

Centre for Business Sustainability, IIM Lucknow
Prabandh Nagar, Off. Sitapur Road, Lucknow- 226013
E-mail: cbs@iiml.ac.in Phone: +91 522 2736987, +91 2736989

Business Sustainability News

International

Global Emissions Fall This Year, Coal Use Peaked in 2013!

SustainableBusiness.com News

Last week, China announced it will cut emissions from coal-fired power plants 60% by 2020, and now the news is even better.

Global emissions are expected to fall 0.6% this year because of one country - China's emissions will decline 3.9% in 2015, after a decade of rising by nearly 6.7% a year, reported in *Nature Climate Change*. Lower petroleum consumption and faster growth of renewable energy also contributed. This will be the second year world emissions haven't risen along with economic growth, a really positive sign.

"This indicates the old assumption of economic growth being dependent on rising fossil fuel use is broken. It should cheer anyone concerned that climate change might be insoluble, and encourage ministers meeting at the UN climate summit in Paris that pragmatic curbs on their carbon emissions are compatible with economic development," Richard Black, director of UK thinktank, Energy and Climate Intelligence Unit, told *The Guardian*.

It's Mostly Because of Coal

World coal use may have peaked in 2013, as consumption is down in all the largest

consuming nations, with the possible exception of Russia, which didn't make data available, according to the Institute for Energy Economics and Financial Analysis.

And coal consumption may have peaked in China in 2013, seven years ahead of its commitment with the US.

As of September, China's coal use is down 5-8% this year, according to the Institute for Energy Economics and Financial Analysis, after falling 2.9% last year for the first time in decades.

Only after all zero and low-carbon energy sources have been used, can dirty energy sources be deployed. In the past, it was wind plants that remained idle as coal was used first.

"In 2014, Beijing shut down more than 1000 coal mines. Beijing is rolling out fast-track provincial- and municipal-level coal-control and emission-reduction policies that are putting some Chinese provinces and cities on a path to peak emissions as early as 2020 or 2022." Regions covered by these policies "account for over 66% of the nation's GDP," says a new report from Center for American Progress, "Beijing's Energy Revolution Is Finally Gaining Serious Momentum."

"In sector after sector, Beijing is working to downshift old growth engines and kick-start new ones. Many contracting industries - cement, steel, and iron - are some of China's biggest coal consumers. As those industries contract, coal demand dries up and the coal sector shrinks as a result. Beijing is also intentionally ratcheting up coal prices to make those energy-intensive sectors less competitive, as well as to make coal less competitive vis-à-vis renewables."

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53 Companies Shoot For 100% Renewables, And 114 Set Science-Based Climate Targets

SustainableBusiness.com News

The corporate world is stepping up again at COP21, with more companies committing to 100% renewable energy and setting "science-based climate targets."

53 companies have now joined RE100. If all companies reached 100% renewable energy, the demand would raise renewables to providing half the world's electricity, and cut global emissions 15%, according to *The Climate Group*.

Some of the companies are BMW, Coca-Cola, Starbucks, Nike, Google, Microsoft and Adobe.

Meanwhile, investors launched their own initiative to coax more corporations into RE100. The 20 founding members include insurance firm Aviva Investors and pension funds in France, Norway and the UK.

RE 100 "I think this will hugely accelerate the pace at which big corporates around the world commit to transitioning their businesses to using renewable energy for electricity. When shareholders - particularly when working collectively - get behind something that makes good business sense it really accelerates the pace at which businesses' boards look seriously and move on something," Catherine Howarth, CEO of ShareAction, which is organizing the effort, told *The Guardian*.

Science-Based Climate Targets

And while most multinational companies have been working toward targets for years, they tend to set them based on what they think they can achieve - rather than what science requires to stay below 2°C.

114 companies signed on to the Science Based Targets Initiative at COP21.

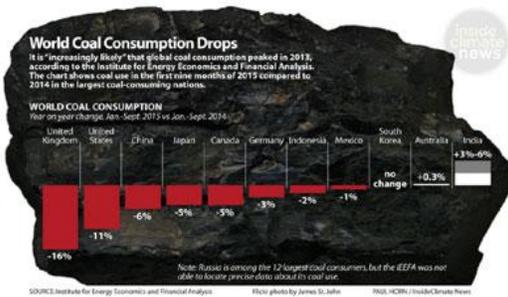
If you're making the effort to reduce emissions, it's worth making that little bit extra effort to avoid catastrophic climate change," notes Kevin Moss of the World Resources Institute (WRI), which is leading the effort.

WRI and its partners have taken on the job of evaluating company targets - it's a complex process that will consider the lifecycle of corporate products, pushing down the supply chain. As companies submit targets, WRI will analyze them and 10 companies have been approved so far: Coca-Cola, Dell, Kellogg, General Mills, NRG Energy, Sony, Procter & Gamble, Enel and Thalyx.

"It leads you towards developing a portfolio of products and services that will provide for a low carbon society. It might mean substituting a portfolio of products that relies on fossil fuels to one that doesn't," says Moss.

