instance, the East India Company did not intervene to ban the cruel practice of 'Sati' till there was evidence that a section of the people was willing to put on record their demand for it. In our own time we are struggling with our conscience seeing Muslim women suffer under medieval 'personal' laws on marriage and divorce. But we prefer to wait till society, which is bearing the burden, recognises the need for a progressive intervention.

We Indians take pride in the quantitative label 'World's largest democracy'. Though the IAC and the Delhi gang rape movements lent a qualitative edge, we would be mocked in world society if the social response to progressive politics is muted by a preference for self-destructive lifestyles.

Indian refiners face \$13 bln clean fuels bill

Source : *Business Standard*

Date: 14th May , 2014

NEW DELHI (Reuters) - Oil refiners will need to invest 800 billion rupees (\$13.4 billion) in upgrades to produce cleaner fuels, a government official said, as the world's fourth biggest oil consumer seeks to curb dire air pollution in its cities.

The World Health Organization, in a recent study, said air pollution in New Delhi was the worst anywhere, while 13 of the dirtiest 20 cities were in India.

Economic growth and urbanisation in the country of 1.2 billion will lengthen traffic jams on already-choked city roads, increasing the need for action to minimise health risks such as cancer, strokes and heart disease.

"We are doing all this for public health now that there is sufficient evidence on the ground to suggest that ambient air pollution has deleterious effects on human health," said Saumitra Chaudhuri, head of a government panel tasked with proposing new fuel standards.

Chaudhuri, who is also a member of the Planning Commission, said he hoped that the next government would consider the panel's recommendations.

Results of a general election are due on Friday and exit polls give the opposition Bharatiya Janata Party (BJP) and its prime ministerial candidate Narendra Modi a good chance of securing a parliamentary majority together with its allies.

"We are more concerned with the environment and we want people to have better quality of life which also includes better quality of air," said Narendra Taneja, a BJP energy policy coordinator, saying his party would seek a "holistic solution".

The proposed changes would take effect in two stages, with the introduction of fuels that are equivalent to the Euro IV standard from April 2017, followed by a further step up to the Euro V standard in April 2020.

India lags China in switching to higher-quality fuels, with Beijing aiming for nationwide use of Euro V fuels from 2018. China began full scale use of Euro IV compliant gasoline from this year and will shift to Euro IV diesel from next year.

Europe, meanwhile, already requires Euro V and VI standards.

These set increasingly tight limits on harmful gaseous pollutants and particulate matter, with separate requirements applying to different types of diesel and petrol engine.

About three dozen cities currently use Euro IV equivalent fuels, also known as BS IV fuels, while motorists in the rest of the country use BS-III fuel.

BS-V require gasoline to have a sulphur content of 10 parts per million (ppm) down from 50 in BS IV and 350 ppm and 150 ppm sulphur in BS III diesel and gasoline.

There were about 160 million vehicles on India's roads on March 31, 2012, according to a government website.

According to a report for the government, India consumes about 69 million tonnes a year of diesel - of which 70 percent is accounted for by the transport sector - and about 17 million tonnes of gasoline.

LEVY TO FUND UPGRADE

Chaudhuri said the \$13.4 billion figure covered all refineries excluding Reliance Industries, owner of the world's biggest refining complex.

With this hefty and timely investment Indian refiners should be able to produce Euro V-type fuels from December 2019, enabling a smooth switch from the following April and avoiding costlier imports.

Indian refiners had to import Euro IV fuels in 2010 when India introduced them in some parts of the country.

Chaudhuri said in the first phase BS-V fuels will be introduced in northern India in April 2019. Officials at Indian refiners said that most of the investment costs would be linked to producing BS-V fuels.

Officials at state refiners said they need to install new secondary units like desulphurisers, hydrotreaters and change the catalyst of the existing units to enable existing refiners to produce Euro V compliant fuel.

Indian Oil Corp, the country's biggest refiner, will invest about 80 billion rupees, while Hindustan Petroleum Corp will invest 50-60 billion rupees, sources at the two companies

said. To aid state refiners, which rely on subsidies to sell fuels at regulated prices, the committee has recommended that a cess, or levy, of 0.75 rupees a litre be imposed to help raise 650-700 billion rupees over seven years, Chaudhuri said.

He said the committee has also recommended a similar cess on BS III compliant fuel in the intervening period to bridge that price gap that may spur use of the inferior fuel.

(\$1 = 59.7800 Indian Rupees) (Reporting by Nidhi Verma; Editing by Douglas Busvine and David Evans) -----By Nidhi Verma

Beijing does not have the most polluted air in the world

Source : *South China Morning Post Publishers Ltd.*

Date: 13th May , 2014

For those of you familiar with Beijing's horrendous air pollution, it may come as a surprise to know that it is by no means the world's worst. That distinction went to Delhi. Indeed 13 of the top 20 cities in the world with the dirtiest air were to be found in India, three in Pakistan, and one in Iran, Qatar, Turkey, and Bangladesh. These findings were the result of a study, announced last week, of air quality in 1,600 cities by the World Health Organisation. The ranking is on the basis of annual average concentrations of PM2.5 particulates, which in Delhi were 153 micrograms (mg) per cubic metre. The WHO says no PM2.5 levels are safe, though it regards annual average concentration of 10mg per cubic metre as a long-term guideline level beyond which people begin to suffer ill-effects. Beijing is ranked 77th with PM2.5 levels of 56, though this data appears to be old since the Beijing authorities said last month that PM2.5 particulates recorded a daily average of 89.5 mg per cubic metre in 2013. This would put Beijing 17th on the WHO rankings. Hong Kong is ranked 584th with PM2.5 levels of 21mg per cubic metre, though no year is given. This seems on the low side. Central, for example, averaged about 35 mg per cubic metre last year, which would put it at 288 on the list.

Following Delhi, the next ranked cities with the dirtiest air were Patna, Gwalior and Raipur, followed by Karachi. Singapore was ranked 755th with PM2.5 levels in 2011 of 17mg per cubic metre. London was ranked at 836 with 16 mg per cubic metre and New York at 925 with 14mg per cubic metre. Sydney and Melbourne, with PM2.5 levels of 5mg per cubic metre, had the lowest for any sizeable cities.

China's air pollution may be bad, but India's is much worse

Source : *VOX Media*

Date: 12th May , 2014

Last week, the World Health Organization released new data on air pollution in 1,600

cities worldwide. The most striking conclusion? China gets way more attention for its air pollution, but India has a much bigger problem on its hands.



Put simply, if you live in a large Indian city, your lungs are taking in dangerous levels of air pollution on a daily basis.

Drawing on data collected between 2008 and 2013, the report listed the cities by the average amount of particulate matter in the air over the course of a year. When these tiny particles — smaller than 2.5 micrometers in diameter — are

inhaled, they can settle into the lungs, increasing the long-term risk for lung cancer (each year, it's estimated that they cause 800,000 deaths worldwide).

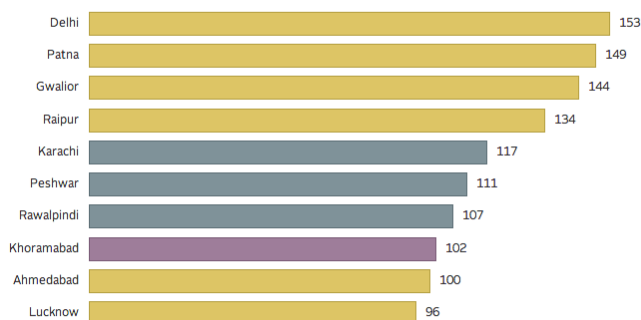
The worst American city in the report was Fresno, California, followed by a few other cities in California. This fits with the findings of a recent American Lung Association report that showed California, as a whole, features the country's worst air pollution.

A variety of factors contribute to air pollution, but it's mainly driven by the burning of gasoline, diesel, and coal for transportation and energy, along with other large-scale manufacturing processes.

So in response to China's high pollution levels, authorities recently introduced a plan to limit coal burning and vehicle use. But the report shows that even before this initiative, China's pollution paled in comparison to India's.

Beijing's data, for instance, came from 2010, and showed that the city averaged a count of 56 P 2.5 over the course of a year. It's certainly not a great count, but for comparison, 25 Indian cities had higher levels of pollution during the time studied. Update: it's worth

The ten cities worldwide with highest levels of air pollution



Source: World Health Organization

noting that there is some controversy over air pollution data provided by the Chinese government. Independently-collected data, supplied by the U.S. embassy, suggests Beijing (and, presumably, other Chinese cities) have higher pollution rates than Chinese officials are willing

V to admit. In 2011, for instance,

the embassy's monitors averaged 99 PM 2.5: not nearly as high as Delhi, but high enough

to have put Beijing in the top ten.

Emission panel for pan-India shift to Bharat Stage V fuel by 2020

Source : *Live Mint*

Date: 12th May , 2014

Chaudhuri panel report submitted even as the WHO study dubbed Delhi the world's most polluted city

New Delhi: A panel on automobile fuel emissions standards has recommended that the government introduce the stricter Bharat Stage V emission norms across India by 2020 to curb growing air pollution in the country, which is home to 13 of the dirtiest 20 cities, according to a World Health Organisation study.

Planning Commission member Saumitra Chaudhuri, who heads the panel to draw up India's auto fuel emissions standards road map till 2025, said that oil refineries, as a first step, will be required to stop production of the Bharat Stage III fuel and move to Bharat Stage IV by January 2017. Adoption of Bharat Stage IV fuel in India is restricted to just 30 cities after being introduced in 2010.

The panel, which was set up in December 2012 to revise India's auto fuel emissions standards, submitted its report to the petroleum ministry on 3 May.

India is almost a decade behind developing countries such as Turkey and Brazil in introducing cleaner-burning fuel, Bloomberg News reported in April.

The Chaudhuri panel's report was submitted even as the WHO study dubbed Delhi the world's most polluted city. While the WHO study has been challenged by the government, automobile fuel emissions are seen as a leading cause for deteriorating air quality.

In 2013, the Global Burden of Disease study said that outdoor air pollution was the fifth-largest killer in India and around 620,000 early deaths occurred from air pollution-related diseases in 2010.

Bharat Stage V standard specifies a maximum of 10 parts per million (ppm) of sulphur in fuel as against 50 ppm in Bharat Stage IV and Bharat Stage III 150 ppm. Sulphur in fuel makes it dirtier and lowers the efficiency of catalytic converters which control emissions.

To meet the stricter fuel emissions standard, refiners will have to spend an estimated Rs.80,000 crore, while auto makers will also have to make vehicles suited to the higher quality fuel.

The recommendations, if accepted, may lead to an increase in the price of the older Stage III fuel, as the committee has recommended closing the 75 paisa price gap between Stage III and IV fuel.

The panel has also suggested that the difference in excise duty on standard and premium fuel be removed. Currently, the cleaner branded fuel is taxed at a higher rate.

Two- and three-wheeler makers have been given an additional two years to meet Bharat Stage IV norms, Chaudhuri said.

“The only thing that we wanted was to move straight away to higher fuel emission norms and that has been taken care of by the panel,” said Vishnu Mathur, director general of lobby group Society of Indian Automobile Manufacturers Association. “Although we would have liked these recommendations to be applicable earlier than 2020, you need to give time to firms to recover the investments, which is fair.”

In a statement issued earlier this week, Delhi-based not-for-profit Centre for Science and Environment (CSE) said Euro VI standards should be introduced in the country by 2020-21 to address diesel toxicity.

If the report is accepted by the new government, most of north India will introduce Bharat Stage IV by 1 April 2015. Other regions, including Kerala, Karnataka, Telangana, Goa and Union Territories in western India, will shift by 1 April 2016. The panel has recommended that all of north India will then shift to Bharat Stage V by 1 April 2019.

Sudden showers bring down air pollution in Pune

Source : DNA

Date: 12th May , 2014



Pune: Sudden rains and thundershowers are proving to be good news for citizens. Since the showers, there has been a gradual reduction in the air-pollution level, especially in the suspended particulate matter. There has been considerable amount of rains in the peripheral areas of the city in the past week, and the same is predicted for the next 48 hours too. “The maximum temperature has dropped from 40 degree Celsius to 36 degree Celsius on Sunday. Also, there is cloud formation forecast for evenings, which might cause rains in the next two days,” an official from Indian Meteorology Department said. “The city air-pollution level was moderate to poor in most parts of the city in the last few months. In areas such as Shivaji Nagar and Bhosari, the particulate matter had crossed

the maximum threshold level of 120 micro gram per cubic meter a couple of times. But as of today, the pollution has decreased and every pollutant is well between the threshold level of 60 to 120 micro grams per cubic meter. The Air Quality Index is within the acceptable range” said Guffran Baig, director of Indian Institute of Tropical Meteorology (IITM).

Protecting environment a major challenge: Hemant Soren

Source : *The Avenue Mail*

Date: 11th May , 2014

Dhanbad : Chief Minister Hemant Soren speaking at the 36th convocation of the Indian School Mines, Dhanbad today said that the students of the Institute by their achievements had made Jharkhand proud all over the world.

Chief Minister said that Jharkhand was the state of great mineral and natural reserves. The challenge was to exploit these reserves by protecting and maintaining the environment. He hoped that by the academic efforts of the ISM positive results will be forthcoming on these counts.

Talking of according IIT status to the ISM, the Chief Minister said Jharkhand government had already made such a recommendation which has also been endorsed by the Assembly. He said that the state was concerned about the expansion of the ISM and the land for the purpose has been identified. The state government was ready to provide all help to the institute, he said.

At the convocation ceremony Human Resources Minister Geetashree Oraon was also present.

Tough measures needed to conserve Delhi's environment

Source : *India Today*

Date: 11th May , 2014

Delhi needs to urgently improve the fuel quality of vehicles and upgrade their emission technology if it wants to make the ambient air breathable, experts said. Sumit Sharma, a fellow with The Energy and Resources Institute (TERI) and an expert on air pollution, said, "CNG fuel and Metro could have brought particulate matter (PM) concentrations down but fuel quality for other activities remains inferior.

Delhi still relies on Bharat Stage-IV norms whereas the world has moved to Euro 5 and 6 standards." According to Sharma, the Auto Fuel Policy 2002 had the mandate of bringing 13 cities under BS-IV norms and the rest under BS-III by 2010. BS-IV is the equivalent of Euro 4.

"We have lost four years since then and the future roadmap has still not been prepared. Only 22 cities adhere to BS-IV norms, while other cities are still using BS-III fuels," he said. The high particulate matter in Delhi is not attributed only to factors within the National Capital but also to pollutants from Faridabad, Gurgaon, Noida and Ghaziabad. "NCR needs a common plan and an infrastructure revamp. Public transport has to be made comfortable," Sharma said.

Experts also blamed the government for its lackadaisical attitude towards conserving the environment in the Capital. Ravi Agarwal, director of Toxic Links, said while Delhi had a rich ecology of water systems, forests, a river and diverse biodiversity of bird life, they have been poisoned, encroached and dumped upon. "Delhi needs hard decisions to protect its environment from pollution and encroachments. Economic growth needs to be balanced with ecological concerns," he said.

Anumita Roychowdhury, executive director at the CSE, said: "We need urgent action at both the national and city level to meet clean air standards in a time-bound manner. The national government should make it mandatory for cities to meet clean air standards in a time-bound manner. Frame incentives and penalties to ensure enforcement."

India's politicians are in denial about pollution

Source : *The Globe And Mail*

Date: 11th May , 2014

Voting in India's historic national elections ends on Monday. Jobs, infrastructure and tourism are the mantra of Narendra Modi, the prime ministerial front-runner for the Bharatiya Janata Party. But he along with the rest of the candidates have ignored what could be the biggest problem facing the world's largest democracy: pollution.

The World Health Organization released a report last week ranking New Delhi's air pollution as worse than Beijing's. Indian cities are in the second, third and fourth positions on the WHO's most polluted list. (Peshawar, Pakistan, ranks first.) India's air is, in other words, among the worst in the world. More people die of asthma in India than anywhere else. Half of all doctor's visits are triggered by respiratory problems.

The WHO findings echo those of the recent Yale Environmental Performance Index, which ranked India 174th out of 178 countries on air pollution. Yet most Indian politicians never acknowledge any kind of pollution problem, much less address the inability of authorities to enforce environmental policies that may hinder industrialization. Government officials issued a flat denial of the latest WHO data: "Delhi is not the dirtiest... certainly it is not that dangerous as projected," said one official from the Central Pollution Control Board of India.

When it comes to dealing with air pollution, India's strategy is in many ways the exact opposite of China's. There, public and government concern over air quality has begun to spur significant policy change and, arguably, cleaner air. Beijing has closed major highways and issued urgent health advisories in the face of smog. The government has moved to fix quotas on the number of cars sold in one year and even proposed limiting the number of private cars on the road. The city has cracked down on outdoor grilling – a major contributor to air pollution – and is replacing coal-burning boilers with those run on cleaner energy. Pollution data is readily available to the public, and regularly reported by state-controlled news media. It is generally considered accurate. China's air is terrible, but it is taking steps to get better.

In Delhi, by contrast, one is hard-pressed to find reliable pollution data. Factories flouting environmental rules rarely face consequences. In the past, efforts to reduce India's air pollution have been led by the Supreme Court, which, for example, ordered Delhi's taxis and buses to convert to compressed natural gas. But Indian politicians need to play a role, tackling pollution with strong legislation that will improve the air quality in its dirtiest cities. A good first step for India, and whoever becomes its leader, is to admit there is a problem.

Worst urban air quality grips Bangladesh

Source : *Financial Express*

Date: 11th May , 2014

It is disconcerting to note that Bangladesh was ranked fourth among 91 countries with worst urban air quality in the latest air pollution monitoring report of the World Health Organisation (WHO).

Reports in the media last week say three Bangladesh cities were also put among the top 25 cities with poorest air. The 2014 version of the Ambient Air Pollution (AAP) database consists mainly of urban air quality data of 1600 cities from 91 countries.

According to the reports, Pakistan was shown as the worst country in the category with Qatar and Afghanistan ranking second and third. Iran, Egypt, Mongolia, the United Arab Emirates, India and Bahrain take the other spots in the worst ten.

In the city-wise assessment, Narayanganj was marked as the 17th city with worst air quality whereas Gazipur and Dhaka were ranked 21st and 23rd respectively. In the report, six of the top 10 cities with highest air pollution were from neighbouring India with Delhi taking the first spot.

The report says that almost 90 per cent of people living in the cities are exposed to dangerous levels of air pollution. Outdoor air pollution killed 3.7 million people in 2012

and the WHO says it is now the world's largest single environmental health risk. The report also states only 12 per cent of people are living in cities that conform to the WHO air quality guideline levels. The report was more extensive than a similar database released by the WHO in 2011.

The report on Bangladesh was prepared on the basis of the monthly air quality monitoring data of 2013 of the Department of Environment (DoE), Bangladesh. The DoE has set up air quality monitoring stations in eight cities including Dhaka, Narayanganj, Gazipur, Rajshahi, Chittagong, Khulna and Sylhet.

Though Narayanganj has the highest level of gaseous pollutants, the report shows the air of the northern metropolis Rajshahi contains the highest level of dust particles. Among the gaseous pollutants which the DoE measures are carbon monoxide (CO), sulphur dioxide (SO₂), oxides of nitrogen (NO_x) and ozone (O₃), methane and non-methane pollutants.

Meantime, air pollution in the capital city Dhaka has gone higher than Mexico City and Mumbai killing thousands prematurely each year. According to the DoE, the density of airborne particulate matter (PM) reaches 463 micrograms per cubic meter (mcm) in the city during December-March period -- the highest level in the world. Mexico City and Mumbai follow Dhaka with 383 and 360mcm respectively.

An estimated 15,000 premature deaths, as well as several million cases of pulmonary, respiratory and neurological illness are attributed to poor air quality in Dhaka, according to the Air Quality Management Project (AQMP), funded by the government and the World Bank.

Vehicular air pollution is a major cause of respiratory distress in urban Bangladesh. If pregnant mothers come across excessive pollution, it may cause premature death of their children. According to the National Institute of Diseases of Chest and Hospital (NIDCH), nearly seven million people in Bangladesh suffer from asthma; more than half of them are children.

Cases of children suffering from bronchitis and chronic cough have also shot up in recent years. Children breathe more air relative to their lung size than adults. They spend more time outdoors, often during midday and afternoons when pollution levels are generally highest. WHO air quality guidelines (2005) recommend a maximum acceptable PM level of 20mcm; cities with 70mcm are considered highly polluted. Airborne lead is the worst of the harmful PMs.

By penetrating the lungs and entering the blood stream, lead may cause irreversible neurological damage as well as renal disease, cardiovascular effects, and reproductive

toxicity. The phasing out of petrol-driven two-stroke auto-rickshaws in 2003 and their replacement with four-stroke versions, which use a much cleaner burning fuel (compressed natural gas), significantly decreased the volume of air contaminants. Yet, according to DoE sources, a sharp increase in the number of vehicles and construction sites in 2004-2008 led to a deterioration of Dhaka's air quality.

Old, poorly serviced vehicles, dust from roads and construction sites, and toxic fumes from industrial sites are major sources of air pollution. Traffic congestion and smoke from brick kilns are also responsible for air pollution in Dhaka city. The ministry of environment and forests says that vehicles in Dhaka move 14kmph on an average, which is very slow and causes them to burn more fuel and contribute to air pollution. They say the average speed could come down to 4kmph by 2025 if things do not improve.

Faulty vehicles, smoke from brick kilns, dust from construction sites and toxic fumes from industries are the main sources of particulate matter. Environment officials who conducted a pre-study before the joint assessment for CASE say around 60 per cent of city air pollution is caused by thousands of unfit and faulty vehicles, especially those that run on diesel. They say vehicles older than 20 years could not be taken off the city streets. These vehicles add to city traffic, congestion and air pollution.

The density of airborne particulate matter is around 250 micrograms per cubic metre in Dhaka, which is five times the acceptable level of 50 set by the National Ambient Air Quality Standard of Bangladesh. Dhaka air consists of common pollutants, including particulate matter, sulphur dioxide (SO₂), carbon monoxide (CO), nitrogen oxides (NO_x), ground-level ozone (O₃), volatile organic compounds, hydrogen sulphide (H₂S), sulphates and nitrates. Dhaka is surrounded by brick kilns which have been contributing its air pollution. The Clean Air and Sustainable Environment project has a brick kiln component which aims to usher in a new era in brick manufacturing in Bangladesh. Under the project, the DoE will work towards changing the institutional, legal and regulatory framework. To that effect, the project will provide technical support to the newly established Brick Advisory Committee in an effort to make the industry green. What is, otherwise, needed at this stage is that Bangladesh must do something to get rid of serious air pollution sweeping across the country. The adoption of cleaner technologies and their full implementation is expected to go a long way in reaching the desired destination.

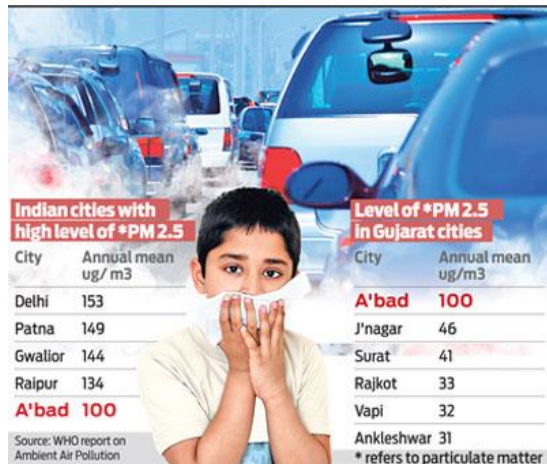
Ahmedabad air: India's 5th most polluted

Source : DNA

Date: 10th May , 2014

Against the accepted level of 40 micrograms of particulate matter (2.5 microns), the city

has 100. Delhi on top with 153, followed by Patna and Gwalior.



Megacity Ahmedabad that has won awards and recognitions for urban planning is among the top five polluted cities in the country. The 2014 Ambient Air Pollution data base released by the World Health Organisation (WHO) on Thursday showed that the city ranks high in levels of particulate matter (PM) of less than 2.5 microns.

The study measured pollution as the annual mean concentration of fine particulate matter of less than 10 microns of diameter (PM10) [ug/m3 (micrograms per cubic

metre)] and of less than 2.5 microns (PM2.5) in various cities.

According to the study, the reason why particulate matter is among those factors measured for air pollution is because these particles are able to penetrate deeply into the respiratory tract and therefore, constitute a risk for health by increasing mortality from respiratory infections and diseases, lung cancer, and other cardiovascular diseases.

Ahmedabad had a PM 2.5 concentration of 100 micrograms making it the fifth most polluted city in the country in that category. The first place went to Delhi that had 153 micrograms of PM 2.5 concentrations, which was the highest among all the 1,600 cities in 91 countries.

Interestingly, Ahmedabad also had the highest level of PM 2.5 concentration among Gujarat cities. The second place was bagged by Jamnagar that had a concentration of 46 microgram. It should be noted that as per the Central Pollution Control Board's Air Ambient Quality Standard, the accepted level of PM 2.5 is 40 micrograms for a year and 60 micrograms for a 24-hour period.

Talking about why the city had high levels of PM2.5 concentration, Mahesh Pandya, an environmentalist, said part of the reason is the heavy construction work for both infrastructure and housing going on in the city.

"These activities increase the level of suspended particulate matter in the air. The second is the high retention of vehicular traffic on the road. Retention refers to the time for which a vehicle stands idle on the road say in traffic jams and such with its engine still running. This has also added to the situation," said Pandya.

He said BRTS was part of the reason why there were heavy traffic jams in the city

resulting in high pollution. “BRTS was supposed to help reduce number of vehicles on road, but what it has done is make the roads narrow leading to more traffic jams and higher retention of vehicles on road,” said Pandya.

The level of PM 10 concentration was 67 micrograms for the city, against the accepted standard of 60 micrograms on a yearly basis and 100 for a 24-hour period. The present study was for data collected for the 2013 period for the city. It should be noted that the air pollution levels were measured for residential and commercial areas and not industrial areas of a given city.

Pandya said the situation could have been countered had we got more green cover. “But Ahmedabad has poor green cover and this has only worsened the situation,” said Pandya.

Rohit Prajapati, another activist, said there was a need for positive discrimination to counter the situation. “We need to make public transport more cheap and accessible, while at the same time making use of private transport more expensive. But right now we are unable to do that because the government has no data on how many private vehicles are there on the city roads,” said Prajapati.

Talking about how suspended particles in the air affect health, consultant pulmonologist, Dr Viral Shah said that such particulate matter can go in the lungs and get deposited there. “It is called chronic obstructive pulmonary disease (COPD) and how early it is diagnosed depends on the extent and severity of the exposure to such particles. It can be made better with treatment but is a non-reversible condition because the particles are indestructible,” said Dr Shah

Rajasthan's five cities have poor air quality: Report

Source : *The Times Of India*

Date: 9th May , 2014

JAIPUR: The World Health Organization's (WHO) air quality database of 1,600 cities in different countries shows Delhi as most polluted city, however, the situation in five big cities of Rajasthan is also not very encouraging. The WHO's air quality database of 1,600 cities in 91 countries also covered Rajasthan's five prominent cities — Jaipur, Jodhpur, Alwar, Udaipur and Kota.

Among the five cities of Rajasthan, Jodhpur has the most polluted air. The WHO measured the concentration of PPM2.5, which are quite fine and respirable particles. In comparison to Delhi, Jodhpur has relatively low concentration of PM2.5, which is measured in micrograms per cubic metre (g/m^3). Delhi has $153 \text{ g}/\text{m}^3$, while Jodhpur has g/m^3 of PM2.5 concentration, but still it is well above the WHO's standard, which is about g/m^3 . However, the concentration of PM2.5 in Jaipur is g/m^3 , it is second most air

polluted city in the state, which were included in WHO's air quality database.

The cities in the state have concentration of industries and vehicles. SMS medical college's former professor of medicine and former head division of allergy and pulmonary medicine Dr Virendra Singh said, "PM2.5 particles are very minute, as they easily enter the windpipe and lodge at the periphery of the windpipe. Such particles cause chronic obstructive pulmonary disease (COPD) among the persons who are continuously exposed to such particles."

According to the WHO report, the annual mean of concentration of PM2.5 is 59g/m³ is in India. Jodhpur, Jaipur and Kota have concentration well above the annual mean in India, whereas Alwar has less concentration in comparison to annual mean of India. Alwar has 38g/m³, while Kota and Udaipur have 64g/m³ and 62g/m³, respectively.

As far as the concentration of PM10 (coarse particles) is concerned, Jodhpur has the highest concentration. It has 196g/m³, while Jaipur 155 g/m³, Kota 146 g/m³, Udaipur 143 g/m³ and Alwar has the lowest air pollution in comparison to other Rajasthan's cities examined at 86 g/m³.

The particulate matter of less than 10 microns of diameter are (PM10), while of less than 2.5 microns are (PM2.5).

The WHO pointed out that air pollution consists of many pollutants, among other particulate matter. These particles are able to penetrate deeply into the respiratory tract and therefore constitute a risk for health by increasing mortality from respiratory infections and diseases, lung cancer, and selected cardiovascular diseases.

Indian cities gasp for breath

Source : *Live Mint*

Date: 8th May , 2014

The cost of pollution will determine effective implementation of standards

It has long been suspected but never established as a comparable fact. New Delhi is a city with one of the poorest air quality in the world. New data released by the World Health Organization (WHO) show that in 2013 the city had a very high concentration of particulate matter of size 2.5 microns (153 micrograms/cubic metre). Thirteen of the 20 cities with the dirtiest air are in India, and Patna, Raipur, New Deelhi and Gwalior occupy the top four spots.

Particulate matter of that size is considered particularly hazardous from the viewpoint of elevated risk of respiratory diseases, stroke, cancer and heart diseases. Air pollution can no longer be ignored: It has led to seven million deaths globally in 2012. The burden of diseases generated from air pollution is particularly heavy on poor countries that are

unable to devote the right amount of resources to public health. If one considers particulate matter more than 2.5 microns but less than 10 microns, the number of cities with poor air quality rises even further. Agra, Allahabad, Amritsar, Bhopal, Chandrapur, Dehradun, Kota and Lucknow, places usually not associated with a high degree of pollution, are right in the middle of India's pollution map. The number of afflicted cities is longer. (The database of such cities can be found [here](#)). Many of these cities are in trouble because of weak environmental regulation of industries and the huge expansion in vehicular traffic on their roads. Clean air is a public good and globally, the starting point for providing it is to establish air cleanliness standards. These are further classed into norms for vehicle emissions, industrial pollution and the like. Generally, a national-level pollution control authority sets the standards and sub-national authorities enforce them. In India, this has not worked. The laying of standards comparable to the international best is always delayed. The evolution of vehicular emission norms is an example. Higher and better emission norms have always met with resistance before they are adopted. For example, India is yet to put in place the latest European Union standards in this respect. The last mile of this implementation process—enforcement—has always been very weak. Because of this failure on part of implementing authorities, India has had to rely on an imperfect system of provision of public goods. On a number of occasions in the past, the Supreme Court has imposed updated standards and has also enforced implementation. In 1992, the apex court ordered the availability of lead-free petrol, CNG as an alternative fuel, provision of catalytic converters in vehicles and the adoption of Euro 2 emission norms from 1995. More than any other executive action, this single intervention of the court did much to restore air quality in India. This is, however, an imperfect way to provide this public good (along with others such as clean and potable water). Over time, as the number of vehicles plying on Indian roads rises dramatically, judicial intervention cannot be a solution. As the WHO list highlights, some of India's most polluted cities are so widely dispersed that a centralized order cannot be enforced effectively. Incentives for providing such public goods have to be localized. As matters stand, this is an expensive proposition. State governments do not have the wherewithal to adopt and implement these standards. The incentives will come indirectly. For example, if the health costs due to elevated PM rise to such a level that the cost of cleaning up air becomes a cheaper option. Too much pessimism should not be read into this. Globally, too, in many cases the efforts to clean up air and water have emerged after the costs of poor air and water quality have become unbearable.

'Delhi air is not world's dirtiest'

Source : *Gulf News*

Date: 8th May , 2014

New Delhi: India's air monitoring centre on Thursday dismissed data released by the World Health Organisation that showed New Delhi's air as the dirtiest worldwide, saying the finding was biased and misleading.

A study of 1,600 cities across 91 countries released on Wednesday by WHO showed Delhi had an annual average concentration of airborne small particles of less than 2.5 micrometres in diameter, known as PM 2.5, of 153.

This was almost three times as high as the reading for Beijing of 56 despite the Chinese capital's reputation for smog, and 10 times that of London.

"We have data for New Delhi which is not biased," Gufran Beig from the state-run System of Air Quality Weather Forecasting and Research (SAFAR) told AFP.

"It takes into account the data taken from 10 air quality monitoring stations spread around the capital in an unbiased way. It is not misleading," Beig said.

The WHO used data for New Delhi from 2010 to 2013 from five monitoring stations in residential and other areas.

The data from China, where authorities are under pressure to be more transparent about pollution, was from 2010, the last year for which figures were available.

"We are now studying the data for 2011-14 which we have procured from the US embassy in Beijing. This will help us arrive at a more accurate comparison," Beig said.

The WHO stressed that its new air pollution database, which relies mainly on data gathered by the cities themselves, did not aim to rank cities, pointing out that "some of the worst ones ... are not collecting data regularly."

PM2.5 particles are very small in size and can easily enter the body and interfere with the functioning of the lungs.

They are also associated with increased rates of chronic bronchitis, lung cancer and heart disease. WHO says concentrations of the larger PM10 particles should remain below 20 micrograms per cubic metre, averaged out over the year, while the limit for PM2.5 is set at 10 micrograms. While Delhi ranked as worst on the PM2.5 scale, on the PM10 measure others were far more polluted. Peshawar and Rawalpindi in neighbouring Pakistan trumped all other cities with readings of 540 and 448 respectively. Delhi has had its air quality under scrutiny for some time now with a research by Yale University scientists in January this year also suggesting it was worse than Beijing. A World Bank report last year that surveyed 132 countries ranked India 126th for environmental performance and last for air pollution. State-backed Indian scientists have repeatedly denied the findings.

Climate Change Could Affect Our Nutrition Due to Carbon Dioxide Concentrations

Source : *Science World Report*

Date: 7th May , 2014

A new study published on Wednesday examined how increasing carbon dioxide levels could endanger human nutrition in the future, including dietary deficiencies of zinc and iron which claim 63 million lives each year.

Crops are threatened by the growing presence of CO₂, and scientists predict that not only can climate change decrease crop output, but it can also alter their nutritional value. The Harvard School of Public Health study, "Increasing CO₂ Threatens Human Nutrition," was published in the journal *Nature*.

The researchers found that C3 grains and legumes - the primary dietary source of zinc and iron for humans - will have lower concentrations of these nutrients when grown under field conditions that have elevated atmospheric carbon dioxide concentration, which is projected to occur around 2050. As a result, carbon dioxide could potentially affect global health within the next 30-plus years.

"The public health implications of global climate change are difficult to predict, and we expect many surprises," the researchers articulated via this NBC News article. "The finding that raising atmospheric carbon dioxide lowers the nutritional value of (certain) food crops is one such surprise that we can now better predict and prepare for."

According to the United Nations, between 2 billion and 3 billion people rely on the crops in danger for zinc and iron. These nutrients are important for sustaining a healthy immune system, which is important since the World Health Organization recently reported that many bacteria are becoming resistant to their treatments.

This is the largest study to date that examined the subject. The researchers also found that protein in wheat, rice, and peas will decline in the second half of this century. The study arrived at these results after recording data from six growth years on field sites in Japan Australia, and the United States.

The bottom line: crops are losing nutrients as atmospheric levels of CO₂ increase. However, the United States and China - two of the world's largest emitters of greenhouse gases - amended their environmental laws to reduce their emissions to help improve air quality. These new regulations could have a beneficial effect on the negative results unearthed in the Harvard study.

WHO Reports Cities in India Have Worst Air Pollution

Source : *Science World Report*

Date: 7th May , 2014



On Wednesday, the World Health Organization released a report on urban air quality worldwide that analyzed 1,600 cities in 91 countries and found that many cities fail to meet WHO guidelines for safe levels of air pollution. Climate Change May Cause 70 Percent Increase in Unhealthy Ozone Levels by 2050

The latest report features 500 new cities compared to the last database that was analyzed in 2011. WHO officials discovered that half of the urban population in the study is exposed to 2.5 times the recommended levels of air pollution. Such evidence was supported in a previous WHO study that found 7 million people died in 2012 due to lingering effects of air pollution. A total of 3.7 million of those people were under the age of 60.

The WHO bases their air quality recommendations on the concentration of particulate matter (PM), which are extremely small particles and liquid droplets. Levels of particulate matter should not exceed 10 micrograms per square meter over the course of a year. Earlier this year, Beijing recorded levels over 400 micrograms per square meter over the course of 24-hour period.

Despite this bad news, cities worldwide have been taking appropriate measures to mitigate the problem of air pollution. The United States is cutting greenhouse gas emissions and plans to reach a goal by 2020. China changed their environmental law last week to impose strict penalties on companies that exceed pollution restrictions. Many countries face difficult decisions in switching to different sources of energy that are more efficient.

In the long term, these measures would be beneficial to nearly everyone in society. The official Earth Day website urges governments to "rethink old conventions, improve energy efficiency, and invest in green technology." Inefficient electricity grids and dirty power plants both waste money and worsen pollution, whereas new sources of energy would create more businesses and new jobs for ailing economies worldwide.

And all of this begins with further developing the urban landscape. The WHO report states, "measures include ensuring that houses are energy efficient, that urban development is compact and well served by public transport routes, that street design is appealing and safe for pedestrians and cyclists, and waste is well managed."

Cities in India have dirtiest air, WHO survey says

Source : *Fox News*

Date: 7th May , 2014

An effort by the World Health Organization to measure pollution in cities around the world has found New Delhi admits to having the dirtiest air, while Beijing's measurements, like its skies, are far from clear.

Air Pollution Is Killing Millions

Source : *Liberty Voice*

Date: 6th May , 2014



In a time, when science and technology rapidly evolve, air pollution is still a major problem, because it is killing millions of people around the world. The World Health Organization (WHO) latest report shows that air pollution has caused the death of seven million people in

2012. According to the numbers, the air pollution causes one of the eight deaths in the world. People are dying due to the pollution outdoors as well as from polluted air indoors.

Outside pollution can be attributed to a wide range of causes, from the exhaust gas to coal-burning. Among the reasons for internal pollution, WHO most frequently mentions cooking on the stove that burn coal, wood and biomass. Due to the internal pollution, 4.3 million people have died in 2012 and 3.7 million people have died due to the outdoor pollution in that same year. The sum exceeds the estimate of seven million deaths, as some people have died due to a combination of both pollutions.

"Air pollution is a serious problem both in China as well as in many other countries in the region. Effective solutions should be a top priority of local authorities. This is important, not only for human health, but also for economic reasons. I have talked with people from abroad, who wanted to invest there, to start a business, but changed their minds because of air pollution," points out Margaret Chan, Director General of the WHO.

The air is the most polluted in Southeast Asia, particularly in India and Indonesia and in an area that includes West of Pacific Ocean-from China and South Korea to Japan

and the Philippines, reports WHO. Only in these two areas, air pollution killed 5.9 million people in 2012. Among the causes of death are mostly cardiovascular diseases, strokes, respiratory diseases and lung cancer.

The results of the analysis indicate that the number of deaths due to air pollution has doubled and that this type of pollution is the most important environmental risk factor for premature death. In addition, new data point to a strong link between exposure to internal and external air pollution and increased risk, that we will be suffering from cardiovascular disease or cancer, which supplements the already known association between air pollution, diseases of the lungs and respiratory tract.

Prior to data from 2012, the WHO last published such data for the year 2008, when the outdoor air pollution attributed to 1.3 million deaths and the pollution of indoor air to 1.9 million deaths. Although, data cannot be compared, because the methods of measurement during this time have changed, adds the WHO.” Only a few risks have a greater impact on global health than air pollution. It is necessary to establish concrete measures to purify the air we breathe,” said Maria Neira from WHO.

According to a new report State of the air 2014 from an American Lung Association, more than half of Americans breathe in an unhealthy air. Many of the smoggiest cities are in California, with Los Angeles at the top of the list. The Fresno-Madera area in California is also near the top, due to high concentration of tiny liquid and solid particles, which can get deep into the lungs and cause irritation and illness.

Although efforts have been made to reduce the adverse health effects, there is still a discrepancy in the understanding and the knowledge of stakeholders about the impact of air pollution on health. From year to year, air pollution is killing millions of people worldwide. By reducing air pollution, billions could be saved annually at the expense of medical care, medication and sick leave. Quality of life and general well-being would increase and mortality due to air pollution would be significantly reduced.

By Janette Verdnik

World Asthma Day

Source : DNA

Date: 6th May , 2014

Pune: Suffering from asthma? Forget comfortable auto-rickshaw rides. Take the sweaty bus journeys instead. That’s what a recent study by a team of researchers from Chest Research Foundation has concluded. The researchers who made a team of volunteers travel on three different modes of transport - bus, bikes and auto-rickshaws - measured the levels of air pollutants i.e. carbon monoxide, sulphur dioxide and nitric oxide that one gets exposed to and here’s what they found.

“We conducted a study in which we travelled for thirty six minutes from Kothrud and



Deccan Gymkhana to Hadapsar with pollution monitoring devices using three transportation modes - two-wheelers, auto-rickshaws and PMPML bus service. When we compared the results, it was clear that there was more exposure to pollutants like SO₂ and CO, when travelling in an auto-rickshaw and the least exposure was in the PMPML bus,” said Monica Barne, head of the Training Programmes Division, CRF.

“Every year, we are seeing a rise of at least five to ten per cent in the number of asthma patients. Rising environmental pollution plays a huge role in worsening the air quality of the city,” said pulmonologist Dr Vijay Warad.

Gufran Baig, director of Indian Institute of Tropical Meteorology which measures the city’s pollution index, said, “While the ideal SPM levels should be less than 60 micrograms per cubic metre (ug/m³), we have observed the maximum levels to be around 135 ug/m³ which can be dangerous for asthmatics. Amongst the three pockets that fare the worst are Shivaji Nagar, Hadapsar and Bhosari because of the vehicular movements and industrial activities while peripherals of the city like Nigdi, Pashan and Baner have good air quality.”

Asthmatics, it’s time to take care of your home!

Docs believe that indoor pollutants play a huge role in triggering asthma. If you are an asthmatic who finds it difficult to breathe outside and escape to the confines of your home to breathe easily, it could actually result in more loss than gain if you're not careful. It is not just the outdoor pollution caused by industries and vehicular emission that triggers allergies like asthma. City-based doctors say that lesser known and more dangerous pollutant are present indoors that gives rise to asthma and related allergies. “We see that most number of fresh cases are pediatric i.e. children below five years of age who are not exposed much to outdoor pollution as they either are at home or in schools. They are the ones who are affected the most by indoor air quality. What parents and schools don't understand is that indoor pollution equally contributes. There is an acute need to look at indoor pollution more closely,” said Dr Vijay Warad, allergist and pediatric pulmonologist. Indoor air pollutants majorly consist of dust, pet animal droppings, wall fungus, smoke and volatile carbon compounds emitted from wall paints. These pollutants when inhaled, cause allergic reactions and raise the chances of getting asthma. “The smoke that an incense stick releases is as harmful to an asthma patient as the smoke of 100 cigarettes. However,

people do not realise the ill effects indoor pollutants have which actually triggers severe asthmatic attacks. Similarly uncleaned walls, certain paints are also bad triggers. It's important for parents to educate themselves about this," added Nitin Abhyankar, pulmonologist in Sadashiv Peth. In case if there is anybody at your house who is been detected with asthma, along with providing the patient with appropriate treatment and medication you also need to keep the house clean and free from indoor air pollutants. Barnali Bhattacharya, another pediatric pulmonologist, added, "There is a steady rise in asthma patients in the past few years, and environmental aspects like air pollution is the cause of 1 out of every 5 new cases that I attend to. Dust and molds are of major concern as they trigger most of the asthma cases. Houses should be made free from the dust and smoke, that will definitely give relief to many patients." The simplest measures can go a long way. "Fifty per cent of asthma attacks are triggered by dust mite allergies which are avoidable to a large extent. Just keeping house dust free, ensuring no fungus on damp walls, keeping bed sheets and pillow covers in sunlight once a week to kill dust mites, good ventilation can help in protecting against asthma attacks," added Warad.

Few cautious steps Keep the air in your house clean Keep the household free from dust by wet mopping regularly Wash mattresses, carpets, pillows, cushions and other furnishings at least once a month Along with adding the 'No Smoking' rule in your house, try to minimize the use of mosquito coils and incense sticks too Repaint your house and check for leakages to avoid wall fungus Use eco-friendly paints which do not release volatile carbons Use plants at home that can reduce indoor air pollution, like Aloe Vera and Gerbera Flower Plant Avoid frequent use of strong perfumes and deodorants if there is an Asthma patient around Avoid using heavy curtains, woolen blankets, and woolen carpets Do not clutter your bedroom with too many books or furniture with upholstery Restrict your pet's entry into the bedroom Seal cracks and crevices to ban cockroaches

chandigarh air hits new low

Source : *The Times of India*

Date: 4th May , 2014

CHANDIGARH: Hold your breath! The city air has crossed the danger zone. Pollution level has soared as the respirable suspended particulate matter (RSPM) has moved beyond the permissible limit, a report of the Chandigarh Pollution Control Committee has revealed.

The committee divided the city into five zones, Sector 17, Punjab Engineering College, Industrial Area, Government College for Girls, Sector 42, and Kaimbwala village, to measure the air quality. To its shock, the RSPM in all thhe areas was much higher than what was allowed (see box). Diesel autos are the main culprits.

Even though the State Transport Authority (STA) has been issuing permits to only LPG-run autos for last three years, hundreds of three-wheelers are entering Chandigarh daily, ferrying passengers from Mohali, Dera Bassi, Panchkula, Pinjore and Zirakpur. STA secretary Mahavir Kaushik says 10-15 diesel autos from outside are challaned on an average daily. However, it has hardly spurred auto operators to switch over to green fuel. One key reason is the absence of LPG filling stations in Mohali and Panchkula. Also, the UT has signed a reciprocal transport agreement with Punjab, which allows plying of 500 autos on a common corridor. Around 250 diesel autos enter the city from the periphery, leaving behind noxious fumes that are proving dangerous for many.

Payal Chauhan, a resident of Sector 22, is bearing the brunt of the spike. The Panjab University student suffers from allergic rhinitis. She has to deal with an itchy throat and nose almost throughout the year. Pushkar Verma, a resident of Sector 20, too is feeling choked. An asthma patient, he has never faced this much problem since the last two years. His doctor has advised him to double his dosage. "My frequency of going to the hospital for nebulisation has increased," Verma says.

Chandigarh Pollution Board secretary P J S Dadwal says the problem would have been worse had the city's layout not been spread out. "Though the RSPM levels in the city remain high, the problem becomes severe during May when pollination adds to the suspended particles. RSPM which manages to cross the mucus membrane is bound to lead to problems," he adds.

The new levels of pollution are ringing alarm bells with doctors warning of their repercussions. "This will lead to many respiratory problems and trigger infections in those who already suffer from asthma or respiratory diseases, if the levels are not managed," says Dr Rajesh Dhir, an ENT specialist at Government Multi-specialty Hospital, Sector 16.

Asthma must be diagnosed early for treatment: Doctors

Source : *The Times Of India*

Date: 3rd May, 2014

LUCKNOW: The rapid deterioration of urban air quality has led to increase in asthma patients. On World Asthma Day, doctors said there had been a significant rise in the number of young asthma patients in the past five years.

Assistant professor in pulmonary medicine at SGPGI, Dr Alok Nath, said, "Elevated air pollutants, especially vehicular emissions, are affecting human health and asthma patients in particular. The disease is especially common in children below the age of five years and the elderly," he added.

It is essential that asthma or any other pulmonary disease is diagnosed at an early stage and the patient immediately begins taking the prescribed medicines, Dr Nath

added.

Dr SN Shankhwar from KGMU, said, "Pollutants such as particulate matter, sulphur dioxide and nitrogen dioxide, mostly emitted from vehicles, negatively affect the health of asthma patients".

JS Yadav, member secretary of the Uttar Pradesh Pollution Control Board, said, "There is no doubt that people living in metropolitan cities face health risks due to environmental degradation but at the same time, the government has made an action plan for a proper solution to the problem".

According to Yadav, the plan includes reduction in petrol and diesel consumption and replacing them with compressed natural gas (CNG).

Lucknow would soon have more CNG outlets to add to its existing seven so that maximum vehicle owners can switch over to an environment friendly fuel.

The city adds 8-10% vehicles to its fleet every year. There were four lakh vehicles in the city in 1999. In 2013, the number went up to more than 14 lakh, calling for stringent implementation of pollution control norms.

CNG vehicles in Lucknow as of December 2013

Private cars: 7,800

School vans: 1,000

Tempos: 2,534

Auto-rickshaws: 4,343

School buses: 878

UPSRTC buses: 260

A silent killer that's not an election issue

Source : *The Hindu*

Date: 2nd May , 2014

The problem of kerosene and biomass use, which kills millions of Indians at home each year, is being shamefully neglected

In March, the World Health Organization released its latest study which estimated a total of 7 million deaths worldwide in 2012 caused by exposure to air pollution — one in eight of all global deaths. Indoor air pollution was linked to 4.3 million of the deaths that occurred in homes which depend on biomass or coal for cooking.

In August 1997, on the eve off India celebrating 50 years of independence, the Energy and Resources Institute, in a detailed study assessing the country's record of environmental protection and conservation of natural resources during that period, found that a total of 2.5 million premature deaths took place in 1997 alone as a result of air pollution, both indoor and outdoor. The majority of these were caused by pollution indoors that stemmed from cooking on inefficient cookstoves burning largely inferior forms of biomass.

India is currently voting in its general election – the world's largest democracy began voting on 7 April and finishes on 12 May – but if the record of previous governments is any indication, environmental issues are unlikely to be a priority. There is, no doubt, a credible framework of legislation in place in India to support any attention given to environmental issues, but the institutions and processes that translate intent into action remain weak and ineffective. (On the subject of climate change, the government announced its a national action plan in 2008, the provisions and contents of which were put together over the following two years in a rigorous exercise involving governments of all states, members of civil society and various thinktanks. However, the implementation of the plan remains far below stated targets and goals.)

Apart from the serious and widespread problems of water pollution – both on the surface and below the ground – erosion and degradation of soil, and loss of forest density and biodiversity, the problem of air pollution in several parts of the country is alarming. While outdoor air pollution gets some attention from the public and decision-makers, indoor air pollution, which afflicts at least two-thirds of Indian homes, remains neglected.

More than 300 million people in India have no access to electricity, and those that do still do not have a stable supply. As a result, kerosene lamps and candles are used widely in many Indian homes, with high levels of air pollution affecting hundreds of millions. Women and children are particularly vulnerable because they spend more time at home. Perhaps even more serious is the dependence of around 700 million people on the burning of biomass in their homes, using inefficient stoves that emit large quantities of smoke, leading to high doses of air pollution.

Fortunately, some solutions have been devised. As part of its Lighting a Billion Lights campaign, the Energy and Resources Institute has reached almost 3,000 villages in India and Africa, introducing the decentralised use of photovoltaic panels. An important aspect of this campaign is that a local female entrepreneur is trained to set up a central charging station in a village using solar panels on roofs. She charges lightweight, LED solar lanterns, with a socket for charging mobile phones. After charging the lanterns for the whole village in the daytime, she rents them out at night. This provides the entire village with clean, efficient and reliable lighting, based on a sustainable, market-oriented model. Similar programmes have been launched with improved stoves in a large number of villages, reducing indoor air pollution drastically.

Unfortunately, elected governments in India have largely failed to come to grips with

the problem of indoor air pollution, and those campaigning in the ongoing election show scant understanding of this pervasive problem. With irrational subsidies on kerosene, the transition to cleaner fuels in many Indian homes may, therefore, remain slow. Fortunately, with falling solar power prices and the demonstrated success of the Lighting a Billion Lights campaign, many NGOs and even the private sector are now emulating the lights model. This promises well for the future.

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Who Is Breathing the Worst Air in America?

Source : GIZMODO

Date: 30th April, 2014

Air pollution in the U.S. is better than it was a decade ago, but a staggering 147.6 million Americans-47 percent of the country-live in places where air quality is often too dangerous to breathe, according to the American Lung Association's State of the Air report.

The new study looked at a three-year span of 2010, 2011 and 2012, and compared those figures to the 2013 survey, which looked at 2009-2011. Even though the larger trend since the 1970s is towards much-improved air for everyone, the most polluted cities actually saw a slight decrease in air quality compared to the 2009-2011 period.

Why is our air getting (relatively) worse? Carbon emissions and vehicle emission regulations are still lagging in many parts of the country. A surprisingly old-school form of pollution, wood-burning fires, have devastated air quality in some cities due to population growth. But we can also blame our changing climate: High ozone, especially in warm cities, is likely due to the exceptionally high temperatures during 2012 since sunlight and heat exacerbate ozone levels.

While our beloved sister site had one take on the data, the question of which U.S. cities are the most polluted is actually a bit more nuanced. The report looks at three different indicators for overall air quality: ozone levels, year-round particle pollution, and short-term particle pollution. L.A. ranked at the top of ozone pollution, while the Fresno-Madera region of Central California ranked at the top of both year-round and short-term pollution. So while L.A. is not categorically the worst it's definitely in the top five, depending on how you look at it. The argument could also be made that since L.A.'s metropolitan area is over 18 million people, which is many times larger than any of the other top offenders, L.A.'s bad air is putting far more people at risk.

The media's fixation with China's air quality

Source : Travel Weekly

Date: 29th April, 2014

In his predictions for 2014, columnist Richard Turen suggested that travel sellers

"must, in keeping with industry ethics, inform potential leisure travelers to China of the dangers [of air pollution] and the fact that residents of Beijing are now routinely wearing masks as they walk about the city" (Reality Check, Dec. 30: "Selling happiness and other predictions for 2014").

While it is fascinating to read Richard's usually prescient and insightful views, on this occasion I feel they are misleading on several counts.

First, I live in Beijing, and while a tiny minority do wear masks during bad pollution spikes, the vast majority don't. So, to allege that people routinely walk about the city in masks is uninformed, and the allegation's factual and conceptual inaccuracies perpetuate a media bias against China.

As he does not live in Beijing, Richard relies too much on media outlets to inform his views. He may well have missed the comment of Bridget Kendall, a BBC presenter visiting China last November, who said, "Everybody is talking about pollution in Beijing. I must say it's a lovely blue-sky day here ... today. I don't know what they are talking about."

Kendall made her observation a day after Western newspapers had published yet another series of apocalyptic-looking pictures of a heavily polluted Chinese capital. Her off-the-cuff remark reveals a lot because she was alluding to the chasm between reality and the way Western media present China to the world. I wish I had a penny for every guest of Imperial Tours who has made the same observation.

Why was everybody talking about air quality in Beijing but not about more polluted cities?

For example, the New York Times reported that New Delhi's average daily peak reading of fine particulate matter from the monitor Punjabi Bagh was 473, more than twice Beijing's for the first three weeks of this year.

India suffers more deaths from asthma than any other nation, according to the World Health Organization, and a recent study found that Indians have the weakest lung function in a sample of nonsmokers from 17 countries. So, given that India's air pollution is as much as double China's, do "industry ethics" bind Richard to dissuading his clients from traveling there also?

A wider point relates to the nature of travel itself.

Richard suggests in the same article that travelers should avoid China because they might find themselves in a smoky venue in the evening, presenting a risk of respiratory illnesses. Once you start down this road of risk analysis, it can start getting absurdly subjective: For example, should I dissuade Chinese clients from traveling to the U.S. so they don't get shot? After all, as many as 81 people die of gunshot wounds daily in the U.S., and I hear that residents of New York are now routinely wearing bulletproof vests as they walk about the city.

Or, embracing Richard's logic, should I steer Americans away from Paris or Rome because the French and the Italians like the occasional puff? If, on the other hand, Richard's point is that smoking is now less widespread in Europe than in China, then I will observe that reputable tour operators to China can suggest countless restaurants where cigarette smoke is not an issue.

My underlying point is that the joy of travel is to explore other cultures, not all of whose values would play well back home. I recall coming close to an elephant stampede during a walking safari in Kenya, yet I would never warn people away from the unbridled excitement of a safari.

If there is anything useful or objective to glean from such warnings, it is that China is routinely held to a higher standard than other countries. That begs a question posed by Joshua Keating in Slate: "Why does China's air pollution get so much more attention in the international media? Part of it may simply be the fascination ... in the U.S. and Europe with anything having to do with China."

Whatever the reason, it might come as a surprise that air pollution, like many other issues, is being dealt with effectively here, since this is a country that knows how to get things done. A glance at the Beijing skyline reveals that this modern city is moving fast. What might take 300 years in the West can be accomplished far more quickly here.

Over the last 30 years, China has experienced unprecedented urbanization as staggering numbers of people have been lifted out of poverty to become the beneficiaries of economic reform.

In the old days, when that sort of thing happened in the West, the migration from rural to urban environments was generally reported as a good thing.

Similarly, when the deputy mayor of Beijing "declared war" on air pollution last July with an 84-point plan that named officials responsible for achieving a 25% reduction in particulate concentrations in five years, the Western media responded with a collective yawn.

And even as media pundits were reporting that Beijing's pollution would take 30 years to address, by November 2013 we already had observable results. Last Dec. 4, commenting about the improvement in air pollution in Beijing, I wrote on Imperial Tours' Facebook page that there had been "nothing in the foreign media about it, as though it is not happening, but there are at least 20 million witnesses to it."

Yet, when later that same day there was a pollution spike in Shanghai equal to a normal day in New Delhi, that story hit newspapers worldwide. Similarly, a pollution spike in Beijing on Jan. 14 for a few hours was widely reported. But what was not reported was that over that winter, air pollution in Beijing had enjoyed an average 4.5% year-over-year improvement. No country can withstand these arbitrary levels of

media scrutiny.

The Chinese government is moving decisively on air pollution.

First, more than 8,300 polluting companies in surrounding Hebei province have been closed down, and the impact has been tremendous.

Second, 74 cement factories in nearby Shijiazhuang are being leveled as I write this, after which the western half of that industrial city will be redeveloped.

Further, China's national \$277 billion environmental plan anticipates that by the end of 2015, China's road stock will run on China 5 gasoline and diesel (10 parts per million sulfur content), facilitating vehicle emissions standards far more stringent than those in the U.S. Through wide-ranging actions such as these and many more, the Chinese government is bringing air pollution under control more quickly than anyone imagined possible.

That said, let me be clear: The media doesn't lie. There are pollution spikes every so often in China, such as the ones reported during winter, the low season for travel. Most people aren't affected by an air quality index of 150 or less, which is well above Beijing's current yearly average of 116 as reported by air.fresh-ideas.cc on Feb. 10. Our visitors, especially those visiting for three or four days during the cleaner air of the tourism season, rarely notice. Nor would I suggest that prolonged, long-term exposure to polluted air is not harmful. That is why the government is tackling this issue with such urgency. Fortunately, visitors are not subjected to long periods of breathing polluted air.

The suggestion that the Western media are ideologically and emotionally charged in their coverage of China, especially in light of its legion laudable achievements, is nothing new. What I ask from savvy and experienced travel agents such as Richard Turen, his clients and you, his readers, is to interpret the reporting critically and in context and not fall prey to inherent bias. To be inspired by China's history, culture and success and to respect, appreciate and learn all that the Chinese people have to teach, you must travel here. Please do so without fear of bad air and smoky rooms. Every travel experience anywhere has its risks, but it is inadvertently biased and misguided to dissuade tourists from visiting China on account of air pollution. Guy Rubin, managing partner of Imperial Tours (www.imperialtours.net), a luxury inbound tour operator for China, has been based in Beijing since 1997.

Environment prize goes to Indian activist who battled coal mine plan

Source : *Los Angeles Times*

Date: 29th April, 2014

The Goldman Environmental Prize for Ramesh Agrawal, who was attacked by gunmen,

highlights the risks campaigners face. Ramesh Agrawal had just finished lunch when two men walked into his cyber cafe and inquired about computer prices. Agrawal said he would ask his sons, who run the business. That's when one of the men shot him.

Two bullets pierced Agrawal's groin and left thigh, shattering his femur. Blood ran down his pant leg. He collapsed but managed to grab a phone to call his wife for help. The assailants, who sped off on a motorbike, had links to a powerful steel company seeking to build a coal mine in Agrawal's home state of Chhattisgarh, in eastern India, police said. Agrawal had been the mine's foremost opponent, using India's nascent freedom-of-information laws to lead a grass-roots campaign that prompted authorities to cancel the project's environmental clearance. The July 2012 shooting badly wounded Agrawal, now 58, who still wears a cast on his upper leg and cannot walk without a cane. But for his activist efforts, Agrawal on Monday will receive the Goldman Environmental Prize, the world's largest award for grass-roots environmental activists, at a ceremony in San Francisco.

The award for Agrawal — one of six recipients of the annual prize, which comes with \$175,000 in cash each — highlights the risks faced by Indian campaigners who have tried to challenge powerful business interests. The company that Agrawal opposed, Jindal Steel & Power, is one of the country's largest energy firms and is led by multibillionaire Naveen Jindal, a two-term member of Parliament from the ruling Congress Party. Agrawal challenged Jindal's coal project after seeing the harmful effects of rapid industrialization in his state, home to nearly one-fifth of the country's coal reserves. India's surging economy has created a yawning demand for domestic coal, the country's primary fossil fuel. New mines and power plants have overtaken vast tracts of forest and farmland, transforming agrarian Chhattisgarh into one of India's fastest-growing states. Environmentalists say that the breakneck expansion has worsened air and water quality, pushed poor villagers off their land and produced industrial runoff that threatens small farms. A recent Greenpeace report blamed air pollution from India's coal power plants for 120,000 premature deaths and 20 million new cases of asthma each year. Activists complain that industrialists are cozy with government officials, who rubber-stamp massive new projects without regard for the environmental and public health costs. "We are a rich state; we have minerals, natural resources, everything we have here," Agrawal said in a recent interview from his Internet cafe in the industrial boomtown of Raigarh. "This would be the happiest state in the country except for corruption." Agrawal was an early believer in the power of the Internet; his cyber cafe, opened in 1999, was Raigarh's first. A father of three, he was involved in village literacy programs before starting his own nongovernmental organization, the Jan Chetana people's movement, in 2005. The same year, India passed a Right to Information Act that aimed to improve the accountability of

government agencies. Using the cyber cafe as an office, Agrawal fired off a flurry of information requests on local coal and steel projects and found that many had failed to conduct mandatory environmental impact assessments or may have broken other laws. In meetings in the surrounding villages, illiterate farmers complained to him that company representatives had tricked them into signing over farmland for cut-rate sums. "The villagers didn't know how to go about opposing business," Agrawal said. "We united people and showed that if you want to oppose such bigwigs, you have to join together. You can't fight them on your own." In 2007, Agrawal learned that Jindal Steel, which already operated several private coal mines in the area, was planning to develop a 4-million-ton-per-year mine in Raigarh. By law, the company had to conduct a public hearing on the project, but Agrawal said such meetings usually were a farce — held in private, with some residents plied with cash or a free meal to ensure their support. Agrawal brought concerned villagers to the meeting, where they clashed with pro-Jindal residents in a chaotic, chair-throwing melee. Police were called in and many of Agrawal's supporters were beaten or arrested. The hearing continued without them and the project eventually won government approval. Agrawal was accused of defamation, landing him in jail for 2 1/2 months. Undaunted, Agrawal fought the mine project all the way to the National Green Tribunal, a special court established in 2010 to handle environmental cases. In April 2012, the court withdrew the project's environmental clearance, declaring that the public hearing conducted by authorities was a "mockery." Three months later, the gunmen arrived at Agrawal's cyber cafe. He underwent multiple operations in the state capital and in Mumbai to remove the bullets. Nearly two years later, seven metal rods still hold his thigh in place, confining him to his home and the cyber cafe on most days. Police arrested a Jindal Steel security guard and three associates in the shooting, and later two Jindal security officers surrendered to local authorities. The case is pending. A company spokeswoman, Indira Das, denied that Jindal Steel had any involvement in the "alleged incident of shooting." "All the allegations of Mr. Ramesh Agrawal against JSPL and/or its management are wrong, manipulated and baseless," Das said. Although the Right to Information Act has increased transparency, it has also made targets of activists, who must file requests under their own names. Scores of petitioners have been attacked and several have been killed.

Despite the risks — and his serious injuries — Agrawal has continued to file information requests on behalf of other impoverished communities and has successfully blocked several other coal and power projects on legal grounds. "It's not that Raigarh is different from other places," said Ritwick Dutta, an environmental lawyer who is representing Agrawal in more than a dozen cases. "The difference is that they have someone who is willing to raise their voice and face the consequences,

and that is Ramesh." The other winners of the 2014 Goldman prize are South African environmentalist Desmond D'Sa, Russian zoologist Suren Gazaryan, Indonesian biologist Rudi Putra, Peruvian indigenous activist Ruth Buendia and New York anti-fracking lawyer Helen Slottje.

Philips to develop & launch a range of air purifiers to combat respiratory allergies

Source : *Pharmabiz*

Date: 28th April, 2014

Philips India is concerned over the deterioration of air pollution levels in India which has led to 27 million suffer from constructive obstructive pulmonary disorder (COPD) and 80 million asthmatics and out of that 15 per cent are children. Three of Indian cities: New Delhi, Bengaluru and Lucknow are reported to be top in high air pollution levels. This led the company to embark on designing and developing a range of air purifiers to combat respiratory and allergy disorders which is reported to grossly decline work and study productivity among adult and children population in the country. Indoor air pollution is the fifth largest killer in India after cardiovascular, cancer, road accidents and tuberculosis. The company is also apprehensive following the World Health Organization(WHO) report which says that 600 million in India would be suffering from air pollution disorders by 2017. "While we have no control of the air outdoors, we could definitely do something about the air we breathe in our homes. This led us to develop multi layer filtration systems and Vita Shield technology to remove the irritants that trigger allergic reactions," said Jayati, director, CL-CO, customer marketing, Philips India. In India, the average indoor air pollution is 375 ug/m³ versus the WHO prescribed standards of 20 ug/m³. The country also accounts of over 20 million adults suffering from COPD. By 2017, it is estimated that half the population of India would suffer from some form of allergy including asthma. "Our air purifiers' filter out the bacteria, allergens and harmful agents to provide healthy air continuously These indoor pollutants can have severe effects on human health and well being, This means anybody could use Philips air purifiers," she added. Quoting the WHO report, Jayati stated that most people spend 85 per cent of their time indoors which is 10-30 times more polluted than outdoor. This leads to acute respiratory infections which contribute to 13 per cent of the patient deaths in pediatric wards. Globally, around 13 lakh succumb to indoor air pollution versus outdoor pollution of 6.20 lakh. According to Indian Council of Medical Research (ICMR), 12-15 per cent children suffer from asthma. The WHO studies reveal a strong link between poor indoor air quality and non communicable disease which causes 63 per cent of the global mortality. A serious concern is the rise in respiratory disorders

driven by air pollution. All the three models of Phillips air purifiers: AC4027, 4025 and 4014 are equipped with a four-step filtration system. The first layer is an antibacterial pre-filter which catches the big particles like hair and dust. The second layer which is a high-efficiency particulate air (HEPA) filter removes ultrafine particles including some viruses. The third layer of filtration which is an activated carbon shield removes odours and harmful gases. The fourth layer which is also a HEPA filter with an antibacterial coating eliminates fine dust, germs and mould, she explained adding that the multi-stage active filtration system which traps up to 99.7 of air borne particles triggers much of the allergic reactions. Further, the range of air purifiers are also alert filter replacements, adjusts the air flow and clearly shows the air quality level

Mahagenco fly ash utilization unsatisfactory @ 63%

Source : *The Times of India*

Date: 28^h April, 2014

NAGPUR: Mahagenco has been frequently hauled up by environmentalists for not taking measures to control air pollution. The company has always defended its conduct by saying that poor quality coal makes it difficult to do that. Now, a Central Electricity Authority (CEA) audit has revealed that even fly ash utilization by Mahagenco is far below the minimum expected level.

Ideally, the entire fly ash should be used, but CEA considers performance by companies in the range of 75% to 100% utilization as satisfactory. However, Mahagenco's utilization figure is 63%. The national average is 55.6%. The biggest power producer NTPC has a very poor record of 43% utilization.

While many generation companies fare even worse, there are some utilities, mostly private, that use the entire fly ash. CEA has compiled data for 66 companies for the first half of 2013-14. Sixteen power utilities have used the entire fly ash generated by them. Twenty-one have used up 75% to 100% while the remaining 29 are below 75% usage. Mahagenco falls in the third category.

During this period, Tamil Nadu has achieved fly ash utilization level of more than 98% while Delhi, Gujarat, Jharkhand, Punjab, Rajasthan and West Bengal achieved fly ash utilization level of more than 70%.

The average fly ash utilization of Mahagenco reached 63% in the first quarter of 2013-14 because Koradi and Parli used the fly ash generated in earlier period. The figure for Koradi was 168% and Parli 127%. Other than these two plants, Nashik had the best figures with 70% followed by Khaparkheda at 67%. The poor performers are Chandrapur (43.5%), Bhusawal (44%) and Paras (29%).

The performance of some private power plants in Maharashtra, commissioned four to five years ago, is quite satisfactory. Wardha Power's Warora plant used all the fly ash it generated, JSW Jaigad (96%), Trombay (94%), GMR Warora (98.5%) and Dahanu

(91%). The plants that had started a few months ago had poor record of ash utilization during first half of 2013-14. These include Mihan, Mouda, Butibori and Tiroda. Mahagenco's poor pollution control mechanism has led to discharge of fly ash slurry from Koradi and Khaparkheda plants into Kanhan and Kolar rivers, creating a health hazard for citizens of Nagpur. TOI had highlighted this in a series of articles in January 2013, forcing Mahagenco to take some remedial measures.

Researchers raise alarm about air pollution levels in Haiti

Source : *Phys.Org Science X network*

Date: 23th April, 2014

The researchers—associate professor Mary Davis and Ann Rappaport in the Department of Urban and Environmental Policy and Planning—say that air pollution levels put people at higher risk for respiratory illnesses, including lung cancer and heart disease.

For their study, Davis and Rappaport monitored the levels of particulates produced by combustion in Haiti's two largest cities, Port-au-Prince and Cap-Haïtien, for a week in May 2013. "Concentrations of particulates around Port-au-Prince and Cap-Haïtien are higher than levels observed elsewhere in the developing world, with the exception of India and China," says Davis.

In the affluent Pétionville suburb of Port-au-Prince, they found air quality that would be considered a moderate health concern, according to EPA guidelines. But during morning rush hour in Port-au-Prince, Davis and Rappaport recorded particulate concentrations that consistently exceeded levels the EPA would deem hazardous. In Cap-Haïtien, the levels were even higher.

In contrast to China, where high levels of air pollution are associated with unregulated industrial sources, in Haiti the sources are generally residential and commercial. Diesel generators are an alternative or a backup for the unreliable electricity grid, trash burning is widely practiced, charcoal and other biomass are frequently used for cooking, and traffic is congested in population centers. These conditions may have been exacerbated by the earthquake that struck Port-au-Prince in 2010, and exposures may have increased. "The worst readings are near heavy traffic areas and often where displaced people are living in camps," says Davis.

The filter on the air-quality monitor they used would blacken in just 30 minutes in Port-au-Prince, Davis says. That compares to the 10 to 20 hours it took to blacken filters when she studied U.S. diesel trucking terminals as part of an earlier air pollution study.

The research, though limited in the data it gathered over a short period of time, is a real wake-up call, the researchers say. It gives strong indications that similar unhealthy air conditions likely exist in other developing nations with inadequate

infrastructure, especially those where natural disasters have increased dependence on pollution-promoting sources of heat, energy and transportation.

Davis and Rappaport hope their study will spur further research in Haiti and other developing countries.

Flue Gas Desulfurization Systems & Services Market by Type (Wet FGD, Dry FGD, and others), by Application (Cement Manufacture, Chemical, Power Generation, Iron & Steel, and Others) - Global Trends & Forecasts to 2019

Source : *Market Watch*

Date: 23rd April, 2014

The global FGD systems and services market has witnessed a significant growth in the past few years and this stable growth is estimated to continue in the coming years. Stringent governmental regulations and increasing number of coal-fired plants will be the key influencing factors for the global FGD market.

The FGD market is experiencing enormous growth which is expected to continue in the near future, mainly driven by the high growth region– Asia-Pacific. A considerable amount of developments took place in this region. Asia-Pacific is the main FGD market, and accounted for more than 50% of the total FGD market in 2013. It is expected to boost the overall FGD systems and services market, mainly due to high growth of coal-fired power plants in China and India. The growth of FGD systems market in this region is also the result of industrial air pollution control regulations. The recent 12th Five Year Plan in China strengthened the regulations on industrial air pollution. In India, the FGD systems market has a huge potential of growth, if impending sulfur dioxide control regulations are imposed.

Power generation is the largest application segment of FGD systems and services. It held more than half the market share in the year 2013. Power generation relies mainly on combustion of coal for generation of electricity. The combustion of fossil fuels generates huge amounts of harmful pollutants. These pollutants have adverse effects on human health and the environment. Hence, the regulations for control of industrial air pollution are being implemented and strengthened in many countries.

This research report categorizes the global market for FGD systems and services on the basis of types, applications, and geography along with forecasting revenues and analyzing trends in each of the submarkets. The FGD market is segmented on the basis of types namely Wet FGD, Dry FGD, and others. The FGD systems market is segmented on the basis of industry applications such as cement manufacture, chemicals, iron & steel, power generation and others. The market is classified on the basis of geography as Asia-Pacific, Europe, North America, and Rest of the World.

Each segment is further analyzed and the revenues have been forecasted. It aims to project growth of the global market of FGD systems and services till 2019. The market research study provides a detailed qualitative and quantitative analysis of the global FGD systems and services market. The study involved analysis of information gathered from various secondary and primary sources.

Competitive scenarios of the major players in the FGD systems market have been studied in detail. The leading players in the industry have also been profiled with their recent developments and other strategic industry activities. These major players include key FGD systems manufacturers such as Alstom SA (France), Babcock & Wilcox Co. (U.S.), FLSmidth & Co. A/S (Denmark), and Mitsubishi-Hitachi Power Systems (Japan).

Asthma, acid rain: life in one of India's most polluted cities

Source : *Fairfax Media*

Date: 19th April, 2014

Chandrapur: Welcome to one of the most polluted cities in India. The air pollution is so bad that up to 70 per cent of children in Chandrapur are suffering from asthma or some other kind of respiratory disease, thanks to the ash being churned out from 12 coal-fired power stations in the district that produce a combined 5000 megawatts of electricity.

The same power stations also emit enough sulphur dioxide and nitrogen oxide to enable the formation of acid rain, adding to the prepressure on the already shrinking Tadoba tiger reserve nearby – to say nothing of what it means for the district's 2.2 million residents.

Chandrapur is home to a huge industrial hub that includes six power-hungry cement factories, six sponge iron plants and more than 800 medium-sized factories, but its environmental hazards don't end there.

Boron from about 36 operating coal mines in the district, along with heavy metals including mercury and lead, are leaching into the soil and poisoning the water table.

"There are many cities like this in India and if we don't do something now to change our ways ... then this city and others will simply become unlivable," says environmental activist Suresh Chopne, the founder of a local movement called Green Planet.

It has taken Mr Chopne 20 years, but he believes he is finally having an impact on what people are thinking as they enter the voting booths in this year's general elections, which are due to conclude on May 16.

"A major problem is that with all these industries, everyone here in this district has a job, so no one wants to say bad things about the people who provide them with their jobs, but I think that finally people are prepared to apply real political pressure that

will also improve their lives," he says.

M.V. Dhuman, 52, is an English teacher at a local high school in Chandrapur. He has been living in the district for 35 years and blames the air pollution for the severe asthma from which he suffers.

"It is very, very unhealthy to live here – I now have very bad asthma, but I can't leave here. This is where my job is, where my life is; it would be impossible for me to find work elsewhere," he says.

The World Health Organization recommends that every cubic metre of the air we breathe should contain only 25 micrograms of particulates, but the air in Chandrapur can sometimes reach peaks of as high as 2600 micrograms per cubic metre.

Disgusted that Congress Party candidate Sanjay Deotale, who is running for the national seat responsible for Chandrapur, is the current state minister for the environment, Mr Dhuman says he will be voting for the centre-right Bharatiya Janata Party (BJP).

"One after another state environment plan has failed and the Congress candidate has shown no interest in fixing things," he says. "On the other hand, I think the BJP will be the next centre government, so I want someone in the [national parliament] who has some influence with the new prime minister."

Fellow Chandrapur resident Nitin Baonsod, 38, a marketing executive for global healthcare company Abbott, says the most common complaints he sees are related to skin disease and hair loss.

"Environment is my number-one issue but corruption is the next biggest," Mr Baonsod says. "Businessmen have money that buys influence on politicians but also the bureaucracy, who should implement the environmental action plans. We need to change so much to fix things."

According to Mr Chopne, even the election of a new generation of politicians will struggle to get things under control.

Demand for electricity among India's 300-million-strong middle class is surging, yet most of India's coal reserves lie under its forests.

"National coal production since 2007 has nearly tripled and more than 27,000 hectares of forest [has been] cleared, and it's showing no sign slowing down," Mr Chopne says.

EU Funding Nanotechnology Research To Monitor Air Pollution At Home, Work And In The Car

Source : *International Business Times*

Date: 18th April, 2014

Poor indoor and outdoor air quality is linked to one in eight deaths worldwide or 7

million, making it the world's most dangerous environmental health risk, according to a March report by the World Health Organization.

Air pollutants like organic compounds, carbon monoxide, mold and other debris can cause headaches, fatigue, respiratory illnesses and worse.

That is the reasoning behind the European Union's decision to fund a new nanotechnology project that would allow people to gauge air quality real-time at home, work and in cars with low cost, mini sensor systems, the EU's community research and development information service announced Friday. "The control of indoor air quality and the related comfort it provides should have a huge societal impact on health, presence at work and economic-related factors," Claude Iroulart, coordinator of IAQSENSE, said in a statement. The project, called IAQSENSE, aims to develop nanotechnology-based sensors to monitor the composition of air in terms of chemical and bio contaminants, designed to be tiny, low cost and mass-produced. France, Bulgaria, Germany, Switzerland and Spain are collaborating in the research and development of the project, and testing is expected to end in September 2016. The estimated cost is \$6.8 million, \$4.8 million contributed by the EU.

The gas sensor systems would be located in fixed places, connected to a network of wireless sensors that would rapidly detect gas molecules, one of three patented technologies the project would utilize. Applications in cars and smartphones would also be explored.

The European Lung Foundation estimates that respiratory illnesses in Europe costs about \$141 billion each year in work absences and inefficiency. The foundation also believes that levels of indoor pollution may be ten times higher than levels outdoors.

Almost all of deaths associated with indoor or household air pollution in 2012 occurred in low and middle income countries, where people commonly burn wood, charcoal and trash inside for cooking, according to WHO data. About 88 percent of deaths from outdoor air pollution occur in low- and middle-income countries, particularly regions in and near China and India and secondly, Africa. Still, deaths from air pollution occur even in high-income countries. Nearly 300,000 Europeans living in high-income countries died from health effects associated with air pollution in 2012, WHO reported.

Smog, pollution in India, China responsible for disrupting weather patterns in the US

Source : *The American Bazaar*

Date: 17th April, 2014

WASHINGTON, DC: As the US recovers from one of the most unpredictable and brutal winters of the last several years, it turns out that the cause of such wild weather

patterns in the States could be the intense smog and pollution in China and India. Scientists at Texas A&M University have discovered that the increasing levels of toxins in the air above Earth's two most populous nations are so dense, that they may actually be disrupting natural weather patterns.

The study says that although it's difficult, if not impossible, to put a quantifiable number on the influence smog has on weather in the Western hemisphere, analysis of satellite imagery and computer data models offer irrefutable proof that a relationship certainly exists.

"Increasing levels of air pollutants in Asia have recently drawn considerable attention, but the effects of Asian pollution outflows on regional climate and global atmospheric circulation remain to be quantified," says the report. "Our work provides, for the first time to the authors' knowledge, a global multi-scale perspective of the climatic effects of pollution outflows from Asia."

Climatologists have long known that aerosols and other pollutants eat away at the atmosphere's ozone, a layer of organic compounds in Earth's stratosphere that's critical to protecting the planet's inhabitants from the harmful effects of the sun's radiation. In recent years, as the world has become more industrialized, that ozone layer has been eaten away at, and has been blamed by many as a key reason for global warming and other abnormal climate behavior.

The new study, entitled "Assessing the effects of anthropogenic aerosols on Pacific storm track using a multi-scale global climate model," says that China and India have been responsible for a lot of the damage done to the ozone layer. In a statement, lead author Renyi Zhang said that a "dramatic increase in atmospheric aerosols – mostly sulfate and soot from coal burning," has led to rapid dissolution of ozone and the augmentation of potentially devastating climate change around the world.

The toxins in smog produced in the East ride across wind currents over the Pacific, ultimately affecting the weather in the US and Canada. With less ozone protection due to chemical toxins, storms become more frequent, intense, and erratic. This, says the report, is in addition to climate change happening in other parts of the world from an increase in exposure to the sun, which has mostly caused rapid melting of the polar ice caps and rising sea levels.

Zhang said that predicting how weather in North America will change at any given time is difficult, but that "it's almost certain that weather in the US is changing." Deep convective clouds, which are present during heavy storms, have increased because of smog in China and India, and that pollution from these two countries has to be mitigated as a crucial first step in solving this climate crisis.

Zhang, originally from China, is now the University Distinguished Professor of Atmospheric Sciences and Harold J. Haynes Chair in Geosciences at Texas A&M. He

holds a B.S. in Atmospheric Science from China's Nanjing Institute of Meteorology, an M.S. in Physics from the University of Nevada-Reno, and a Ph.D. in Atmospheric Chemistry from M.I.T.

Smog in India, China is changing weather patterns in US, finds study

Source : *Al Jazeera America*

Date: 15th April, 2014

Man-made air pollution kills millions of people every year, but a new study suggests that poor air quality in India China could be contributing to extreme weather patterns in the U.S. and Canada.

The study by researchers at Texas A&M, the first of its kind to focus on smog in Asia, found that air pollution originating in the region almost certainly affects global weather patterns.

How much of an effect, researchers say, remains to be seen. However, it is likely exacerbating problems already caused by climate change: increasing the intensity and frequency of storms, ice cap melting, sea level rise, and drought.

Scientists have already determined that carbon emissions, or greenhouse gases, contribute to climate change. But the smog in Asia is caused by more than just the burning of fossil fuels — it's comprised of nitrogen oxides, methane and other volatile organic compounds that combine to produce ozone.

Scientists used satellite imagery and computer models to show that man-made air pollution created in Asia is adversely affecting the Pacific Ocean storm track, which transports weather westward from Asia to the west coasts of Canada and the U.S.

The pollution is causing an increase in the formation of deep convective clouds, from 20 to 50 percent. The result is more extreme storms, according to the study funded by NASA and the National Science Foundation.

"This pollution directly affects our weather," Renyi Zhang, professor of atmospheric sciences at Texas A&M and lead author of the study, said in a statement.

"During the past few decades, there has been a dramatic increase in atmospheric aerosols — mostly sulfate and soot from coal burning — especially in China and India," he said.

Both China and India have experienced widespread economic growth in recent years. Large, dirty factories and power plants, combined with the effects of wood and coal burning stoves among large populations have meant that the countries are now among the world's largest contributors of man-made air pollution.

Those toxins ride the Pacific storm track to the west coasts of Canada and the U.S., across North America, and eventually over most of the world, impacting clouds in

their wake, the study found. That could lead to increased frequency and intensity of storms or even severe droughts.

What's more, soot particles in the form of black carbon can collect on ice packs in the poles — which attract more heat from the sun and accelerates ice-cap melting.

Melting ice caps results in the release of methane, which exacerbates global warming, and also contributes to accelerated sea level rise. Sea level rise already poses an existential threat to residents of low-lying areas around the world.

"The Pacific storm track plays a crucial role in our weather, and there is no doubt at all that human activity is changing the world's weather," Zhang said.

Asian air pollution affecting Northern Hemisphere's weather patterns

Source : *The Times of India*

Date: 15th April, 2014

LONDON: Air pollution in China and other Asian countries is generating sweeping impact on weather patterns across the Northern Hemisphere, it has been revealed.