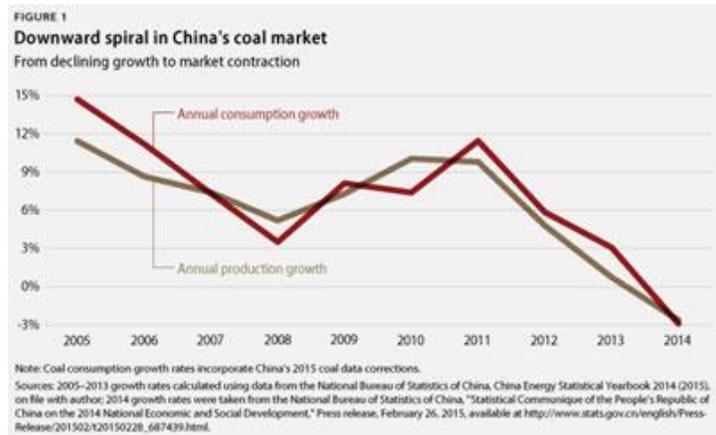
We might finally get the truly sustainable products the environmental community has been asking for ... for decades.

[<Source>](#)



Credit: *InsideClimate News*

Economics and Financial Analysis, after falling 2.9% last year for the first time in decades.



credit: *ThinkProgress*

China's Situation

It looks like China is doing what many thought impossible - turning away from completely unsustainable growth - through a combination of policies, such as strong fuel economy standards, energy price reforms, and aggressive expansion of renewable energy. New policies will further cut coal use - particularly national cap-and-trade and a "green dispatch" system which prioritizes renewable energy as the "first fuel" for the electric grid.

These businesses are coloring a triple win for industrial painting

By Monique Dubos and Jon Vanyo



Liquid paint is typically high in air pollutants, which some companies are avoiding or changing. Pictured is industrial machinery for paint.

to form ground-level ozone, also known as smog. While ozone in the upper atmosphere is beneficial to the Earth and protects it from UV radiation, it is a harmful pollutant in the lower atmosphere. Reducing VOCs is an effective way to reduce ground-level ozone.

Disposal of chemicals such as paint products is also an issue that can pose a risk to water resources. Toxins can persist in the environment for decades, contaminating the soil and threatening a community's water supply for years after they are discarded.

Five Minnesota companies whose manufacturing processes involve painting have helped clean up the air we breathe and reduce pollutants going into the environment by adhering to the three "Rs" known as "reduce, reuse, recycle." The first four companies were identified through a search of the Toxic Release Inventory by the Minnesota Technical Assistance Program at the University of Minnesota (MnTAP).

Reduce

Traditional liquid paint contains high concentrations of VOCs and hazardous air pollutants (HAP), a more stringently regulated class of VOC that includes xylene, toluene and ethylbenzene. Such chemicals have been found to cause cancer, reproductive issues, respiratory illnesses and other ailments in people exposed to them at harmful levels.

In recent years, the chemical industry has worked to develop low-VOC paints that contain higher solids and lower liquid solvent content. Many of these paints are also HAP-free, so they are a good choice for companies wanting to safeguard employees and the environment.

Minneapolis-based Graco makes fluid-handling pumps and spray equipment. They also paint the parts they manufacture. The company sought to reduce their VOC emissions while increasing production.

"Environmental performance is important at Graco," said Eric Lillyblad, Graco's environmental specialist. "We strive to use less energy, generate less waste and water and seek the flexibility afforded by maintaining our permit status." After testing several formulations to satisfy color and durability needs, the company chose a paint formulation that lowered toluene by 94 percent.

Another option to reduce VOCs is to switch from liquid to powder coatings, which are VOC- and HAP-free. Because they don't emit vapors (or strong smells), powder coating shops don't require as much ventilation, which can lower cold-climate heating costs. In addition, parts that are powder coated see fewer surface defects, need less rework and tend to be more durable.

Lou-Rich, located in Albert Lea, Minn., manufactures a variety of custom parts, including agricultural equipment and medical devices which, like Graco, they paint in-house. The company planned to replace one of two outdated liquid paint lines. After weighing their options, they chose to replace the liquid paint line with a powder coating line. The switch resulted in an 86 percent reduction of VOCs plant-wide.

Similarly, AGCO, an agricultural equipment manufacturer based in Jackson, Minn., has three paint lines. They wanted to reduce their VOC reporting requirements and looked to incorporating powder coatings in their process. Because some parts that need painting have gaskets and O-rings that could be damaged during the high-temperature powder curing process, they needed to maintain liquid paint lines. By changing one line from liquid to powder, the company reduced its xylene emissions by 56 percent.

Reuse

Solvent distillation is a process in which once-used solvent is filtered and used again. Reusing solvent is an effective way to reduce the amount of raw material the company needs to purchase, while also reducing the hazardous waste they need to manage. This saves the company money at both ends of the process.

EDCO's facility in Hopkins, Minn., paints the steel roofing, siding, shingles and gutters it manufactures. Before color changes on the painting line, the company uses solvents to clean the equipment. After implementing solvent distillation, the company reduced their virgin solvent purchases by 52 percent and reduced the volume of hazardous waste generated.

The distillation unit saves them \$12,500 per year on purchase and disposal costs with a two-year payback period. It is important to note that MnTAP has seen payback periods for

Take a deep breath. Or maybe you shouldn't. Depending on where you work and live, the air you breathe may not be so healthy. In addition to pollutants emitted from automobiles and power production, many industries use cleaning, coating and painting products with harmful chemicals that evaporate into the air.