Researchers have found that the pollutants are strengthening storms above the Pacific Ocean, which feeds into weather systems in other parts of the world, the BBC News reported. Lead author of the study Yuan Wang, from the Jet Propulsion Laboratory at the California Institute of Technology said that the effects are quite dramatic and the pollution results in thicker and taller clouds and heavier precipitation.

Parts of Asia have some of the highest levels of air pollution in the world including Beijing and Delhi, where pollutants hazardously soar above those recommended by the World Health Organization. Dr Wang said that the impacts of Asian pollution on the storm track tend to affect the weather patterns of other parts of the world during the wintertime, especially a downstream region like North America.

The study is published in the Proceedings of the National Academy of Sciences (PNAS).

Right to breathe fresh air

Source : *Pune Mirror*

Date: 15th April, 2014

With pollution levels rising, it is heartening to note activists agitating for clean air in their localities. We are what we breathe. Every individual has the right to breathe fresh air. As Indians holiday abroad, they realise how different it is to see clear skies without dark hues of pollution. Breathing such air is a pleasure. People from the West are very conscious of the quality of air they breathe and more and more Indians are taking cues from them.

On a sunny day in the West, weather forecasters on TV advise you to wear glares. Earlier, this seemed absurd to me but then I realised -- the problem is that on a sunny day in the West, the sun comes down on you directly and you are unable to see without glares, because of the lack of pollution. But the sun never shines on you directly on polluted Indian skies. Air pollution is the introduction of chemicals or biological material that is detrimental to health. I believe that air pollution is the price we pay for industrialisation. As fuel burns, the air gets polluted. Decades ago, we were used to seeing smoking exhausts from the cars we used. Thankfully now we are forced to get our cars certified as non-polluting before buying. Aircrafts, marine vessels, power plants, manufacturing factories, chemicals and dust products cause pollution. Waste deposits in land fills generate methane gas which is highly toxic, not to mention nuclear weapons, gun warfare and rockets also cause air pollution. It seems to me that those living in Mumbai are destined to be immune to dust. Even if you lock yourself in air conditioned rooms, dust seem to gather. It is a shame because in other parts of the developed world, dust control measures are in force. I have personally seen trucks leaving building sites have their tyres washed before proceeding back on the roads in Singapore.

The principles of dust control, however, are simple. It is important to water a construction site, especially before winds blow. Wind fencing with three to five barriers with 50 per cent or less porosity adjuvant to roadways is one of the best ways to prevent dust. Growing trees and shrubs on open sites also help control dust. We need to steer clear of dust because it contains particulate matters and elevated levels of such matters can aggravate lung and heart disease, reduce lung function, cause heart attacks, crush your immunity system and cause premature death.

Other natural gases that are detrimental to our health are methane and radon gas. Smoke and carbon monoxide from wildfire and volatile organic compounds released from vegetations, which react with nitrogen oxide, sulphur dioxide produce organic carbon compounds produce a seasonal haze of secondary pollutants. Lack of indoor ventilation also compounds the problem of air pollution. Carpentry and plywood that emit formaldehyde, paints and solvents that exude volatile organic compounds are also harmful. Use of air fresheners, incense sticks is another common cause of air pollution. Rural India sees the use of a lot of asbestos sheets for roofing. It is banned in other countries for its ill effects. Asbestos, a carcinogen, causes lung cancer and peritoneum in the abdomen.

We must also consider the biological sources of air pollution -- pets produce dander, dust is produced from skin flaking and decomposed hair, and dust mites in bedding produce enzymes and minuscule fecal droppings. Combustion of diesel exhausts is also known to produce substances that promote clotting of blood. All these are

extremely harmful.

The World Health Organisation (WHO) estimates that 2.4 million people die every year from air pollution, and a staggering 1.5 million of these deaths is from indoor air pollution. The most common pollutants are particulate matters, ozone, nitrogen dioxide and sulphur dioxide. The WHO also reports that the greatest concentration of particulates is found in poor countries and it increases the risk of asthma, pneumonia and lung infections. Even in developed countries like the USA, which has a clean air act already in position, there are places where large amounts of dangerous pollutants such as ozone, particulates, sulphur dioxide, nitrogen dioxide and carbon monoxide have been found. The worst crisis that comes to mind when you think about air pollution was the Bhopal Disaster of 1984 where leaked vapours from the Dow Jones factory killed more than 25,000 people and injured 1,50,000 to 6,00,000 people.

The great smog over London in 1952 was responsible for 4,000 deaths and many more died in the following months. Air pollution has been linked to cancer in several studies. People living close to areas with high traffic densities have increased risk of lung cancer, cardiovascular deaths and overall non accidental death.

Several developed countries have laid down standards such as the national ambient air quality standards and EU air quality directive. Such a scale gives the general public an idea that as risk increases, strenuous outdoor activities should be reduced or avoided. In India, the central pollution control board has a national air quality monitoring programme where levels of respirable suspended particulate matters are assessed.

NGOs like the Centre for Science and Environment have stated that some of the worst forms of air pollution are found in Indian cities. 52% of 63 cities have critical levels of heavy particulate pollution exceeding 1.5 times the standard and 36 cities with high levels 1 to 1.5 times the standard and 19 cities at moderate levels which is 5 per cent below standards. I find it heartening to note several activists are now agitating for clean air in their localities.

Will Panasonic's 'hazard pay' make a difference to air pollution in China?

Source : *The Guardian*

Date: 14th April, 2014

Panasonic made an announcement this month that it will pay its China-based expatriates a "hazard pay" to compensate for the dangerous air quality they're subjected to as they work.

The move from the Japanese electronics giant highlights just how bad China's air quality has become. A World Health Organization (WHO) report in March showed that



in 2012, seven million people died from air pollution – that's one in eight global deaths – and south-east Asian countries, including China, had the highest burden with 3.3 million premature deaths. The report cites China as hosting the worst air pollution with the most deaths per capita, resulting from

indoor and outdoor air pollution. Cardiovascular disease, respiratory disease, lung and bladder cancers are some of the resulting illnesses. China's premier, Li Keqiang, and his government have declared a war on pollution with several initiatives in place including shutting down coal-fired furnaces and shifting to different types of development. But responses from corporations like Panasonic, whose green initiatives include donating water pumps, solar lanterns and energy efficient light bulbs to Indonesian villages and other areas with limited electricity, are new and controversial. Meanwhile, eco-friendly products specifically for the China market are also emerging. Will hazard pay help? Will providing expatriate workers a danger pay do much to tackle China's pollution crisis? Panasonic's move is "a mere drop in the bucket," says Usha Haley, professor of international management at West Virginia University and co-author of *Subsidies to Chinese Industry*. Haley says by offering its expat workers hazard pay, Panasonic has institutionalized what other companies have always offered on the side. "It is becoming more difficult for American and multinational companies to recruit top talent to work in China due mostly to the perceived costs on health and well-being," she says. She adds that China's biggest pollution culprit is coal, supplying two-thirds of the country's energy. "Our research shows that this problem is not going away." Haley sees part of the issue being China's role as manufacturing capital for the world. Their calculations show these heavily subsidized, highly inefficient Chinese manufacturing industries including steel, glass, paper and auto parts add 30% of manufacturing capacity each year.

"Something has to give. Experts' calculations of China's air pollution probably underestimate the problem – pollution is a politically threatening issue for the Chinese Communist Party," she says. Alan Scheller-Wolf, professor of operations management at the Tepper School of Business, Carnegie Mellon University, finds Panasonic's hazard pay surprising. The company could just have easily increased pay to employees in China without the hazard pay labeling, he says. "This could cause potential problems by insulting and shaming China's government to fix the pollution problems, for instance." Scheller-Wolf wonders whether a policy on hazardous pay mandates compensation, and an employee brought the issue to their attention. Alternatively, Panasonic, which aims to be the world's greenest electronics company

by its 100th year anniversary in 2018, may be making a statement to establish "green" credibility. "If so, this is pretty remarkable," he says. "In theory, companies derive benefits from lower costs due to cheap power and lower regulatory burden. Panasonic is essentially publicly calling for higher power costs and increased regulation, which should be counter to their (immediate) cost interests. Of course this would not only affect them; all their competitors would see the same burden." He suspects the competitive business of China will make other companies match Panasonic's funds, without labeling them hazard pay. More companies will be happy to "help" China clean up its air, if money is to be made.

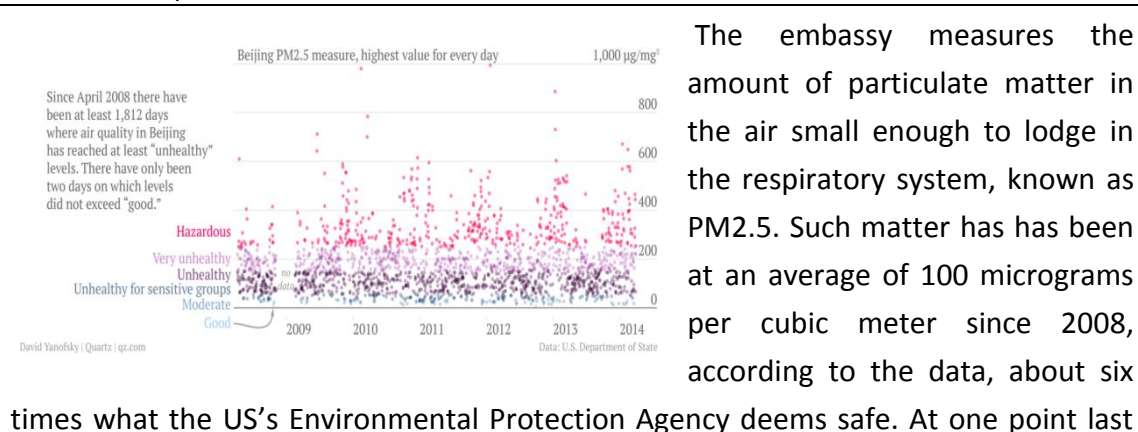
Just recently, Europe's largest car maker, Volkswagen, announced plans to produce plug-in hybrid cars across China. Larissa Braun, director of CEO communications for Volkswagen China, says it introduced the Porsche Panamera Plug-In Hybrid in 2013 and plans to introduce its first imported full electric car later this year. Braun says these initiatives are 100% related to helping China with its ongoing pollution problems.

Others like Gautam Gandhi, director of new business development for Google India, points out that China's pollution is actually a global problem. Gandhi, (who speaks personally, not on behalf of Google), visited China several times and found the pollution challenging. He adds that India suffers too. In 2010, India's Central Pollution Control Board found particulate matter in the air of 180 Indian cities exceeded WHO's standards by six fold and India has the world's worst asthma rate. China's air quality will make it even harder for companies to attract workers to the region. On the flip side, he adds that for expatriates in India and China willing to put up with the air pollution, "there's even greater economic upside". Scheller-Wolf adds he isn't sure how Panasonic's move will play out as a business decision. "But from a societal viewpoint, if offering hazard pay helps push China to clean up their air, we all benefit."

Six years of Beijing air pollution summed up in one scary chart

Source : Quartz

Date: 11th April, 2014



year, PM2.5 levels reached over 800 micrograms per cubic meter—making it the city’s most polluted day since 2008. The only reprieve Beijing residents get, the data show, is around the time of major events, when authorities close nearby plants and limit traffic to clean the air. The lowest readings came from around the time of China’s annual meeting of the National People’s Congress, when the hourly average typically drops below 100 micrograms per cubic meter.

Since US officials in Beijing began releasing this information, the hourly readings, published on Twitter, have helped catalyze a debate about air quality in China and have even inspired Chinese officials to launch their own air monitoring operations around the country. The US uses a formula that converts PM2.5 readings into an air quality index where readings at 50 or below are considered good quality. At the same time, the embassy’s motivations for publicizing the data in Beijing have been questioned. China’s bad air quality has been a source of international criticism, derision, and discontent at home. In contrast, the US embassy in New Delhi does not widely publish its air quality measures, despite air pollution that has hit levels twice as high as Beijing’s for several winters running and much lower public awareness of the problem.

Air quality is a problem in both capital cities, but perhaps the difference is their relationship with the US: India has long been a diplomatic ally, but China is increasingly seen as something of an economic rival.

No party talking about environment: Green activists

Source : *The Times of India*

Date: 8th April, 2014

NAGPUR: Even as candidates belonging to major national parties woo voters with last minute promises of all-round development, issues related to wildlife, environment and animal welfare are not on agenda. Abhishek Kadyan, media adviser of International Organization for Animal Protection (OIPA), an international confederation of associations for animal protection, said Article 51 A (g) of the Constitution clearly stated that it shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures.

OIPA’s India representative Naresh Kadyan called for collective support from all political parties but these parties are engaged in tongue-lashing one another. "We believe a change in party manifestos can establish a higher animal welfare standard in the country. The Indian public is largely aware of animal welfare as a crucial issue and we urge all political groups to firmly engage and take a progressive stand in safeguarding the welfare of animals in India," Kadyan said.

OIPA said barbaric treatment was meted out to animals in intensive farming, research

laboratories, puppy mills, and animal shifting and there was a need to protect wildlife. He called the candidates to support animal welfare, friendly agriculture practices and implement stronger environmental and farm animal welfare regulations.

"Illegal wildlife trade causes animal suffering as well as depletion of species. Perhaps, animals don't have votes and hence leaders are not bothered. No leader is taking about environment degradation and animal welfare in his speeches," said Karishma Galani of People for Animals (PFA). She called for a new Prevention of Cruelty to Animals Act. In cities of Vidarbha, animals are being subjected to cruelty but this was not an election issue. There were no animal shelter and treatment homes, she added. Vidarbha Nature Conservation Society (VNCS), Nagpur, at a meeting attended by conservationists, environmentalists and social activists expressed anguish that parties had no agenda for forested Vidarbha. The activists discussed issues related to forests, agriculture and neglect of units based on them. The meeting was attended by Kishor Rithe, Dilip Gode, Paromita Goswami, Anil Mahatme, Baban Nakhle, Pratibha Shinde, Sanjay Sontakke, Surekha Borkute, Anand Kottewar and others. Parties had failed to come out with solutions to man-animal conflict, relocation of villages in tiger reserves, forest and wildlife conservation, health issues arising out of pollution from mines and power plants, unemployment etc, they said. Except making passing reference about Nagpur as tiger capital, nothing was being done to save them.

"Vidarbha needs energy revolution through clean energy sources, away from coal. The accelerated global warming has already started playing havoc in the region, specially in agriculture sector. Due to less water in hydel projects, power generation has been affected and industries are struggling. However, nobody is telling how they are going to resolve this issue," said Suresh Chopne of Green Planet, Chandrapur. Protecting forests of Vidarbha is the best way to fight climate change because every tree by weight comprises 50% carbon. If forests of Vidarbha die, the region will inevitably become warmer and both wildlife, cattle and humans will face bleak future. However, the issue is missing from the agenda of parties," said Yogeshwar Dudhpachare, a lecturer.

Architects to build giant bubbles to beat smog in China

Source : *Business Standard Ltd.*

Date: 8th April, 2014

A London-based architecture and design company co-founded by an Indian has come up with a new solution called "Bubbles" to combat the increasing air pollution in China. Their project, still in the conceptual stage, would create outdoor green spaces covered by giant bubble-shaped domes in the Chinese cities where adverse environmental conditions mean that people are unable to spend time outdoors without risking their health. The architectural concept "bubble" will be in the form of

a covered botanical garden, retail and office complex under a giant transparent roof. "Bubbles structure encloses a botanical garden offered a giant balloon with filtered air with controlled temperature and humidity throughout the year," Rajat Sodhi, co-founder of the Orproject, an architecture practice with offices in London, Beijing and New Delhi told the South China Morning Post. Bubbles is based on the principles of biomimetic architecture, typically lightweight environmental structures inspired by nature. The geometry of the Bubbles canopy was generated using an algorithm that simulates the development of veins in leaves or in butterfly wings, he said. "It's just an infrastructure project like building metro stations and parks - it's applicable in every dense, polluted metropolis where there's a need for open, green spaces throughout the year," he said.

"Bubbles could work in Beijing and Shanghai, and in all the major cities of China, and it could work in India in places like Delhi and Mumbai," he said. It could also work well in cities like Moscow, where the temperature change across winter and summer is minus 20 to plus 20 degrees Celsius, and where green spaces aren't visible. Sceptics, however, argue that even if sealing off large, climate-controlled spaces of the city was structurally, mechanically and economically feasible, the scenario leaves many city dwellers outside of the Bubble.

Nanoe - G Technology — Saving your right to breathe

Source : *The Times of India*

Date: 8th April, 2014

More people die in road crashes in India than anywhere else in the world. Every year, road accidents in India claim 1,42,485 lives. But there's something else that kills 6 times as many.

Air pollution has become the 5th largest cause of death in India, with over 6,20,000 premature deaths. Globally, air pollution related deaths have increased 300%. Your right to breathe has been compromised.

Impure air caused by smoke and haze from factories, vehicles, burning wood, cigarettes etc. consists of PM 2.5: pollutants that are less than 2.5 micrometers in size. For perspective, that is 30 times smaller than the width of a human hair! PM 2.5 causes allergies and infections. Long term exposure triggers asthma, cardiac arrest, birth defects and premature death. These particulates of biological matter and poisonous chemicals remain suspended in the air and easily find its way to your home and into your lungs. Sunita Narain, Director General, Centre for Science & Environment (CSE) comments, "This is shocking and deeply disturbing news. This calls for urgent and aggressive action to protect public health."

At a time like this, what comes as a breath of fresh air (literally), is to see a corporate brand like Panasonic India step up for everyone's Right to Breathe. The brand has

introduced a range of Air Conditioners & Air Purifiers that are thoughtfully equipped with Nanoe-G Technology that effectively deactivate PM 2.5, making your living environment clean, fresh and free of viruses, bacteria, mold and harmful airborne elements and diseases.

Manish Sharma, MD Panasonic India, tells us about Panasonic's stand: "To breathe in good, healthy air is a basic right. The lack of it is a serious matter and we have done our bit. After all, what's technology for if not to solve problems?" Battling outdoor air pollution is a tedious task that requires everyone to understand the danger and act responsibly.

Thankfully, indoor pollution is now something you can largely control.

Breathing Kills, Especially in India

Source : *The Indian Republic*

Date: 7th April, 2014

Smoking kills, we know, but so does breathing. You don't need to light up one of the little death sticks to dramatically increase your chances of dying prematurely due to smoke. We're not even talking about passive smoking here, a problem though it is. Both those kinds of smoking can be avoided if we try studiously hard, and if laws are kept. But can you avoid breathing?

Pollution kills – literally

Ambient (outdoor) and indoor air pollution can kill you. WHO's International Agency for Research on Cancer (IARC) concluded in 2013 that there is indeed overwhelming evidence that outdoor air pollution is carcinogenic, especially contributing to lung cancer. Another condition that seems to be caused or aggravated by ambient air pollution is urinary tract or bladder infection.

In 2012, 3.7 million people died prematurely because of ambient pollution. While the carcinogenic properties of different kinds of air pollution have been determined, there is also a link between cardiovascular diseases and pollution. You would think that developed countries with all their cars and their smog would be equally affected by pollution, but you would be wrong. At least 88 percent of those deaths were in low and middle income countries.

In high income countries, environmental laws are stricter and they are better enforced. Their public transportation systems are run on relatively clean energy. Municipal and agricultural waste management is regulated, with clear guidelines that are enforced and followed, with adequate systems in place to relieve the burden on individual citizens and farmers. There are more stringent checks on even giant establishments and factories that pollute – not to mention that most of such dirty work is now outsourced into low and middle income countries. The fuels used in high income countries are more environmentally efficient. We in India still use coal, dung

and wood fires, both inside the home and out.

India – more affected than any other country

During the winter we just waved goodbye to, pollution levels in Delhi was 60 times more than the recommended levels. Delhi overtook Beijing – the city where everybody seems to wear breathing and surgical masks outside their homes – as the most polluted city on the planet. About one-third of the urban population breathe air filled with particulate pollutants that are rated at critical level – not even above the recommended level, critical.

The numbers available from the Central Pollution Board of India are sketchy and a bit behind times. The drastic increase in numbers over the last two years has been a focal point of the air pollution killing machine debate, but we only have even reports of numbers for 2010 from that. Only two cities – both in Kerala – fell within the recommended limit for air pollution. On the website, 2008 numbers are tagged as 'new'. According to research published just last month, outdoor pollution has become the fifth largest killer of Indians. Smoking, bad nutrition, blood pressure and indoor air pollution are even deadlier. From 2010 to 2012, the number of people who died because of pollution has increased six fold – from 100,000 to 620,000. Respiratory and cardiovascular problems are the two ways in which pollution is killing us. WHO has found that it can cause cancer. Dying in homes – Indoor air pollution the second-highest killer in India That brings us to indoor air pollution. It is estimated that about 3 billion people in the world cook using coal and biomass fuel. This has contributed to about 4.3 million premature deaths – mostly in low and middle income countries. Indoor air pollution is the second-highest killer in India.

Unlike in countries where fuel is burnt for warmth, most homes in India and similar countries that use these fuels for their cooking are not built with chimneys and proper ventilation. Indeed, about 68 million people live in slums. The number is probably conservative. A roof is a luxury, forget a chimney and ventilation. But food is a necessity, and cooking it is killing people slowly. What we have is a population with such disparity that a major portion of it cannot afford any but the most dangerous kind of fuel in their homes. The opposite side of the coin, the affluent ones, live in urban areas where air pollution has reached critical levels. We have environmental laws and guidelines and recommendations, but we sacrifice the earth and the air we breathe for the sake of a progress that will not even lift the standard of life for the 68 million living in slums. Rich or poor, we're dying as we breathe.

How mountain trees help regulate climate

Source : *Environmental News Network*

Date: 16th February, 2014

A new study, published in *Geophysical Research Letters*, shows that if global

temperatures were to rise over geologic timescales, trees at higher elevations could play an important role in encouraging more carbon dioxide to be removed from the atmosphere. The team, from the Universities of Sheffield and Oxford, conducted their research in the Peruvian mountains, where they found that in higher, colder conditions tree root growth slows. This means the roots don't reach far enough into the ground to cause the rocks beneath them to break down and combine with carbon dioxide, removing it from the atmosphere - a process called weathering.

But if global temperatures were to rise, then the layer of organic material between the root and the rocks would rot more quickly and so get thinner, allowing the roots to reach the rock and begin the weathering process. 'If the world gets warmer, as it would during a large volcanic event, decomposition of the organic layer would accelerate, and the organic layer would become thinner,' explains Dr Chris Doughty of the University of Oxford, lead researcher on the project. 'Instead of growing into the organic layer, as they do now, tree roots would grow into the area near the rock, breaking it down to release calcium and magnesium ions which would combine with carbon dioxide — effectively pulling the CO₂ out of the air.'

Can soil help us stop global warming?

Source : *Mother India Network*

Date: 7th February, 2014

A group of small farmers in Kenya has begun to benefit from a new revenue stream launched in January. In addition to receiving income for their crops, these small holders will soon be paid for another type of product: Healthy soil. It's all part of a World Bank scheme that aims to reward farmers for carbon sequestration, provide a financial incentive to better manage soil, and even raise food production in the process:

Experience from 1,505 farmer groups over three years illustrates how carbon finance can promote the adoption of SALM [Sustainable Agricultural Land Management] practices and open up the carbon market to smallholder farmers. Results so far show that SALM can help increase farmers' yields by up to 15-20%. These productivity gains from greater soil fertility help counteract the effects of increasingly extreme weather conditions. Soil holds vastly more carbon than trees

While we often talk about how much carbon dioxide trees can absorb, it's less often recognized — at least in the popular press and eco-blogsphere — that soil, not trees, is where Mother Nature gets really serious about carbon sequestration. In fact, of the 3,170 gigatons of carbon that's stored in terrestrial ecosystems around the world, a whopping 80 percent is in the soil itself (oceans are another story entirely). Whether we're talking about a suburban garden bed or topsoil in a tropical rain forest, understanding and protecting the soil beneath our feet has never been a more

pressing priority. So how does soil absorb carbon? It's actually pretty simple. We already know that soils are a hotbed of biodiversity, meaning they are full of fungi, bacteria, nematodes, insects and other kinds of beasts — all carbon-based lifeforms. Soil is also where the plants and animals above ground are destined for when they die. The remains of these organisms become food for other living things, primarily fungi and bacteria. As they get broken down, some of the carbon escapes back into the atmosphere as carbon dioxide, and some gets stored in the soil, both as humus, and within the bodies of the soil organisms themselves. Whenever we disturb soil, whether we are paving over a meadow or cutting down a forest, we are disrupting the ecosystems hidden in the earth. These disruptions can have profound implications.

The climate impact of tilling

Take tilling, for instance. While it's long been thought of as a prerequisite for productive farming, farmers and researchers alike have begun to rethink the practice. Because tilling exposes soil organisms to oxygen, it dramatically speeds up the loss of soil carbon. In fact Dr. John Baker, a finalist for the 2013 World Food Prize, told The World Plant Council that ploughing farm fields may be responsible for 20 percent of global carbon emissions:

"When a farmer ploughs and cultivates a paddock it releases CO₂ into the atmosphere. The vast majority (95 percent) is released from soil with the other 5 percent coming from tractor exhausts. The amount of CO₂ released by cultivation during reseeding can be approximately three tonnes per hectare. When you look at it from a global level, you realize that 15-20 percent of the CO₂ in the world's atmosphere comes from ploughing."

There are, however, alternatives. No-till farming, a technique that Dr. Baker describes as "key-hole surgery" compared to the "invasive surgery" of ploughing — has been taking off from Indiana to Pakistan, with proponents claiming it can reduce fertilizer use, soil erosion and run off while increasing soil organic matter (carbon!) too. In some cases — like the farmers in Kenya — the sale of carbon credits has helped to incentivize such practices, but because of uncertainty over climate legislation and extreme volatility in carbon markets, critics have argued that monetary incentives for soil carbon sequestration can do more harm than good unless they are based on real, long-term commitments.

What to do about beef

Arable land is not, of course, the only place where soil management makes a difference. There's a big debate going on about how we manage grazing lands too. While advocates for vegetarianism make the case that plant-based diets require less land, others have argued that meat eating isn't going away any time soon, and that many grasslands are unsuitable for arable production anyway. So what to do about all

that beef?

According to Judith L. Cotter, a researcher at Washington State University, the practice of feeding cattle grain, instead of grass, reduces methane emissions, and requires less water, land and fossil fuels. These findings, however, are not universally accepted. A recent study by the U.K.-based National Trust has suggested that less-intensive grassfed cattle farms can sequester soil carbon at such a rate that it cuts net emissions by almost 94 percent. Rob Macklin, national agriculture and food adviser at the National Trust, suggests well managed cattle farms could play an important role in both food production and environmental management, while remaining almost carbon neutral:

"Maximising carbon efficiency alone is too simplistic. Many less intensive livestock systems would be classed "inefficient" on the carbon emission scale, yet are much less reliant on artificial inputs and tend to have less impacts on water quality, loss of soil organic matter and reduced biodiversity. We believe that optimised beef production — deliberately accommodating less than maximum output in order to secure stronger and broader ecosystem protection — is the best sustainable use for the grasslands in our care."

And then there are the outliers, like "Holistic Land Management" proponent Allan Savory. In a wildly popular TED-talk, Savory argues that reintroducing cattle and other grazing animals in massive, dense herds could actually hold the secret to reversing desertification and massively increasing the amount carbon stored in the world's soils. (A claim that critics have said is vastly overhyped and far from proven.)

Forests vs. farmland

In response to massive flooding in the U.K. town of Hebden Bridge in the late '90s, under the banner of Treesponsibility, a group of residents began reforesting the steep, eroded and often over-grazed hillsides of their valley. The idea was to halt erosion, reduce flash flooding (predicted to become more common with climate change) and sequester carbon in the process by creating pockets of woodland on vulnerable land. Certainly, there are many reasons to preserve existing old growth forests, responsibly manage forest plantations, and even plant more forests where we can.

But even planting new forests, which has major advantages well beyond carbon sequestration, is not a cut-and-dried matter. In a world of finite resources and growing populations, reforesting farmland and removing it from production may mean increased pressure on farmland elsewhere. Any serious effort for large-scale, global reforestation will need to be accompanied by increases in food production elsewhere. From soilless agriculture, insect-based cuisine, rooftop farms and lab grown meat, there are some interesting ideas for doing that — but taking them to

scale is another matter entirely.

Re-imagining our relationship to soil

Ultimately, there is no silver bullet to climate change, and no single answer to better soil management. But one thing is certain: we must rethink our culture's relationship to soil. If we are ever going to get a handle on climate change, we're going to have to not only slash our fossil fuel use dramatically, but restore the ecosystems which we rely on for survival. And that means understanding that soil is not dirt, but rather a complex, living ecosystem that we are only just beginning to understand — and which we ignore or abuse at our peril.

24 fewer days of winter ice

Source : *Environmental News Network*

Date: 4th February, 2014

The winter ice season is now 24 days shorter than it was in 1950 as Arctic lakes are freezing up later in the year and thawing earlier, according to a new study. The University of Waterloo research, sponsored by the European Space Agency (ESA), also reveals that climate change has dramatically affected the thickness of lake ice at the coldest point in the season. In 2011, Arctic lake ice was up to 38 centimeters thinner than it was in 1950.

"We've found that the thickness of the ice has decreased tremendously in response to climate warming in the region," said lead author Cristina Surdu, a PhD student of Professor Claude Duguay in Waterloo's Department of Geography and Environmental Management.

"When we saw the actual numbers we were shocked at how dramatic the change has been. It's basically more than a foot of ice by the end of winter." The study of more than 400 lakes of the North Slope of Alaska, is the first time researchers have been able to document the magnitude of lake-ice changes in the region over such a long period of time.

"Prior to starting our analysis, we were expecting to find a decline in ice thickness and grounded ice based on our examination of temperature and precipitation records of the past five decades from the Barrow meteorological station," said Surdu. "At the end of the analysis, when looking at trend analysis results, we were stunned to observe such a dramatic ice decline during a period of only 20 years." The research team used satellite radar imagery from ESA to determine that 62 per cent of the lakes in the region froze to the bottom in 1992. By 2011, only 26 per cent of lakes froze down to the bed, or bottom of the lake. Overall, there was a 22 per cent reduction in what the researchers call "grounded ice" from 1992 to 2011.

Researchers were able to tell the difference between a fully frozen lake and one that had not completely frozen to the bottom, because satellite radar signals behave very

differently, depending on presence or absence of water underneath the ice. Radar signals are absorbed into the sediment under the lake when it is frozen to the bottom. However, when there is water under the ice with bubbles, the beam bounces back strongly towards the radar system. Therefore, lakes that are completely frozen show up on satellite images as very dark while those that are not frozen to the lake bed are bright.

Building Green

Source : *Environmental News Network*

Date: 3rdFebruary, 2014

In a world which faces increasing pressure to reduce carbon emissions, the construction industry must confront demand to adopt modern methods of building which causes less damage to the environment. As a result, there are increasing numbers of alternative materials and methods available, a selection of which are included in this post. While these methods are by no means the only ones available within the industry, the selected materials and methods include:

- Metallic paint
- Chemical containment
- Spray-on insulation
- Concrete alternatives
- Green roofs

Each method boasts the more efficient properties in terms of reducing environmental damage, with the least change to standard methods.

Metallic paint

Until relatively recently, metallic paint has largely been used in agricultural and industrial structures, to protect corrugated sheeting from weakening in exposed sunlight. However, this simple addition has been recognized as a cost-effective method of increasing the lifespan of building materials.

Chemical containment

There is no end to the amount of damaging chemicals present on a construction site, whether that's bitumen, varnish or even paint. When you're dealing with chemicals that could cause damage to the environment, especially in large quantities, it's important to take measures to contain these substances as much as possible.

An eco spill pallet, available from industrial suppliers, is a relatively simple and affordable piece of equipment for a building site, which could have a big impact on your efforts to be more environmentally friendly. Use it to store chemicals and drums, and contain leakages and spills with little fuss.

Spray-on insulation

Insulation is a vital part of any build that strives to be as efficient and as green as

possible. While traditional materials like fiber roll insulation boast effective thermal properties, newer and more innovative techniques such as spray on insulation offer even more benefits and efficient insulation. Walltite is one such example, which utilizes a spray on application to create an airtight layer design for internal walls, floors and roofs.

Oncrete alternatives

Recycled building materials are becoming much more common place, as construction firms strive to be environmentally friendly.

Concrete production accounts for around 5% of all carbon emissions, so this is a key area of focus for cutting emissions in the industry. Alternatives such as honeycomb blocks are increasingly common, especially in continental Europe, and boast lightweight, insulating designs, without the associated carbon output.

African farmers adapt to global warming

Source : *Environmental News Network*

Date: 1st February, 2014

NEW DELHI: The multiple ways by which small farming communities in Kenya and Tanzania are adapting to the human-wildlife conflict thrown up by global warming, forms the crux of a British wildlife filmmaker's documentary.

"A Climate of Change" by Jenny Sharman, one of the films being screened at the ongoing 7th CMS Vavaran Environment and Wildlife Film Festival showcases how African communities experience the changing of climates, which are impacting negatively on their ability to sustain a livelihood from land.

"...it is now an era where behavioural change is necessary if we are to mitigate, and adapt to, the impacts of global warming," Jenny Sharman told over an email interview.

"The film is a reflection of the change among small farming communities in Kenya and Tanzania, and how they have succeeded in improving their lives simply by caring more for the environment in which they live, and on which they depend," she said.

The 2012 movie was the finalist at the Montana Film Festival.

Born and brought up in Kenya, Jenny has made films on wildlife for BBC, National Geographic and Discovery Channel.

"As a consequence of my time in Africa, I have worked very closely with many African communities. I began to realise how desperate the situation was becoming in Africa regarding the loss of habitat from deforestation, farming and livestock herding that is causing over-grazing.

"As habitats have declined, so have all the animals which depend on them, and as we squeeze animals into smaller and smaller areas we are also increasing the problem of human-wildlife conflict. This is causing serious problems in Africa where wildlife is in serious decline," Jenny said.

The filmmaker points out that the burgeoning human population is making the situation "increasingly desperate" not only for wildlife and habitats such as forests but to humans themselves.

"As land availability declines, small farms get eroded and lose their soil fertility. This leads to declining yields for the farmer, and increases poverty. The eroded soils also wash into lakes causing problems of siltation.

"Water tables are also declining as there are no trees and we are over-using supplies for irrigation, domestic use, and industry. All in all, it is a very tragic situation," says Jenny.

'Delhi air pollution higher than Beijing' report denied

Source : *BBC News*

Date: 31st January, 2014

The Environmental Preference Index did not rank cities as it did not have comparative data, Dr Angel Hsu said. But it ranked countries and India was 174 out of 178 countries for air quality. China was at 176. The EPI is prepared by researchers at Yale and Columbia universities.

However, an overall pollution rating, which includes factors such as health impact and water and sanitation, put India at 155 - China was ranked higher at 118.

No accurate data... br>

"The EPI does not rank cities, nor do the data in the EPI provide any information on city-level performance," said Dr Hsu of the Yale Center for Environmental Law and Policy who is also the project director of the index. She said a lack of accurate data from India was a problem. "Beijing reports [pollution] data on an hourly basis over a publicly accessible platform. Delhi's reporting is not as consistent or transparent, making direct comparison impossible. Delhi may or may not have dirtier air than Beijing, but it is clearly behind in how it makes air quality information available to its citizens," Dr Hsu added. Dr Gufran Beig, chief scientist at India's System of Air Quality Weather Forecasting and Research, has also refuted the report saying that the average concentration of smaller dust particles (PM2.5) - that penetrate deep into the lung - was 210 microgram per cubic metre (m/cum) in Delhi this month. This, he told the BBC, is not even half of Beijing's PM2.5 level recorded this year.

But the Centre for Science and Environment (CSE), a Delhi-based think tank, has pointed out that the average daily PM2.5 levels in Beijing during 2013 largely remained below 250 m/cum and their winter peaks did not cross the 400 m/cum mark till December.

In comparison, Delhi recorded an average PM2.5 level of 240 m/cum since November 2013 but the peaks have hit as high as 575 m/cum this winter, the CSE said.

The permissible limit of PM2.5 is 60 m/cum.

Dr Sarath Guttikunda, director of Delhi-based Urban Emissions Info, refused to be drawn into this number game."Our pollution levels do not need to get worse than Beijing's for us to wake up and take action. Delhi's air is bad, very bad, and it's getting worse by the year," he warns. Winter smogs are common in Delhi, but this year's haze has been sometimes severe, disrupting air and railway traffic. Rising pollution has been blamed mainly on a huge increase in the number of vehicles in the city, particularly diesel-driven cars. Delhi's government introduced greener fuels for public transport in 2000 to control air pollution but the levels have continued to rise.

Devil in the air: Pollution levels head north in Kochi

Source : *Times Of India*

Date: 30th January, 2014

KOCHI: Are you having a persistent dry cough or a cold that refuses to go away? Are repeated medications failing to give you relief? You could be just one of the many citizens facing this problem that the doctors say is an allergy. And it's not likely to go away soon, thanks to the rising air pollution in the city.

Construction activity, including road and Metro works, has pushed up pollution levels across the city and its suburbs. This has kept doctors busy over the last few months despite December-January being normally considered a healthy time.

The ambient air quality monitoring systems of the pollution control board (PCB) have been reporting figures which are well beyond the permitted levels. All the seven stations set up across the city and the greater Cochin area, including the industrial belt of Eloor and Udyogamandal, have recorded high levels of respirable suspended particulate matter (RSPM). "There are a lot of dust particles in the air and when they remain suspended in the atmosphere without dissolving, it is an indication of pollution. The limit for such particulate matter is about 100 microgram per cubic meter (ug/m³). However, now we have been recording 120-150 microgram per cubic meter (ug/m³) on most days.

This is more so because of the construction activity going on in several parts of the city and outskirts," said PCB's chief environmental engineer M S Mythili. The PCB's seven stations are at Methanam, Eloor-1; TCC, Eloor-II; Near south overbridge; Vyttila; Irumpanam; MG Road and Kalamassery. Pulmonologists say that there is definitely a spurt in the number of patients coming with respiratory ailments compared with earlier years. "Such cases are more widespread among patients coming from areas such as Kalamassery, Eloor and Varapuzha because they are exposed to pollution from industries as well as the atmosphere. Patients prone to lung disease or vulnerable to respiratory ailments become sick as the allergy becomes an infection leading to breathing trouble or asthma. If they are smokers, then the combination is even more hazardous," said Dr Rajesh V, senior pulmonologist, Amrita Institute of

Medical Sciences (AIMS).

According to him, studies indicate that respiratory ailments have risen across the globe compared with heart diseases and diabetes because of environment pollution. However, more community studies need to be done to check the health indicators of citizens here.

Dr Sachidananda Kamath, state president of the Indian Academy of Paediatrics, says that the difference between an allergic cough/cold and otherwise is the fever. "Most parents bring children with dry cough and cold. Fever is an indication of infection. But fevers are not reported, at least, in the initial stage which means it is mostly due to dust allergy unless detected otherwise," he said.

However, there appears no immediate respite as the city develops its basic and other infrastructure. Cough up more!

* The limit for particulate matter is about 100 microgram per cubic meter (ug/m3) * But PCB's monitoring centres have been recording 120-150 ug/m3 on most days * PCB has seven stations at Methanam, Eloor-1; TCC, Eloor-II; near south overbridge; Vyttila; Irumpanam; MG Road and Kalamassery * Patients with respiratory ailments have risen in areas such as Kalamassery, Eloor and Varapuzha

Emissions outsourced to China return to US as air pollution

Source : *Environmental News Network*

Date: 24th January, 2014

Twenty percent of China's air pollution can be attributed to goods exported to America, with some of those emissions drifting back to the Western United States, finds a study published this week in the journal Proceedings of the National Academy of Sciences.

The research, conducted by an international team of researchers, estimates that Los Angeles sees at least one extra day of severe air pollution due to nitrogen oxides and carbon monoxide emitted by Chinese factories making products for export. On some days as much as a quarter of sulfate pollution on the California coastline can be attributed to Chinese export production.

"We've outsourced our manufacturing and much of our pollution, but some of it is blowing back across the Pacific to haunt us," said University of California at Irvine scientist Steve Davis, one of the study's co-authors, in a statement. "Given the complaints about how Chinese pollution is corrupting other countries' air, this paper shows that there may be plenty of blame to go around."

"When you buy a product at Wal-Mart, it has to be manufactured somewhere. The product doesn't contain the pollution, but creating it caused the pollution."

The findings suggest that outsourcing emissions to China isn't ultimately an effective means to reduce pollution. The researchers therefore argue for greater international

cooperation in reducing "transboundary" air pollution and addressing who is responsible for emissions from production and consumption. They note that bringing Chinese air quality regulations up to U.S. standards and implementing energy efficiency programs could cut China's emissions up to 60 percent.

2013 ties for 4th hottest year on record

Source : *Mother India Network*

Date: 22nd January, 2014

It's official: 2013 was one of the hottest years on record for the planet, tying 2003 as the world's fourth warmest year since record keeping began in 1880, a new analysis shows. Not every region experienced above-average warmth in 2013. The Netherlands, for example, saw its coolest spring in more than four decades, and Russia recorded its coldest March in the past 50 years, with temperatures plummeting as much as 18 degrees F (10 degrees C) below average in some areas. Nonetheless, no part of the world recorded its coolest annual temperature last year, according to NOAA.

NASA scientists emphasized that short-term weather patterns will always cause fluctuations in average temperatures from one year to the next. In other words, the long-term trend of global warming doesn't mean each new year will be warmer than the last. But climate scientists now anticipate each successive decade will be warmer than the last because of the high level of greenhouse gases in the atmosphere, according to NASA.

Why e-vehicles in India can't reduce air pollution?

Source : *Zee News India*

Date: 22nd January, 2014

Washington: Even the electric cars or battery-operated rickshaws on Indian roads are not sufficient to tame the air pollution.

Researchers from North Carolina State University in the US found that even a sharp increase in the use of electric drive passenger vehicles (EDVs) by 2050 would not significantly reduce emissions of high-profile air pollutants like carbon dioxide, sulphur dioxide or nitrogen oxides. "We found that increasing the use of EDVs is not an effective way to produce large emissions reductions," said senior author Joseph DeCarolis, an assistant professor at NC State.

The researchers ran 108 different scenarios in a powerful energy systems model to determine the impact of EDV use on emissions between today and 2050.

They found that, even if EDVs made up 42 percent of passenger vehicles in a country, there would be little or no reduction in the emission of key air pollutants, said a paper published in the journal *Environmental Science and Technology*. 'EDVs' includes

hybrid, plug-in hybrid and battery electric vehicles.

"It's because some of the benefits of EDVs are wiped out by higher emissions from power plants. Another factor is that passenger vehicles make up a relatively small share of total emissions, limiting the potential impact of EDVs in the first place," said DeCarolus.

"From a policy standpoint, this study tells us that it makes more sense to set emissions reductions goals, rather than promoting specific vehicle technologies with the idea that they'll solve the problem on their own." The key factors in encouraging use of EDVs are oil price and battery cost.

If batteries are cheap and oil is expensive, EDVs become more attractive to consumers. "That's consistent with results from other studies," DeCarolus added.

Experts urge government to patronise non-motorised vehicles

Source : *Times Of India*

Date: 22nd January, 2014

KOLKATA: Experts who attended a civic forum in the city on 'Improved vehicles and clean fuel for better air quality' urged the government to patronise non-motorised vehicles. The forum was jointly organised by The Energy and Resources Institute (TERI) and West Bengal Pollution Control Board (WBPCB) on Tuesday. The idea was to sensitize key stakeholders on the issue of clean vehicles and fuels for air quality improvements and discuss key strategies for control of air pollution in urban centres. The aim was to enhance awareness on the technical and management issues of vehicular pollution control and come up with an action plan. This forum was an opportunity for all the stakeholders to understand the issues and solutions; raise this concern to demand better air quality to breathe which is the fundamental right of the citizens of India. Prodipto Ghosh, former secretary, Ministry of Environment and Forests, and Distinguished Fellow, TERI said: "Air pollution has become one of the major environment and public health issues of our times. The transport sector accounted for 18% of the total commercial energy consumed in the country. And this sector was the second largest consumer of commercial energy after the industrial sector. The transport sector has the largest share in petroleum consumption and apart from environmental issues, the impacts of large scale petroleum imports has had a devastating effect on our on the exchange rate of Indian Rupee and consequently on the fiscal balance and had major impacts on economic growth. Thus, the very dependence of the transport sector on commercial and petroleum consumption and has effects that go far beyond air pollution." "West Bengal is actually lesser vehicle intensive than many other places and Kolkata still has a better developed public transport system than any of the other cities, Kolkata and Howrah are quite high in RSPM levels and NOx emissions", he added. He further appealed to

the government to patronize more non-motorised vehicles such as cycles and trams which are very environment friendly. One of the most prominent sources of air pollution in urban context is transport. Source apportionment studies conducted in six India cities, pointed towards significant contributions of transport sector towards prevailing NO_x and fine particulate concentrations in the atmosphere. Towards NO_x, the contribution of transport sector is clearly dominant than the other sectors. While some attention has still been paid on control of PM, NO_x (which is primarily emitted from diesel driven vehicles) has remained almost unattended in our country. While it has direct health impacts, it also leads to secondary particulate formulations, acid rain and ground level Ozone formation. Issues with transport sector are also linked to engine technology, fuel quality, inspection and maintenance and cleaner fuels.

Carbon Emissions in U.S. Rise 2 Percent Due to Increase in Coal

Source : *Environmental News Network*

Date: 16th January, 2014

Carbon dioxide emissions rose two percent in the U.S. last year, according to preliminary data from the Energy Information Administration. Emissions rose largely due to increased coal consumption, the first such rise in U.S. emissions since 2010. Still, the annual emissions remain well below the peak hit in 2007 when emissions hit 6 billion tons.

The U.S. emitted around 5.38 billion tons of CO₂ last year from burning fossil fuels, up from 5.27 billion tons in 2012. The rise in emissions is linked to increased coal consumption during the second half of 2013 when rising natural gas prices made coal more competitive. Coal is the world's most carbon-intensive fuel source. The Obama Administration has pledged to the global community to cut emissions 17 percent by 2020 based on 2005 levels. While the U.S. does not have national legislation to cut carbon dioxide emissions, they are falling due to a slower economy, improved energy efficiency, increased renewable energy sources, and coal power being increasingly substituted with natural gas. Up-coming regulations from the Environmental Protection Agency (EPA) on new and existing energy plants are expected to further rein-in the nation's coal consumption. Experts say that these new regulations will likely lead to emissions decreasing again.

The U.S. is currently the second largest emitter of carbon dioxide after China, and the world's biggest historical emitter.

Molecular chlorine found at high levels in Arctic atmosphere

Source : *Mother India Network*

Date: 14th January, 2014

Unprecedented levels of molecular chlorine have been found in the Arctic atmosphere about Barrow, Alaska, according to a new study. The chlorine — which is being released by melting sea ice — could be a contributing factor in climate change. It could also be speeding the deposit of toxic mercury into the Arctic ecosystem.

"No one expected there to be this level of chlorine in Barrow or in polar regions," Greg Huey, a professor in the School of Earth and Atmospheric Sciences at the Georgia Institute of Technology in Atlanta, said in a news release.

Huey is a co-author of a new paper about the discovery, which was published this week in the journal *Nature Geoscience*. The lead author on the paper was one of Huey's graduate students, Jin Liao, who is currently a postdoc at the National Oceanic and Atmospheric Administration.

The study — which was conducted over several years starting in 2009 — found levels of molecular chlorine as high as 400 parts per trillion. At first their results seemed atypically high, so they kept testing, using chemical ionization mass spectrometry to verify the results, which were not a good sign.

"Molecular chlorine is so reactive that it's going to have a very strong influence on atmospheric chemistry," Huey explained. Molecular chlorine reacts with and oxidizes atmospheric constituents such as methane, a powerful greenhouse gas, and mercury, which can then enter the food chain and also serves to break down ozone. Mercury mostly comes to the region through the burning of coal in electric plants around the world.

The research team found that molecular chlorine levels varied throughout the day. It would peak in early morning and late afternoon, possibly as a result of the presence of sunlight and ozone. Chlorine levels would fall to almost nothing during the night.

Although the chlorine is said to have originated in the sodium chloride of sea salt, which is present in sea ice and Arctic snow pack, the exact mechanism of how the sea ice transformed into molecular chlorine remains unknown at this time. What is obvious, however, is that the region currently has less sea ice than it did in previous years due to climate change. This is likely to get worse in the future, Huey said, although exactly what this means remains unknown. "Sea ice is changing dramatically, so we're in a time where we have absolutely no predictive power over what's going to happen to this chemistry. We're really in the dark about the chlorine."

Economic benefits of reducing nitrogen pollution

Source : *Environmental News Network*

Date: 14th January, 2014

Falling levels of nitrogen in the atmosphere across Europe may be much more economically beneficial than previously believed, according to a recent study.

'Exposure to CNG emission causing eye ailments'

Source : *Times of India*

Date: 11th January, 2014

LUCKNOW: A new study claims that compressed natural gas (CNG), which has considerably brought down pollution levels across the country, is not free from health hazards. It states that automobile emissions, including from CNG vehicles, are causing eye problems, especially in those exposed to air pollution, like traffic cops, drivers and vendors, for long duration. The study titled 'Pollution in Lucknow City and its health implication on the exposed vendors, drivers and traffic policemen' was conducted by the Indian Institute of Toxicology Research (IITR), Lucknow. Those surveyed complained of various eye related problems. The findings also show higher pollution levels in Lucknow.

The study was done by senior principal scientist, IITR, Dr GC Kisku, along with fellow scientists S Pradhan, AH Khan and SK Bhargava. Kisku said, "A total of 660 drivers, 190 vendors and 162 traffic policemen were selected to record the symptoms related to eyes. About 62% of drivers, 57% of vendors and 68% of traffic policemen complained of eye problems."

Majority of the subjects were suffering from burning sensation in the eyes. "Category-wise, 93% of drivers, 74% of vendors and 77% of traffic policemen complained of this (burning sensation). Eye watering problem was reported in 51% of drivers, 44% of vendors and 72% of traffic policemen," Kisku said. Constant irritation and redness in eyes was reported in 33% of drivers, 21% of vendors and 26% of traffic policemen. Impaired eye vision, too, was reported in 25% of drivers, 20% of vendors and 13.5% of traffic policemen.

"A random health survey of 1,012 subjects exposed to air pollution was carried out in urban areas of Lucknow after receiving complaints from the Association of Retired Citizens to assess the magnitude of the cumulative adverse impact of pollutants (particulate matter (10) and lead) on humans with special reference to ocular problems, especially on the highly exposed groups of vendors, drivers and traffic policemen," the IITR scientist said. Twelve sensitive locations representing residential, commercial-cum-traffic and industrial activities were selected for air quality monitoring in the study.

The findings on Lucknow's traffic, Kisku said, revealed that all the observed values of PM(10), either for residential, commercial and industrial areas were above the prescribed standards of the National Ambient Air Quality Standards (NAAQS) of 100 microgram/cubic metre for residential/commercial, rural and other areas, and 150 micrograms/cubic metre for industrial areas. "The observed concentration of PM(10) could be attributed to uncontrolled emission of automobile exhausts, traffic

obstructions and centralisation of offices and commercial places. There is no road in the city where vehicles can run with optimum speed range (40-55 km/hr). Average speed is as low as 15-25 km/hr, which is the worst condition in terms of performance of engines and emission," Kisku said.

The major factors contributing to air pollution in Lucknow, IITR scientist said, include road digging, construction/repair of roads, traffic jams near railway crossings, plying of old vehicles, illegal parking of vehicles, roadside shops, encroachment and congested lanes.

Kisku said due to absence of zebra crossings, pedestrians violate traffic rules while crossing roads. Stray animals also obstruct the traffic flow and at times lead to road accidents. Unplanned development of the city is another factor behind traffic snarls. There are not many planned roads and dividers are missing on some busy roads, IITR scientist added.

Spitting Sulfates!

Source : *Environmental News Network*

Date: 9th January, 2014

In 1991, Mount Pinatubo in the Philippines erupted in one of the largest volcanic blasts of the 20th century. It spat up to 20 million tons of sulfur into the upper atmosphere, shielding the earth from the sun's rays and causing global temperatures to drop by nearly half a degree Celsius in a single year. That's more than half of the amount the planet has warmed due to climate change in 130 years.

Now some scientists are thinking about replicating Mount Pinatubo's dramatic cooling power by intentionally spewing sulfates into the atmosphere to counteract global warming. Studies have shown that such a strategy would be powerful, feasible, fast-acting, and cheap, capable in principle of reversing all of the expected worst-case warming over the next century or longer, all the while increasing plant productivity. Harvard University physicist David Keith, one of the world's most vocal advocates of serious research into such a scheme, calls it "a cheap tool that could green the world." In the face of anticipated rapid climate change, Keith contends that the smart move is to intensively study both the positive and negative effects of using a small fleet of jets to inject sulfate aerosols high into the atmosphere to block a portion of the sun's rays. Yet even Keith acknowledges that there are serious concerns about solar geoengineering, both in terms of the environment and politics. Growing discussion about experimentation with solar radiation management has touched off an emotional debate, with proponents saying the technique may be needed to avert climate catastrophe and opponents warning that deployment could lead to international conflicts and unintended environmental consequences — and that experimentation would create a slippery slope that would inevitably lead to

deployment. University of Chicago geophysicist Raymond Pierrehumbert has called the scheme "barking mad." Canadian environmentalist David Suzuki has dismissed it as "insane." Protestors have stopped even harmless, small-scale field experiments that aim to explore the idea. And Keith has received a couple of death threats from the fringe of the environmentalist community.

Clearly, there are good reasons for concern. Solar geoengineering would likely make the planet drier, potentially disrupting monsoons in places like India and creating drought in part of the tropics. The technique could help eat away the protective ozone shield of our planet, and it would cause air pollution. It would also do nothing to counteract the problem of ocean acidification, which occurs when the seas absorb high levels of CO₂ from the atmosphere.

Dusty roads give rise to sale of masks

Source : *Times of India*

Date: 8th January, 2014

VARANASI: Broken, dug up dust-covered roads of the city have added to city pollution to such an extent that people are now opting for masks to prevent respiratory problems. However, the experts say that the masks available in the market are not viable against the current status of pollution in the city. Due to digging of roads for various projects and lack of maintenance the city remains covered in clouds of dust for most of the time. Finding no end to this problem people, especially bikers, are going after dust masks available in market.

With the increase in content of dust in the city's air, the surgical and medical shops here have also got a new way to make profit due to rise in sale of masks. These masks are available in the major medicine markets of Lanka, Kabirchaura, Luxa, Lahurabir, Ordary Bazar and Kutchehry. There are two varieties of masks available in the market-Chinese and Indian. According to people engaged in this trade, the Chinese product is imported from Kolkata and Delhi, while the Indian product is imported from Kanpur, Dehradun, Pune and Bangluru. These masks are available in the price slot of Rs 40-250 which varies as per the quality. People believe that these masks are helpful in saving their lungs from the negative effects of the air pollution in the city. However, the experts say that these low-cost masks are not clinically approved and are being sold without any medical reference.

Sources say that there are few shopkeepers who are selling locally produced masks, which are prepared by tailors of the city with below-standard material. The experts say that these masks are not effective and can only control 60-80% of the major dust particles.

The number of patients with respiratory problems has been increased in the OPD of hospitals and other health centres in the past five years. Continuous exposure to dust

results in cough and allergy. Small dust particles may cause swelling and infection in respiratory tract which might result in major problems like Bacterial Growth, Asthma, Bronchitis, and even Tuberculosis (TB).

"After a five to six-hour long ride on roads of the city, the capacity of the lungs might decrease up to 20-30% and which takes 3-4 days to recover. Continuous exposure might cause a long-term damage to lungs," says Dr SK Pathak, specialist of chest diseases and infection. The cold and humidity are worsening the situation. People are advised to keep even more precaution in this weather. One should take steam for 15-20 minutes every day after continues exposure to dust and air pollution. It will help keep the respiratory tract clean and will decrease the effect of pollution. People who can not afford masks are advised to cover their face with a fine cloth to prevent dust particles from entering respiratory tract.

Gamchha and stole are comparatively better than the masks available in city markets as they provide better protection against dust. In summers the cloth saves from heat storms while in winters it helps against cold waves. Ever since the condition of roads have been worsening the people of the city have started depending on gamchha or stole. The masks are popular among the students as it looks cool and adds to their looks, while there is a majority of locals who still use gamchha or stole for protection against dust.

Environmental Degradation Leads to Public Health Crisis

Source : *Environmental News Network*

Date: 8th January, 2014

A "systematic and comprehensive" approach is needed to understand the impact of human behavior on the world's public health, according to a new report. Written by the Heal (Health & Ecosystems Analysis of Linkages) consortium, the study highlights multiple examples of the impact on human health from environmental degradation, including sickness, death and even childhood reductions in IQ.

For example, the report cited that smoke from fires used to clear rainforests in Indonesia has been linked to a rise in cardiopulmonary disease in Singapore. Other examples include the destruction of coastal barrier systems like coral reefs and wetlands, which currently protect around one third of humanity (those living within 100km of the ocean) from rising sea levels. Meanwhile, as biodiversity and natural habitats decline, local access to wild meat falls as well. Lack of protein increases the chances of iron deficiency anemia, a condition that can hinder the learning potential of children as well as their physical ability.

Co-author of the report Samuel Myers told mongabay.com that "more than anything else the point of this papers is that most of these relationships remain poorly characterised and we worry as much about the surprises, like food's nutritional value

falling with rising CO₂, as the relationships that we already understand. " The report also examines the demographics most likely to be affected. Myers, with the Harvard University of Public Health, explained what he describes as an "environmental justice dimension." "The impacts of both climate change and other types of environmental change are likely to be experienced disproportionately by the poor and by future generations whereas many of the benefits associated with these changes accrue to the wealthier and to current populations," he notes.

New compounds raise concern about health impacts of urban air and dietary exposure

Source : *Environmental News Network*

Date: 7th January, 2014

The combustion and exhaust in cars and trucks along with the reactions that occur while cooking on grills both can contribute to air pollution and can produce carcinogens.

However, Researchers at Oregon State University have discovered that the chemical reactions that occur from these processes produce novel compounds that were not previously known to exist and are hundreds of times more mutagenic than carcinogens.

While more research needs to be done to determine in what level the compounds might be present, this raises additional concerns about the health impacts of heavily-polluted urban air and dietary exposure.

"Some of the compounds that we've discovered are far more mutagenic than we previously understood, and may exist in the environment as a result of heavy air pollution from vehicles or some types of food preparation," said Staci Simonich, a professor of chemistry and toxicology in the OSU College of Agricultural Sciences.

"We don't know at this point what levels may be present, and will explore that in continued research," she said.

The parent compounds involved in this research are polycyclic aromatic hydrocarbons, or PAHs, formed naturally as the result of almost any type of combustion, from a wood stove to an automobile engine, cigarette or a coal-fired power plant. Many PAHs are known to be carcinogenic, believed to be more of a health concern that has been appreciated in the past.

The PAHs can become even more of a problem when they chemically interact with nitrogen to become "nitrated," or NPAHs, scientists say. The newly-discovered compounds are NPAHs that were unknown to this point.

This study found that the direct mutagenicity of the NPAHs with one nitrogen group can increase 6 to 432 times more than the parent compound. NPAHs based on two

nitrogen groups can be 272 to 467 times more mutagenic. Mutagens are chemicals that can cause DNA damage in cells that in turn can cause cancer.

An agency of the World Health Organization announced last fall that it now considers outdoor air pollution, especially particulate matter, to be carcinogenic, and cause other health problems as well. PAHs are one of the types of pollutants found on particulate matter in air pollution that are of special concern.

Newlight Makes Plastic Out of Thin Air Instead of Oil

Source : *Environmental News Network*

Date: 7th January, 2014



Imagine if you were given one wish to do anything you could about climate change, what would you do? Resetting the atmospheric carbon concentration back to pre-industrial levels would certainly be a big help. But at the rate we are currently generating CO₂, adding 2.1 ppm per year and rising, if we didn't do something else to

slow down our emissions, we would be right back where we are today in a surprisingly short amount of time.

What if we could pull CO₂ out of the air and convert it into something useful, something that requires the generation of CO₂ to produce today? Wouldn't a reversal like that be helpful? That is exactly what a company called Newlight Technologies is doing. Its patented technology extracts carbon from the air and converts it into long-chain polymers that can be used as substitutes for oil-based plastics.

Every pound of conventionally produced plastic generates 6 pounds of CO₂. Using Newlight's method not only avoids this carbon production, but it also removes an additional pound of CO₂ from the atmosphere. Considering that worldwide production of plastic is currently 77 pounds for every person on the planet, and increasing by 3 percent every year, shifting to this method of production represents an opportunity to reduce carbon emissions by close to 2 billion tons annually. That's about 4.7 percent of the current global emission level. Of course a much larger portion of emissions are generated from transportation, electricity generation and the heating of buildings and water, but this is still a significant amount. Newlight's carbon capture technology is inspired by nature. It extracts carbon molecules from air containing greenhouse gases and rearranges those molecules into long-chain thermoplastic polymers that can match the performance of oil-based plastics. Their products can also outperform oil-based plastics on price. The impact of this approach is comparable to bioplastics, though the net footprint should be lower due to the

absence of agricultural inputs such as land, water and chemicals.

Global warming could drive world temperatures up 7 degrees by 2100

Source : *Mother India Network*

Date: 2nd January, 2014

Another piece of the global warming puzzle has been revealed. According to new research published on Jan1 in the journal Nature, increased levels of carbon dioxide in the atmosphere will reduce the number of clouds that form. This, in turn, will cause temperatures to rise much higher than previous climate-change models have predicted. According to this new research, global temperatures could rise 4 degrees Celsius or 7.2 degrees Fahrenheit by the year 2100, and twice that by 2200. Lead researcher Steven Sherwood at the Climate Change Research Center at Australia's University of New South Wales, told The Guardian that this level of climate change would be "catastrophic rather than simply dangerous. it would make life difficult, if not impossible, in much of the tropics, and would guarantee the eventual melting of the Greenland ice sheet and some of the Antarctic ice sheet." In a news release, Sherwood said this new research is not an indication that previous models were wrong, only that new models are constantly improving. The new model focuses on the radiative effect of clouds – in other words, how much of the sun's energy they reflect back into space – and how carbon dioxide levels will affect the activity of water vapor in the atmosphere and therefore the formation of clouds. The researchers write that water vapor follows multiple paths. Sometimes it rises many miles into the atmosphere to form reflective rain clouds. Other times the water vapor rises just a few miles before drifting back down to the surface. The new paper suggests that in a carbon-dioxide-heavy world, less water will rise to form those reflective clouds, allowing more solar radiation and heat to enter the atmosphere. "Our research has shown climate models indicating a low temperature response to a doubling of carbon dioxide from preindustrial times are not reproducing the correct processes that lead to cloud formation," Sherwood said in the release. Previously, estimates of the sensitivity of global temperature to a doubling of carbon dioxide ranged from 1.5 degrees C to 5 degrees C. This new research takes away the lower end of climate sensitivity estimates, meaning that global average temperatures will increase by 3 degrees C to 5 degrees C with a doubling of carbon dioxide. "Sherwood told The Guardian that this new research does not conclusively rule out the lower range of temperature rise projections, but he called on the world to "urgently start to curb our [CO2] emissions" if we hope to avoid the effects of the worst temperature rises.

A little less coal for China

Source : *Environmental News Network*

Date: 24th December, 2013

Coal mining companies in Australia have been enjoying the good life in recent years, making millions of dollars from feeding the seemingly insatiable energy appetites of Asia's tiger economies - particularly that of China. But a new report by the Smith School of Enterprise and the Environment (SSEE) at Oxford in the UK warns that Australia's coal mining party could be coming to an end.

Burning of waste causing air pollution: Activists

Source : *Times Of India*

Date: 21st December, 2013

NOIDA: Lack of a proper solid waste management policy with Greater Noida Authority has invited the ire of residents and environmental activists. The Authority has chosen rural areas for disposing and burning municipal waste thereby causing large-scale air pollution and smog-like conditions, which has been spreading to urban areas as well. Activists allege that this practice was started after a cooperative housing society approached National Green Tribunal opposing dumping of garbage at a site owned by it in Greater Noida. They have complained that the Authority is dumping garbage adjacent to a 130m-wide road in Knowledge Park-V, near Tushiyana village.

The most affected areas are Khedi, Bhanauta, Tushiyana, Sunpura, Saini, Khodna and Bhuda villages. "An epidemic might result from this practice as chances of diseases spreading to even urban sectors cannot be ruled out," said Vikrant Tongad, environmentalist. In addition, garbage disposed in this area is also being burnt regularly thereby generating large quantities of smoke. As a result, smog-like conditions have been prevailing in the area and spreading to expressways and main roads. Activists have written to Greater Noida Authority and the district magistrate demanding end of this practice. They have asked Greater Noida Authority to speed up work on the proposed solid waste disposal plant in Astauli village.

They have also drawn the attention of EPCA-NCR to the issue of air pollution and diseases resulting from improper disposal of solid waste. Greater Noida Authority officials said that the site has been chosen for waste disposal during the period the proposed MSW plant is commissioned. They have also rejected complaints of burning garbage. "The waste is probably being burnt by some miscreants despite prohibition. We have launched an inspection and will heavily penalize the offenders," said a senior official.

Shanghai air quality crisis

Source : *Environmental News Network*

Date: 13th December, 2013

Shanghai is experiencing unprecedented levels of pollution. Last week fine particulate levels reached almost 20 times WHO guidelines, and they are still at dangerous levels. Matthew Currell reports on China's pollution crisis. The huge economic and health costs of pollution are estimated to consume approximately 5% of China's gross domestic product.

The current "airpocalypse" emergency in Shanghai - which has seen schoolchildren ordered indoors to protect them from the polluted air, flights grounded and companies ordered to cut production - comes at the end of a year in which China's environmental crisis reached a tipping point.

I hardly dare to breathe", wrote one Shanghai resident on Weibo, China's equivalent of Twitter. It's a sense of despair and frustration felt around the country about hazardous levels of pollution. On 6th December the level of fine particulates reached 483 parts per million, almost 20 times the World Health Organization guideline level of 25 ppm - scoring the highest of six levels of air quality health alert. By yesterday levels had declined to 183 ppm - still over seven times the WHO guideline. Air pollution is a deadly problem. When thick smog blanketed Beijing early this year, there was a spike in children and elderly people needing urgent medical help, with Beijing Children's Hospital seeing around 3,000 patients a day with respiratory problems.

Ozone hole won't heal until 2070, says NASA

Source : *Mother India Network*

Date: 12th December, 2013

The banning of ozone-depleting chemicals hasn't yet caused detectable improvements in the Antarctic ozone hole, new research suggests. Instead, changes in the South Pole's ozone hole from year-to-year are likely the result of natural variations in wind patterns, researchers said Wednesday (Dec. 11) in a press conference at the annual meeting of the American Geophysical Union.

"Ozone is produced in the tropics, but it's transported by the winds from the tropics to the polar region," said Anne Douglass, a scientist with the Aura project at NASA's Goddard Space Flight Center in Greenbelt, Md. That transport "varies a little bit from year to year."

The findings suggest that measuring the total size of the ozone hole says little about ozone depletion, and that it's misleading to use the hole's extent alone to measure environmental progress. In fact, people won't be able to see the true impact of reducing ozone-munching chemicals in the atmosphere until around 2025, Douglass and her colleagues said. And, they added, the hole won't be completely healed until 2070. [Top 10 Ways to Destroy Earth]

Big hole

Ozone is a molecule made up of three oxygen atoms, and the ozone layer, which stretches from heights of 12 to 19 miles (20 to 30 kilometers) above the Earth's surface, protects life on Earth by shielding it from ultraviolet (UV) radiation. Until the 1990s, the widespread use of chlorofluorocarbons (CFCs) for refrigerants and aerosols created an ozone hole in the Earth's stratosphere (the second layer of the atmosphere from Earth's surface) over Antarctica. CFCs deplete ozone, because they can bind to oxygen molecules in several chemical reactions, breaking ozone down into regular oxygen molecules. Without the ozone there, harmful UV rays can reach the planet's surface, posing a threat to humans and Earth's other life forms.

An international agreement called the Montreal Protocol, first signed in 1987, gradually phased out the use of CFCs, and the amount of the chemicals in the atmosphere has slowly declined since.

Missing piece

The classic way of measuring the hole is by measuring the total area that contains less than 220 Dobson units of ozone. But the ozone layer extends vertically throughout the stratosphere, so using just one measure is like "looking at a flat table," Douglass said.

That traditional measure may miss what's really going on in the stratosphere. For instance, in 2012, the ozone hole shrank to record lows, even though the level of CFCs in the atmosphere hadn't declined dramatically, said study co-author Natalya Kramarova, also at NASA Goddard. Paradoxically, the ozone hole in 2011 was about as big as it was in 2006, even though CFCs should have declined in those years due to the phasing out of their use.

So Kramarova took a closer look at data gathered by the Suomi National Polar-orbiting Partnership satellite, which showed ozone levels with altitude. The small size of the ozone hole in 2012 was a result of weather bringing in more ozone at higher levels of the stratosphere than usual to Antarctica, masking the depletion at lower levels.

In a second study, researchers used the Aura satellite's Microwave Limb Sounder to peek inside the ozone hole through chemicals such as nitrous oxide, which inversely varies with levels of chlorine, a byproduct of CFCs, in the Earth's atmosphere.

The researchers found that in 2011, chlorine levels were lower despite the ozone hole's big size. Using a computer model, they showed that weather conditions would have lowered the amount of ozone over Antarctica anyways, and that the big hole was a result of winds from the tropics carrying less ozone to the area than in the years before.

"This is a meteorological effect, it has nothing to do with chemistry," said study co-author Susan Strahan, a NASA Goddard atmospheric chemist.

CFCs are incredibly stable molecules that must travel high into the stratosphere

before breaking down, so though the phasing out of CFCs is working, the impact of the Montreal Protocol won't be noticeable in the ozone layer until about 2025, Kramarova said. Until then, annual measures of peak ozone hole size should be taken with a grain of salt, the researchers said. The hole won't likely be fully healed until about 2070, Kramarova said.

Of course, for people in the Southern latitudes, UV exposure is only dependent on the size of the hole, so it doesn't matter whether weather patterns or CFCs are responsible for its extent.

Europe's biggest renewable energy plant completes switch from coal to biomass

Source : *Environmental News Network*

Date: 9th December, 2013

Britain's largest coal-fired power station is set to become one of Europe's biggest renewable electricity generators today, with the potential for new future generation on the site to be based on truly clean coal. Energy Secretary Ed Davey opened the Drax coal-to-biomass conversion plant, and announced the Government was awarding funding to further the White Rose CCS project, also based at the site. At Drax, the £700 million planned conversion project will burn wood pellets rather than coal. Its operators calculate that this will reduce carbon emissions by 80 per cent compared to coal. The facilities opened today will provide enough low carbon power to supply the equivalent of around 1 million homes, and help to safeguard 1,200 jobs and many more in the supply chain and in local communities.

The Government is looking to fill an emerging energy gap as coal-fired power stations come offline with a mix of renewables, Carbon Capture and Storage technology, nuclear and some gas. It believes this will help to protect consumers from price spikes caused by importing expensive gas, and will lower people's bills in the long-run with households getting £50 off their bills a year by early next year.

The multi-million pound FEED study funding will support the White Rose project, which is designing a £2 billion state-of-the-art coal power plant with full CCS that will be able to provide clean electricity to more than 630,000 homes.

It also includes the planned development of a CO₂ transport and storage network — the Yorkshire Humber CCS Trunkline — which would have capacity for additional CCS projects in the area. This innovative project has the potential to create up to 2,000 jobs and safely capture 90% of the plant's emissions. Together, the two projects could support 3,200 jobs in Yorkshire and the Humber, and provide carbon transport infrastructure to help build a clean energy industry in the region. Mr Davey said: "It's crucial that we safeguard our energy security by generating green electricity on UK

soil that protects bill payers from volatile foreign energy imports. Our coal industry has powered Britain for more than a century, and today we're seeing a clear roadmap for its future — whether by converting existing coal plants to cleaner fuels, or building state-of-the-art power stations that mean coal is truly clean. While at the same time creating new green jobs for Yorkshire."

Pollution-Free Boating

Source : *Environmental News Network*

Date: 3rd December, 2013

The Chevrolet Volt, Nissan Leaf and Ford C-Max Energi are the top three electric vehicles on the roadways, but what about our waterways? Electric cars aren't the only vehicles transforming sustainable and economical transportation. Electric boats are also traversing historic waterways and canals that have been polluted with oil and noise. Electric boats may be the only watercraft permitted on municipal waters by 2020, and New Electric is already influencing the electric vehicles industry as an electric-conversion business dedicated to battery-powered boats. About 700 million gallons of oil pollute oceans every year, according to Clean Technica. Engine-exhaust from conventional boats and ships only worsens the harmful environmental effects. Not only is the ocean and air polluted, marine animals suffer from intense noise pollution. Watercraft are actually detrimental to sea life, such as orcas and dolphins, because of their sensitivity to loud sounds. Electric-converted watercraft are quieter and produce no air pollution.

"Making electric boats isn't just making boats cleaner; it's making boats better," explains Anne Kloppenborg, CEO of New Electric. Electric boats not only help reduce air, marine and noise pollution, the green vehicles create a more enjoyable experience. An electric motor provides power free of vibration and sound, and a state-of-the-art system has 100 percent torque available 24/7. By pumping the throttle, the boat has powerful torque without any need for a buildup. Boaters can experience the natural sounds of the water, waves and wind that are typically overwhelmed by engine noise and vibrations. Electric boats also connect people to the outdoors without relying on gas — the boat's battery runs off electricity from any source.

Ammonia threatens national parks

Source : *Environmental News Network*

Date: 27th November, 2013

Ammonia emissions have become a serious concern for scientists at Harvard University. Of particular note, thirty eight U.S. national parks are experiencing "accidental fertilization" at or above a critical threshold for ecological damage

according to the study recently published in *Atmospheric Chemistry and Physics*. The environmental scientists, experts in air quality, atmospheric chemistry, and ecology, have been studying the fate of nitrogen-based compounds that are blown into natural areas from power plants, automobile exhaust, and—increasingly—industrial agriculture. Nitrogen that finds its way into natural ecosystems can disrupt the cycling of nutrients in soil, promote algal overgrowth and lower the pH of water in aquatic environments, and ultimately decrease the number of species that can survive. "The vast majority, 85 percent, of nitrogen deposition originates with human activities," explains principal investigator Daniel J. Jacob, Vasco McCoy Family Professor of Atmospheric Chemistry and Environmental Engineering at the Harvard School of Engineering and Applied Sciences (SEAS). "It is fully within our power as a nation to reduce our impact." Existing air quality regulations and trends in clean energy technology are expected to reduce the amount of harmful nitrogen oxides (NO_x) emitted by coal plants and cars over time. However, no government regulations currently limit the amount of ammonia (NH₃) that enters the atmosphere through agricultural fertilization or manure from animal husbandry, which are now responsible for one-third of the anthropogenic nitrogen carried on air currents and deposited on land.

"Ammonia's pretty volatile," says Jacob. "When we apply fertilizer in the United States, only about 10 percent of the nitrogen makes it into the food. All the rest escapes, and most of it escapes through the atmosphere."

The team of scientists—comprising researchers from Harvard SEAS, the National Park Service, the USDA Forest Service, the U.S. Environmental Protection Agency, and the University of California, Irvine—presents evidence that unchecked increases in nitrogen deposition are already threatening the ecology of federally protected natural areas.

In many previous studies, environmental scientists have identified the nitrogen levels that would be ecologically harmful in various settings. The new Harvard-led study uses a high-resolution atmospheric model called GEOS-Chem to calculate nitrogen deposition rates across the contiguous United States, and compares those rates to the critical loads. The findings suggest that many parks may already be suffering.

The linkage of CO₂ to long term climate change

Source : *Environmental News Network*

Date: 25th November, 2013

Carbon dioxide is known to contribute to climate. When levels of CO₂ increase, the atmosphere reacts with rising temperatures. The linkage here is well understood, and accepted as a proven hypothesis. It follows that if we reduce our emissions of CO₂ that atmospheric levels will gradually reduce and the impacts to global temperatures

will also be reduced. New research by Princeton University has shed light on this and indicates that there is a lingering effect of CO₂ that could have long term consequences. The study suggests that it might take a lot less carbon than previously thought to reach the global temperature scientists deem unsafe. The Princeton researchers simulated an Earth on which, after 1,800 billion tons of carbon entered the atmosphere, all carbon dioxide emissions suddenly stopped. Scientists commonly use the scenario of emissions screeching to a stop to gauge the heat-trapping staying power of carbon dioxide. Within a millennium of this simulated shutoff, the carbon itself faded steadily with 40 percent absorbed by Earth's oceans and landmasses within 20 years and 80 percent soaked up at the end of the 1,000 years. By itself, such a decrease of atmospheric carbon dioxide should lead to cooling. But the heat trapped by the carbon dioxide took a divergent track.

After a century of cooling, the planet warmed by 0.37 degrees Celsius (0.66 Fahrenheit) during the next 400 years as the ocean absorbed less and less heat. While the resulting temperature spike seems slight, a little heat goes a long way here. Earth has warmed by only 0.85 degrees Celsius (1.5 degrees Fahrenheit) since pre-industrial times. The Intergovernmental Panel on Climate Change estimates that global temperatures a mere 2 degrees Celsius (3.6 degrees Fahrenheit) higher than pre-industrial levels would dangerously interfere with the climate system. To avoid that point would mean humans have to keep cumulative carbon dioxide emissions below 1,000 billion tons of carbon, about half of which has already been put into the atmosphere since the dawn of industry.

5 places already feeling the effects of climate change

Source : *Mother India Network*

Date: 22nd November, 2013

The effects of a warming planet are likely to be vast and varied — ranging from increased droughts and coastal flooding to reductions in snow and ice. But while most climate predictions look ahead to the potential risks 50 or 100 years from now, there are places around the globe that are already being impacted by global warming.

Here are five places where climate change is already hitting close to home: Great ...

Satellite measurements have demonstrated that the waters of Australia's Great Barrier Reef have warmed by 0.36 degrees Fahrenheit (0.2 degrees Celsius) on average over the past 25 years. This warming has led to a decline in the amount of seafloor covered in thriving coral.

A 2012 study published in the journal *Proceedings of the National Academy of Sciences* found that half of the Great Barrier Reef was lost in the past 27 years.

Warming oceans, linked to rising emissions of carbon dioxide, increase the risk of coral bleaching — a phenomenon that disrupts the symbiotic relationship between

corals and the organisms that live within their tissues and provide food the corals need to survive. Higher-than-normal ocean temperatures cause corals to expel the tiny animals and algae that live inside them. This turns the corals white and places the reef-building animals — and the entire ecosystem — under stress.

Newtok, Alaska

Newtok, and many other villages in Alaska, are built atop permanently frozen soil, called permafrost. As ocean temperatures increase, Alaska's permafrost melts, causing the ground to erode and many of these remote, coastal towns to sink.

Newtok is located on the western coast of Alaska, on the edge of the rising Ninglick River. The flood-prone town already sits below sea level, and researchers have said the entire village could be underwater within a decade.

Now, members of the community are hoping to relocate Newtok's 350 residents to higher ground, at a site roughly 9 miles (14 kilometers) away. But there are financial and political barriers. For instance, the U.S. Government Accountability Office estimates that moving the town of Newtok could cost up to \$130 million. Mumbai, India

The Indian metropolis of Mumbai is one of the places at risk of dangerous and costly floods due to climate change, according to a report released earlier this year by the World Bank. Economists at the World Bank examined 136 large coastal cities, and evaluated their coastal defenses and level of protection.

The report identified Mumbai as one of the coastal cities that face a high risk of devastating floods due to global warming. Researchers found the city's existing defenses against flooding and storm surges are only designed to withstand current conditions, not for the anticipated rise in sea levels that will make future floods more devastating.

While coastal defenses are a start, "if they are not upgraded regularly and proactively as risk increases with climate change and subsidence, defenses can magnify — not reduce — the vulnerability of some cities," study leader Stephane Hallegatte, an economist at the World Bank, said in a statement.

The Alps

The Alps, one of the most famous mountain ranges in Europe, have long been a tourism hotspot, famous for their top-notch ski resorts and as a popular year-round destination for outdoors enthusiasts. But climatologists warn that global warming could spell trouble for the sprawling alpine region.

Since the late 19th century, temperatures in the Alps have been steadily rising, from an average yearly temperature of 49.3 degrees F (9.6 degrees C) in the late 1800s to today's average of 51.4 degrees F (10.8 degrees C), according to Gilles Brunot, a meteorologist based at the ski resort Chamonix-Mont-Blanc in southeastern France.

But concerns about global warming's effect on the Alps extend beyond the region's ski industry. About 40 percent of Europe's freshwater originates from the Alps, which stretch from Austria in the East to France in the West, dipping into parts of Italy and Monaco in the South. Climate change is threatening the area's water cycle, which includes patterns of precipitation, snow and glacier cover. Gansu Province, China Farmers across China's Gansu Province, one of the country's driest regions, are already struggling to cope with the effects of climate change, as droughts and arid land contribute to the region's vast poverty. The United Nations says warming temperatures are shrinking glaciers in central Asia and the Himalayas, which typically replenish China's rivers.

China recently completed its first National Census of Water, and found that as many as 28,000 of the country's rivers have disappeared since the 1990s. The study did not identify reasons for the loss of the rivers, but the research showed an alarming trend of dwindling water resources throughout the country.

China currently has 2,100 cubic meters (74,000 cubic feet) of water resources per person — roughly 28 percent of the global average, according to Reuters. But as the country's population grows, these supplies could dry up sooner than expected.

Carbon emissions set to hit new record high in 2013

Source : *Environment News Network*

Date: 20th November, 2013

The amount of carbon dioxide emitted into the atmosphere in 2013 is expected to hit a new high of 36 billion tonnes, according to a Carbon Budget released today by the Global Carbon Project (GCP). This is a 2.1 percent rise from 2012 based on data from the same group.

"We have exhausted about 70 per cent of the cumulative emissions that keep global climate change likely below two degrees," said Global Carbon Project (GCP) member, Pierre Friedlingstein, with the University of Exeter. "In terms of CO₂ emissions, we are following the highest climate change scenario of the Intergovernmental Panel on Climate Change released in September." Nations worldwide have pledged to keep temperatures from rising above 2 degrees Celsius from pre-industrial levels, a threshold that scientists say is necessary to have a reasonable chance of avoiding catastrophic climate change. But experts say countries are moving too sluggishly on cutting their emissions in order to ensure this goal is met. The only silver lining in the GCP's initial 2013 data is that the rate of rising emissions appears to be slowing slightly. Over the last ten years, emissions have risen on average 2.7 percent every year. However, in 2012 emissions rose 2.2 percent, while this year emissions look to rise 2.1 percent. This could indicate a trend of slowing carbon emissions growth, which, if the trend continues, would lead to an eventual decline.

The GCP's data echoes similar findings in a recent report by the Netherlands Environment Assessment Agency and the European Commission's Joint Research Centre. This report found that annual carbon emissions growth actually slowed down to 1.1 percent in 2012. Scientists have warned that to keep the 2 degree target, global emissions must peak no later than 2015 and then fall precipitously thereafter.

"Governments meeting in Warsaw this week need to agree on how to reverse this trend. Emissions must fall substantially and rapidly if we are to limit global climate change to below two degrees," said the leader of the report, Corinne Le Quéré of the Tyndall Centre for Climate Change Research at the University of East Anglia.

Plug up the COAL; keep it in the ground!

Source : *Environmental News Network*

Date: 19th November, 2013

Christiana Figueres, executive secretary UNFCCC, Speaks to the World Coal Association in Warsaw: invest in renewables and leave most of your coal underground. The path forward begins in the past, recognizing that coal played a key role in the history of our economic development. From heating to transportation to the provision of electricity, coal has undoubtedly enabled much of our progress over the last 200 years.

Coal was at the heart of the developed world's Industrial Revolution and brought affordable energy to parts of the developing world. However, while society has benefitted from coal-fuelled development, we now know there is an unacceptably high cost to human and environmental health.