Volatile organic compounds (VOCs) are carbon compounds that, upon evaporating, react with nitrous oxides and sunlight

implementing solvent distillation as low as six months. "I highly recommend anyone using solvent cleaning chemicals to reuse them," said Michael Bergeson, EDCO plant manager.

Recycle

For companies using powder coating paint lines, recycling is another effective way to divert waste from landfills. Surplus Coatings in Michigan accepts leftover, discarded, over-sprayed or unused powder for recycling. The by-product is used as a bonding agent in filters, carpets, mats and clothing.

Huot Manufacturing, in St. Paul, Minn. makes products to help machine shops stay organized, including carts, cabinets and racks, and also offers powder coating services. The company chooses to recycle its over-sprayed powder rather than send it to the dump. "The cost was a wash compared to other powder disposal methods, but we think it's worth it to keep our waste out of landfills," said Paul Huot, CEO of the company.

By implementing the three Rs, businesses that operate paint lines can save time and money while reducing their hazardous air pollutant emissions. That's a triple win.

The Minnesota Technical Assistance Program helps Minnesota businesses identify pollution prevention and reduction opportunities. Find us at www.mntap.umn.edu. Outside Minnesota, the Environmental Protection Agency website has more. More detailed case studies are available on the MnTAP website.

[<Source>](#)

Tamicare targets wearables market with 3D printed smart textiles

Source Name: *Innovation in Textiles*

Manchester, United Kingdom based Tamicare has spent the past decade developing and patenting a unique system to mass produce 3D printed textiles, and its first production line, capable of producing up to three million items a year, has just gone into operation. The system is said to virtually eliminate waste, and uses environmentally friendly recyclable materials.

Founder and CEO Tamar Giloh explains "Our Cosyflex production system allows 3D printing to be used for mass production for the first time ever. Instead of creating items one at a time, Cosyflex enables high volume high density production from a small footprint at costs far below traditional manufacturing processes."

The company is already attracting attention from major brands who like the idea of being able to print an entire garment or shoe upper in a single process. CTO and co-inventor of the technology Ehud Giloh explains: "Sports shoes can require over a hundred individual operations during manufacturing, but Cosyflex reduces this to three. The same is true for many other complex designs. This allows companies to produce in one location what previously required a complex global supply chain."



After signing a multi million-dollar agreement with a major sportswear brand the company is now setting its sights on the wearables market. Many current smart textile applications require conductive fibres to be woven or knitted into the material or applied to the surface of a finished garment. Cosyflex allows sensors and wiring to be printed along with the rest of the garment in a single process. This helps realise a long held dream in the world of smart textiles, where the garment is the device, the company says.

To assist with this effort Tamicare is working with technology entrepreneur Tim Harper whose background in graphene, smart textiles and medical devices is helping Tamicare open up new markets. Initial work on printing graphene has shown that it is a highly promising material for applications ranging from medical and fitness monitoring through to smart bandages, the partners report. "The Cosyflex system builds a garment layer by layer. Any one of those layers can be textile, polymer, latex or printed electronics allowing us complete freedom in the way we design smart textiles," Tim Harper comment.

The addition of graphene inks to the manufacturing process enables the creation of smart textiles and wearable electronics allowing the company to address new and emerging markets in fashion and health. The incorporation of graphene into polymers also allows the creation of high strength lightweight materials by strengthening the entire product or certain sections, with applications in footwear and personal protection equipment.

Tamicare was founded in 2001 by Tamar and Ehud Giloh, together with a group of enthusiastic and experienced entrepreneurs, to develop and commercialise a unique 3D printed textile, Cosyflex. The first two patents for Cosyflex were granted in 2005.

Tamicare Limited aims to become a global leader in mass production additive manufacturing (3D printing) of textiles and nonwoven materials, enabling a potential multi billion-dollar market for licenses in: branded athletic footwear, advanced wound care, smart textiles, hygiene, activewear, lingerie, automotive and more.

Tamicare's proprietary Cosyflex production technology represents a disruptive change in textile and garment production. The Cosyflex production technology comprises a broad family of technologies, related derivative products and enabling technologies – all protected by global patents. The Cosyflex production technology is expected to be licensed to major brands and market leaders enabling them to benefit from first mover advantage in applying this technology.

[<Source>](#)

Daffodils in bloom, the warmest ever December: how worrying is the world's strange weather?

While record-breaking temperatures are blamed on the global effects of climate change, naturally warming waters in the Pacific are adding to the effect

By John Vidal, Environment editor



A man skies down a slope created with artificial snow in the Dolomite mountains resort of Val Gardena, northern Italy. Photograph: Alessandro Garofalo/Reuters

The cyclical event, named after the birth of Christ because it traditionally occurs in Latin America around Christmas, sees temperatures in the equatorial Pacific rise several degrees. The consequences in years like this are dramatic. Monsoons and trade winds are disrupted, leading to cyclones, droughts, floods and food shortages across the world.

Friday night was one of the warmest recorded in the UK in December. With the warm spell due to continue over Christmas, it is almost certain that more records will be broken. According to Scaife, "we cannot attribute the recent floods [in Britain] to the El Niño, but in early winter [during El Niño years] we tend to have a strong jet stream which brings us mild conditions. In late winter, January and February, we tend to get a weak jet stream which brings more wintry conditions."



Daffodils in bloom at London's Olympic Park December. Photograph: Frank Augstein/AP

Eritrea, Somalia, Zimbabwe and other southern and east African countries all needing emergency food aid within weeks.

"The projections across Africa are shocking; 39 million people are expected to be affected," said a spokeswoman for the UK Department for International Development. "Around 3.5 million people in Africa could also be affected by floods and subsequent disease epidemics. The situation in Ethiopia is particularly worrying, with 18 million people projected to require food assistance in the coming months."

This month the UN World Food Programme said 2.8 million people in Malawi needed urgent food aid as shortages had more than doubled food prices from 2014 levels. This year, it said, southern Africa's cereal harvest fell by almost a quarter, down to 34 million tonnes.

"Serious concerns are mounting that southern Africa will this coming season face another poor harvest, possibly a disastrous one," warned the UN's Office for the Coordination of Humanitarian Affairs. The UN has appealed for £5.7bn for humanitarian aid for Africa. A further £67m has been requested for Central America, the Pacific region and northern South America, where a combination of intense rains and droughts has devastated crops.

December temperatures in London have been warmer than July's. Scotland is balmy than Barcelona. Artificial snow covers European ski slopes. Africa faces its worst food crisis in a generation as floods and droughts strike vulnerable countries.

With unusual weather from Britain to Australia, scientists are blaming climate change – but also the natural phenomenon called El Niño, which is raising temperatures and disrupting weather patterns. A double whammy then, but how disturbed should we be as the records tumble?

According to the UK Met Office, the exceptional warmth in Britain and northern continental Europe is linked to the strongest El Niño ever recorded. "What we are experiencing is typical of an early winter El Niño effect," said Adam Scaife, head of Met Office long-range forecasting.

Roger Brugge, a senior scientist at Reading University's atmospheric laboratory, said: "The first 17 days of December have been the mildest on record by a remarkable 1.1C. The average temperature during this period, of 10.6C, is similar to what can be expected around the beginning of May."

Worldwide, November was the warmest recorded by the US government's National Oceanic and Atmospheric Administration, and the seventh month in a row where temperatures have been well above the 100-year average; 2015 is on track to be the warmest year and last week the Met Office forecast that the global average temperature in 2016 would be a record 1.14C above pre-industrial temperatures.

So is the current spell of exceptional heat around the world a foretaste of life in a warmer climate, or just a temporary blip? Atmospheric scientists believe we are seeing climate change with an El Niño effect on top. The two combined are raising temperatures dramatically.

"We expect 2016 to be the warmest year ever, primarily because of climate change but around 25% because of El Niño," said Scaife, who added that El Niño was not linked directly to climate change but exacerbates its effects.

The effects are already being seen worldwide, and nowhere more dramatically than in east and southern Africa, which is most vulnerable to climate change and extreme droughts. The El Niño effect has shifted rainfall patterns and led to severe drought. After years of good harvests and relative food security, Africa faces one of its biggest food emergencies in a generation with Ethiopia, Malawi,

TIPS

Electronic gadgets and machines have become part of our life there are gadgets for almost every work we regularly do. There are gadgets for entertainment, daily chores, comfort etc. People are being more and more health conscious so the appliances have come which enables to cook and process our food with least fat, purifier that purifies drinking water etc. To operate all these we need power. The power generation in our country is less than the demand moreover conventional energy generation causes pollution. Therefore conserving power is very necessary which can be done in several ways by using the gadgets and machine lesser or by using energy efficient appliances etc. and by using green sources of energy.

Here are some tips to refresh memories of those who already know it and to make people aware who are not aware of these so far.

1. Use higher energy rated appliances as they are more energy efficient so consumption of electricity is on lower side.
2. Ideally the temperature in refrigerator should be between 1.7^o and 3.3^o Celsius and that of freezer between 0^o and 5^o Celsius accordingly set thermostat of your refrigerator and freezer.
3. Ensure that door seal is intact and the cold air does not escape from refrigerator. Get it checked and if there is leakage get it fixed by the service provider.
4. Ensure that any articles that are not required to be stored in refrigerator are not there in the refrigerator. Keep an eye on the food stored in the refrigerator and remove old items from refrigerator and consume it at first available opportunity. So that energy is not wasted to keep those items cold all the time.
5. Warm food that is to be stored in refrigerator may please be brought to atmospheric temperature before placing it in it. Because placing warm food in refrigerator may affect other items stored in it and on the other hand it will increase the temperature and refrigerator will consume more electricity to for cooling it again.
6. Preheating of oven is not required for every recipe. So preheat oven only when recipe demands thus you will save electricity.
7. Always use dish washer to full load instead of using it several times with small loads. This will definitely result in power saving.
8. Unless it's necessary to dry utensils quickly do not heat dry your utensils rather let them air dry on their own.
9. Maintain your air conditioners as per manufacturers' recommendations. Remove dust from filters periodically that will increase its efficiency.
10. You will consume 3 to 5 percent less energy for each degree air conditioner is set above 22°C (71.5°F), so set the thermostat of room air conditioner at 25°C (77°F) to provide the most comfort at the least cost.
11. Instead of keeping on standby mode, Switch off TV, computer etc when not to be used for some time.