The science is clear. The IPCC Fifth Assessment Report outlines our predicament. We are at unprecedented GHG concentrations in the atmosphere; our carbon budget is half spent. If we continue to meet energy needs as we have in the past, we will overshoot the internationally agreed goal to limit warming to less than two degree Celsius.

AR5 is not science fiction; it is science fact.

AR5 is the overwhelming consensus of 200 lead authors synthesizing the work of 600 scientists who analysed 9000 peer-reviewed publications. AR5 is arguably the most rigorous scientific report ever written. The findings of the AR5 have been endorsed by 195 governments, including all of those in which you operate.

The science is a clarion call for the rapid transformation of the coal industry. We need to radically rethink coal's place in our energy mix.

Development banks have stopped funding unabated coal. Commercial financial institutions are analysing the implications of unburnable carbon for their investment strategies. Pricing of GHG emissions is on the rise, evidenced by trading markets coming online around the globe. And, international policy is moving us toward a

global low-emission economy.

All of this tells me that the coal industry faces a business continuation risk that you can no longer afford to ignore. Like any other industry, you have a fiduciary responsibility to your workforce and your shareholders. Like any other industry, you are subject to the major political, economic and social shifts of our time. And by now it should be abundantly clear that further capital expenditures on coal can go ahead only if they are compatible with the two degree Celsius limit. The coal industry has the opportunity to be part of the worldwide climate solution by responding proactively to the current paradigm shift.

CO2 Concentrations Hit New High Last Year

Source : *Environmental News Network*

Date: 7th November, 2013

The concentrations of carbon dioxide in the atmosphere hit a record high last year, according to a new report by the World Meteorological Organization (WMO). While this was not a surprise given still-rising global emissions, the concentration rose significantly more than the average this decade. According to the WMO's annual greenhouse gas bulletin, CO2 concentrations hit 393.1 parts per million (ppm) in 2012.

Air pollution leading cause of lung cancer

Source : *Zee India News*

Date: 18th October, 2013

London: World Health Organization has declared pollutants in the air as leading environmental cause of lung cancer. The pollutants in the air we breathe has been officially classified as carcinogenic to humans with sources of pollution being car exhausts, power stations, emissions from agriculture and industry, the BBC reported. According to the International Agency for Research on Cancer (IARC), which has now classed air pollution in the same category as tobacco smoke, UV radiation and plutonium, air pollution had been known to cause heart and lung diseases, but evidence had now emerged that it was also causing cancer. The agency said that the most recent data suggested 223,000 deaths from lung cancer around the world were caused by air pollution. The data also suggested that there may also be a link with bladder cancer. Dr Kurt Straif, from IARC, said that the air we breathe has become polluted with a mixture of cancer-causing substances.

He said that the results suggested that outdoor air pollution is not only a major risk to health in general, but also a leading environmental cause of cancer deaths.

Air pollution causes cancer, world health authority says

Source : *CNN Health*

Date: 17th October, 2013



(CNN) -- The air many of us breathe poses serious health risks, the World Health Organization says. On Thursday, it added cancer to the list. Air pollution is a now officially a carcinogen, and there are no caveats about the new classification.

"We know that it is causing cancer in humans," said

spokesman Kurt Straif.

In 2010, lung cancer resulting from air pollution took the lives of 223,000 people worldwide. As pollution levels climb, so will the rate of cancer, the WHO said. And there is only one way to stop it: Clean up the air. "We can't treat ourselves out of this cancer problem," said Chris Wild, who heads the WHO's cancer research wing, the International Agency for Research on Cancer. Cleaner air would also have other health benefits. Air pollution increases the risk of bladder cancer, the IARC said. It has been known for a while that it contributes to heart disease and respiratory ailments. The problem is global, but people in developing countries with large populations and booming manufacturing sectors with few pollution controls are said to be particularly at risk. "The predominant sources of outdoor air pollution are transportation, stationary power generation, industrial and agricultural emissions, and residential heating and cooking," the IARC said. Outdoor dust can also contribute to cancer. The agency decided upon the official classification of outdoor air pollution as carcinogenic after reviewing the latest scientific writings and coming to the conclusion that the evidence was ample. The classification is an important step, said Dr. Christopher Wild, director of the IARC. "There are effective ways to reduce air pollution and, given the scale of the exposure affecting people worldwide, this report should send a strong signal to the international community to take action without further delay." The IARC called air pollution the most widespread environmental carcinogen and the worst.

Air pollution in pregnancy retards baby's growth

Source : *Times Of India*

Date: 16th October, 2013

The research report that was published in the Lancet Respiratory Medicine Journal finds that the exposure to common air pollutants and traffic during pregnancy significantly increases the risk of restricted foetal growth and have a higher risk of

health problems and death of babies. The study was done in 12 European countries involving over 74,000 women.

The researchers found that for every increase of five micrograms per cubic metre in exposure to fine particulate matter discharged by cars and industrial houses during a woman's pregnancy, the risk of low birth-weight rises by 18 percent. According to the study, all air pollutants, particularly fine particulate matter and traffic fumes increased the risk of term low birth-weight and reduced average head circumference at birth, after accounting for other factors like maternal smoking, age, weight, and education.

"Our findings suggest that a substantial proportion of cases of low birth-weight at term could be prevented in Europe if urban air pollution, particularly fine particulate matter, was reduced", lead author of the study Marie Pedersen of the Centre for Research in Environmental Epidemiology in Barcelona said. "The widespread exposure of pregnant women worldwide to urban ambient air pollution at similar or even higher concentrations than those assessed in our study provides a clear message to policy-makers to improve the quality of the air we all share," Pedersen added.

Study finds cities like Pune grappling with air pollution

Source : *Times Of India*

Date: 7th October, 2013

PUNE: Smaller cities, experiencing a more rapid shift to personal vehicles in the absence of adequate investment in a strong public transport system, are struggling with severe air pollution, the Centre for Science and Environment (CSE) research has observed.

Such is the situation that if two-wheelers are added to cars, the rate of personal motorisation in cities has already exceeded that of the West, the research added.

'Good News Bad News: Clearing the Air in Indian Cities', a research study by CSE's air pollution and sustainable urbanisation experts, has given an assessment of the Indian cities and how they fare on parameters such as air quality, public transport, walkability, parking policies and fiscal initiatives. "Air pollution has become the fifth largest killer, and the seventh biggest illness burden in India as per the Global Burden of Disease report, released in 2013. Data from the new cancer registry, released by the Indian Council of Medical Research in 2013, gives chilling evidence of the high incidence of lung cancer in cities. Rapid motorisation, the face of growth today, is also hurtling cities towards energy guzzling and heat trapping gases," said Sunita Narain, director general, CSE in a press statement issued last week.

The observations are apt for Pune too. The Pune Municipal Corporation (PMC) has planned many flyovers across the city to mitigate the growing traffic problem with little or no consideration for non-motorised traffic like cyclists and pedestrians. The

poor standard of services and overall condition of Pune Mahanagar Parivahan Mahamandal Limited (PMPML) has spurred people to drive their own vehicles. The logic of constructing flyovers to ease congestion and sideline non-motorized options beats the Pune Municipal Corporation's Comprehensive Mobility Plan (CMP) approved by the general body. The plan aims at "moving people safely and economically by emphasizing public transport and non-motorized transport". The city is also among the most polluted in the country with rising noise, air and visual pollution.

Anumita Roychowdhury, CSE's executive director-research and advocacy, said, "Sprawls and flyovers are now increasing distances, while one-way streets, subways and foot overbridges are pushing people, hawkers and street activities out. On isolated roads, safety of people is compromised to protect the car. At the same time, road design to increase the speed of cars is adding to the accident risk." The research states that taxes, fuel pricing and parking charges do not include the cost of damage cars impose on society. On the contrary, mass carriers like buses are made to pay more taxes for carrying more people as the government treats it as a commercial business, and not a matter of public good to be supported.

"We need measures to change urban design to make cities safe, more walkable, and public transport friendly," Roychowdhury added.

The study finds that the action in mega and big metros is more layered, diverse and extensive. This is partly because of the attention they have, investments they have drawn, and strident and aggressive public opinion and media pressure. Initiatives in smaller cities are often singular or limited in scope but with strong potential.

Strict measures to check air pollution

Source : *Times Of India*

Date: 7th October, 2013

SURAT: Gujarat Pollution Control Board (GPCB) is set to introduce strict measures to bring air pollution in Surat city under control. Top officials of GPCB are reviewing a plan to amend the existing measures in order to make them more stringent for implementation in the next few weeks. The Diamond City has witnessed a spurt in air pollution due to a very high density of vehicles and shifting back of gas based industries to solid fuel base. "Today energy experts are trying to come up with answers to the challenge posed by solid fuel usage in developing countries. The GPCB is strengthening its monitoring network and insisting that the industries strengthen their air pollution control equipment," said Hardik Shah, member secretary of the GPCB.

"When we look at the air quality in Surat, sulphur and nitrogen levels are generally within acceptable range but particulate matter (PM) is much higher," said Anil Patel

an official with GPCB. Presence of high amount of dust particles in the air is due to the vehicular, industrial and construction related pollution. Officials said that GPCB will ask the urban local bodies to take steps against contractors who adopt erroneous techniques during construction that causes pollution and spread dust particles in the air. They said that the high density of vehicular population is the prime cause of high air pollution in the city. With 40 per cent of the 22 lakh vehicles registered with Regional Transport Office (RTO) falling in the category of highly pollution causing vehicles (two wheelers with two stroke engines and more than 10 year old four wheelers), the scenario is dismal. The RTO authorities have failed to implement the Pollution Under Control (PUC) mechanism properly. Officials point to shortage of manpower in the face of ever increasing number of vehicles. GC Patel, additional regional transport officer at Surat said, "In 1983 Surat RTO had 22 technical officers, today we have just three. What can we do?" Official figures show that the RTO office functions with a staff shortage of 45 per cent. With no regular studies or mechanism to measure and regulate air pollution in the city, PM levels at Railway Station are 171 milligram (mg) per litre which is higher than the normal range of 150 mg per litre. In other areas of the city the figures are unknown as GPCB has never measured it. In industrial areas of Sachin and Pandesara it is 251 mg and 225 mg per litre, respectively.

Gulf Killifish Affected by 2010 Oil Spill

Source : *Environment News Network*

Date: 6th May, 2013

The Deepwater Horizon oil spill in the Gulf of Mexico happened over three years ago, but according to scientists, crude oil toxicity still continues to sicken a sentinel Gulf Coast fish species. Researchers from the University of California, Davis, teamed up with researchers from Louisiana and South Carolina to find that Gulf killifish embryos exposed to sediments from oiled locations in 2010 and 2011 show developmental abnormalities, including heart defects, delayed hatching and reduced hatching success



The killifish is an environmental indicator species, or a "canary in the coal mine," used to predict broader exposures and health risks. Indicator species are sensitive to disease outbreaks, pollution, species competition or climate change so biologists often study them in order to monitor the ecosystem. These fish are not fished

commercially but they are nonmigratory and share similar habitats with other species

like the speckled trout, flounder, blue crabs, shrimp, and oysters, and who may be at risk of similar effects. The findings are part of an ongoing collaborative effort to track the impacts of the Deepwater Horizon oil spill on Gulf killifish populations in areas of Louisiana that were heavily affected.

"These effects are characteristic of crude oil toxicity," said co-author Andrew Whitehead, an assistant professor of environmental toxicology at UC Davis. "It's important that we observe it in the context of the Deepwater Horizon spill because it tells us it is far too early to say the effects of the oil spill are known and inconsequential. By definition, effects on reproduction and development - effects that could impact populations - can take time to emerge."

Researchers collected Gulf killifish from an affected site at Isle Grande Terre, La., and monitored them for measures of exposure to crude oil. They also exposed killifish embryos in the lab to sediment collected from oiled sites at Isle Grande Terre within Barataria Bay in Louisiana.

"Our findings indicate that the developmental success of these fish in the field may be compromised," said lead author Benjamin Dubansky, who recently earned his Ph.D. from Louisiana State University.

Whitehead said the report's findings may predict longer-term impacts to killifish populations. However, oil from the Deepwater Horizon spill showed up in patches, rather than coating the coastline. That means some killifish could have been hit hard by the spill while others were less impacted. The research can be found in an advanced publication in the journal *Environmental Science and Technology*.

Bright Clouds with Added Pollution

Source : *Environment News Network*

Date: 6th May, 2013

University of Manchester scientists, writing in the journal *Nature Geoscience*, have shown that some natural emissions and man made pollutants can have an unexpected cooling effect on the world's climate by making clouds brighter. Clouds are made of water droplets, condensed on to tiny particles suspended in the air. When the air is humid enough, the particles swell into larger cloud droplets. It has been known for some decades that the number of these particles and their size control how bright the clouds appear from the top, which affects the efficiency with which clouds scatter sunlight back into space. A major challenge for climate science is to understand and quantify these effects which have a major impact in polluted regions of the world.

The tiny cloud seed particles can either be natural (for example, sea spray or dust) or man made pollutants (from vehicle exhausts or industrial activity). These particles often contain a large amount of organic material and these compounds may be

volatile, so in warm conditions exist as a vapor. The researchers found that the effect acts in reverse in the atmosphere as volatile organic compounds from pollution or from the biosphere evaporate, but under moist cooler conditions where clouds form, the molecules prefer to be liquid and make larger particles that are more effective seeds for cloud droplets.

"We discovered that organic compounds such as those formed from forest emissions or from vehicle exhaust, affect the number of droplets in a cloud and hence its brightness, so affecting climate," said study author Professor Gordon McFiggans, from the University of Manchester's School of Earth, Atmospheric and Environmental Sciences.

"We developed a model and made predictions of a substantially enhanced number of cloud droplets from an atmospherically reasonable amount of organic gases."

"More cloud droplets lead to brighter cloud when viewed from above, reflecting more incoming sunlight. We did some calculations of the effects on climate and found that the cooling effect on global climate of the increase in cloud seed effectiveness is at least as great as the previously found entire uncertainty in the effect of pollution on clouds."

This phenomena has been noticed before. Some researchers as early as 1990 found that slight dimming continued over land while brightening occurred over the ocean. A 2007 NASA sponsored satellite-based study shed some light on the puzzling observations by other scientists that the amount of sunlight reaching Earth's surface had been steadily declining in recent decades, began to reverse around 1990. This switch from a global dimming trend to a brightening trend happened just as global aerosol levels started to decline.

Carbon Dioxide and Rainfall

Source : *Times Of India*

Date: 3rd May , 2013



Carbon dioxide is the prime culprit in global warming but how will that affect other aspects of climate such as rainfall? A NASA-led modeling study is providing new evidence that global warming may increase the risk for extreme rainfall and drought. The study shows for the first time how rising carbon dioxide concentrations could affect the entire

range of rainfall types on Earth. Analysis of computer simulations from 14 climate models indicates wet regions of the world, such as the equatorial Pacific Ocean and Asian monsoon regions, will see increases in heavy precipitation because of warming

resulting from projected increases in carbon dioxide levels. Arid land areas outside the tropics and many regions with moderate rainfall could become drier. The EPA analysis provides a new assessment of global warming's impacts on precipitation patterns around the world. The study was accepted for publication in the American Geophysical Union journal *Geophysical Research Letters*. "In response to carbon dioxide-induced warming, the global water cycle undergoes a gigantic competition for moisture resulting in a global pattern of increased heavy rain, decreased moderate rain, and prolonged droughts in certain regions," said William Lau of NASA's Goddard Space Flight Center in Greenbelt, Md., and lead author of the study. The models project for every 1 degree Fahrenheit of carbon dioxide-induced warming, heavy rainfall will increase globally by 3.9 percent and light rain will increase globally by 1 percent. However, total global rainfall is not projected to change much because moderate rainfall will decrease globally by 1.4 percent. Heavy rainfall is defined as months that receive an average of more than about 0.35 of an inch per day. Light rain is defined as months that receive an average of less than 0.01 of an inch per day. Moderate rainfall is defined as months that receive an average of between about 0.04 to 0.09 of an inch per day.

Areas projected to see the most significant increase in heavy rainfall are in the tropical zones around the equator, particularly in the Pacific Ocean and Asian monsoon regions. Some regions outside the tropics may have no rainfall at all. The models also projected for every degree Fahrenheit of warming, the length of periods with no rain will increase globally by 2.6 percent. In the Northern Hemisphere, areas most likely to be affected include the deserts and arid regions of the southwest United States, Mexico, North Africa, the Middle East, Pakistan, and northwestern China. In the Southern Hemisphere, drought becomes more likely in South Africa, northwestern Australia, coastal Central America and northeastern Brazil. "Large changes in moderate rainfall, as well as prolonged no-rain events, can have the most impact on society because they occur in regions where most people live," Lau said. Lau and colleagues based their analysis on the outputs of 14 climate models in simulations of 140-year periods. The simulations began with carbon dioxide concentrations at about 280 parts per million -- similar to pre-industrial levels and well below the current level of almost 400 parts per million -- and then increased by 1 percent per year. The rate of increase is consistent with a "business as usual" trajectory of the greenhouse gas as described by the United Nations' Intergovernmental Panel on Climate Change.

They conclude the model predictions of how much rain will fall at any one specific location as the climate warms are not very reliable. However, statistically over a wider region, they show a clear upwards trends in heavy rain and prolonged droughts. "But if we look at the entire spectrum of rainfall types we see all the models agree in a very fundamental way -- projecting more heavy rain, less moderate rain events, and

prolonged droughts," Lau said.

Carbon Capture Technologies that Could Help Fight Climate Change

Source : *Environment News Network*

Date: 31st January , 2013



It's that time of year when we look back and reflect on the past year and make silly lists. Well this list is far from silly — it is quite sobering news for many of us to accept. In 2012, climate change came to the forefront. Here are 5 reasons why:

5) 2012 was the hottest year on record.

A December 2012 report by the independent non profit organization Climate Central states: "There is a 99.99999999 percent chance that 2012 will be the hottest year ever recorded in the continental 48 states, based on our analysis of 118 years of temperature records through Dec. 10, 2012." Not that we won't see more days with below freezing temperatures and chilling winds, but those days are becoming less frequent. While this is good news for those that hate the cold, it is bad news for the planet, as sea levels rise and arctic habitats disappear.

4) Politicians are starting to notice.

Other than the quite embarrassing absence of any mention of climate change in the presidential debates this fall, more leaders in business, politics, and the media are bringing this issue to the forefront. Eight out of ten companies are incorporating climate change into their business agenda and organizations including the World Bank, the American Meteorological Society, and even the head of the world's largest mining company, Australian BHP Billiton, have issued statements regarding the reality and threat of climate change. Governor Cuomo, Mayor Bloomberg, other political leaders are also making climate change preparation a top policy issue.

Air pollution in Mumbai doubles

Source : *Times Of India*

Date: 25th January , 2013

MUMBAI: The heavy fog enveloping the city during early mornings is an ominous indicator of Mumbai's deteriorating air quality. Official readings since mid-January evidence that owing to cooler weather and bustle of vehicles and construction, the pollution levels have surpassed the standard limits by two-fold.

According to Mumbai Pollution Control Board logs, pollution levels—particularly nitrogen oxide (NOx) and suspended particulate matter (SPM) —have been exceptionally pernicious the past few days. On January 16, for instance, SPM shot up to as high as 286 micrograms per cubic metre. On January 6, NOx was recorded at 211 micrograms per cubic metre.

"Anything above 100 micrograms of SPM and 80 micrograms of NOx in a cubic metre of air is bad for human health," said an MPCB official. Sounding a disquieting note, he added that in certain parts of the city pollution levels are perennially higher than the standard limits.

"When the weather gets cooler, SPM levels do tend to rise because of inversion," said Dr Rakesh Kumar of the National Environment Engineering Research Institute.

Normally, the air near earth's surface is warmer than that in the upper atmosphere. During inversion, however, there is cold air near the surface, which gets trapped under warmer air."At such a time, hot and cold air do not mix easily in the upper atmosphere. Because of this, pollutants get trapped in the lower atmosphere," explained Dr Kumar. "Strong winds break inversion and blow away pollutants."

Experts say a dip in the mercury is not the only cause of Mumbai's poor air quality—increasing vehicular density and construction pollution are equally to blame. "Pollution norms for vehicles may be in place, but their sheer numbers in Mumbai override those and lend to the addition in SPM levels," said Dr Neelam Rane, professor of physiology at D Y Patil Medical College. "Vehicles emit more pollution when moving slow. In Mumbai, the problem gets amplified due to bumper-to-bumper traffic. Also, there is always some construction, renovation or restoration work happening, which is an even greater source of pollution," Dr Rane continued.

Dr Kumar noted that the SPM and NOx readings were made at Bandra and Sion stations. "Both these areas suffer major traffic issues. This is why pollution levels are high in these areas."The Brihanmumbai Municipal Corporation had written to other government agencies earlier this month, asking them to adopt measures to prevent SPM from getting dispersed in the air. But its initiative is still nascent. Before an action plan is set rolling, the civic body wants to conduct studies to gauge the precise correlation between construction activities and pollution.

To save a cathedral, marinate in olive oil

Source : *Mother Nature Network*

Date: 14th January , 2013

One of the most beautiful and revered cathedrals in Christendom, York Minster in northern England has survived war, looting, fire, pillaging and other threats over the centuries. But the Gothic masterpiece is crumbling due to a relatively recent enemy: acid rain. Preservationists, however, may have found a way to protect it using a common kitchen item. The limestone rock used to build the church is vulnerable to acids, and has been under attack since the Industrial Revolution began filling the skies of England with acidic pollution, according to Gizmag.com. The result is acid rain that



can wreak havoc on earthly structures. And despite their best efforts, preservationists have found no protective coating that could keep the towering spires of York Minster safe, until they hit upon a novel treatment: olive oil. The extract contains oleic acid, a compound that can bind with the

stone and protect it, according to Dr. Karen Wilson of the Cardiff School of Chemistry at Cardiff University in Wales. "The nice thing with oleic acid is that [a molecule of] it has one end .which will selectively react with the stone, and then the other end, which is a very long hydrocarbon chain, will give you the hydrophobic properties to repel the water," Wilson told NPR. By combining the olive oil with a Teflon-like material, researchers hope to protect the porous limestone from acid rain, while also allowing the stone to breathe, according to Gizmag.com. (Acid rain forms from both natural sources, such as volcanoes and decomposing plants, and man-made sources, mainly the sulfur dioxide and nitrogen oxides from fossil fuel combustion.) A trial is now underway using a limestone sample to determine the long-term effects of the treatment. Olive oil has a long and storied association with human civilization. Originally used to prepare and preserve food, it has also been revealed as an ingredient in ancient medicines. Some people even use olive oil as a shaving lubricant, to remove paint from hair and skin, as furniture polish, to free stuck zippers and as an additive in cat food to prevent hairballs, according to Curbly.com. Some experts have also speculated that an olive oil formulation containing testosterone might have allowed Lance Armstrong to give the slip to drug testers trying to determine if the cycling champion was doping with performance-enhancing drugs.

BMC: Take steps to curb air pollution

Source : *Times Of India*

Date: 13th January , 2013

MUMBAI: With a rise in levels of air pollution in the city due to the construction boom, the BMC has written to all government agencies, directing them to take steps to curb it. The BMC has written to the Mumbai Metropolitan Region Development Authority (MMRDA), Maharashtra Housing and Area Development Authority (Mhada) and Maharashtra Pollution Control Board (MPCB), asking them to take measures to avoid suspended particulate matter from being dispersed in the air adding to the pollution levels. "We have written to government agencies that have construction projects in the city to ensure that air pollution is kept in check. We have also written to the pollution control board about this," said additional municipal commissioner Mohan Adtani. He added that the BMC could not frame laws but could make sure that

the existing norms were followed by its own departments.

Extensive public and private construction work and other related activities have caused a rise in air pollution levels, according to the Environment Status Report (2011-12) of the BMC. The report also mentions that levels of carcinogenic compound, benzopyrene which can cause cancer as well as respiratory and genetic disorders, and other pollutants such as sulphur dioxide, nitrogen dioxide, suspended particulate matter and ammonia have increased drastically in all six BMC monitoring sites. The air pollutant standards index (PSI) shows that pollution levels rise after monsoon and peak in December.

Pointing at the health hazards posed by pollution, a civic hospital doctor said, "There are complaints about people contracting respiratory ailments like bronchitis and asthma due to an increase in suspended particulate matter in the air."

Climate Change Finally Getting Our Collective Attention

Source : *Environment News Network*

Date: 2nd January , 2013



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A "Win-Win" Situation for Acid Mine Drainage

Source : *Environmental News Network*

Date: 19th December, 2012

Acid Mine Drainage is one of the greatest environmental hazards that is associated with mining processes and degrades more than 4,500 stream miles in the mid-Atlantic region of the US alone. When water flows through abandoned and active coal mines, a reaction occurs between the water and the rocks containing sulfur bearing minerals. This reaction has the ability to contaminate drinking water, disrupt aquatic plants and animal reproduction, and corrode parts of infrastructure due to the net acidity of the drainage.

However, according to a new study by the US Geological Survey at Leetown Science Center, a byproduct resulting from the treatment of acid mine drainage may actually have a second life in helping clean waters coming from agricultural and wastewater discharges.

The report, published in the Journal Water, Air, and Soil Pollution, shows that dried acid mine drainage sludge that result from treating acid mine drainage discharges can be used as a low-cost adsorbent elsewhere to efficiently remove phosphorus from agricultural and municipal wastewaters. The phosphorus that has been adsorbed by the mine drainage residuals can later be stripped from the residuals and recycled into fertilizer. The mine drainage residuals can be regenerated and reused for a number of additional treatment cycles.

"This wonderful result shows the inventive application of some very sophisticated environmental chemistry to create a new life cycle for what otherwise would have been some problematic waste products," said USGS Director Marcia McNutt. "It sets the bar high for future studies in environmental remediation."

Acid mine drainage is produced whenever sulfide minerals associated with coal and metal deposits are exposed to air and moisture. The resulting acid and dissolved metals are toxic to most forms of aquatic life, and untreated acid mine drainage has impacted more than 5000 miles of streams in the Appalachian region, with associated economic impacts of millions of lost dollars in the tourism and sport fishing industries. Application of this new technology has the potential to decrease acid mine drainage treatment costs, prevent degradation of aquatic ecosystems, and recycle valuable nutrients.

Philip Sibrell, lead author of the study says: "This new technology could reduce or eliminate the need to dispose of acid mine drainage sludge, instead making that same sludge useful in addressing the urgent need to reduce the amount of phosphorus going into aquatic ecosystems; it's a win-win situation."

Hurricane Season 2012

Source : *Environment News Network*

Date: 16th June , 2012

The 2012 hurricane season is just beginning, While most are predicting a mild season, Florida State is not. On May 30, 2012, COAPS (Center for Oceanic and Atmospheric Prediction Studies) scientists released their fourth annual Atlantic hurricane season forecast. This year's forecast calls for a 70 percent probability of 10 to 16 named storms and 5 to 9 hurricanes. The mean forecast is for 13 named storms and 7 hurricanes. These numbers are based on 51 individual seasonal forecasts conducted since May 25, 2012 using sea surface temperatures predicted by NOAA. The forecast mean numbers are slightly below the 1995-2010 average of 14 named storms and 8 hurricanes, and reflect the possible emergence of El Niño conditions in the tropical Pacific and cooling surface water temperatures in the tropical North Atlantic. The scientists use a numerical atmospheric model developed at COAPS to understand seasonal predictability of hurricane activity. The first hurricane warning service was set up in the 1870's from Cuba with the work of Father Benito Viñes. After his passing, hurricane warning services were assumed by the United States Signal Corp and United States Weather Bureau over the next decade, first based in Jamaica in 1898 and Cuba in 1899 before shifting to Washington, D.C. in 1902. This responsibility passed to regional hurricane offices in 1935, and the concept of the Atlantic hurricane season was established in order to keep a vigilant lookout for tropical cyclones during certain times of the year. Hurricane advisories issued every six hours by the regional hurricane offices began at this time. The Jacksonville hurricane warning office moved to Miami, Florida in 1943. Tropical cyclone naming began for Atlantic tropical cyclones using the phonetic alphabet by 1947. Starting in 1950, the Miami Hurricane Warning Office began to prepare the annual hurricane season summary articles. FSU is the only university in the United States issuing a seasonal hurricane forecast using a global numerical atmospheric model. The model uses the high performance computers at FSU to make predictions of the atmosphere six months into the future. Based on these atmospheric predictions, tropical activity is objectively determined and forecasts are issued around June 1st. The COAPS forecast is gaining recognition for its accuracy only three years after its launch. The 2009 forecast predicted 8 named storms and 4 hurricanes, and there ended up being 9 named storms and 3 hurricanes that year. The 2010 forecast predicted 17 named storms and 10 hurricanes, and there were actually 19 named storms and 12 hurricanes. The 2011 forecast predicted an average of 17 named storms and 9 hurricanes, and there were actually 19 named storms and 7 hurricanes. Historical data was used since 1982 shows that the model has a mean absolute error of 1.9 hurricanes and 2.3 named storms.

Air pollution 'will become bigger global killer than dirty water'

Source : *theguardian*

Date: 15th March, 2012



Urban air pollution is set to become the biggest environmental cause of premature death in the coming decades, overtaking even such mass killers as poor sanitation and a lack of clean drinking water, according to a new report.

Both developed and developing countries will be hit, and by 2050, there could be 3.6 million

premature deaths a year from exposure to particulate matter, most of them in China and India. But rich countries will suffer worse effects from exposure to ground-level ozone, because of their ageing populations – older people are more susceptible.

The warning comes in a new report from the Organisation for Economic Cooperation and Development (OECD), which is a study of the global environmental outlook until 2050. The report found four key areas that are of most concern – climate change, loss of biodiversity, water and the health impacts of pollution.

If current policies are allowed to carry on, the world will far exceed the levels of greenhouse gas emissions that scientists say are safe, the report found. "I call it the surrender scenario – where we would be if governments do nothing more than what they have pledged already?" said Simon Upton, environment director at the OECD. "But it could be even worse than that, we've found."

The report said that global greenhouse gas emissions could increase by as much as half, as energy demand rises strongly, if countries fail to use cleaner forms of energy. Water demand is also likely to rise by more than half, and by 2050 as much as 40% of the global population is likely to be living in areas under severe water stress. Groundwater depletion would become the biggest threat to agriculture and to urban water supplies, while pollution from sewage and waste water – including chemicals used in cleaning – will put further strain on supplies.

However, the OECD study also said that there are some actions that governments can take quickly to tackle some of the key problems. For instance, many governments treat diesel fuel for vehicles differently than petrol for tax purposes, with tax breaks that encourage the take-up of diesel. But although diesel vehicle fuel produces lower greenhouse gas emissions than petrol, it is far worse for spewing out small particulate matter, which is bad for urban pollution. "In environmental terms, there is no reason to give diesel tax breaks over petrol," said Upton.

Governments could also remove other environmentally harmful subsidies, such as fossil fuel subsidies and subsidies for water that encourage irresponsible use of the resource. Biofuels are another potential danger area, because although they can emit less carbon than conventional fossil fuels, they also contribute to reducing biodiversity and put further strains on water use, so governments should consider carefully whether to go down the biofuels road, Upton warned. Upton said that if governments

took action now, and developed long-term views of these environmental problems, it would give them a much greater chance of avoiding the worst outcomes. "The key thing is that these four biggest problems are interconnected – biodiversity is affected by climate change and land use, water is linked to health problems, for instance. You can't solve any one of these in isolation. So to be effective, governments have to focus on all of these four and look very closely at the connections between them," he said.

Why cemeteries are a great place to track acid rain

Source : *Mother Nature Network*

Date: 27th February , 2012



To a geologist, a gravestone can offer information other rocks can't. One project is using gravestones to better understand how the elements, particularly acid rain, are weathering rocks around the world, and how that's changed over time.

"It is a great place for us to collect scientific data because gravestones have got dates on them, it is not that we have a morbid fascination," said Gary Lewis, director of education and outreach for the Geological Society of America, which is in charge of the Gravestone Project.

That date of death gives a good estimate of when the stone went into the ground above the grave and began to face elements. The wear and tear on the stone that follows can be caused by freezing and thawing temperatures, lawn care machinery and rain made acidic by pollutants it has picked up in its course through the atmosphere.

"What we are trying to do is not just look at damage by acid rain, but we are trying to see how acid rain has changed over time," Lewis said.

The Gravestone Project recruits volunteers around the world to head into cemeteries where they use calipers to measure the width of a stone at five points along its sides and at its top. If a stone has lead letters on it, volunteers measure how much the stone has worn away from the lettering. Volunteers are asked to do this work respectfully.

Lewis and colleague Deirdre Dragovich of the University of Sydney have begun working through two years' worth of data collected so far, and they are still looking for more.

With the data they have so far, the researchers are looking at weathering rates over time and at potential links with atmospheric changes. Specifically, Lewis is interested in seeing if periods of increased rain in particular areas accelerated weathering rates, and if the arrival of the Industrial Revolution — and the increase in pollution that accompanied it — are reflected in increased gravestone weathering, and how the

weathering rate has changed since the Industrial Revolution.

So far, they've seen that cemeteries in big cities seem to be weathering most rapidly, he said. This isn't a surprise since more acid rain-causing pollutants, particularly sulfur dioxide and nitrogen oxides, are released over urban areas.

Laura Guertin, an associate professor of earth science at Pennsylvania State University, already frequented the Cumberland Cemetery across the street from the Brandywine campus with her introductory geosciences students, when she began participating in the project in 2011.

At that cemetery and another in central Pennsylvania, Boalsburg Cemetery, she and her students have undertaken a wide range of projections, including comparing weathering rates of different types of stones (nearly all are granite or marble), and gleaning information about the history of the local community, such as how long people lived.

"At first they are a little creeped out," Guertin said. "I tell them, 'Don't worry, I will bring you all back with me.'" Her students found a weathering pattern they didn't expect in certain areas within Cumberland Cemetery, where they found stones with the most wear on the sides of the top of the stone, rather than at the middle point. "This is something I want my students to look into," she said.

Car Battery (Lead) Mystery

Source : *Environment News Network*

Date: 19th December , 2011

Most people just accept that a car battery works. However, to a chemist it is a perplexing mystery because the prime ingredient (lead oxide) should be an insulator. Chemists have solved the 150 year-old mystery of what gives the lead-acid car battery its unique ability to deliver a surge of current. Lead-acid batteries are able to deliver the very large currents needed to start a car engine because of the exceptionally high electrical conductivity of the battery anode material, lead dioxide. However, even though this type of battery was invented in 1859, up until now the fundamental reason for the high conductivity of lead dioxide has eluded scientists. Lead-acid batteries are made up of plates of lead and separate plates of lead dioxide, which are submerged into an electrolyte solution of about 35% sulfuric acid and 65% water. This causes a chemical reaction that releases electrons, allowing them to flow through conductors to produce electricity. As the battery discharges, the acid of the electrolyte reacts with the materials of the plates, changing their surface to lead sulfate. When the battery is recharged, the chemical reaction is reversed: the lead sulfate reforms into lead oxide and lead. With the plates restored to their original condition, the process may now be repeated. A team of researchers from Oxford University, the University of Bath, Trinity College Dublin, and the ISIS neutron spallation source, have explained for the first time the fundamental reason for the high conductivity of lead dioxide. A report of the research appears in this week's Physical Review Letters. "The unique ability of lead acid batteries to deliver surge

currents in excess of 100 amps to turn over a starter motor in an automobile depends critically on the fact that the lead dioxide which stores the chemical energy in the battery anode has a very high electrical conductivity, thus allowing large current to be drawn on demand," said Professor Russ Egdell of Oxford University's Department of Chemistry, an author of the paper.

"However the origin of conductivity in lead oxide has remained a matter of controversy. Other oxides with the same structure, such as titanium dioxide, are electrical insulators."Through a combination of computational chemistry and neutron diffraction, the team has demonstrated that lead dioxide is intrinsically an insulator with a small electronic band gap, but invariably becomes electron rich due to the loss of oxygen from the lattice, causing the material to be transformed from an insulator into a metallic conductor.

After 40-year decrease, figures show rise in UK acid rain pollution

Source : *Environment News Network*

Date: 16th December , 2011

The UK Government has revealed a year-on-year increase in the amount of sulphur dioxide emissions, which reverses a 40-year downward trend.

For the first time since the Seventies, official statistics show a small increase in the emissions of the sulphur dioxide of 2.3 per cent between 2009 and 2010.

The Defra report blamed the rise on a harsher winter and resulting increases in fuel consumption for heating and electricity generation.

However, the release pointed out that emissions of sulphur dioxide had still fallen by 89 per cent between 1990 and 2010, from 3.7 to 0.41 million tonnes.

The main source of sulphur dioxide (SO₂) emissions is from combustion in energy production and transformation (58 per cent in 2010), followed by combustion in manufacturing industries (18 per cent in 2010).

It is these sources that have been the strongest drivers for the long term trend of falling emissions, by switching from coal to gas and improved efficiency.

Sulphur dioxide triggers chemical reactions in the atmosphere, which creates acidic air pollution which can cause harm to vegetation and buildings, including as acid-rain.

The report reveals the UK is still ahead of meeting current international targets to reduce emissions of sulphur dioxide and are 31 per cent below the lowest goal.

Growing pollution leads to 'global dimming'- Study

Source : *Environment News Network*

Date: 2nd December , 2011

Visibility on clear days has declined in much of the world since the 1970s thanks to a rise in airborne pollutants, scientists said on Thursday.They described a "global

dimming" in particular over south and east Asia, South America, Australia and Africa, while visibility remained relatively stable over North America and improved over Europe, the researchers said. Aerosols, tiny particles or liquid droplets belched into the air by the burning of fossil fuels and other sources, are responsible for the dimming, the researchers said. "Aerosols are going up over a lot of the world, especially Asia," Robert Dickinson of the University of Texas, one of the researchers, said in a telephone interview. Dickinson and two University of Maryland researchers tracked measurements of visibility -- the distance someone can see on clear days -- taken from 1973 to 2007 at 3,250 meteorological stations worldwide. Aerosols like soot, dust and sulfur dioxide particles all harmed visibility, they said in the journal *Science*. The researchers used recent satellite data to confirm that the visibility measurements from the meteorological stations were a good indicator of aerosol concentrations in the air. The aerosols from burning coal, industrial processes and the burning of tropical forests can influence the climate and be a detriment to health, the researchers said. Other pollutants such as carbon dioxide and other so-called greenhouse gases are transparent and do not affect visibility. The data will help researchers understand long-term changes in air pollution and how these are associated with climate change, said Kaicun Wang of the University of Maryland. "This study provides basic information for future climate studies," Wang said in a telephone interview. The scientists blamed increased industrial activity in places like China and India for some of the decreased visibility, while they said air quality regulations in Europe helped improve visibility there since the mid-1980s. The aerosols can have variable cooling and heating effects on surface temperatures, reflecting light back into space and reducing solar radiation at the Earth's surface or absorbing solar radiation and heating the atmosphere, they added.

NASA data confirms pollution has nearly halved from US coal power plants

Source : *Environment News Network*

Date: 2nd December , 2011

A team of scientists have used the Ozone Monitoring Instrument (OMI) on NASA's Aura satellite to confirm major reductions in the levels of a key air pollutant generated by coal power plants in the eastern United States. The pollutant, sulphur dioxide, contributes to the formation of acid rain and can cause serious health problems. The scientists, led by an Environment Canada researcher, have shown that sulphur dioxide levels in the vicinity of major coal power plants have fallen by nearly half since 2005. The new findings, the first satellite observations of this type, confirm ground-based measurements of declining sulphur dioxide levels and demonstrate that scientists can potentially measure levels of harmful emissions throughout the world, even in places where ground monitoring is not extensive or does not exist. About two-thirds of sulphur dioxide pollution in American air comes from coal power plants.

The scientists attribute the decline in sulfur dioxide to the Clean Air Interstate Rule, a

rule passed by the U.S. Environmental Protection Agency in 2005 that called for deep cuts in sulphur dioxide emissions.

In response to that rule, many power plants in the United States have installed desulphurization devices and taken other steps that limit the release of sulphur dioxide. The rule put a cap on emissions, but left it up to power companies to determine how to reduce emissions and allowed companies to trade pollution credits.

While scientists have used the Ozone Monitoring Instrument to observe sulphur dioxide levels within large plumes of volcanic ash and over heavily polluted parts of China in the past, this is the first time they have observed such subtle details over the United States, a region of the world that in comparison to fast-growing parts of Asia now has relatively modest sulphur dioxide emissions.

Air pollution linked for first time to droughts and major storms

Source : *Environment News Network*

Date: 15th November , 2011

A groundbreaking new study has found an increase in air pollution can reduce rainfall in drought-affected regions and worsen the severity of storms in wet regions or seasons. Researchers have discovered that increases in air pollution and other particulate matter in the atmosphere can strongly affect cloud development in ways that reduce precipitation in dry regions or seasons. This while increasing rain, snowfall and the intensity of severe storms in wet regions or seasons, according to results of a new study. The research provides the first clear evidence of how aerosols - soot, dust and other particulates in the atmosphere - may affect weather and climate. The findings have important implications for the availability, management and use of water resources in regions across the United States and around the world.

"Using a 10-year dataset of atmospheric measurements, we have uncovered the long-term, net impact of aerosols on cloud height and thickness and the resulting changes in precipitation frequency and intensity," says Zhanqing Li, an atmospheric scientist at the University of Maryland and lead author of a paper reporting the results. The paper was published today in the journal Nature Geoscience.

EPA considering relaxing air quality rule for power plants

Source : *Environment News Network*

Date: 6th October , 2011

The Environmental Protection Agency is expected to ease a new air pollution rule that would require power plants in 27 states to slash emissions, The Wall Street Journal reported on Tuesday, citing people familiar with the matter. The EPA plans to propose as early as this week allowing certain states and companies to emit more pollutants than it previously permitted, the report said. An agency spokesman was not immediately available for comment.

The agency's Cross-State Air Pollution final rule issued in July calls, in part, for much

stricter limits on emissions of nitrogen oxide and sulfur dioxide, or SO₂, from coal and natural gas-fired power plants beginning in January. The changes are expected to allow for emissions increases ranging from 1 percent to 4 percent above the July requirement, depending on the pollutant, the Journal reported, citing the sources.

EPA spokesman Brendan Gilfillan was quoted by the newspaper as saying, "While we don't have anything to announce at this time, EPA often makes technical adjustments ... because data, including data in some cases provided by industry, turns out to be incorrect, outdated or incomplete." The air quality rule resulted from a federal appeals court order instructing the EPA to strengthen a similar regulation issued in 2005 by the Bush administration.