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Connecting buildings helps fight climate change

By Victor Olgay



Petronas Twin Towers in Kuala Lumpur, Malaysia.

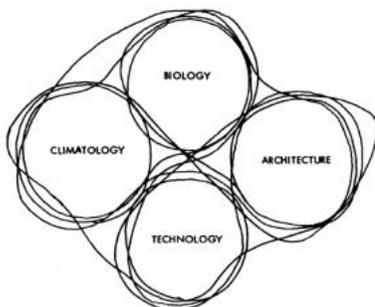
"We are not all weak in the same spots, and so we supplement and complete one another, each one making up in himself for the lack in another."— Thomas Merton, No Man is an Island

In Pope Francis' recent visit to the U.S., he referred to several interesting touchstones in America's spiritual history, including Thomas Merton. Merton was a prolific writer who often emphasized the importance of community and our deep connectedness to others as a nurturing aspect of spiritual life. The importance of connectedness is not only true of spirituality, but also applies to ecology, an idea we continue to relearn. We cannot throw anything out, because our discard comes back to us in the water we drink, the food we eat or the air we breathe. Our society is intimately connected; we all depend on the same resources to survive.

As the world's leaders debate political solutions to our current climate crisis, brought about largely by our neglect of this idea, we can look to some very practical solutions within our built environment to protect and enhance resilient communities.

In buildings, these broader connections to community exist as well. Buildings traditionally have emerged from context, been built out of local materials, fit into the contours of the landscape and made use of the local climate to help heat and cool the structures. Almost inevitably, these buildings show a climatic response, drawn from the genius of place, mixed with human inventiveness. Between people and place a dialogue is evoked, a call and response that started long ago and continues to evolve today.

This conversation has a science to it as well. In the mid-20th century, many architects dove deep into the rationality of design, rediscovering how buildings can be designed to optimize their relationship to people, climate and place. Bridging technology, climatology, biology and architecture, the science of bioclimatic design was given quantitative documentation in "Design with Climate," the 1963 text written by my father recently republished by Princeton University Press. The interdisciplinary approach to design that book describes remains the fundamental approach to designing high performance buildings today.



31. Interlocking fields of climate balance.

Integrated building design connects across disciplines.

they can pull it from the grid — in essence, using the electrical grid as if it were a large battery.

While this is quite reasonable from a building end user perspective, what happens if we are drawing energy when the electricity is in great demand and pushing electricity onto it when there is already an excess of electricity? Looking at the system from the grid perspective is a

different point of view. High performance buildings can make utility electricity problems worse.

[Intelligently connecting with the utility grid empowers buildings to have a positive environmental impact.](#)

By intelligently connecting buildings, we can respond appropriately to utility grid needs and provide services. To some extent this has been happening for many years in the form of demand response, where building owners opt to reduce their power consumption when the utility is stressed in meeting demand. In turn, building owners receive reduced electricity charges.

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Why Energy Efficiency is the Least-Cost Climate Tool

By David Labrador

An authoritative new study released earlier this week from a consortium of groups led by Fraunhofer ISI, a German think tank, and funded by ClimateWorks shows how energy efficiency can be a low-cost pathway to keeping global warming to the critical 2 degrees centigrade mark. The report, *How Energy Efficiency Cuts Costs for a 2-Degree Future*, shows the results of a detailed study of the world's largest and fastest-growing economies. It finds that, by leveraging energy efficiency as a significant complement to decarbonizing the energy supply, those countries can realize savings of \$2.8 trillion and achieve a net-zero cost to society by 2030 while still achieving decarbonization and minimizing climate change.



This study presents further support for solutions RMI has been championing for decades, combining energy efficiency with clean-energy pathways. It is particularly welcome now, with the nations of the world set to meet next week at the Paris climate change conference also known as COP21.

A LEAST-COST MEANS TO LIMIT WARMING

How Energy Efficiency Cuts Costs for a 2-Degree Future compared a business-as-usual pathway with an energy-intensive pathway, which included limited energy efficiency, and an energy-efficient pathway, which was much more efficiency-intensive. Jakob Wachsmuth, principal author of the report, said in a statement "energy efficiency holds the key to controlling costs. Each nation we studied should craft a strategy that reflects its domestic energy mix, but our research shows that everyone benefits from some form of aggressive policies to support energy efficiency."

Notably, the energy-efficient pathway cost from \$2.5 to \$2.8 trillion less than the energy-intensive pathway in constant 2005 dollars while achieving the same temperature goal by 2030. The energy-intensive pathway relies on decarbonizing primary energy sources and was itself a whopping \$1.2 to \$1.6 billion less costly than business as usual. This echoes the findings of RMI's *Reinventing Fire* and *Reinventing Fire: China analyses*, which demonstrated the enormous savings that clean energy and energy efficiency can unlock to offset the investments needed to implement them.

The report also underscores the tremendous potential for carbon-emissions reductions by means of energy retrofits of existing buildings in the U.S. and the EU. The report calls for increased incentives for retrofits in the U.S. and improved standards for retrofits in the EU in order to unlock this tremendous—and cost-effective—potential. RMI, for its part, has been actively working to scale up retrofits of existing buildings.

EFFICIENCY IS EFFECTIVE—AND COST-EFFECTIVE—EVERYWHERE

The results were fundamentally the same across the six regions studied, though there was some variation. The study focused on the U.S., the EU, China, India, Brazil, and Mexico. The additional cost savings from focusing on energy efficiency ranged from 0.1 percent of GDP in Mexico to 0.4 percent of GDP in the EU, but the study found that energy efficiency was the least-cost option everywhere, saving as much as \$250 billion per year.

The efficiency pathway achieves such favorable economics because, in addition to direct savings on energy expenses, the intensive deployment of energy efficiency achieves the same two-degree temperature-rise target while requiring much less investment in new energy supply than the energy-intensive pathway. The study took into account the effect produced by increased energy demand that partially consumes the gains made by energy efficiency. This "rebound effect" is moderate and is drowned out by other gains everywhere, including in India and China, where living standards and mobility are rising.

RMI's *Reinventing Fire* from 2011 showed how a mix of energy efficiency and renewable energy can be cost-negative while supporting a 158-percent larger U.S. economy and slashing carbon emissions 80 percent by 2050. The new study is a valuable additional proof point for the role of energy efficiency. It is particularly valuable because of its methodological rigor and its focus on the largest emitters. The regions studied were jointly responsible for more than 60 percent of global greenhouse gas emissions in 2010. This study should make policy makers redouble their attention to energy-efficiency commitments at COP21.

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Global Carbon Emissions Could Stall In 2015

By Joshua S Hill

Source Name: *Clean Technica*

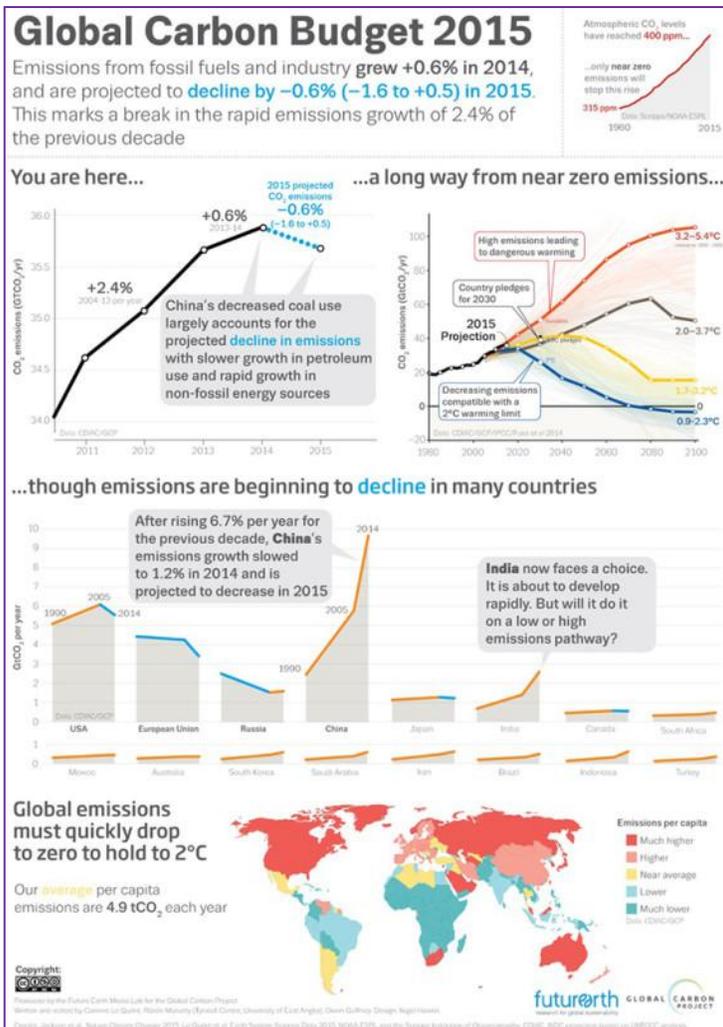
Only a few weeks after it was revealed that carbon emissions nearly stalled in 2014, new figures suggest carbon emissions could stall in 2015.

New figures from researchers at the University of East Anglia and the Global Carbon Project suggest that global carbon emissions are projected to stall in 2015. Their figures were published in the journal *Nature Climate Change*, with detailed data made available simultaneously in the journal *Earth System Science Data*. Specifically, the researchers are predicting that not only might the growth of CO₂ emissions slow or stall this year, but that there might even be a chance emissions growth would *decline* by 0.6% in 2015.

This possible decline would be the first during a period of strong global economic growth.

"These figures are certainly not typical of the growth trajectory seen since 2000 – where the annual growth in emissions was between 2 and 3 per cent," said Professor Corinne Le Quééré, Director of the Tyndall Centre at the University of East Anglia, who led the data analysis. "What we are now seeing is that emissions appear to have stalled, and they could even decline slightly in 2015.

"But it is important to remember that our projection for 2015 is an estimate and there will always be a range of uncertainty. In this case, the 2015 projection ranges from a global decline in emissions of up to 1.5 per cent – or at the other end of the spectrum, a small rise of 0.5 per cent."