The EPA said the rule would prevent up to 34,000 premature deaths and save \$280 billion a year in health costs. The pollution is linked to heart attacks and lung problems including asthma.

The Acid Earth

Source : *Environment News Network*

Date: 23rd September , 2011



Human use of Earth's natural resources is making the air, oceans, freshwaters, and soils more acidic, according to a U.S. Geological Survey — University of Virginia study available online in the journal, *Applied Geochemistry*. This comprehensive review, the first on this topic to date, found the mining and burning of coal, the mining and smelting of metal ores,

and the use of nitrogen fertilizer are the major causes of chemical oxidation processes that end generate acid in the Earth-surface environment. These widespread activities have increased carbon dioxide in the atmosphere, increasing the relative acidity of oceans; produced acid rain that has increased the acidity of freshwater bodies and soils; produced drainage from mines that has increased the acidity of freshwater streams and groundwater; and added nitrogen to crop lands that has increased the acidity of soils. Although there are many mechanisms of global acidification, the focus in this new study is on the major ones, including emissions from combustion of fossil fuels and smelting of ores, mining of coal and metal ores, and application of nitrogen fertilizer to soils.

These widespread activities have resulted in:

- (1) Increased CO₂ concentration in the atmosphere that acidifies the oceans;
- (2) Acidic atmospheric deposition that acidifies soils and bodies of freshwater;
- (3) Acid mine drainage that acidifies bodies of freshwater and groundwaters;
- (4) Nitrification that acidifies soils.

There are natural geochemical reactions of mineral weathering and ion exchange

work to buffer acidification, the slow reaction rates or the limited abundance of reactant phases are not enough. Relatively recent modifications of resource extraction and usage in some regions of the world have begun to ameliorate local acidification, but expanding use of resources in other regions is causing environmental acidification in previously unnoticed places. In other words, some countries try to reduce these effects while others are more eager to expand and develop.

"We believe that this study is the first attempt to assess all of the major human activities that are making Earth more acidic," said USGS scientist Karen Rice, who led the study. "We hope others will use this as a starting point for making scientific and management progress to preserve the atmosphere, waters, and soils that support human life." To examine the global impact of acidification, the researchers developed a series of world maps to show current coal use, nutrient consumption, and copper production and smelting by country. By combining this information with the anticipated population growth through 2050 and the impact of changing technology, regulations and other factors, the researchers address shifting trends in acidification.

"Looking at these maps can help identify where the current hotspots are for producing acidity, The population increase map can help guide policymakers on possible future trends and areas to watch for the development of new hotspots." said Rice. For example, the populations of some countries in Africa are projected to increase in the near future. To support the growing populations, these countries likely will be forced to apply more nitrogen fertilizer to their crops than they currently use, increasing the acidification of soils and freshwater resources in a region that had not previously been affected. To look at the impact of the acid producing activities, the researchers characterized the scale of environmental damage from major activities and their components as local, regional, global, or some combination of the three. Generating power by burning coal, for instance, can have local, regional and global impacts. Locally, it can cause acid mine drainage where the coal is mined; regionally, burning it can cause acid rain; globally, the increased carbon dioxide in the atmosphere increases the acidity of the ocean.

Earth is having a bad acid trip, study finds

Source : *Mother Nature Network*

Date: 23rd September , 2011



Earth may be overdosing on acid — not the "turn on, tune in, drop out" kind, but the "kill fish, kill coral, kill crops" kind. And it's shaping up to be a very bad trip. The problem isn't just [acid rain](#) or [ocean acidification](#), either: pH levels are plummeting all over the planet, according to a [new study](#) by the U.S. Geological

Survey and the University of Virginia. The origin of all this acidity, the researchers report, is humanity's growing use of natural resources such as coal, metal ores and nitrogen.

Scientists have long known that certain chemicals can acidify soil and water when released en masse into the environment; sulfur dioxide and nitrogen oxides contribute to acid rain, for example, while carbon dioxide is widely blamed for causing ocean acidification.

In their new study, though, the USGS and UVA researchers report that a worldwide acid wash is now being fueled by a variety of human activities, namely "the mining and burning of coal, the mining and smelting of metal ores, and the use of nitrogen fertilizer." This is dramatically reducing pH levels not just in soil and seawater, they report, but also in streams, rivers, lakes and even the air.

Each of these activities contributes to rising acidity in its own way, the study's authors explain. Much of the CO₂ emissions from coal burning are absorbed by ocean water, for instance, producing carbonic acid that wreaks havoc with marine food webs. SO₂ from both coal burning and metal smelting leads to acid rain, which in turn acidifies soil and freshwater and can directly kill plants. Drainage from coal mines also boosts acidity in soil, freshwater and groundwater, while nitrogen added to farmland can reduce soil pH over time, limiting its ability to sustain crops.

In a [press release](#) issued Friday, USGS scientist and project leader Karen Rice calls the study the first of its kind, and says it can help other scientists and policy makers tackle the planet's acid problem. "We believe this study is the first attempt to assess all of the major human activities that are making Earth more acidic," she says. "We hope others will use this as a starting point for making scientific and management progress to preserve the atmosphere, waters and soils that support human life."

The U.S. and other developed nations took steps years ago to address acid rain, the researchers point out, and environmental regulations have also improved mining and smelting practices. But acidic runoff remains an issue in many areas where intensive mining takes place, even in wealthy countries, and ocean acidification from CO₂ is a growing global issue. Plus, as UVA geochemist Janet Herman explains, fast-developing nations in Asia, Africa and South America are actually expanding their reliance on coal, metals, nitrogen and other acidifying resources.

"The low pH levels of streams in coal regions of the eastern United States were a major environmental concern 50 years ago," Herman says in the press release. "Changes in mining practices as well as shifting location of production brought about improvements in water quality in Appalachia. In contrast, exploitation of coal has grown in China, where the same environmental protections are not in place."

The researchers created a set of world maps showing coal use, nutrient consumption, copper production and metal smelting on a country-by-country basis, and then factored in things like population forecasts, technological development and regulatory trends. This let them predict, for example, how rapid population growth in some African countries will likely drive up the use of nitrogen fertilizers to grow more food — thus acidifying soil and freshwater in places that haven't faced such issues before.

"Looking at these maps can help identify where the current hotspots are for producing acidity," Rice says. "The population increase map can help guide policymakers on possible future trends and areas to watch for the development of new hotspots."

The study, titled "[Acidification of Earth: An Assessment Across Mechanisms and Scales](#)," was published in the journal *Applied Geochemistry*.

Lake Acidification Causes

Source : *Environment News Network*

Date: 3rd August , 2011



Acidification caused by acid rain precipitation has been, and remains, a major environmental issue because of its life-threatening effects on biota, its global spread, and the prolonged recovery period associated with it. International cooperation to reduce the precursors of acid precipitation has provided a textbook example of how society can address a complex environmental

pollution problem with support from science. A key step in that success was the achievement of a broad scientific consensus that acid precipitation was a serious threat to ecosystems in sensitive regions. That consensus was built during two decades of scientific research starting with the first United Nations conference on the environment in 1972 and continuing to 1990 with the conclusion of major research programs in Europe and in the United States. But is this the only cause? A new study of the role of dissolved organic carbon, which comes from living organisms and can also make lakes acidic, suggests that power station emissions may have played less of a role than previously thought. Martin Erlandsson of the University of Reading, United Kingdom, and his colleagues wondered whether it was possible to distinguish the historical effects of organic acids and power station emissions by assessing findings during the 20 years since lake acidification started to decrease in Sweden. They describe their results in the August issue of *BioScience*. Although there are few measurements of the amount of dissolved organic carbon in Swedish lakes before the 1980s, the amount of dissolved organic carbon in them has continued to increase despite the stabilization of power station emissions around 1990. The reason is unknown, but the increase supports the idea that as power station emissions increased during the 20th century they may have partly suppressed organic acidity in lakes that was present in pre-industrial times—at higher levels than when it was assessed in 1990.

Erlandsson and colleagues estimated the pre-industrial acidity of 66 lakes under different assumptions about the amount of dissolved organic carbon in them, and found that the assumptions had a large effect on estimates of how much the lakes

had been affected by power station emissions. Studies of sediments in some of the lakes seem to bear out the idea that preindustrial organic carbon levels were at least as high as they are today—and considerably higher than they were in 1990. That in turn means the power station emissions did not contribute as much to lake acidification as was thought when liming programs were instigated.

The DOC concentrations in freshwaters vary over both historical and recent time scales. At present, there is no sign that the decadal trends of increasing DOC are abating in Sweden, even though sulfate concentrations in rain and surface waters are stabilizing. The results demonstrated in this study are not intended to imply that the question of what preindustrial DOC concentrations really were has been resolved, but rather to exemplify the significance of using different DOC reference levels.

Application of study technique to four lakes in southern Sweden indicates 15%—50% higher organic matter concentrations around 1850 relative to those in 2009. For two of these lakes, the reconstructed preindustrial DOC is actually sufficiently high for DOC suppression to completely compensate for acid deposition with no net change in the pH relative to preindustrial conditions. For the other two lakes, however, much higher DOC levels than what the paleolimnological reconstructions suggest are required for full pH compensation.

What this study shows is that acidification of a lake is a complex matter which is not yet clearly understood. Multiple cause may exists.

Cross State Air Pollution Rule aims to cut smog, soot from coal plants

Source : *Reuters*

Date: 7th July , 2011

U.S. environmental regulators finalized a rule on Thursday to slash air pollution from coal-fired power plants in 27 states east of the Rocky Mountains that result in unhealthy levels of smog and soot.

The Environmental Protection Agency measure, known as the Cross State Air Pollution Rule, will add costs for some power generators, but should cut health care bills for Americans.

Companies that could see higher costs include large coal burners Southern Co, Duke Energy and American Electric Power.

"No community should have to bear the burden of another community's polluters, or be powerless to prevent air pollution that leads to asthma, heart attacks and other harmful illnesses," said EPA Administrator Lisa Jackson.

The EPA rule will reduce power plant sulfur dioxide emissions by 73 percent by 2014, from 2005 levels, when combined with state environmental laws. It will cut nitrogen oxide emissions by 54 percent by 2014. Those cuts are slightly deeper than ones proposed by the EPA last year.

STEEP COSTS, BUT HEALTH BENEFITS

Power plants have to start cutting their sulfur dioxide emissions in January 2012 and their nitrogen oxide emissions that May.

In addition, the state of Texas will now be required to cut sulfur dioxide emissions in an annual program, a measure that was not included in last year's proposal.

The agency said the rule would prevent up to 34,000 premature deaths, and save \$280 billion per year in health costs. The pollution is linked to heart attacks and lung problems including asthma.

Those benefits outweigh the \$800 million projected to be spent by power plants and others annually on the rule in 2014 and the roughly \$1.6 billion per year in capital investments already underway from previous rules, the EPA said.

The rule will also level the playing field for power plant operators that are already controlling these emissions by requiring more plants to take similar actions, it said.

Not everyone was happy about the regulation.

"The late decision to apply the rule to Texas and the modeling for the rule have resulted in wholly unreasonable mandates and unrealistic timelines for Texas," Luminant, a unit of private company Energy Future Holdings, and the biggest power producer in Texas, said in a release.

Shares of Southern Co were down 0.4 percent on Thursday, while Duke Energy and American Electric Power both rose less than 0.5 percent.

RED HERRINGThe rule resulted from a federal appeals court order instructing the EPA to strengthen a similar regulation issued in 2005 by the Bush administration.

It is opposed by many Republicans in Congress, who say it will kill jobs and could make transmission of electricity unreliable because it would force companies to shut some of their coal plants. But the argument that the rule will hurt transmission is a "red herring" because plants integral to power delivery would not be allowed to shut down, said Susan Tierney, a managing principal at the Analysis Group, an organization of economic and financial consultants.

She said only the oldest, least efficient and smaller coal plants would be shut as a result of rules to be issued this year by the EPA on power plants.

Environmentalists praised the EPA. The Clean Air Task Force said the rule was a "solid victory for clean air and public health." The EPA will take public comment for 45 days on a supplemental rule that would require six states -- Iowa, Kansas, Michigan, Missouri, Oklahoma and Wisconsin -- to reduce nitrogen oxide pollution in the summer months. That rule is expected to be finalized late this year.

Aerosols

Source : *Environment News Network*

Date: 11th March , 2011

What are aerosols? In this case they are tiny particles of dust, soot, salts, mist and all

sorts of small stuff suspended in the air. This is what causes a hazy day, light scattering and sun light absorption. Aerosols have a great effect on climate but little is known about them. Aerosols can be natural such as volcanic in source or manmade.

Some aerosols, particularly sulfate aerosols from fossil fuel combustion, exert a cooling influence (by the reflection or absorption of sunlight before it reaches the earth) on the climate which partly counteracts the warming induced by greenhouse gases such as carbon dioxide. Other effects are far from clear or known.

Recent studies of the Sahel drought and major increases since 1967 in rainfall over the Northern Territory, Kimberley, Pilbara and around the Nullarbor Plain have led some scientists to conclude that the aerosol haze over South and East Asia has been steadily shifting tropical rainfall in both hemispheres southward.

So now more than 60 scientists from a dozen institutions have converged on this California urban area to study how tiny particles called aerosols affect the climate. Sending airplanes and weather balloons outfitted with instruments up in the air, the team will be sampling aerosols in the Sacramento Valley June 2-28.

Researchers from the Department of Energy's Pacific Northwest National Laboratory in will be leading the month long study, coordinating air and ground operations at three sites in the Central Valley. The data they are collecting will help researchers improve computer models that simulate the climate and project climate changes.

To better understand aerosols' role in climate, the DOE's climate research program studies how aerosol particles in the air scatter and absorb the sun's radiation, and how much of it hits Earth. The team of researchers will take daily measurements of trace gases and aerosols the city emits (known as the Sacramento urban plume) under relatively well defined and regular weather conditions. The knowledge gained will eventually be used in regional and global computer models that simulate the effects of aerosols on climate.

About half of the researchers will take measurements on the ground at two sites. The rest of the team will take similar measurements from the air flown on a Gulfstream-1 aircraft at about 1,000 feet. NASA will fly a King Air B-200 even higher at 28,000 feet.

In addition, the team will be sending weather balloons up for additional sampling from the ground sites. The simultaneous measurements from ground, plane and balloon will provide a comprehensive view of the atmospheric aerosols.

From all this the scientists hope to piece together how the aerosols (and the various sub types of aerosols) affect the climate.

Ocean acidification threatens fisheries, says UNEP

Source : *Environment News Network*

Date: 12th June , 2010

[CANCUN, MEXICO] The oceans are acidifying at probably the fastest rate for 65 million years — with unknown implications for the three billion people who depend on fish for protein, a report released at the 2010 UN Climate Change Conference (COP 16), in Mexico has said. Rising CO₂ emissions, a quarter of which eventually dissolve in

the oceans to produce carbonic acid, have caused a 30 per cent drop in ocean pH values, reflecting an increase in ocean acidity, according to the report, produced by the UN Environment Programme (UNEP).

"If we go on at the same rate we will have a 120 per cent increase in acidity by the end of the century," said Carol Turley, the report's lead author and knowledge exchange coordinator at the UK Ocean Acidification Research Programme.

The report reviewed scientific literature and found that the effects of acidification on the food chain are still unclear, and more research is needed.

But it outlined many potential threats. Acidification can reduce the growth and affect the development of smaller fish. For example, it can impair orientation and sense of smell in young clownfish, making them more vulnerable to predators.

Ocean pH

Source : *Environment News Network*

Date: 18th August , 2008

Ocean acidification is the name given to the ongoing decrease in the pH of the Earth's oceans, caused by their uptake of atmospheric carbon dioxide. Between 1751 and 1994 surface ocean pH is estimated to have decreased from approximately 8.18 to 8.1. PH is a measure of the acidity or basicity of a solution. It approximates but is not equal to concentration of hydrogen ions expressed on a logarithmic scale. A low pH indicates a high concentration of hydrogen ions, while a high pH indicates a low concentration. A strong acid would be less than 1 on this scale. A recent study indicates the relative impact on future ocean acidification of different aspects of global climate change mitigation policies such as the year that global emissions peak. The absorption of CO₂ by water results in the formation of acid (carbonic acid) which is similar in concept to acid rain.

Although the natural absorption of CO₂ by the world's oceans helps to mitigate the climatic effects of high CO₂, it is believed that the resulting decrease in pH will have negative consequences, primarily for marine life used to a certain pH level that use CO₂ to build carbonate shells. These span the food chain from autotrophs to heterotrophs and include organisms such as coccolithophores, corals, foraminifera, echinoderms, crustaceans and molluscs.

Aside from calcification, organisms may suffer other adverse effects, either directly as reproductive or physiological effects, or indirectly through negative impacts on food resources. Marine life will change as pH levels change. As of yet, there is no complete understanding of the overall effects.

In the Geophysical Research Letters (VOL. 37, L15704, 5 PP., 2010), there is an article on the influence of environmental mitigation policy on ocean pH changes.

Relative to a scenario where CO₂ emissions peak in 2016 and then decrease by 1% per year tend to lead to the same or current pH by 2100. No CO₂ emission reduction leads to a decrease of global mean ocean surface pH to 7.67 to 7.81 in the same time

frame.

If emissions are capped for example in 2016 and then reduced by 5% per year, ocean pH may be limited to a minimum of 8.02. This is still more acidic than the nineteenth century's pH level but better than the worse case projected in these computer simulations.

Unfortunately, the buffering capacity of the oceans is really not known, What is clear is that the ocean's pH is going down.

Fishless Lake in Adirondacks Shows Signs of Recovery

Source : *Environment News Network*

Date: 3rd August , 2010

Chuck Boylen and his crew of six had been hiking for around two hours, surrounded by nothing but the tree-lined, towering Adirondack Mountains, when they reached the wide-open space of Brooktrout Lake.

"You can just feel the remoteness," said Boylen, a biology professor at Rensselaer Polytechnic University in New York, who is part of a multi-organizational team that has been studying the effects of air pollution on this and other lakes in the Adirondacks every summer for the last 16 years. The goal of the research is to determine how the Clean Air Act, passed in 1990, has affected the lakes in the Adirondacks, many of which had become so acidic they no longer had any fish. The fish killer was sulfur dioxide, which for decades had been released from various industries, before undergoing chemical reactions in the atmosphere and combining with water droplets to create acid rain.

The research by Boylen and his team will be the most comprehensive long-term study of how acidification affects lake ecosystems to date, and will also look at how those ecosystems recover, if in fact they do.

"There hasn't been a study evaluating the changes in the chemistry together with the biota, over a long period of time," said study team member Sandra Nierzwicki-Bauer, director of the Darrin Fresh Water Institute at Rensselaer.

The studies show that the effects on the Adirondacks lakes were severe in some cases, but that there's reason to hope for some recovery.

Floods, Droughts, and Air Pollution

Source : *Environment News Network*

Date: 8th June , 2010

Certain types of air pollution can serve as nuclei which aid in the formation of rainfall. Therefore increases in air pollution and other particulate matter in the atmosphere can strongly affect cloud development in ways that reduce precipitation in dry regions or seasons, while increasing rain, snowfall and the intensity of severe storms in wet regions or seasons, says a new study in Nature Geoscience. The research provides the

first clear evidence of how aerosols — soot, dust and other small particles in the atmosphere — can affect weather and climate; and the findings have important implications for the availability, management and use of water resources in regions across the United States and around the world. "Using a 10-year dataset of extensive atmosphere measurements from the U.S. Southern Great Plains research facility in Oklahoma, we have uncovered, for the first time, the long-term, net impact of aerosols on cloud height and thickness, and the resultant changes in precipitation frequency and intensity," says Zhanqing Li, a professor of atmospheric and oceanic science at Maryland and lead author of the study.

The scientists obtained additional support for these findings with matching results obtained using a cloud-resolving computer model.

"These new findings of long-term impacts, which we made using regional ground measurements, also are consistent with the findings we obtained from an analysis of NASA's global satellite products in a separate study. Together, they attest to the needs of tackling both climate and environmental changes that matter so much to our daily life," says Maryland's Li, who is also affiliated with Beijing Normal University.

"We have known for a long time that aerosols impact both the heating and phase changes [condensing, freezing] of clouds and can either inhibit or intensify clouds and precipitation," says Russell Dickerson, a professor of atmospheric and oceanic science at Maryland. "What we have not been able to determine, until now, is the net effect. This study by Li and his colleagues shows that fine particulate matter, mostly from air pollution, impedes gentle rains while exacerbating severe storms. It adds urgency to the need to control sulfur, nitrogen, and hydrocarbon emissions."

An earlier study on Indian monsoons indicated that a reduction in rainfall over India in the past 50 years. This was published online by the journal Science. It is based on a study done by Massimo Bollasina of Princeton university in the U.S., along with Yi Ming and V.Ramaswamy of the Geological Fluid dynamics Laboratory at Princeton, used a state-of-the-art global climate model to simulate what was happening in the Indian ocean with and without human-generated aerosols.

Technically, an aerosol is a suspension of fine solid particles or liquid droplets in a gas. Examples are clouds, and air pollution such as smog and smoke. They include soot, dust and sulfate particles, and are what we commonly think of when we talk about air pollution. Aerosols come, for example, from the combustion of fossil fuels, industrial and agricultural processes, and the accidental or deliberate burning of fields and forests.

Aerosol particles also affect the Earth's surface temperature by either reflecting light back into space, thus reducing solar radiation at Earth's surface, or absorbing solar radiation, thus heating the atmosphere. This variable cooling and heating is, in part, how aerosols modify atmospheric stability that dictates atmospheric vertical motion and cloud formation. Aerosols also affect cloud microphysics because they serve as nuclei around which water droplets or ice particles form.

Both processes can affect cloud properties and rainfall. Different processes may work in harmony or offset each other, leading to a complex yet inconclusive interpretation of their long-term net effect.

Greenhouse gases and aerosol particles are two major agents dictating climate change. The mechanisms of climate warming impacts of increased greenhouse gases are clear (they prevent solar energy that has been absorbed by the earth's surface from being radiated as heat back into space), but the climate effects of increased aerosols are much less certain due to many competing effects outlined above.

Until now, studies of the long-term effects of aerosols on climate change have been largely lacking and inconclusive because their mechanisms are much more sophisticated, variable, and tangled with meteorology.

CO2 Regulation in US Hits more speedbumps

Source : *Environment News Network*

Date: 2nd April , 2010

With congressional action on climate legislation in doubt, two House committee chairmen have filed a bill to block the government from regulating greenhouse gases under its own power.

The lawmakers say Congress, not "unelected bureaucrats," should set environmental policy. Congress has squabbled for months over a comprehensive climate change bill. Some members say the best bet is to encourage renewable energy production.

The Environmental Protection Agency cleared the way for regulation under air pollution laws a month ago, when it ruled that greenhouse gases endanger human health. EPA could act as early as March to offer regulations.

Efforts were being made in both chambers of Congress to derail EPA regulation. It normally takes months for Congress to agree on legislation.

Besides blocking EPA regulation of six gases, including carbon dioxide, methane and nitrous oxide, blamed for global warming, the House bill, which was filed on Tuesday, would remove two roadblocks to greater use of biofuels.

The bill, which would face a tough fight in Congress and be opposed by the president, would adopt a broad definition of biomass -- including crops, trees, algae and manure -- that can be used in making renewable fuels.

It also would bar EPA, when it calculates if biofuels are cleaner than petroleum, from holding U.S. fuels responsible for forest clearing and cropland expansion overseas.

Acid In The Oceans: A Growing Threat To Sea Life

Source : *Environment News Network*

Date: 13th August , 2009

When we burn fossil fuels, we are not just putting carbon dioxide into the atmosphere. A lot of it goes into the sea. There, carbon dioxide turns into carbonic

acid. And that turns ocean water corrosive, particularly to shellfish and corals. Biologists are now coming to realize that rising acid levels in the ocean can affect many other forms of sea life as well.

...Over the past half-dozen years, marine biologists studying ocean acidification have focused mostly on the animals they assume will be the most vulnerable, such as coral reefs and shellfish. If acid levels in the ocean get too high, their shells can literally dissolve.

Marine biologist Eric Pane is part of a second wave of research on ocean acidification as biologists try to understand the consequences for *all* the life in the sea.

"Right now we're scrambling and we're trying to get our feet beneath us," he says.

The simplest issue, he says, is to understand how organisms respond to acidification — as well as how the ecosystem responds.

Proposed Federal Acid Rain and Mercury Control Act

Source : *Environment News Network*

Date: 3rd May , 2009

A Central New York congressman, seeing an opportunity that may never come again, has introduced a bill requiring the most drastic cuts in U.S. history to the pollution responsible for acid rain.

Rep. John McHugh said he wants to tie his "Acid Rain and Mercury Control Act" into a landmark energy and climate change bill that Congress will begin considering this week, with the goal of a vote by June.

The climate legislation to control greenhouse gases received a boost last week when the U.S. Environmental Protection Agency ruled that global warming is a danger to public health and welfare.

The EPA's action sets the stage for the federal government to regulate carbon dioxide pollution and five other greenhouse gases linked to climate change.

But the EPA, and the separate global warming bill making its way through Congress, do not address all of the pollution from coal-fired power plants. The pollution contributes to acid rain, which has devastated lakes and forests in New York for decades. Among the pollutants that McHugh wants to target is mercury, which also poses a risk to human health.

McHugh, R-Pierrepont Manor, who proposed a similar bill to tackle acid rain in 2007, said he believes now is the best chance to finally solve the problem with federal legislation.

"One of the primary motivators for reintroducing the bill at this time is because of the debate surrounding climate change," McHugh said. "I didn't want acid rain to be left out."

Airborne Study Of Arctic Atmosphere, Air Pollution Launched

Source : *Environment News Network*

Date: 3rd December , 2008

This month, NASA begins the most extensive field campaign ever to investigate the chemistry of the Arctic's lower atmosphere. The mission is poised to help scientists identify how air pollution contributes to climate changes in the Arctic.

The recent decline of sea ice is one indication the Arctic is undergoing significant environmental changes related to climate warming. NASA and its partners plan to investigate the atmosphere's role in this climate-sensitive region with the Arctic Research of the Composition of the Troposphere from Aircraft and Satellites (ARCTAS) field campaign.

"It's important that we go to the Arctic to understand the atmospheric contribution to warming in a place that's rapidly changing," said Jim Crawford, manager of the Tropospheric Chemistry Program at NASA Headquarters in Washington. "We are in a position to provide the most complete characterization to date for a region that is seldom observed but critical to understanding climate change."

The campaign begins this week in Fairbanks, Alaska. NASA's DC-8, P-3 and B-200 aircraft will serve as airborne laboratories for the next three weeks, carrying instruments to measure air pollution gases and aerosols and solar radiation. Of particular interest is the formation of the springtime "arctic haze." The return of sunlight to the Arctic in the spring fuels chemical reactions of pollutants that have accumulated over the winter after travelling long distances from lower latitudes.

"The Arctic is a poster child of global change and we don't understand the processes that are driving that rapid change," said Daniel Jacob, an ARCTAS project scientist at Harvard University, Cambridge, Mass. "We need to understand it better and that's why we're going."

ARCTAS is NASA's contribution to an international series of Arctic field experiments that is part of the International Polar Year. The National Oceanic and Atmospheric Administration and the Department of Energy also are sponsoring research flights from Fairbanks this month in collaboration with NASA.

The wealth of data collected also will improve computer models used to study global atmospheric chemistry and climate. This ultimately will provide scientists with a better idea of how pollutants are transported to and around the Arctic and their impact on the environment and climate.

"We haven't looked at pollution transport in a comprehensive fashion," said Hanwant Singh, an ARCTAS project scientist at NASA Ames Research Center, Moffett Field, Calif. "We can see Arctic haze coming in but we don't know its composition or how it got there. One goal of ARCTAS is to provide a comprehensive understanding of the aerosol composition, chemistry and climate effects in the Arctic region."

The new aircraft observations also will help researchers interpret data from NASA satellites orbiting over the Arctic, such as Aura, Terra, and Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observation (CALIPSO). Interpreting satellite data can be

difficult in the Arctic because of extensive cloud cover, bright reflective surfaces from snow and ice, and cold surface temperatures. For example, it's difficult for researchers to look at satellite data and distinguish between light reflected by clouds and light reflected from white ice cover.

"NASA has invested a lot of resources in satellites that can be of value for diagnosing effects of climate change," Jacob said. "Satellites orbit over poles with good coverage and good opportunity, but you really need to have aircraft observations supporting those to make good interpretations of what satellites are telling you."

The new airborne view of the Arctic atmosphere combined with satellite data will provide scientists with a better understanding of the atmospheric side of the climate question.

"We're interested in data that will help models better characterize the current state of the atmosphere, to set a benchmark for them so we can gain confidence in their ability to predict future warming in the Arctic," Crawford said.

A second phase of the ARCTAS campaign takes place this summer from Cold Lake in Alberta, Canada, where flights will focus on measurements of emissions from forest fires. Researchers want to know how the impact of naturally occurring fires in the region compares to the pollution associated with human activity at lower latitudes. Understanding the relative influence of each is important to predictions of the Arctic's future climate.

Soot darkens ice, stokes runaway Arctic melt: study

Source : *Reuters*

Date: 2nd December , 2008



Soot is darkening ice in the Arctic and speeding a melt that could make the ocean around the North Pole ice-free in summer well before 2050, experts said on Tuesday. The experts said the fight against warming in the Arctic should be re-directed to focus more on cutting the industrial pollution from soot, ozone and

methane in Europe, North America and Russia to try to prevent the ice disappearing. Soot or black carbon darkens the ice and makes it soak up more heat, accelerating a melt compared to reflective snow and ice. Methane comes from sources including oil and gas and agriculture while ozone is formed from industrial pollutants. "Reductions in these pollutants would have a greater impact" in the next two decades than curbing emissions of the main greenhouse gas -- carbon dioxide -- according to scientists on

the sidelines of 187-nation U.N. climate talks in Poland. The Arctic is warming at twice the rate of the rest of the world and ice shrank to a record low in 2007, leading to worries that it could pass a point of no return. "The Arctic sea ice may already have passed a 'tipping point'," said Pam Pearson, an Arctic pollution expert at the Climate Policy Center who presented the findings. "An ice-free summer Arctic is now possible well before 2050." "Some scientists are arguing that it (the Arctic Ocean) could be (ice free) in summer within the next 10 to 20 years," said Bob Watson, a former head of the U.N. Climate Panel who chaired a presentation of the research in Poznan. The three pollutants -- soot, ozone and methane -- linger in the atmosphere far less time than carbon dioxide, meaning cuts in emissions would have a quicker impact in cleaning the air. The U.N. panel projected last year that it could be clear of ice by the end of the century. A thaw would threaten indigenous peoples and wildlife such as polar bears and seals. "The question is: is all of the rapid melt of the Arctic ice in summer all due to human induced climate change or is part of it some natural cycle? We clearly have to understand it," Watson, now chief scientific advisor to the British Environment Ministry, told Reuters. "This is not just a climate issue for the Arctic but for the globe as a whole," said Hanne Bjurstroem, the head of Norway's delegation, at the December 1-12 climate talks on a new climate treaty. A melt of the Arctic ice would warm the top of the globe and lead to warming further south. An ice-free Arctic would also make the region more accessible to oil and gas exploration and shipping.

Ground-level ozone pollution to increase

Source : *Environment News Network*

Date: 6th September, 2008

Ground-level ozone pollution is contributing to hundreds of deaths a year in the UK - and climate change could help make the situation worse, a report from the Royal Society warned today.

The study said that background ozone levels had been growing by 6 per cent a decade since the 1980s, and were now at a level where they were having an impact on health and the environment.

The Royal Society publication warned ozone was a significant greenhouse gas, damaged natural ecosystems and reduced the yields and quality of crops such as wheat and rice.

According to the Royal Society, 1,582 deaths in the UK in 2003 were attributed to ozone's effects on people's respiratory systems, while across Europe some 21,400 deaths a year are caused by the gas.

The Ground Level Ozone in the 21st Century report said the UK figure looked set to increase by at least 50 per cent by 2020 as a result of growing emissions and climate change.

Policies in the EU, the US and Japan have successfully reduced peak regional

concentrations of the pollutant, which is formed by reactions between other gases - including greenhouse gases methane and nitrogen oxides - in the presence of sunlight.

Climate change, acid rain could be good for forests

Source : *Michigan Technological University*

Date: 3rd September , 2008

the build-up of organic matter in the soil at the four sites: near Twin Lakes in the northwestern Upper Peninsula of Michigan, at Pellston, near Petoskey, Mich., at Mesick, near Traverse City, and north of Grand Rapids near the Silver Lake Sand Dunes in southern Michigan. Burton and his fellow researchers, Don Zak at the University of Michigan and Kurt Pregitzer at the University of Nevada-Reno, want to discover if the increased annual growth of the forests is offset by an increase in tree mortality. They also will examine whether the woody debris on the forest floor will decompose more slowly as nitrogen levels are increased, further increasing the ecosystem ability to store carbon. Burton calls the new work window into the future, an opportunity to see if there is a tipping point beyond which increased nitrogen harms rather than helps the forests. Michigan Technological University is a leading public research university, conducting research, developing new technologies and preparing students to create the future for a prosperous and sustainable world. Michigan Tech offers more than 120 undergraduate and graduate degree programs in engineering, forestry and environmental sciences, computing, technology, business and economics, natural and physical sciences, arts, humanities and social sciences.

Asian pollution could spur U.S., European warming

Source : *Environment News Network*

Date: 5th September , 2008

Asian pollution from Asian power plants, cooking and heating could create summer hot spots in the central United States and southern Europe by mid-century, U.S. climate scientists reported on Thursday. Unlike the long-lived greenhouse gas carbon dioxide, the particle and gas pollution cited in this report only stays in the air for a few days or weeks but its warming effect on the climate half a world away could last for decades, the scientists said. "We found that these short-lived pollutants have a greater influence on the Earth's climate throughout the 21st century than previously thought," said Hiram "Chip" Levy of the U.S. National Oceanic and Atmospheric Administration. "By 2050, two of the three climate models we use found that changes in short-lived pollutants will contribute 20 percent of the predicted global warming." By 2100, that figure goes up to 25 percent, Levy said in a telephone briefing. The short-lived pollution that can cause long-term warming comes from soot, also known as the black carbon particles that result from fires, and sulfate particles, which

are emitted by power plants. Soot particles are dark and absorb heat; sulfates are light and reflect heat, actually cooling things down.HOTTER, DRIER SUMMERSAsian soot and sulfate pollution is likely to make for hotter, drier summers in the American Midwest and the Mediterranean region of southern Europe, Levy said, adding that heating and drying effects are not expected to hit Asia.The reason for the expected pollution-related warming trend is that sulfate pollution, which has been linked to respiratory problems, is expected to decrease dramatically while soot pollution is forecast to continue increasing in Asia.

Ground-level ozone emitted by U.S. transport vehicles is also a factor, the scientists said.

These pollutants have usually been dealt with as threats to air quality, but should also be considered for their impact on climate change, said Drew Shindell, a climate expert at NASA.

Carbon dioxide, which spurs global warming and is emitted from natural and human-made sources, still is going to dominate the climate change picture in the coming century, but because modern societies are built to emit lots of this substance, change is likely to be slow, Shindell said.

Targeting these air pollutants now makes sense, because of their role in the quality of the air people breathe as well as their impact on global warming, he said.

"It's no substitute for targeting CO₂ (carbon dioxide), which in the long run is the main contributor to global warming and has to be tackled, but ... the shorter-term pollutants can have a very large impact," Shindell said.

The full report is available online at www.climate-science.gov and was released by the U.S. Climate Change Science Program.

Cut greenhouse gases to save coral reefs: Scientists

Source : *Environment News Network*

Date: 28th August , 2008

WASHINGTON (Reuters) - To keep coral reefs from being eaten away by increasingly acidic oceans, humans need to limit the amount of climate-warming greenhouse gases in the atmosphere, a panel of marine scientists said on Wednesday.

"The most logical and critical action to address the impacts of ocean acidification on coral reefs is to stabilize atmospheric carbon dioxide concentration," the scientists said in a document called the Honolulu Declaration, for release at a U.S. conference on coral reefs in Hawaii.

Ocean acidification is another threat to corals caused by global warming, along with rising sea levels, higher sea surface temperatures and coral bleaching, the scientists said.

Coral reefs are a "sentinel ecosystem," a sign that the environment is changing, said one of the experts, Billy Causey of the U.S. National Marine Sanctuary Program.

"Although ocean acidification is affecting the health of our oceans, the same thing --

increased carbon dioxide in the atmosphere -- is going to in fact be affecting terrestrial environments also," Causey said by telephone from Hawaii.

Coral reefs offer economic and environmental benefits to millions of people, including coastal protection from waves and storms and as sources of food, pharmaceuticals, jobs and revenue, the declaration said.

But corals are increasingly threatened by warming sea surface temperatures as well as ocean acidification.

Oceans are getting more acidic because they have been absorbing some 525 billion tons of the greenhouse gas carbon dioxide over the last two centuries, about one-third of all human-generated carbon dioxide for that period.

The carbon dioxide combines with sea water to form carbonic acid.

Marine researchers have long recognized acidification in deep ocean water far from land, but a study published this year in the journal Science found this same damaging phenomenon on the Pacific North American continental shelf from Mexico to Canada, and quite likely elsewhere around the globe.

The water became so corrosive that it started dissolving the shells and skeletons of starfish, clams and corals.

Stabilizing carbon dioxide emissions was the Honolulu Declaration's top long-term recommendation. The key short-term recommendation was to nurture coral reefs that seem to have natural resilience against acidification.

This could be adopted immediately by managers of protected marine areas, Causey said.

The Honolulu Declaration will be presented to the United Nations and to other global, regional and national forums.

Current climate models 'ignoring brown carbon'

Source : *Environment News Network*

Date: 18th August , 2008

[BEIJING] Scientists have found that air pollution from East Asia contains an abundance of 'brown carbon' particles and say that atmospheric models need updating to incorporate their effect.



Current climate models take into account two types of aerosol carbon — organic carbon and black carbon — that arise from the burning of fossil fuels or biomass.

Black carbon strongly warms the atmosphere by absorbing light, while organic carbon absorbs light at a negligible level and has no warming effect.

It has already been claimed black carbon plays a much larger role in global warming than estimates made by the UN Intergovernmental Panel on Climate Change's .But this approximation is too simple, according to Peter Crozier, an associate professor at Arizona State University (ASU) in the United States, whose team published their

research in *Science* last week (8 August). According to the authors, the method that is currently used to measure the warming effect of different types of particle doesn't take into account the wide variations that can occur between types of carbon from different sources.

They instead used a technique based on a specialised type of electron microscope to directly determine the optical properties of individual carbon particles, and found that samples taken from above the Yellow Sea, east of China, have an abundance of brown carbon particles.

"Brown carbon has light absorbing properties that lie between strongly absorbing black carbon and materials that only scatter light and do not absorb," co-author James Anderson, a research scientist at ASU's Department of Mechanical and Aerospace Engineering, told SciDev.Net.

He adds that brown carbon both cools the Earth's surface and warms the atmosphere, resulting in a complex role in global warming, hence the necessity to incorporate it into climate models.

Hu Guoquan, a senior scientist at the Beijing-based National Climate Centre, welcomes the study, saying it highlights the uncertainties of IPCC models.

"But more studies on the chemical structure and size of brown carbon particles must be done," he told SciDev.Net.

In addition, Hu says, as many carbon aerosols pollutants are emitted by China or India — which have massive combustion of fossil fuels and biomass — judging their accurate warming or cooling effect must be done cautiously and avoid claims without sufficient scientific evidence, as this will contribute to determining the nations' responsibilities in global warming.

Untouched forests store 3 times more carbon: Study

Source : *Environment News Network*

Date: 8th April, 2008

SYDNEY (Reuters) - Untouched natural forests store three times more carbon dioxide than previously estimated and 60 percent more than plantation forests, said a new Australian study of "green carbon" and its role in climate change.

Green carbon occurs in natural forests, brown carbon is found in industrialized forests or plantations, grey carbon in fossil fuels and blue carbon in oceans.

Australian National University (ANU) scientists said that the role of untouched forests, and their biomass of green carbon, had been underestimated in the fight against global warming.

The scientists said the U.N.'s Intergovernmental Panel on Climate Change (IPCC) and the Kyoto Protocol did not distinguish between the carbon capacity of plantation forests and untouched forests.

Yet untouched forests can carry three times the carbon presently estimated, if their biomass of carbon stock was included, said the ANU report released on Tuesday.

Currently, forest carbon storage capacity is based on plantation forest estimates.

The report "Green Carbon, the role of natural forests in carbon storage" said a difference in the definition of a forest was also underestimating the carbon stock in old-growth forests.

The IPCC defines a forest as trees taller than 2 meters (six feet) and a canopy cover greater than 10 percent, but in Australia a forest was defined as having trees taller than 10 meters (33 feet) and a canopy cover greater than 30 percent.

The report said southeast Australia's unlogged forests could store about 640 tonnes per hectare (1,600 tonnes per acre), yet the IPCC estimate put it at only around 217 tonnes of carbon per hectare.

The scientists estimated that around 9.3 billion tonnes of carbon can be stored in the 14.5 million hectares of eucalypt forests in southeast Australia if they are left undisturbed.

The IPCC estimates only one third of this capacity and only 27 percent of the forests' biomass carbon stock.

"MORE RESILIENT"

Not only did natural forests store more carbon but because they remained untouched, they stored the carbon for longer than plantation forests which were cut down on a rotation basis.

The report found that "natural forests are more resilient to climate change and disturbances than plantations".

Co-author of the report Brendan Mackey said protecting natural forests served two purposes: it maintained a large carbon sink and stopped the release of the forest's stored carbon.

"Protecting the carbon in natural forests is preventing an additional emission of carbon from what we get from burning fossil fuel," Mackey told Reuters.

The carbon stored in the world's biomass and soil was approximately three times the amount in the atmosphere, said the report. About 35 percent of greenhouse gases in the atmosphere is a result of past deforestation and 18 percent of annual global emissions is from continued deforestation.

The report said logging resulted in more than a 40 percent reduction in long-term carbon compared with unlogged forests.

"The majority of biomass carbon in natural forests resides in the woody biomass of large old trees. Commercial logging changes the age structure of forests so that the average age of trees is much younger," it said.

"The carbon stock of forests subject to commercial logging, and of monoculture plantations in particular, will therefore always be significantly less on average than the carbon stock of natural, undisturbed forests."

The scientists said preventing further deforestation of southeast Australia's eucalypt forests was the equivalent of preventing emissions of 460 million tonnes of carbon dioxide a year for the next 100 years.

Allowing logged forests to regrow to their natural carbon storage capacity would

avoid emissions of 136 million tonnes of carbon dioxide a year for the next 100 years -
- about 25 percent of Australia's total emissions in 2005.

"In Australia and probably globally the carbon carrying capacity of natural forests is underestimated and therefore misrepresented in economic valuations and in policy options," said the report.

(Editing by David Fogarty)

Acid rain in Orissa ?

Source : *Down to Earth*

Date: 31st July, 2008

WITH the first spell of monsoon in mid-June people in Bargarh, Nuapada, Kalahandi and Sambalpur districts in Orissa experienced something they had never seen before: a grayish layer on leaves, vehicles and elsewhere. "I was surprised to see the leaves of trees in my medicinal plant nursery covered with white and grey mud-like substances," said Biswanath Hota, a retired divisional forest officer, who believed it to be acid rain.

Hota quickly sent samples of leaves from his nursery in Bhawanipatna, Kalahadi, to his friend Durga Prasad Nayak, an environmental activist. Nayak took the samples to the Sambalpur University's Department of Environmental Sciences for testing evidence of acid rain. P C Mishra, a professor in the department, did not find any trace of acid rain in them, but he did not rule out the incidence of acid rain.

"What I got was a bunch of leaves that had been collected a few days ago and had changed hands many times. So it was difficult to do a proper scientific analysis," said Mishra. "This being a forested area with no industries, I am surprised that this kind of rain has occurred. One could also say it is fly ash, which has travelled hundreds of kilometres from industrial belts. It's worrying and needs a thorough scientific study."

Mishra warned that increased dust concentration can affect crop productivity. "In my study of the area around MCL coal operations, I found that coal dust had severely affected plant growth and productivity. Dust on the leaf surface retards plant productivity," he said.

Arttabandhu Mishra, a retired professor of the university, suspects the rain was caused by Orissa's thermal power belts of Angul-Talcher and Ib Valley. "Burning coal is the main cause of acid rain and Orissa's two big coal fields emit over 320 tonnes of sulphur dioxide, 919 tonnes of nitrogen oxide and 33,883 tonnes of carbon dioxide. Acid rain can travel up to 400 km, and surely the rain in the region was acid rain," he said.

Sitikanta Sahu, regional manager, Orissa Pollution Control Board, said, "We have asked our Rayagada regional officer to find samples of the first spells of rain for testing the Ph level. Acid rain is a concern but we cannot be sure that it was due to coal fields of Orissa. Industrial units in Maharashtra and Chhattisgarh could also have caused this."

Whatever the cause, farmers are worried about the impact of the unusual substance on crops. Land in western Orissa is already going barren. With a severely depleted forest belt around coal reserves and thermal power plants, the negative impacts of acid rain would be phenomenal, said Arttabandhu Mishra.

Nayak accused the government of failing to respond to weather signals. The Padampur-Nuapada region experienced smog for 25 days in February-March. "Everyone was scared and the media also raised the issue. However, the government and the pollution control board did nothing," said Nayak.

Rising ocean acidity threatens low-lying islands

Source : *Environmental News Network*

Date: 27th May , 2008

SYDNEY (Reuters) - Rising acidity in the ocean caused by seas absorbing greenhouse carbon dioxide could make low-lying island nations like Kiribati and the Maldives more vulnerable to storms as their coral reefs struggle to survive, say scientists.

Carbon dioxide in the atmosphere is at its highest level in the past 650,000 years, possible 23 million years, and half has now been dissolved into the oceans making them more acidic.

Ocean acidification, which is projected to spread extensively north from the Antarctic by 2100, makes it difficult or impossible for some animals, like coral and starfish, to produce their shells and skeletons.

"If ocean acidification weakens the structure of reef-forming corals and algae, tropical systems (islands) will be more vulnerable to physical impacts from storms and cyclones," said a new report by some of the world's leading marine scientists.

"By 2100, it is expected that some reefs will become marginal and reef calcification will decline," said the report, by the Antarctic Climate & Ecosystems Cooperative Research Centre, released on Monday.

The report cited Kiribati in the South Pacific and the Maldives in the Indian Ocean as being more vulnerable to tropical storms if ocean acidification continues to rise.

"These impacts will also directly affect important commercial, recreational or subsistence reef fisheries where the target species depend on reef habitats," said the report, released at an ocean acidification conference in Hobart.

Ocean acidification is when carbon dioxide dissolves in the sea forming a weak acid, carbonic acid. Human-induced carbon dioxide has largely been produced by burning fossil fuels, agricultural practices and concrete production.

"The ocean is a major sink for CO₂ emissions and has absorbed about 48 percent of the CO₂ emitted by human activities since preindustrial times," said the report.

FOOD CHAIN THREATENED

Ocean acidification is already affecting the cold water marine life of the Southern Ocean where most carbon dioxide has dissolved and U.S. researchers said it was now appearing on the Pacific North American continental shelf.

"The Southern Ocean is a biogeochemical 'harbinger' for the impacts of acidification that will spread throughout the global ocean," said the report.

By 2060, Antarctic polar waters would experience carbonate ion concentrations so low that one form of calcium carbonate, aragonite, will not be available for organisms to build shells.

Ocean acidification may also interfere with the respiration of fish, the larval development of marine organisms and the ability of oceans to absorb nutrients and toxins.

"Ocean acidification is likely to have an ecological cascade effect right up to parts of the food web that are important to human beings, such as fish and shell fish," said research scientist Will Howard from the Antarctic research centre.

The report said ice cores showed that the current rate of increase of carbon dioxide in the atmosphere is 100 times greater than the most rapid increases experienced in the last 650,000 years. Sedimentary records suggest carbon dioxide levels were higher than at anytime in the last 23 million years.

It said atmospheric carbon dioxide levels are expected to reach about double pre-industrial levels within this century, resulting in an acidification of oceans three times the level experienced during the last major rise in carbon dioxide during the last glacial period 15,000 years ago.

"Many (marine) species have taken millennia to evolve and it is unknown whether they can (or will) be able to adapt to the relatively rapid rate of ocean acidification, in the order of decades not millennia," said the report.

Ocean Acidification And Its Impact On Ecosystems

Source : *Environmental News Network*

Date: 27th May , 2008

Emissions of carbon dioxide (CO₂) through human activities have a well known impact on the Earth's climate. What is not so well known is that the absorption of this CO₂ by the oceans is causing inexorable acidification of sea water. But what impact is this phenomenon having on marine organisms and ecosystems? This is a question to which researchers have few answers as yet.

That is why the European Union has recently given its support to EPOCA, the European Project on Ocean Acidification, which will be launched in Nice (France) on 10 June 2008.

EPOCA's goal is to document ocean acidification, investigate its impact on biological processes, predict its consequences over the next 100 years, and advise policy-makers on potential thresholds or tipping points that should not be exceeded. The project is coordinated by Jean-Pierre Gattuso, a CNRS researcher at the Oceanography Laboratory at Villefranche-sur-mer (LOV⁽¹⁾), and brings together a consortium of 27 partners, including CNRS and the French Atomic Energy Agency (CEA), from 9

countries. Many of the leading oceanographic institutions across Europe and more than 100 permanent scientists are involved. The budget is €16.5 million over 4 years, including €6.5 million from the European Commission.

Over 71% of the Earth's surface is covered by the oceans, which are home to an incredibly diverse flora and fauna. They play a key role in regulating the climate and levels of carbon dioxide (CO₂), one of the main greenhouse gases. Over the last 200 years (since the beginning of the industrial revolution), the oceans have absorbed about one third of the carbon dioxide produced by human activities, a total of 120 billion tons. Without this absorption, the amount of CO₂ present in the atmosphere and its effects on the climate would undoubtedly be far greater.

In fact, over 25 million tons of CO₂ dissolve in seawater every day. However, the oceans do not escape unscathed. When CO₂ dissolves in sea water, it causes the formation of carbonic acid, which leads to a fall in pH (the pH scale is used to measure acidity⁽²⁾). This change is called "ocean acidification" ♦ and is happening at a rate that has not been experienced probably for the last 20 million years.

The effects of this huge input of CO₂ into the oceans only began to be studied in the late 1990s⁽³⁾ and are still poorly understood. One of the most likely consequences will be slower growth of organisms with calcareous skeletons, such as corals, mollusks, algae, etc. Obtaining more information about ocean acidification is a major environmental priority because of the threat it poses to certain species and ecosystems. EPOCA should help us to understand the effects of the acidification of sea water as well as its impact on marine organisms and ecosystems. More specifically, the project has four goals: Document the changes in ocean chemistry and biogeography across space and time. Paleo-reconstruction methods will be used on several natural/biological archives, including foraminifera and deep-sea corals, to determine past variability in ocean chemistry and to tie these to present-day chemical and biological observations. Determine the sensitivity of marine organisms, communities and ecosystems to ocean acidification. Molecular to biochemical, physiological and ecological approaches will be combined with laboratory and field-based perturbation experiments to quantify biological responses to ocean acidification, assess the potential for adaptation, and determine the consequences for biogeochemical cycling. Laboratory experiments will focus on key organisms selected on the basis of their ecological, biogeochemical or socio-economic importance. Field studies will be carried out in systems (areas/regions) deemed most sensitive to ocean acidification. Integrate results on the impact of ocean acidification on marine ecosystems in biogeochemical, sediment, and coupled ocean-climate models to better understand and predict the responses of the Earth system to ocean acidification. Special attention will be paid to the potential feedbacks of the physiological changes in the carbon, nitrogen, sulfur and iron cycles. Assess uncertainties, risks and thresholds ("tipping points") related to ocean acidification at scales ranging from sub-cellular to ecosystem and local to global. It will also assess the decrease in

CO₂ emissions required to avoid these thresholds and describe the change and the subsequent risk to the marine environment and Earth system, should these emissions be exceeded.

Asian desert dust found over western United States

Source : *Environment News Network*

Date: 13th December , 2007

Seattle, Washington - It has been a decade since University of Washington scientists first pinpointed specific instances of air pollution, including Gobi Desert dust, traversing the Pacific Ocean and adding to the mix of atmospheric pollution already present along the West Coast of North America.

Now a UW researcher is finding that dust from the Gobi and Taklimakan deserts in China and Mongolia is routinely present in the air over the western United States during spring months.

"We are interested in Asian dust that comes across the Pacific because particles can have an impact on health, as well as on visibility," said Emily Fischer, a UW doctoral student in atmospheric sciences.

"Most previous work has been very event specific, but this research looks at how the average background aerosol concentrations vary on a year-to-year basis."

Aerosols are tiny particles -- such as dust, grains of sea salt, soot from fossil fuel combustion and smoke from forest fires -- suspended in the air. Many of the aerosols are comparatively large, as much as 10 microns, which still is less than the width of a human hair.

Fischer found that in years with large Asian dust storms there was an increase in particles of 2.5 microns or less in the air over the western United States. Particles that small can be inhaled more deeply into the lungs and so are a greater health concern.

"Local pollution makes the biggest contribution to poor air quality in cities, but my study is looking at aerosols in remote regions like national parks," she said. "In these places dust can be a larger contributor to the total aerosol concentrations because there is little local pollution. While some of the dust pulses from Asia are small, some of them can be very large."

Fischer used two sets of data, gathered during March, April and May from 1998 through 2006, to correlate the dust kicked up in storms over Asian deserts and the appearance of dust in air over the western United States. She looked at dust levels in the air columns directly over the deserts, recorded by NASA satellites, and then paired that information with air quality data from ground stations in rural areas of the western United States for the same period.

The research is being presented at this year's annual meeting of the American Geophysical Union in San Francisco.

For the dust detected at ground stations in the United States, Fischer also looked for -

- and found -- evidence of calcium, which is a tracer for desert dust. "The calcium lends more confidence to our conclusion," she said.

While the results of the research are not unexpected, they provide supporting evidence that particles of 2.5 microns or smaller appear in higher concentrations in the western United States in years when there are high dust concentrations over Asian deserts.

"The transport of dust across the Pacific is not a new phenomenon," Fischer said. "But we are just beginning to understand it and quantify it on a year-to-year basis instead of on a case-by-case basis.

"We know that just having dust over Asia doesn't mean that it's going to come here. There is the transportation part of the puzzle, which I'm working on now. But we already know that some years are more favorable than others for dust to be transported across the Pacific."

Fischer's doctoral adviser is Dan Jaffe, a University of Washington, Bothell, atmospheric scientist who was the first to trace air pollution from Asia as it crossed the North Pacific. Jaffe is a collaborator on Fischer's research, along with Christina Hsu and Myeong-Jae Jeong of NASA's Goddard Space Flight Center in Maryland and Sunling Gong of Environment Canada.

Air losing self cleaning ability

Source : *Down to Earth*

Date: 1st December , 2007

ANXIETY over ozone-layer depletion and global warming have inspired numerous studies into the changing nature of the earth's atmosphere. Indications are that increasing air pollution has not just dirtied the air, its graver effect has been its influence on the capacity of the various atmospheric constituents to oxidise or burn up polluting gases. The changes in the concentrations of certain oxidising agents -- ozone, hydrogen peroxide and the hydroxyl radical -- in the troposphere, the layer of the atmosphere closest to the earth, since the industrial revolution are affecting the very atmospheric balance maintained under the numerous, and simultaneous, reactions of these atmospheric constituents with each other and other trace gases.

Effects of increasing pollutants on atmospheric oxidising agents			
Pollutants	Oxidising agents		
	Hydroxyl radical	Ozone	Hydrogen peroxide
Methane	↓	↑	↑
Nitrogen oxides	↑	↑	↓
Carbon monoxide	↓	↑	↑
Ozone	↑	—	—
<small>[Based on various assumptions]</small> ↑ Increase in atmospheric concentration ↓ Decrease in atmospheric concentration			

The concentration of tropospheric ozone and hydrogen peroxide has increased and that of the hydroxyl radical (OH) has decreased, writes Anne Thompson of the National Aeronautics and Space Administration of the USA (Science Vol. 256, No. 5060). The decrease in OH is of particular significance. Known as the "tropospheric vacuum cleaner," OH reacts

with pollutants like carbon monoxide and methane and also controls the

accumulation of global warming-causing hydrogenated chlorofluorocarbons (HCFCs). The increase in ozone is of concern as it is a potent greenhouse gas. Higher levels of hydrogen peroxide will lead to acid rain formation. Direct measurements of these constituents, particularly OH, which has a mean concentration of only about one million molecules per cubic centimetre (or one molecule in 50 trillion), is difficult and projections are being made to determine their past and future atmospheric concentrations. Several researchers believe that OH concentrations have decreased globally since the start of the preindustrial times. The present OH concentrations are 10-30 per cent lower than values in the period before 1800.

Measurements indicate that high ozone levels in urban areas are a relatively recent and widespread phenomenon. Over the last century, ozone has increased in some parts of the northern hemisphere by about 0.1-0.3 per cent per year.

The modern record from which these trends are derived consists of ground-level monitoring at a few sites and vertical profiles collected at some 24 locations by balloon and rocket-borne instruments. Indirectly calculating the tropospheric ozone concentration from more accurate satellite data, scientists have found that from 1979 to 1990, the highest ozone values were confined to the northern mid-latitudes (250 N to 500 N), due to widespread industrial pollution there. The presence of hydrogen peroxide is difficult to monitor as it gets washed out by rain. But measurements from ice cores in Greenland show distinct trends over time. One sample that goes back to 1300 shows that dissolved hydrogen peroxide was 50 per cent less than in the ice formed during 1700 to 1989.

Though many chemical processes and feedback mechanisms in atmospheric chemistry are understood, predictions of ozone, hydrogen peroxide and OH concentrations on a global scale are fraught with uncertainty. The budgets of gases like carbon monoxide, nitrogen oxides and methane, which act as precursors of oxidising agents, are also not well understood. Continuing increases in methane, nitrogen oxide and carbon monoxide will increase tropospheric ozone concentrations. Model studies indicate that a business-as-usual scenario, with 0.5-0.6 per cent increases in nitrogen oxides, each year, will increase tropospheric ozone by 0.5 per cent annually. However, in regions where carbon monoxide and nitrogen oxide increases are expected to be rapid, ozone increase could be as high as one per cent each year. Controlling gases like methane and carbon monoxide, studies have revealed, can cut the ozone growth rate by almost half. Predicting OH concentrations is extremely problematic. An increase in ozone alone would indicate that OH will also increase, but higher emissions of methane, carbon monoxide and non-methane hydrocarbons could suppress OH concentrations over large regions. Nitrogen oxides concentrations, stratospheric ozone depletion, a warming climate, and perturbations of the lower stratosphere and upper troposphere by civilian aircraft will also affect OH

concentrations. Predictions of future concentrations of hydrogen peroxide depend on the distribution of nitrogen oxides. Increases in emissions of carbon monoxide, methane and non-methane hydrocarbons would increase the hydrogen peroxide emissions unless there was an increase in nitrogen oxides, which models predict would decrease hydrogen peroxide at all latitudes. Typical values for business-as-usual scenarios indicate that hydrogen peroxide will increase by 50 per cent over the next 50 years in all areas except where concentrations of nitrogen oxides are very high. As yet there is some uncertainty about the numerous reactions that go on in the atmosphere. And if humans continue to spew out industrial waste into the air, they might upset the fine chemical equilibrium of the atmosphere, with far-reaching and unpredictable effects.

Asian desert dust found over western United States

Source : *Environment News Network*

Date: 13th December , 2007

Seattle, Washington - It has been a decade since University of Washington scientists first pinpointed specific instances of air pollution, including Gobi Desert dust, traversing the Pacific Ocean and adding to the mix of atmospheric pollution already present along the West Coast of North America.

Now a UW researcher is finding that dust from the Gobi and Taklimakan deserts in China and Mongolia is routinely present in the air over the western United States during spring months.

"We are interested in Asian dust that comes across the Pacific because particles can have an impact on health, as well as on visibility," said Emily Fischer, a UW doctoral student in atmospheric sciences.

"Most previous work has been very event specific, but this research looks at how the average background aerosol concentrations vary on a year-to-year basis."

Aerosols are tiny particles -- such as dust, grains of sea salt, soot from fossil fuel combustion and smoke from forest fires -- suspended in the air. Many of the aerosols are comparatively large, as much as 10 microns, which still is less than the width of a human hair.

Fischer found that in years with large Asian dust storms there was an increase in particles of 2.5 microns or less in the air over the western United States. Particles that small can be inhaled more deeply into the lungs and so are a greater health concern.

"Local pollution makes the biggest contribution to poor air quality in cities, but my study is looking at aerosols in remote regions like national parks," she said. "In these places dust can be a larger contributor to the total aerosol concentrations because there is little local pollution. While some of the dust pulses from Asia are small, some of them can be very large."

Fischer used two sets of data, gathered during March, April and May from 1998 through 2006, to correlate the dust kicked up in storms over Asian deserts and the appearance of dust in air over the western United States. She looked at dust levels in

the air columns directly over the deserts, recorded by NASA satellites, and then paired that information with air quality data from ground stations in rural areas of the western United States for the same period.

The research is being presented at this year's annual meeting of the American Geophysical Union in San Francisco.

For the dust detected at ground stations in the United States, Fischer also looked for - and found -- evidence of calcium, which is a tracer for desert dust. "The calcium lends more confidence to our conclusion," she said.

While the results of the research are not unexpected, they provide supporting evidence that particles of 2.5 microns or smaller appear in higher concentrations in the western United States in years when there are high dust concentrations over Asian deserts.

"The transport of dust across the Pacific is not a new phenomenon," Fischer said. "But we are just beginning to understand it and quantify it on a year-to-year basis instead of on a case-by-case basis.

"We know that just having dust over Asia doesn't mean that it's going to come here. There is the transportation part of the puzzle, which I'm working on now. But we already know that some years are more favorable than others for dust to be transported across the Pacific."

Fischer's doctoral adviser is Dan Jaffe, a University of Washington, Bothell, atmospheric scientist who was the first to trace air pollution from Asia as it crossed the North Pacific. Jaffe is a collaborator on Fischer's research, along with Christina Hsu and Myeong-Jae Jeong of NASA's Goddard Space Flight Center in Maryland and Sunling Gong of Environment Canada.

Air losing self cleaning ability

Source : *Down to Earth*

Date: 1st December , 2007

Effects of increasing pollutants on atmospheric oxidising agents				
Pollutants	Oxidising agents			
	Hydroxyl radical	Ozone	Hydrogen peroxide	
Methane ↑	↓	↑	↑	
Nitrogen oxides ↑	↑	↑	↓	
Carbon monoxide ↑	↓	↑	↑	
Ozone ↑	↑	—	—	
<small>[Based on various assumptions] ↑ Increase in atmospheric concentration ↓ Decrease in atmospheric concentration</small>				

ANXIETY over ozone-layer depletion and global warming have inspired numerous studies into the changing nature of the earth's atmosphere. Indications are that increasing air pollution has not just dirtied the air, its graver effect has been its influence on the capacity of the various atmospheric constituents to

oxidise or burn up polluting gases. The changes in the concentrations of certain oxidising agents -- ozone, hydrogen peroxide and the hydroxyl radical -- in the troposphere, the layer of the atmosphere closest to the earth, since the industrial revolution are affecting the very atmospheric balance maintained under the numerous, and simultaneous, reactions of these atmospheric constituents with each other and other trace gases.

The concentration of tropospheric ozone and hydrogen peroxide has increased and that of the hydroxyl radical (OH) has decreased, writes Anne Thompson of the National Aeronautics and Space Administration of the USA (Science Vol. 256, No. 5060). The decrease in OH is of particular significance. Known as the "tropospheric vacuum cleaner," OH reacts with pollutants like carbon monoxide and methane and also controls the accumulation of global warming-causing hydrogenated chlorofluorocarbons (HCFCs). The increase in ozone is of concern as it is a potent greenhouse gas. Higher levels of hydrogen peroxide will lead to acid rain formation.

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The modern record from which these trends are derived consists of ground-level monitoring at a few sites and vertical profiles collected at some 24 locations by balloon and rocket-borne instruments.

Indirectly calculating the tropospheric ozone concentration from more accurate satellite data, scientists have found that from 1979 to 1990, the highest ozone values were confined to the northern mid-latitudes (25° N to 50° N), due to widespread industrial pollution there. The presence of hydrogen peroxide is difficult to monitor as it gets washed out by rain. But measurements from ice cores in Greenland show distinct trends over time. One sample that goes back to 1300 shows that dissolved hydrogen peroxide was 50 per cent less than in the ice formed during 1700 to 1989. Though many chemical processes and feedback mechanisms in atmospheric chemistry are understood, predictions of ozone, hydrogen peroxide and OH concentrations on a global scale are fraught with uncertainty. The budgets of gases like carbon monoxide, nitrogen oxides and methane, which act as precursors of oxidising agents, are also not well understood.

Continuing increases in methane, nitrogen oxide and carbon monoxide will increase tropospheric ozone concentrations. Model studies indicate that a business-as-usual scenario, with 0.5-0.6 per cent increases in nitrogen oxides, each year, will increase tropospheric ozone by 0.5 per cent annually. However, in regions where carbon

monoxide and nitrogen oxide increases are expected to be rapid, ozone increase could be as high as one per cent each year. Controlling gases like methane and carbon monoxide, studies have revealed, can cut the ozone growth rate by almost half.

Predicting OH concentrations is extremely problematic. An increase in ozone alone would indicate that OH will also increase, but higher emissions of methane, carbon monoxide and non-methane hydrocarbons could suppress OH concentrations over large regions. Nitrogen oxides concentrations, stratospheric ozone depletion, a warming climate, and perturbations of the lower stratosphere and upper troposphere by civilian aircraft will also affect OH concentrations.

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Smarter Storage for Solar and Wind Power

Source : *Environment News Network*

Date: 1st December , 2007

Australia - The Australian government's science branch has launched a major effort to develop new batteries to store energy. The project is led by CSIRO, the Australian Commonwealth's Scientific and Industrial Research Organisation, is Australia's national science agency. Director of the CSIRO Energy Transformed National Research Flagship Dr John Wright said the Smart Storage battery technology aims to deliver a low cost, high performance, high power stationary energy storage solution suitable for grid-connected and remote applications.

"Cost effective, high performance energy storage has been the missing link for renewable energy," he said. Current battery storage solutions undergo frequent deep discharging and are unable to meet high power demands. They are also considered expensive due to high initial cost and short battery life.

"The Smart Storage technology is based on CSIRO's 'Ultrabattery' which has been successfully trialled in hybrid vehicles," Dr Wright said. Extensive technology development is now underway to produce a low cost and easily manufactured deep-cycle stationary battery that meets demanding variable operating conditions. The Smart Storage technology is a hybrid battery which combines an asymmetric

'supercapacitor' electrode and a lead-acid battery in a single unit cell. Advanced materials used for the electrodes and current management absorb and release charge rapidly and at efficiencies well above conventional battery types.

It is expected that the discharge and charge power of the Smart Storage battery will be 50 per cent higher and its cycle-life at least three times longer than that of the conventional lead-acid counterpart.

"Most importantly, our technology development path is directed towards manufacturing in existing lead-acid battery plants," said Andrew Pickering, a Principal at Cleantech Ventures. "Too often new technologies simply aren't affordable and that significantly retards market uptake.

"Investments in energy storage technologies have excellent potential for strong returns given the growing market demand and the lack of viable solutions. We now have investments in two energy storage technology companies, V-Fuel which targets grid-scale renewable energy storage applications and now Smart Storage for smaller renewable energy systems."

Local sources major cause of US near-ground aerosol pollution

Source : *Environment News Network*

Date: 18th November , 2007

A new NASA study estimates that most ground-level particulate pollution in the United States stems from regional sources in North America and only a small amount is brought to the country from other parts of the world.

Researchers using an innovative global aerosol tracking model have for the first time produced a global estimate of sources and movements of aerosols near the ground where they can affect human health and run afoul of environmental regulations. Previously, researchers studying aerosols moving between continents focused primarily on tracking a single type of aerosol, such as dust or black carbon, or measuring their quantities throughout the atmosphere. This left gaps in understanding where ground-level particulate pollution comes from.

"This is the first study to comprehensively consider the origin, composition and type of fine particles over the United States and connect them to both domestic and foreign sources." said Mian Chin, an atmospheric scientist at NASA's Goddard Space Flight Center, Greenbelt, Md., and lead author of the study.

Aerosols are airborne particles that arise from both human sources such as burning fossil fuels, and natural sources such as fires, dust and volcanoes. They are also a major source of near-ground pollution. Since 1970, particulate matter has been regulated in the United States by the Clean Air Act. A more recent concern has been aerosols that arrive here from distant shores carried by the wind.

Chin and colleagues set out to investigate how much and what type of aerosols made the intercontinental journey in 2001. The team employed the help of a computer model using known air chemistry and wind patterns to trace a region's aerosols – everything from fossil fuel and biofuel combustion, biomass burning, and volcanic

sources, desert dust and sea salt – back to their sources.

"Using the model, we followed the path of aerosols to find out how much is local and how much is from outside a region," Chin says.

Chin and colleagues estimate that between 65-70 percent of surface particulate matter in the eastern U.S. originates from regional pollution aerosols from fuel combustion in North America. The report was in the Nov. 1 edition of the European Geosciences Union's Atmospheric Chemistry and Physics.

They also found that 30-40 percent of fine particulates in the western U.S. come from local pollution sources. The model results estimated that just 2-6 percent of U.S. surface fine particulates come from fuel combustion particles emitted outside of North America, including Asia and Europe. About 50 percent of surface fine particulate matter in the western U.S. stems from a natural source: dust transported from Asia or from local deserts and organic aerosols from vegetation.

"Our results indicate that controlling regional pollution emissions will be the most effective and most responsible way to manage U.S. air quality," Chin says.

China Says Key Pollution Levels Nudge Down

Source : *Environment News Network*

Date: 15th November , 2007



BEIJING (Reuters) - Two key measures of pollution in China have fallen slightly in what the country's environmental regulator claimed was a victory for its clean-up procedures, state media reported on Thursday.

Emissions of sulphur dioxide, which belches from smokestacks and causes acid rain, fell by 1.81 percent in the first nine months of 2007 compared with the same period last year, the China Daily reported.

COD, or chemical oxygen demand, a measure of water pollution, dropped by 0.28 percent, the paper said.

Many Chinese cities are enveloped in choking smog, including 2008 Olympic host Beijing. The level of air pollution in the capital and its possible effects on athletes' health has been one of the biggest issues facing organizers of next year's Games.

A recent report by the UN Environment Programme (UNEP) highlighted concerns about air quality in the city although Games organizers have said conditions will be improved by the time of the Olympics next August.

In announcing the latest figures, the head of the State Environmental Protection Administration (SEPA), Zhou Shengxian, said they proved that a campaign to clean up polluters was beginning to show an effect.

"These absolutely aren't just games with numbers," he said, according to the Xinhua news agency.

Sulphur dioxide and COD are primitive indicators of overall environmental health, and do not reflect the many other chemicals that have turned China's pollution problem into a domestic political headache and international embarrassment.

Zhou said the latest figures reflected the government's determination to improve the environment. By the end of September, SEPA had investigated more than 10,000 cases of environmental law violations, and 250 small coal-fired power generation units were shut, he said. China has promised to cut the two key pollution measures by 10 percent between 2006 and 2010, but last year the country failed to meet the annual target. Zhou said that reaching that target would be tough. Beijing does not issue statistics for carbon dioxide, the "greenhouse gas" behind global warming. Carbon dioxide emissions from China's power plants will rise by some 60 percent in the next decade, according to a new global database released in Washington on Wednesday.

(Reporting by Chris Buckley; Editing by Ken Wills and Jeremy Laurence)

New study shows fish respond quickly to changes in mercury deposition

Source : *Environment News Network*

Date: 19th September , 2007

Reducing atmospheric mercury emissions should quickly reduce mercury levels in lake fish, according to a three-year study published this week in the Proceedings of the National Academy of Science. The study showed that an increase in mercury loading at rates relevant to atmospheric deposition resulted in a significant increase in methylmercury production and accumulation in fish in only three years.

"This is good news. It means that a reduction in new mercury loads to many lakes should result in lower mercury in fish within a few years," said Cynthia Gilmour, scientist at the Smithsonian Environmental Research Center and a co-investigator in the study.

While recent federal and state regulations aimed at reducing mercury levels in fish require reductions in mercury emissions, the potential effectiveness of these controls and the time frame of the response were previously unknown.

Some have speculated that it could take decades to see the impact of emissions reductions on mercury levels in fish. Centuries of human-derived mercury releases to the atmosphere have resulted in elevated amounts of mercury in sediments and soils across most of the globe. If this historical mercury contamination contributes substantially to mercury in fish, reductions in current emissions may have little impact in the foreseeable future.

The study, "Mercury Experiment to Assess Atmospheric Loading in Canada and the United States," found that methylmercury (the type that accumulates in fish) was

more readily produced from newly deposited mercury than from historical mercury contamination already buried in lake sediments. This means that methylmercury in lakes should decline quickly if mercury deposition is reduced.

Additionally, the study team found that mercury added directly to the lake surface was rapidly accumulated into fish, while essentially none of the mercury deposited to the lake's watershed was found in fish after three years. This suggests that lakes should exhibit a two-phase response to load reductions. Initially, mercury in fish should decline rapidly (within years) as deposition to the lake itself is reduced. A slower, more prolonged decline (perhaps decades long) should follow in response to decreases in mercury deposition in the watershed.

The study was accomplished through an experimental addition of mercury to a small lake and its watershed at the Experimental Lakes Area, a Canadian federal research reserve. ELA is a remote, protected area set aside for the long-term study of lakes and watersheds, where deposition of mercury is low compared with sites in Europe and the United States. For three years, the mercury load to the lake ecosystem was increased by roughly three times—bringing the total annual mercury load up to a level comparable to that on the east coast of the United States. This large-scale, whole ecosystem approach was important because the complex behavior of ecosystems can be difficult to predict from smaller-scale experiments.

To distinguish the mercury they added to the lake from the existing mercury in the study ecosystem, the researchers used a sophisticated analytical method that had never been used in this way at such a large scale. Mercury in the natural environment is made up of seven stable isotopes that do not vary much in proportion to one another. To dose the lake, the scientists used mercury that is heavily enriched in one of those isotopes, enabling them to trace the mercury they added through the complex environmental mercury cycle.

Gilmour and her colleagues Andrew Heyes (University of Maryland) and Robert Mason (University of Connecticut) focused on one of the key processes in that cycle, the microbial production of methylmercury, which is produced by natural bacteria in sediments and soils and accumulates in food webs.

"It will be important to monitor mercury during the next 20 years to make sure that emissions regulations are effective in reducing mercury deposition," Gilmour said. "If they are, the study suggests that reductions in emissions will result in fairly rapid reduction in risk to people and to ecosystems."

Acid rain has a disproportionate impact on coastal waters

Source : *Environmental News Network*

Date: 8th September , 2007

The release of sulfur and nitrogen into the atmosphere by power plants and agricultural activities plays a minor role in making the ocean more acidic on a global scale, but the

impact is greatly amplified in the shallower waters of the coastal ocean, according to new research by atmospheric and marine chemists. Ocean “acidification” occurs when chemical compounds such as carbon dioxide, sulfur, or nitrogen mix with seawater, a process which lowers the pH and reduces the storage of carbon. Ocean acidification hampers the ability of marine organisms—such as sea urchins, corals, and certain types of plankton—to harness calcium carbonate for making hard outer shells or “exoskeletons.” These organisms provide essential food and habitat to other species, so their demise could affect entire ocean ecosystems. The findings were published this week in the online “early edition” of the Proceedings of the National Academy of Sciences; a printed version will be issued later this month.

“Acid rain isn’t just a problem of the land; it’s also affecting the ocean,” said Scott Doney, lead author of the study and a senior scientist in the Department of Marine Chemistry and Geochemistry at the Woods Hole Oceanographic Institution (WHOI). “That effect is most pronounced near the coasts, which are already some of the most heavily affected and vulnerable parts of the ocean due to pollution, over-fishing, and climate change.” In addition to acidification, excess nitrogen inputs from the atmosphere promote increased growth of phytoplankton and other marine plants which, in turn, may cause more frequent harmful algal blooms and eutrophication (the creation of oxygen-depleted “dead zones”) in some parts of the ocean. Doney collaborated on the project with Natalie Mahowald, Jean-Francois Lamarque, and Phil Rasch of the National Center for Atmospheric Research, Richard Feely of the Pacific Marine Environmental Laboratory, Fred Mackenzie of the University of Hawaii, and Ivan Lima of the WHOI Marine Chemistry and Geochemistry Department. “Most studies have traditionally focused only on fossil fuel emissions and the role of carbon dioxide in ocean acidification, which is certainly the dominant issue,” Doney said. “But no one has really addressed the role of acid rain and nitrogen.” The research team compiled and analyzed many publicly available data sets on fossil fuel emissions, agricultural, and other atmospheric emissions. They built theoretical and computational models of the ocean and atmosphere to simulate where the nitrogen and sulfur emissions were likely to have the most impact. They also compared their model results with field observations made by other scientists in the coastal waters around the United States.

Farming, livestock husbandry, and the combustion of fossil fuels cause excess sulfur dioxide, ammonia, and nitrogen oxides to be released to the atmosphere, where they are transformed into nitric acid and sulfuric acid. Though much of that acid is deposited on land (since it does not remain in the air for long), some of it can be carried in the air all the way to the coastal ocean. When nitrogen and sulfur compounds from the atmosphere are mixed into coastal waters, the researchers found, the change in water

chemistry was as much as 10 to 50 percent of the total changes caused by acidification from carbon dioxide. This rain of chemicals changes the chemistry of seawater, with the increase in acidic compounds lowering the pH of the water while reducing the capacity of the upper ocean to store carbon. The most heavily affected areas tend to be downwind of power plants (particularly coal-fired plants) and predominantly on the eastern edges of North America, Europe, and south and east of Asia. Seawater is slightly basic (pH usually between 7.5 and 8.4), but the ocean surface is already 0.1 pH units lower than it was before the Industrial Revolution. Previous research by Doney and others has suggested that the ocean will become another 0.3 to 0.4 pH units lower by the end of the century, which translates to a 100 to 150 percent increase in acidity.

Acid Rain Affects Large Swathes of China

Source : *Environmental News Network*

Date: 28th August , 2006

BEIJING — Acid rain caused by sulphur dioxide spewed from factories and power plants affected a third of China's vast land mass last year, posing a threat to food safety, Xinhua news agency said citing a parliamentary report.

More than half of the 696 cities and counties monitored had suffered acid rain, in some cases on a daily basis, according to a pollution inspection report submitted to the standing committee of parliament, the official agency said.

"Increased sulphur dioxide emissions meant that one third of China's territory was affected by acid rain, posing a major threat to soil and food safety," Xinhua cited NPC standing committee vice chairman Sheng Huaren as saying.

Discharge of sulphur dioxide in booming China rose by 27 percent between 2000 and 2005 to 25 million tonnes, making the country the world's top emitter of the pollutant.

Sheng told lawmakers that China's sulphur dioxide emissions, caused largely by coal-burning power stations and coking plants, were double the acceptable environmental limit.

According to the report's findings, nearly 650 out of 680 coking plants in Shanxi, the country's main coal-mining province, discharged excessive sulphur dioxide, Xinhua said.

Air pollution, caused mainly by sulphur dioxide and particulate matter, was affecting some 40 percent of Chinese cities, Sheng said.

China has pledged to install desulphurisation facilities in coal-burning power plants and is planning pilot emissions trading schemes to help improve air quality.

The capital, Beijing, has promised to replace its notorious smog with clear skies in time for the 2008 Olympics.

In the same parliamentary report, Sheng also lifted the lid on false reporting of solid waste discharge levels by local governments and companies.

Actual levels of toxic chromium waste in China could be as high as five million tons instead of the 4.1 million reflected in official figures, Xinhua cited the report as saying. "Many firms report a lower figure for chromium waste for fear of being punished," Sheng said.

One locality had originally reported that it had 3,000 tons of chromium waste but raised the figure to 100,000 tons after learning the government would build reprocessing facilities for them instead of fining them, he said.

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raised the figure to 100,000 tons after learning the government would build reprocessing facilities for them instead of fining them, he said.

Recovery of Lake Offers Hope for Acid Rain-Ravaged Region

Source : *Environmental News Network*

Date: 6th May , 2006

ALBANY, N.Y. — A crystalline Adirondack lake once held up as an example of a "dead" lake devastated by acid rain has now become a symbol of nature's ability to heal itself once pollutants are curbed.

As the name implies, Brooktrout Lake teemed with trout before air pollution from faraway cities began to change the chemistry of lakes and soils in the 6-million-acre Adirondack Park. In 1984, biologists found that Brooktrout Lake and hundreds of others in the rugged region were completely devoid of fish.

Now there are signs of recovery. After the Clean Air Act amendments of 1990 tightened emissions limits on Midwest coal-burning power plants, acid rain decreased significantly. As expected, the pH levels of Adirondack lakes began to rise, becoming less acidic. The surprising thing was how fast it happened.

"Nobody predicted Brooktrout Lake would come around as fast as it has," said Clifford Siegfried, director of the New York State Museum and a freshwater ecologist who has studied Adirondack lakes since 1984. "Most predictions were for decades of recovery."

Last fall, biologists stocked Brooktrout Lake with 20 adult trout and 2,000 fingerling trout. It was the first time a once-dead Adirondack lake had been restocked with fish after improving enough to sustain fish.

The stocking isn't for the benefit of anglers, but scientists.

"This is a whole lake experiment, an ecological experiment of the highest order," said Charles Boylen, a biologist at Rensselaer Polytechnic Institute's Darrin Fresh Water Institute. He has studied Adirondack lakes since 1994 under a \$7 million grant from the Environmental Protection Agency.

"This is a great opportunity to see how nature deals with this phenomenon of acid recovery," he said.

This spring, researchers returned with sonar equipment to see how the fish fared after the snowmelt flooded the lake with a winter's worth of acid deposits. The fish survived. "We're all primed for a productive season," Boylen said.

The researchers will visit the lake every few weeks to observe the fish to see if they reproduce and grow. And they'll monitor the entire ecosystem of the lake to document changes in plankton, algae, plants, insects, loons, salamanders and other species as the natural balance returns.

For ecologists, it will be interesting to watch what happens to the naturally recovering flora and fauna with the introduction of trout, Siegfried said. "These communities have adapted to having no fish for several decades. The top predator is the midge larva," a wriggler the size of an eyelash. "These are nice juicy morsels for trout. They'll

likely wipe out that population."

Scientists also will be watching the behavior of a pair of loons that have been nesting on the lake for years. In the past, they've had to go to another lake to feed. Now they'll find trout right at home. "We'll see how that affects fish survival," Siegfried said. "They can eat 1,500 fish annually."

Sampling must be done numerous times over the course of each year because the lake changes significantly from week to week. The acid level is affected by precipitation and temperature, and the abundance of certain organisms rises and falls over short periods.

Collecting samples isn't easy. The trail to Brooktrout Lake is six miles long, and equipment has to be carried in. A state helicopter is sometimes used to make the job easier.

The recovery of Brooktrout Lake may be short-lived, however. Tim Sullivan of E & S Environmental Chemistry in Corvallis, Ore., was contracted by New York state to develop mathematical models that predict what will happen in response to various levels of air pollutant emissions. The outlook isn't good.

"While there has been a substantial decrease in acid deposition, the improvement in lake chemistry has been relatively small," Sullivan said. "If we continue to operate under existing emissions regulations, the lakes that have been recovering will stop recovering and will start to get worse again over the next couple of decades. For some lakes, it will be worse than it ever has been."

That's because soils in the Adirondacks, particularly at higher elevations, have been depleted of calcium and other acid-neutralizing minerals, weakening their ability to serve as a buffer against acid rain, Sullivan said.

To prevent reacidification of the region's most sensitive lakes, such as Brooktrout, further emission controls are needed, he said.

"Recovery is a dangerous word in the hands of politicians. They think the job is done," Boylen said. "But even with more stringent regulations, there's still more consumption of fossil fuels than in years past. If we don't learn to conserve our energy consumption or rely on sources other than fossil fuels, the societal demands will continue to put more and more emissions into the atmosphere."