The biggest emitters in 2014 were China, which accounted for 27% of the world's total emissions, the United States with 15%, the European Union with 10%, and India with 7%. But there were significant improvements on the part of these regions: Global CO₂ growth slowed to only 0.6% in 2014 according to the University of East Anglia and the Global Carbon Project (while a report published late-November by PBL Netherlands Environmental Assessment Agency brought that number down to only 0.5%); economic growth grew by 3% in 2014, further proof that there is a trending decoupling of emissions growth and economic growth; while the European Union managed to decrease its emissions by 5.4%.

"With two years of untypical emissions growth, it looks like the trajectory of global emissions might have changed temporarily," added Professor Le Quééré. "It is unlikely that emissions have peaked for good. This is because energy needs for growing economies still

rely primarily on coal, and emissions decreases in some industrial countries are still modest at best."

The next five years will be a vital time for global emissions decreases — especially across China, the US, the European Union, and India, which make up for 61% of the world's total emissions — if emissions are to peak in the early 2020s, and halt global warming in its tracks.

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The Bhopal boy set to prove David Cameron wrong on carbon capture

By Damian Carrington

The Conservative government didn't have faith in CCS and ditched a £1bn plan, but at a lab in Imperial College London, Aniruddha Sharma believes his team has hit upon a chemical that could make decarbonising fossil fuels affordable

"I have seen first hand what can happen if pollution is not controlled," says Aniruddha Sharma. The Indian entrepreneur was born in Bhopal, where his parents' wedding took place three days before the catastrophic chemical leak in 1984 that killed thousands and injured many more.

All of Sharma's extended family were in the city for the wedding celebration, he says: "Everybody was affected." Sharma says the experience is the source of his drive to tackle another great environmental crisis: climate change.

Sharma's company, Carbon Clean Solutions, is backed by £3.4m UK government funding, has a laboratory at Imperial College London and aims to make capturing carbon dioxide from burning fossil fuels affordable. The company's technology – a special chemical – is currently being evaluated at the world's biggest carbon capture test site in Norway and by companies in Europe, India and the US.

Making carbon capture and storage (CCS) work is seen as vital by both the UN Intergovernmental Panel on Climate Change and the UK's official advisers, the Committee on Climate Change. Halting global warming without CCS will be twice as costly, they say.

But the UK's Conservative government recently cancelled its £1bn CCS demonstration competition, despite an election manifesto pledge backing it and shortly before a global agreement on climate change was agreed in Paris.

On Wednesday, Angus MacNeil, the chair of the energy and climate change select committee of MPs criticised the decision as a false economy, calling it "penny wise, pound foolish". Shadow energy minister, Barry Gardiner, described it as "environmental and economic insanity".

David Cameron, who often previously cited the £1bn CCS plan as evidence of his government's green credentials, explained the U-turn to MPs on Wednesday. "In government you have to make tough choices. You have to make decisions about technology that works and technology that is not working [and] we made the right choice."

Plenty of people disagree, however. Leading figures, including former Environment Agency chair Lord Chris Smith, said this week the government's new dash for gas and in particular its fast-tracking of fracking makes little sense without CCS to capture and bury emissions.

"You will have to apply CCS to gas plants to have a hope in hell of having a decarbonised electricity supply by 2040," says Prof Colin Snape, a CCS expert at the University of Nottingham. He told the Guardian: "Without CCS making a significant contribution, it is going to make hitting any kind of climate change target very hard."

Sharma agrees: "It will be very challenging, especially for industry, to survive without CCS." He laments the government's ditching of the £1bn CCS competition: "From the macro point of view, it was not very good news for our company. When something like this happens, investor confidence is shaken."

But Sharma remains confident CCS is needed and that his company's technology will prove Cameron wrong by delivering affordable CCS quickly. "It is now without question, following the Paris climate change agreement, that CCS is going to be necessary," he says. "The UK government's decision to cancel the £1bn competition will not stop the development of CCS. Our technology can stand on its own feet with proper customer funding."

Carbon dioxide has been scrubbed from natural gas streams for decades using amines, but these are corrosive, polluting and use a lot of energy. An alternative is to use salts, but these are slow to react.

Sharma's company is in the process of patenting its chemical, which combines advantages of both and he says will cut costs to as little as £30 per tonne of CO₂ captured. In September, the company raised another £3.4m from UK investors, led by Eldon Capital Management. "The technology significantly improves the economics of CO₂ capture," says Jan Petzel of Eldon Capital.

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China's bottled water industry eyes up the Tibetan plateau

Tibet is encouraging companies to tap the Himalayan glaciers for premium drinking water, but the environmental stakes are high



Qomolangma Glacier Water bottles water from a national reserve located 80 km from Everest Base Camp Photograph: Qomolangma Glacier Water

In the last two decades China has become the world's largest bottled water consumer and a major producer. With per capita consumption 19% lower than global average, the market is expected to continue to grow.

Although it currently makes up a small proportion of China's annual bottled water production, water from Tibet's mountain glaciers is seen as the new point of growth for China's booming bottled water industry.

The snow-capped peaks of the Qinghai-Tibet plateau are perceived as a pure source of water that can command a premium price from consumers concerned about water pollution in China. This has spurred a huge influx of companies hoping to cash in on the region's water resources.