Scientists to Study Acid Rain, Smokies

Source : *Environmental News Network*

Date: 12th June , 2005

KNOXVILLE, Tenn. — Scientists plan to study soil this spring in high elevations of the Great Smoky Mountains National Park -- the area most affected by acid rain and other environmental problems, officials say.

The Smokies' suffer from some of the worst acid rain problems in the U.S., especially after major rains or snow melts when streams and rainwater in the higher elevations become more acidic than normal. Acid rain results when sulfur and nitrogen byproducts from fossil fuel-burning plants, industries and motorized vehicles combine

with water vapor to form weak acid.

The study will target sites examined by the Environmental Protection Agency in the 1980s, enabling scientists to see how the soils have changed.

"We have been studying the effects of acid deposition on streams, and now we're looking at soils," said Michael Jenkins, a forest ecologist for the Smokies. "We're filling in another piece of the puzzle." To study the soil, scientists will dig down to the bedrock at four high-elevation sites located on the Tennessee and North Carolina sides of the 500,000-acre park.

The four sites are above 4,000 feet where acid rain and polluted cloud water cause some of the worst acid deposition problems, which the park began monitoring more than 20 years ago. "Changes in the soil chemistry have a cascading effect that impacts the plants and trees -- and ultimately the animals that rely on them," Jenkins said.

Acid Drainage Killing Some Fish in Kentucky

Source : *Environmental News Network*

Date: 17th November , 2007

PIKEVILLE, Ky. — Drainage from land disturbed by mining and road construction has caused acid levels to rise beyond acceptable levels in portions of at least 35 streams across the state, killing fish and insects.

That finding is part of a report by the Kentucky Division of Water, which is trying to prevent the acid drainage so that the streams might once again support aquatic life.

Acid drainage is especially of concern in areas where coal and shale have been unearthed, said Andrea M. Fredenburg, environmental control supervisor in the Division of Water.

"When those layers are exposed to water, we get the problem," she said.

Most of the streams with high acid levels are in the coalfields. For example, seven streams in McCreary County in southeastern Kentucky have been affected as have five streams in Muhlenberg County. The list is expected to grow when acid levels are tested in streams in the Big Sandy River watershed, where coal mining is widespread.

Other counties that had streams on the impacted list were Bell, Clay, Hancock, Harlan, Hopkins, Knox, Letcher, Marion, McLean, Ohio and Pulaski.

Maleva Chamberlain, spokeswoman for the Division of Water, said the list of streams is part of a water quality report that is sent to Congress every two years as required by the federal Clean Water Act.

All streams deemed unfit for fishing or swimming because of pollution are included in the report. In Kentucky, the most common reason streams make the list is because of high concentrations of fecal coliform bacteria, which comes from animal and human waste. In eastern Kentucky, authorities blame the high bacteria concentration on so-called straight pipes, used by some people to flush commodes directly into streams without the benefit of septic tanks and sewage treatment plants.

Chamberlain said the Division of Water doesn't stop after determining that a stream is polluted, whether by bacteria or acid drainage.

"We looked at where it is coming from, and now we look at how we are going to stop it," she said.

China Reports More Cities Suffering Acid Rain, Rivers and Lakes Polluted

Source : *Environment News Network*

Date: 3rd June , 2005

BEIJING — More of China's cities are suffering from acid rain and its major rivers and lakes are heavily polluted, the government said Thursday in a report that highlighted the environmental costs of surging economic growth.

Two-thirds of the nation's household sewage was untreated last year, while "heavy pollution" tainted some cities' air, said a report by the State Environmental Protection Agency, or SEPA.

Acid rain -- blamed on smoke from coal-burning factories and power plants -- is spreading, with the number of cities suffering from levels considered severe rising last year to 218, compared with 210 in 2003, the report said.

China's environment has been ravaged by two decades of breakneck growth, and by the pressure of feeding and housing a population of 1.3 billion. Official efforts to reduce pollution in recent years have had limited success.

"Rapid economic growth has intensified China's environmental problems," Wang Jirong, a deputy director of the environmental agency, said at a news conference. "All the problems that developed countries have seen over the past century, China has suffered in the past 20 years."

Public anger at pollution damage to farmland, crops, drinking water and fishing grounds has become a volatile issue for the communist government. In April, scores of people were injured when police clashed with villagers who occupied an industrial complex, which they said ruined their crops by polluting water supplies. The government has forced polluting factories to close, and is spending heavily on switching its power generation from abundant but dirty coal to cleaner natural gas. In Beijing, the government is pouring money into moving polluting industries out of the city in an effort to clean up the Chinese capital before the 2008 Summer Olympics.

But economic growth, projected to pass 9 percent this year, has fed soaring demand for power, causing shortages nationwide and forcing China to keep older coal-fired plants in service. Conservation efforts also have been undercut by local authorities who resist shutting down paper mills, chemical plants and other polluting facilities for fear of losing jobs and tax revenue. "Local governments and environmental protection bureaus in particular are insufficient in implementing and enforcing laws," said Wang Yuqing, another SEPA deputy director. "As a result, pollution from industry cannot be solved effectively." Wang said public complaints to the agency about violations have

been rising by 30 percent a year, which he said reflected both growing popular understanding of the law, and the scale of problems. Wang Jirong, the other official, said regulators have recorded minor successes. "The water quality in China has remained stable, and in selected regions the water quality is improving," she said. "I believe that is the limited progress we have achieved after years of effort."

Dandruff, Fur, Pollen Affect Atmosphere, Study Reveals

Source : *Environment News Network*

Date: 1st April , 2005

WASHINGTON — Bits of pollen, leaf fragments and even dandruff from people and animals make up a significant portion of dusty stuff in the atmosphere but have been ignored by climate modelers, German researchers said Thursday.

Their painstaking, 15-year measurements turned up a collection of human and animal skin particles, fur, fragments of plants, pollen, spores, bacteria, algae, fungi, and viruses.

They are the right size and shape to act as nuclei for ice crystals, which in turn form clouds and rain, and thus could potentially affect weather and climate, they report in Friday's issue of the journal *Science*. Overall this dust could make up 25 percent of so-called aerosols -- particles in the atmosphere that affect pollution, cloud formation and which can both reflect and absorb radiation from the sun, said atmospheric scientist Ruprecht Jaenicke of the University of Mainz.

"We collected particles, all particles from the air," Jaenicke said in a telephone interview. They collected samples from the university campus, from Russia's remote Lake Baikal, from Amazon ground stations, Antarctica, the Swiss Alps and Greenland ice cores.

"We looked into rain. We took measurements from airplanes," Jaenicke said.

They then used various microscopes to identify dead biological material by using stains that react to protein and also by visually identifying the tiny pieces.

"We counted all particles and determined their size," Jaenicke said.

They found as much as 80 percent of the particulate matter collected was biological in origin -- ranging from 15 percent over the Swiss Alps to 80 percent from the Amazon and Lake Baikal in the autumn. On average, 20 to 25 percent of the aerosol material they collected was biological.

Air of Mystery

This is significant because atmospheric and climate scientists admit that as much as 40 percent of all aerosols are unidentified, and climate models do not fully take into account the effects of aerosols, Jaenicke said.

Other known sources of aerosols include sulfur pollution, dust and industrial emissions, smoke from fires and volcanic aerosols. While he is not claiming that dandruff affects global warming, Jaenicke said he also ran tests that showed his particles could easily

affect cloud formation.

"To form clouds you need water and particles," he said. "Each particle is a nucleus. To form rain you need certain ice nuclei which transform a droplet into an ice crystal." These then collide and form rain droplets. Jaenicke's team was unable to say how much of this biological dust is pollen and how much is actually dandruff.

"This material is comparatively low in density," he said, adding it is small enough to travel very far. "It is easily lifted up." For instance, it is lighter than desert sands that are carried across oceans. "They are distributed easily around the world," he said.

Jaenicke urged other climate scientists to study the components of aerosols so they can make more accurate models for predicting weather and climate change.

EarthTalk: What is 'Acid Rain' and What Causes It?

Source : *Environment News Network*

Date: 7th February , 2005

"Acid rain," also known as acid precipitation and acid deposition, is a broad term used to describe the nitric and sulfuric acids that fall to Earth during rain, snow or fog. These chemicals form in our atmosphere to begin with when pollutants released into the air through the burning of fossil fuels blend with other substances, including water vapor. When it storms, these substances return to the Earth's surface where they get into rivers, streams and groundwater, literally making these waters more acidic.

This acidity, in turn, damages trees and other plant life and makes it difficult for wildlife--especially aquatic life--to thrive and reproduce. The consequences of acid rain can also be seen in the cracks and discoloration on some building surfaces and on the smoothed and faded facial features on outdoor statues. Emissions of sulfur dioxide (SO₂) and nitrogen oxide (NO_x) are primarily to blame. While volcanoes and other natural sources produce these chemicals, too, as much as 95 percent of the SO₂ and NO_x emitted in North America comes from industrial sources and the tailpipes of cars and trucks.

According to the U.S. Environmental Protection Agency's (EPA) Acid Rain Program, the highest concentrations of acid rain in the U.S. are in western Pennsylvania and West Virginia. Prevailing winds move large masses of pollutants there from the smokestacks of the many coal-fired and other kinds of power plants dotting the banks of the Ohio River.

Meanwhile, the National Atmospheric Deposition Program (NADP), which monitors the chemistry of precipitation at some 200 locations around the United States, reports high levels of acid rain throughout the entire Northeast, extending from Indiana all the way to the Atlantic coast. NADP's website features interactive maps detailing acid rain concentrations nationwide.

During the 1980s, public outcry over acid rain resulted in Congress amending the Clean Air Act to impose limits on industrial emissions of SO₂ and NO_x. While the

regulations have helped, many environmentalists think more needs to be done in order to protect plants, wildlife and water throughout the northeastern U.S. and southeastern Canada. A growing body of evidence shows that without significant additional cuts in acid rain-forming emissions, many of the problems associated with acid rain will persist for many decades, says Ellen Baum, ecosystem expert at the Boston-based nonprofit organization, CleanAirTaskForce. Since the burning of fossil fuels accounts for most of the troublesome SO₂ and NO_x emissions, individuals can make a difference by reducing their energy consumption at home and by driving fewer miles in their internal combustion vehicles. Businesses can take similar steps by increasing energy efficiency at the workplace and encouraging employees to carpool or take public transit.

If you have an older propane gas tank that has been denied refilling by a retailer, it is probably because it lacks an Overfilling Prevention Device (OPD). As of April 2002, the National Fire Protection Agency's (NFPA) safety code requires an OPD on every propane tank that holds between four and 40 pounds of the gas, which includes tanks normally used for grills, RVs and other devices. An OPD is part of the valve and is designed to prevent the release of gas from overfilling which can lead to fires and injuries.

The NFPA says you can easily check to see if your tank has an OPD by examining the shape of the valve wheel. Most cylinders with a triangular valve wheel have an OPD, and will be marked accordingly. Cylinders with a round or star-shaped valve wheel usually do not have an OPD.

For a fee, you can take your old tank to a local propane dealer for retrofitting with a new valve. You can also sometimes pay a fee and exchange your old tank for a newer model. If you've already purchased a new unit, or don't need to use propane anymore, many dealers will take them, usually for a small fee, repaint them, re-certify them, install an OPD and resell them.

If you have a 20-pound propane cylinder, the Blue Rhino Company, which claims thousand of retailers nationwide, will accept your old tank and provide an upgrade, usually for an upgrade fee and provided your old tank can be refurbished. Then that upgrade can be repeatedly returned empty and exchanged for a full tank. The company reuses and refills the tanks, so this arrangement both eliminates the wait of refilling and maintains a pattern of re-use.

If Blue Rhino cannot refurbish your tank and all else fails, propane cylinders can be recycled at household hazardous waste collection sites. The website Earth911.org provides a free zip code-based directory with information on where to recycle old propane tanks, among other household items, in your local region. Most state departments of environmental protection also include lists of locations that will refurbish or recycle old tanks.

Homeowners should keep in mind that old propane tanks pose an environmental hazard if simply abandoned outside and an explosion risk if thrown into a dumpster or

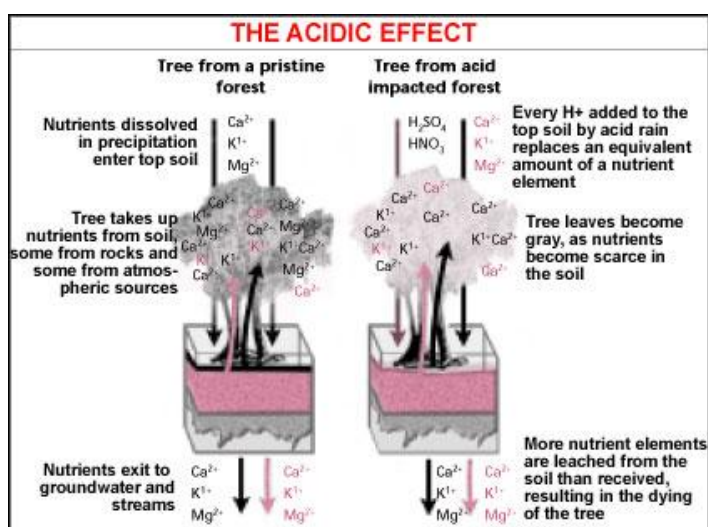
garbage truck trash compactor. Also, cylinders should always be stored and transported upright to prevent potentially dangerous leakage, even if they are on their way to the recycling center or the refill station.

Rain drain

Source : *Down to Earth*

Date: 14th August , 2002

ACID rain leaches essential metal nutrients such as potassium, calcium and magnesium from the top soil, posing a far graver threat to forests than previously estimated. This was discovered by Martin Kennedy, a scientist at the US-based University of California, and his colleagues.



The researchers experimented on trees in the unpolluted forests of southern Chile. "We went to the cleanest atmosphere on Earth so that we could find the closest thing to a long-term sustainable forest," Kennedy said. "There, we sampled soils, stream water, rain and plants, and analysed the strontium isotope composition of each one."

Strontium isotopes indicate very accurately which fraction of nutrient comes from rain and which fraction comes from the rock. "We found that in the dominant tree species -- the southern beech -- approximately 90 per cent of the strontium, and other similar nutrient elements were brought in by the rain and did not come from soil or rocks, as just about everyone had assumed," said Kennedy. The researchers also applied a distinctive artificial chemical tracer to the soil in a small portion of the forest. The tracer mimics the natural nutrients in the soil and trees with the advantage that it can be measured and observed as it moves throughout the soil-plant system. By sampling the tree parts and soil over a period of time, and by analysing the samples of the tracer, the scientists found that within three years most of the tracer was quickly leached from the top soil. The loss of this element within such a short amount of time surprised the researchers because it implies that a far smaller pool of nutrients is available to the trees from the upper soil than they had imagined. The researchers say that the small size of the upper nutrient pool has important implications for forests influenced by industries. "Our study not only challenges the dominant paradigm that rocks and soil mineral weathering provide a majority of some important plant nutrients," said Kennedy, "but it also proposes that

acid rain is a much bigger problem, potentially, than we had ever imagined."

Booming China Awash in 'Out of Control' Acid Rain

Source : *Environment News Network*

Date: 14th August , 2002

BEIJING – China's explosive economic growth is outpacing environmental protection efforts, leaving the country awash in "out of control" acid rain, the China Daily said Tuesday.

Acid rain fell on more than 250 cities nationwide and caused direct annual economic losses of 110 billion yuan (\$13.3 billion), equal to nearly three percent of the country's gross domestic product, the state-run newspaper said.

"The regional acid rain pollution is still out of control and even worse in some southern cities," Wang Jian, an official with the State Environmental Protection Administration, was quoted as saying. Two major causes were the rapidly growing number of cars and increasing consumption of cheap, abundant coal as the country struggles to cope with energy shortages and meet power demand. China is the world's largest source of soot and sulphur dioxide (SO₂) emissions from coal, which fires three-quarters of the country's power plants. More than 21 tonnes of SO₂ were discharged in China in 2003, up 12 percent from the year earlier, the paper said.

"It is estimated that the country will consume more than 1.8 billion tonnes of coal in 2005, emitting an additional six million tonnes of SO₂," Wang said.

The paper said the government was planning steps to rein in the problem, including setting quotas for SO₂ emissions from thermal power plants and urging them to install desulphurisation facilities, through Wang admitted earlier efforts had led to no obvious improvements. China has already banned the use of coal in some areas most severely affected by SO₂ emissions, but sulphur is not the only enemy in the fight against acid rain. "The amazing growth of nitrates, thanks to a swift rise of automobile and coal consumption plus overuse of fertilisers, is playing an increasing role in the country's acid rain pollution," Tang Dagang, director of the Chinese Research Academy of Environmental Sciences, was quoted as saying. A government official told the paper that China had yet to set special regulations to control nitric acid.

Less acidic rain

Source : *Down to Earth*

Date: 1st January , 2000

IN THE 1970s, western Europe, Sweden in particular, was in the grip of a severe environmental crisis: acid rain. Eastern USA faced the same phenomenon in the 1980s. Ever since, many developed nations have undertaken efforts to avert the threat of acid rain. However, a number of polluted areas around the world are still subjected to the phenomenon. Belo Horizonte Metropolitan Region (RMBH) in Brazil's Minas Gerais state is one such area.

But, besides pollutants from vehicular and industrial sources, RMBH is also subjected to prevailing winds from an area where intensive calcareous exploitation occurs. Large



emissions of sulphur dioxide (SO_2) and nitrogen oxide (NO_x) gases react with water vapour in the air to form sulphuric and nitric acids, which come down with the rainwater. But, on the other hand, these winds contain alkaline dust generated by wind erosion, calcareous dust from cement and lime processing units and ammonia gas emissions neutralise the acid rain. Debora Vallory

Figueredo, a chemical engineer and a senior researcher at Fundacao Centro Tecnologico de Minas Gerais in RMBH, Brazil, has reported on how calcareous soil particulates influence acid rain in the region. Rainwater samples were collected from three sites of RMBH - Belo Horizonte, Contagem and Betim cities. Belo Horizonte, capital of RMBH, is engulfed by vehicular emissions, while Betim and Contagem suffer from industrial pollution. The large calcareous area is located near the sampling stations and, therefore, all of them are influenced by the prevailing winds (*Ambio*, Vol 26, No 6).

Ninety-one rainwater samples (32 from Belo Horizonte, 25 from Contagem and 34 from Betim) were collected during the wet seasons of October to February. Almost half the samples (48 per cent) were found to be acidic.

Sixty-five per cent of the samples from Betim and 30 per cent of the samples from Belo Horizonte and Contagem stations were found to be acidic.

The primary conclusion arrived at was that the most polluted and industrialised area of Minas Gerais state, RMBH, is subjected to acid rain. However, the rainfall in RMBH is a dilute solution of minerals and acids, primarily sulphuric and nitric acids. It contains five major ions - calcium, sulphate, ammonium, nitrate and hydrogen.

Since the calcium ion is the major component of RMBH precipitation, the acid-neutralising capacity by calcium particulates becomes enormous. In the dry periods, these alkaline particles (calcium, for instance) are continuously emitted into the atmosphere and neutralise the acid gases from the industries and vehicles. Therefore, the acidity of the first rain is considerably low. However, the removal of these alkaline particles from the atmosphere by frequent rains reflects directly in the increase in rain acidity.

Acid rain arriving soon in India

Source : *Down to Earth*

Date: 14th May, 1999

Acid rain has already been reported in some parts of India, and the situation is likely to get worse



INDIA faces an increasing threat from acid rain -- earlier believed to be the scourge of the West. The large-scale industrial growth and reliance on the use of coal and crude oil distillates like diesel have led to acidification of the atmosphere. The burning of fossil fuels is mainly responsible for creation of sulphur dioxide (SO_2) and oxides of nitrogen (NO_x) which lead to the formation of acid rain. Automobile exhaust fumes are partly to blame, but the worst culprits are coal-burning thermal power plants and the steel industry. Already, a low pH has been observed at Chembur, Maharashtra and Delhi. This is the conclusion of a study conducted by Manju Mohan and Sanjay Kumar of the Centre for Atmospheric Sciences, Indian Institute of Technology (IIT), New Delhi. The phenomenon of rain is caused when heat from the Sun's rays on the surface of seas, lakes and rivers induces evaporation. The water vapour formed in the process rises to a height where it condenses into moisture. If ambient conditions prevail it comes down as rain. But in the case of acid rain, water vapour reaches the atmosphere, condenses, and reacts with atmospheric gases like SO_2 and NO_x . When it rains, these atmospheric pollutants are deposited on the soil, vegetation, surface water or reservoirs. The deposition ultimately results in damage because of the acidity of the pollutants (see chart: *What goes up must come down*).

The problem is very real in the sub-continent. India enjoys the dubious distinction of releasing the maximum pollutants in the atmosphere after China. Total sulphur emissions are expected to rise from 4,400 kilotonnes (kt) in 1990 to 6,500 kt in 2000, 10,900 kt in 2010 and 18,500 in 2020. It is, therefore, not surprising that low pH levels have been reported from Delhi, Uttar Pradesh, Maharashtra, Madhya Pradesh, Tamil Nadu and even the Andaman Islands. While this will not result in acid rain, the stage has been set for it and if conditions worsen like the setting up of a highly polluting thermal power plant in the vicinity or an industrial estate there may be acid rain. After analysing data from 10 Indian Background Air Pollution Monitoring Stations (BAPMONS), scientists have confirmed that rain in and around these cities is getting

increasingly acidic in nature.

The BAPMONS data collected during 1974-1984 shows that a few areas are already under stress conditions. During two decades, the acidic content of rain in Delhi increased, which means its pH level decreased from 7.0 (1965) to 6.1 (1984), and in nearby Agra from 9.1 (1963) to 6.3 (1984). The data also showed that pH levels in the Andaman Islands fluctuated between 5.6 and 8.9. Acidity and alkalinity are measured on the pH scale from 0 to 14. Normal water is 7 on the scale. Decreasing values on the pH scale denotes increasing acidity and, conversely, higher values show increasing alkalinity. A value below 5.6 denotes acid rain (see graph: *Scale of acidity*).

C K Varshney, professor, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, warns 'Acid rain may cause irreparable damage to the country's biodiversity and even damage the food chain.'

Moreover, the use of diesel is causing a high amount of sulphur and nitrogen emissions in the metros. Indian diesel has a sulphur content of 0.5 per cent by weight. Delhi and Agra are supplied with diesel that has a lower sulphur content. "But even this is far higher than sulphur levels in diesel used in countries like Sweden (0.001 per cent). Swedish diesel is 250 times cleaner. It means that with the rising number of diesel vehicles, the government's objective to bring down sulphur emissions may not be achievable," says H B Mathur, professor emeritus, Delhi College of Engineering. "If the government continues to encourage diesel usage, the prediction made by the IIT study may well come true," adds K P Nyati, head (environmental division), Confederation of Indian Industries (CII), New Delhi.

The only good news for India is that chances of acid rain occurring are unlikely. This is because tropical climatic conditions and predominantly alkaline-rich soils of the country have a neutralising effect on the pollutants, says R N Gupta, director, Environmental Meteorology Unit, Indian Meteorological Department (IMD). As dust particles in the country are alkaline in nature, acid rain-causing gases such as SO₂ and NO_x get neutralised.

But there is the possibility of the phenomenon occurring in the Northeast and some parts of south India, he says. The IMD has, however, not confirmed these findings.

Acid bath

Source : *Down to Earth*

Date: 27th February , 1998

INDIA is on the verge of an ecological disaster, says a World Bank (WB) report. By the year 2020, the study predicts that sulphur dioxide emissions in the country would increase by 315 per cent. The study, "Rains-Asia: An Assessment Model for Acid Deposition in Asia," says that this increase is much above the critical load level. If the

same trend continues for 23 years, then China, India and several other South Asian countries will be afflicted by sulphuric acid deposition on its water bodies, forests and buildings.

Sulphur dioxide reacts with the moisture in air and forms sulphuric acid. High concentration of sulphuric acid in acid rain makes soil infertile and unsuitable for agriculture. The rain can pose major health risks for humans. The study, based on model simulation, warns that emissions for Asia as a whole will register an increase of 228 per cent. While China's emissions of sulphur dioxide is set to increase by 177 per cent in the same period, Pakistan's emissions will be the highest in the region showing an increase of 1126 per cent.

More of everything?

Source : *Down to Earth*

Date: 14th February , 1997



- Parts of Europe and Asia including China will see more acidification in their environment in the coming years.
- Agricultural land will expand from approximately 37 per cent of the total land area presently to around 50 per cent by 2050. The highest increases are projected to take place in Africa and West Asia.
- The total global water demand will grow substantially from 3,000 km³ in 1990 to 4,300 km³ in 2050.
- Life expectancy is expected to reach a global average of just over 70 years by 2050 compared with 75 years or more today in developed countries.
- The future years could foresee a population that is on average wealthier and in better health, but living in a world with scarcer resources.
- With the world economy increasing maybe five-fold and the need to reduce environmental pressures by at least by a factor of two for many problems, the efficiency of resource use should be increased ten-fold globally in the coming half-century.

THESE are the shocking results of a recent draft of a model-based study of the state of global environment. The world environment has undergone a major change ever since industrialisation began to feature as an important cornerstone of national economic policies. In their quest to become rich, countries turned a blind eye towards the environment. It was only in the past few decades that a green sense enveloped nations and an ecological perspective began to surface as a serious global concern. The Rio summit in 1992 resulted in the formation of Agenda 21, the global action plan for promoting sustainable development.

In response to Agenda 21, the UN Environment Programme (UNEP) initiated a new biennial reporting series called the Global Environmental Outlook (GEO). The GEOs are aimed at supporting the implementation of Agenda 21 by monitoring its progress, assessing the state of the environment, identifying emerging issues and giving support to priority issues for international action. As a contribution to the first GEO report, RIVM or the Dutch National Institute of Public Health and Environment, one of UNEP's collaborating centres has made a model-based assessment of future global environment according to a 'Conventional Development' (CD) scenario (*see box: As is where is*), developed by the Stockholm Environment Institute (SEI). This scenario with a time frame up to AD 2050, is based on an extension of historical developments and trends, assuming no major social, political, technical or natural surprises or disruptions. On the basis of the modelling tools available, the assessment of the future state of the global environment focused on two important areas of interaction between socio-economic developments and the environment, namely, (a) global and regional cycles of carbon and sulphur emissions and (b) the use of land and water resources.

The GEO assessments project a not-so-green future for the world. Major findings indicate that environmental pressures will build up accompanied by a change in climate; acidification will become a serious problem in some developing regions; freshwater scarcity will aggravate; and, with agricultural land expanding, the natural habitat for preserving biodiversity will shrink. Acid rain: first-degree burns on nature

The problem of acidification arises when two key conditions are met: first, a region has a high level of economic activity with intensive use of fossil fuels leading to large atmospheric emissions of acidifying pollutants. These emissions must be large enough to be transported through the atmosphere for long distances in significant quantities. The second condition is that soil, forest and aquatic ecosystems in a region are susceptible to these acidifying pollutants. Recent assessments have identified the northern and central parts of Europe, the eastern part of China and the southern parts of Asia as regions at the greatest risk of damage as a result of acidification. In the case of Asia, even with the partial controls assumed in the CD scenario, the critical loads for sulphur deposition are still expected to be exceeded substantially. Consequently, woodlands in some of these developing areas could deteriorate more rapidly, endangering agricultural production and the supplies of fuelwood and other products. The acid deposition can lead to the release of toxic metals to ground and surface water, further contaminating drinking water supplies. Clearly, if there are no controls the negative effects of acidification in Asia would be much worse.

A change for the worse Up to now, most impact assessments of climate change have centred on industrialised countries at medium and high latitudes. This is partly because computer models predict that the largest temperature changes are likely to occur at these latitudes, but also since most research focuses on those regions where more

research funds are available. Nevertheless, models also indicate that developing countries in low latitudes may experience important changes in climate, including crucial rainfall patterns.

Acidification and climate change have the same root cause, namely a high level of economic activity that results in emissions of huge amounts of polluting substances into the atmosphere. Many of these pollutants stem from the same source - burning of fossil fuels. In 1990, this accounted for over 80 per cent of the global emissions of carbon dioxide and about 94 per cent of the European emissions of sulphur dioxide (SO₂) the main cause for acidification of Europe's environment. The two environmental issues are not only related with respect to their causes, but also with respect to their impacts. Recently, a better understanding has emerged as to how these two problems interact. The emissions of acidifying pollutants, especially SO₂, lead to accumulation of particles in the upper atmosphere which partly mask the global warming caused by greenhouse gases (GHGs). If the level of particles in the atmosphere is assumed to remain constant at their 1990 marks, the growth in GHGs would increase the global average surface temperature by about 1.5 C from 1990 to 2050 (*see graph: A hotter world*). If however, global emissions of SO₂ increase proportionately with the use of fossil fuels in developing countries, then the mass of particles in the atmosphere will also increase and will moderate this warming trend. The consequence of this is that if the emissions of acidifying gases were reduced, decreasing aerosol concentrations would 'unveil' the warming caused by the increase in GHG concentrations.

How much we need			
Total agro-commodity supply required for 20025 and 2050 in million tones			
YEAR	1989	2025	2050
DEREALS			
Developing	940	1882	2419
Developed	745	952	961
World	1694	2834	3380
OTHER CROPS			
Developing	1870	3950	5502
Developed	1110	1298	1262
World	2980	5248	6764
ANIMAL PRODUCTS			
Developing	307	903	1405
Developed	565	666	660
World	872	1569	2065

Food harvest Today, the world produces enough food to feed all people sufficiently. However, in many parts of the world malnutrition is widely prevalent due to insufficient access to food because of poverty, social upheaval or war. Global human food consumption figures show that while the daily average world per capita caloric intake of 2,700 kilocalories (kcal) is substantially above the critical level (1,900

kcal/capita), there is a major difference in caloric intake between developing (2,470 kcal/capita) and the industrialised regions (3,490 kcal/capita).

In the CD scenario, per capita food intake continues to grow in most developing regions (from 2,470 kcal/capita to 2,930 kcal/capita by 2050), while it stabilises in the industrialised regions. Global food supply increases in the scenario faster than population because of the assumed shift in diets towards luxury food products, especially the consumption of animal products. The total agricultural commodity supply for 2025 and 2050 is given for the world as well as for both developing and developed regions (*see table: How much we need*).

According to calculations, agricultural land will expand from approximately 37 per cent of the total land area presently (of which one-third is arable land) to 46 per cent by 2015 and to around 50 per cent by 2050. The largest increases are projected to take place in Africa and West Asia (about 50 per cent by 2015 and 90 per cent by 2050 compared to 1990). This increase of cultivated land in these areas results from a very sharp rise in demand; in particular, the assumed continuation and expansion of traditional animal husbandry and farming systems requires a lot of additional grazing land.

Parched terra firma of the huge freshwater resources available on earth only a small amount is technically and economically accessible to humans. Presently, agriculture accounts for about 70 per cent of global freshwater withdrawals, industrial use for about 22 per cent and domestic water consumption for the rest. According to the CD scenario, total global water demand will grow substantially from 3,000 km³ in 1990 to 4,300 km³ in 2050 (*see graph: Draining the earth*). Compared to developed nations, the developing regions account for most of the growth in freshwater withdrawals. This is mainly due to population growth as per capita use of water is assumed to actually decrease due to more water efficient systems.

A healthier world over the last four decades, there has been an enormous and continuing improvement in health worldwide, although there are poignant regional exceptions. In the past, developed regions have shown a health transition, formed by both demographic as well as epidemiological transitions. In developing regions, life expectancy has increased substantially over the last few decades. This has led to a sharp increase in population, despite declining birth rates in many countries.

In the CD scenario, it is assumed that health transition will continue to unfold in future in interaction with socio-economic developments. Life expectancy is expected to reach a global average of just over 70 years by 2050 compared with 75 years or more today in developed countries. This discrepancy is due mainly to remaining large differences in income levels.

Taking stock: assessing the results. It appears that CD may well lead to a future with a population that is on the average wealthier and in better health, but living in a world with scarcer and more degraded natural resources. A selection of input assumptions in the CD scenario and findings of the model-based assessment (output) is given in the graph *Higher we go*. The CD scenario results in economic, social and environmental achievements. However, these are at risk if the assumed socio-economic developments are not realised, while a range of environmental and social problems are expected to persist in any case. Clearly, the CD scenario does not lead to sustainable development as many sustainability goals, as stated in Agenda 21, would not be reached.

The GEO assessment leaves out issues like depletion of minerals, non-terrestrial stocks (fish) and more local environmental problems like waste, air pollution, toxification, poor drinking water quality. Likewise, the modelling tools available do not yet enable a quantitative feedback of results from the assessment of the food and freshwater availability into the assessment of the future state of health. Notwithstanding the limitations, we believe the what if assessment already offers useful insights putting forth global and regional policy priorities and effective strategies for sustainable development. As for policy options to overcome the tide, here are a few suggestions:

- The interlinkages between different environmental problems have to be taken into consideration. Our analysis, for example, demonstrates how issues of food security, climate change and biodiversity are closely connected, for instance, through land use and land cover implications. Therefore, integrated policies have to be designed in addition to policies that address only one issue at a time. This implies a balanced attention to economic, social and environment issues so the interconnectedness of the various complex socio-economic and environmental issues is recognised.
- It is crucial to take into account regional differences and priorities as our analysis clearly shows that the environmental impacts of socio-economic developments are very different across regions. In the industrialised temperate and boreal zones in the northern hemisphere the mitigation of environmental pressures through the excessive use of materials and energy deserve high priority. Anticipatory action is also required as largescale environmental changes can lead to (adverse) impacts with considerable delay.
- Finally, for decreasing environmental pressure under conditions of rapid growth of population and production and consumption, rapid but sustainable increases in the intensity of resource use are essential components of any sustainable development policy portfolio. The CD scenario assumes that total environmental pressure (emissions, land conversions) continues to build up. It has been suggested that, with a world economy increasing maybe five-fold and the need to reduce environmental pressures by at least by a factor of two for many problems, the efficiency of resource use

generally should be increased ten-fold globally in the coming half-century. This can be achieved not only by technological developments, but also by dematerialisation of lifestyles.

From the frying pan to fire

Source : *Down to Earth*

Date: 30th May , 1996



FOR the past 10 years, a large number of moose are dying in southwest Sweden. The cause for this is acid rain. Acidification and the declining numbers of this warm-blooded animal are being linked because of a complex chain of events, arising from the occurrence of the former. According to Adrian Frank of the Centre for Metal Biology in Uppsala, Sweden, acid rain is indirectly responsible for the fatalities. To counter the effect of acidification on the environment, liberal spraying of lime is a standard practice in the country.

Since the early '80s-, wetlands, lakes, fields, pastures and even some forested regions have been limed following their acidification. Ironically, it is the lime which has led to an imbalance in the concentration of chemicals like copper and molybdenum in the animals' livers. The use of lime was intensified in the mid'80s which corresponded with the time when a large number of the animals began signaling the coming disaster as they contracted some diseases. The acid rain led to the destruction of blueberry bushes (staple diet of the moose), and the animals changed their feeding habits. They turned to cultivated pastures and fields of oat and rape, which were being heavily lited by the farmers.

Frank explains that as and when acidification occurs, it decreases the PH level of the soil, and metals such as cadmium, zinc and, manganese - as a result of capillary action - move up to the top soil, getting ingested by herbivores in greater quantities. But molybdenum being less soluble in an acid-rich environment, stays put at a lower level. With the spraying of lime (done to neutralise the soil), the process reverses so that the plants now receive an overdose of molybdenum, while chemicals like cadmium become scarce. According to Frank, this excessive amount of molybdenum plays havoc with the copper content in the ruminants' diet, decreasing it to such an extent as to lead to copper deficiency, which can at times prove fatal. The animals appear gaunt, and sport discolored hair and impaired immune systems. They tend to suffer from osteoporosis, ulcers, diarrhoea, convulsions, blindness and heart failures. In 1982, Frank had collected liver and kidney samples from 4,360 moose, shot by hunters in Sweden. His study of 14 chemicals revealed that the copper content had gone down by 50 per cent in the livers of the animals, but the quantity of molybdenum was up by 20- 40 per cent. There were significant changes in the

concentrations of other elements like chromium, whose level was found to be extremely low too. "The condition of their kidneys also indicate severe metabolic disturbances due to the reductions in cadmium, magnesium and manganese," says Frank. In a paper to be published by the American Chemical Society, Frank extols the virtue of the moose as an environmental benchmark. Since the moose live on a large variety of plants, they can be useful as reliable and sensitive indicators of environmental changes, providing information on the changes in the levels of all metals. Frank believes that the people responsible for liming should realise the environmental consequences of doing so not only from the point of view of the plants, but also of the animals consuming them. But the Swedish environmental Protection Agency has rejected his call for an urgent nationwide investigation on the probable effects of liming on wildlife. Alternate theories project the possibility of overpopulation or a viral attack, as being responsible for the declining numbers of the moose.

Acid attack

Source : *Down to Earth*

Date: 14th December , 1995



IN JAPAN, elementary school magazines have been selling particularly well recently due to the mini easy-to-use acidrain measuring kits attached to the inside of the magazines' back cover. A chemical is placed in a small plastic container. When acid rain falls on it, the color changes, and from this the aciditycontent in the rain can be read. Readers send back these figures to the publishers. In 1994 summer, some 51,000 observations were returned, and this year almost the same number have been returned by elementary school) goers, Based on these results, a national acid rain intensity map is likely to be charted.

Acid rain has been frequent in Japan as it had been in Northern Europe and North America, and now it has become just as noticeable. Should it continue, its influence may well become widespread as may concerns about it. Japan's Environment Agency has established a national monitoring network. Records from 1994 show that the Ph (acidity or alkalinity of a solution/soil expressed numerically) in rainfall in 28 places averaged 4.8 with acidic rainfalls reported in both urban and rural areas ranging between Ph 4.5 -to 5.8. The situation has remained constant for 10 years. J. Acid deposition has degraded lakes, swamps and wetlands to such an extent that organisms cannot thrive in northern European waters. According to an Environment Agency survey, almost all rivers, lakes and marshes in Japan have a Ph of around 7.0, but some with low Ph levels were also found. The Japanese government has recognized that deterioration, drying and death of greenery has occurred nationwide, and in 1994, the Agency said it could not deny that acid rain was responsible for this

situation. This was the first time the government has officially recognized these adverse environmental impacts. In 1958, factories of the Yokkaichi industrial complex in central Japan, generated air pollution due to SO₂ resulting in decreased harvests of wet rice. In other words, air pollution had a negative impact on vegetation, and in 1961, many people developed breathing difficulties and other health problems. Tetsuro Taniyama of Mie University reported that an SO₂ concentration of 0.02 per cent per month would have a negative impact on vegetation growth. Winter winds blow from Asia eastward over the adjacent seas and lands so that SO₂ emissions from China and the Korean Peninsula are carried across the Sea of Japan to Japan, Japan's close neighbour China alone produces 2,000,000 tonnes/year of SO₂ today.

Rotten eggs in our face

Source : *Down to Earth*

Date: 31st May, 1994



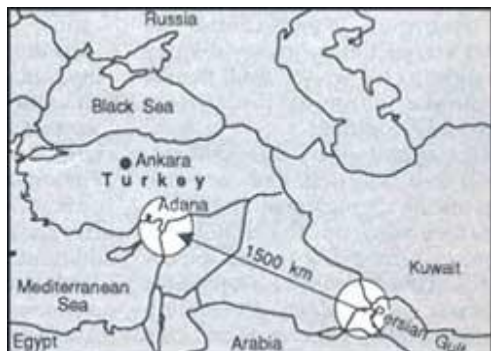
THE errant ways of humans have the most unexpected effects on ecosystems. Ecologists J Graveland and his colleagues at the Netherlands Institute of Ecology say that air pollution and the subsequent acid rain have had enormous impact on the reproduction of a common European bird -- the great tit (*Nature*, Vol 368, No 6470). The scientists observed that the great tits (*Parus major*) in the Buunderkamp forest in The Netherlands, have been increasingly laying defective eggs. The proportion of the birds laying defective eggs increased from 10 per cent in 1983-84 to as much as 40 per cent by 1987-88. The defective shells were thin and porous, and had a rough surface. The scientists observed that these eggs failed to hatch because they tended either to dry up or break. And, interestingly, almost half the female great tits with damaged eggs deserted their nests. Because all defects were linked to the shells of the birds' eggs, calcium deficiency appeared a likely cause. And sure enough, scientists found that most defective eggs were found in forest regions with poor soils, deficient in calcium. The calcium needs of female great tits are predominantly met by feeding on snails, whose shells have a high calcium content. But the scientists found that in forests with poor soils, the number of snails was meagre. The scientists found that on poor soils the snail populations have decreased substantially over the years, whereas an attendant decrease in snail numbers on calcium-rich soils was not observed. A similar decline was also observed on poor soils in Sweden. Snails require calcium obtained by eating soil and rock in addition to their regular food, and by absorption through their skin, to build their shells. Acid deposition, the scientists explain, has previously been implicated in a reduction in soil calcium -- through leaching -- in poor soils. This calcium deficiency, passed on through the snails, has an impact on the birds which are the next link in the food chain. The scientists found that the calcium content of great tit food in forests on rich soils -- where the birds' eggs were usually normal -- was 50 per cent more than that of great tits living in poor soil regions. And on feeding caged

birds snail shells and chicken egg shells, they found that there was a reduction in the number of empty nests, unhatched eggs and nest desertions.

Black rain in Turkey

Source : *Down to Earth*

Date: 30th October , 1992



The climate over parts of Turkey was severely affected in 1991-92 by heavy smoke billowing from Kuwaiti oil-wells set ablaze in the Gulf War. Hunay Evliya, a chemistry professor in the southern Turkish town of Adana, said the smoke led to black rain and the winter was the coldest recorded in Turkey (Environment, Science and Technology, Vol 26 No 5). A lot of

snow fell on the normally subtropical Mediterranean coasts of Turkey, Syria and Lebanon in January and February this year. Black rain fell in Turkey for a few days after the oil-fields were set afire and sunshine decreased by 25 per cent. Huge clouds of smoke rose to a height of 3 km and travelled eastwards. A cyclonic whirl over the eastern Mediterranean collected soot, oil and other constituents of the burning oil in the lower levels of the atmosphere and this fell as black rain. Turkish scientists found the rain contained several substances present in Kuwaiti oil. The effects were also seen a year later.



जहाँ है हरियाली ।
वहाँ है खुशहाली ॥