Tibet's provincial government has encouraged the expansion with a 10-year plan to help grow the bottled water industry. The long-term ambition is to be producing 10m cubic metres of bottled water by 2025, although production at the beginning of this year was reportedly just 153,000 cubic metres.



In an effort to boost growth, the provincial government in Tibet had approved licenses for 28 companies to produce bottled water by the end of last year. Bottled water activities are also growing rapidly in neighbouring Xinjiang, Qinghai and Yunnan provinces, with companies even bottling water straight from the tongues of rapidly melting glaciers.

The Everest range is also fair game. One company, Qomolangma Glacier Water, bottles water from a national reserve 80km from Everest base camp.

This is just the start of the rush to exploit the region's water resources. Last year, Tibet's provincial government signed 2.6bn yuan (£270m) deals with various investors, including the state-owned oil producer Sinopec and the Three Gorges Group, which owns in the world's largest hydroelectric power station in Hubei province.

With the support of local government in Tibet and central government in Beijing, companies have moved fast. Since early 2015 Sinopec Group has sold glacier water bottled from Tibet in its 23,000 petrol stations and convenience stores across China.

What about the environment?

In recent years, the Chinese government has strengthened policies to conserve forests and natural protection zones. Its commitment to dealing with climate change also includes actions to protect its glaciers. However, the new expansion plans in Tibet, which include preferential tax rates, tax exemptions and low-interest loans, indicate that local policies appear to be misaligned.

The region is among the places most vulnerable to climate change. According to the Chinese Academy of Sciences, glaciers in the Qinghai-Tibetan Plateau have already shrunk 15% over the past three decades. In the short term melting glaciers mean higher bottling potential but in the long term, rivers will dry up, with disastrous consequences downstream.



Tibet has begun a 10-year plan to help expand the bottled water industry. Photograph: Qomolangma Glacier Water

The Qinghai-Tibet Plateau is not only an important source of water for China but also the source of 10 of Asia's major rivers that flow on to South Asia. The region is also known as "the third pole" because it holds the largest stores of fresh water outside the north and south poles.

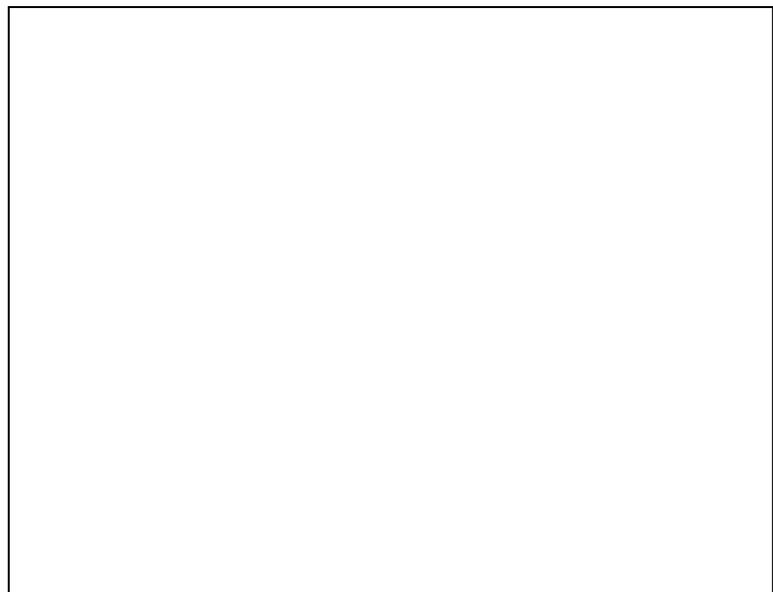
Any development could also have a major impact on the wider region's water security. Aggressive plans to build an extra 124 gigawatts of hydropower on transboundary rivers in the region have already raised geopolitical tensions with countries downstream.

If the bottled water industry runs wild, this could lead to a new set of environmental problems. There are no environment impact assessments and the majority of companies haven't released reports on water-source protection, pollution control, water efficiency or benefits for local people.

Companies that do disclose information, such as the Hong Kong-listed Tibet 5100, claim that the amount of water withdrawn from springs or glaciers is not enough to dry them up. However, is it ethical to withdraw any water from protected areas where glaciers are already shrinking and where the central government has invested billions of yuan in conserving the region for climate adaptation and mitigation?

Given the high costs of bottling and shipping glacier water to households and public facilities, as well as the high environmental costs involved, investors should start to rethink their strategies in Asia's water tower.

[<ReadMore>](#)



3 big winners of the new low-carbon age

By Mike Hower



The Paris Agreement may be bad for the fossil fuel industry, but it's good news for some low-carbon industries.

assessments of progress; and strengthening commitments every five years.

The fossil fuel industry is the clear loser, as it will have a diminished role in a lower-carbon world. Around 75 percent of known fossil fuel reserves must be kept in the ground if the world is to avert the worst effects of climate change, according to the Earth League group of leading scientists and economists.

Interestingly, several of COP21's corporate sponsors had direct ties to the fossil fuel industry, according to Corporate Accountability International. Still, the fossil fuel industry didn't appear to hold sway over leaders gathered in Paris.

The Paris Agreement sent a signal that the fossil fuel industry's days of dominance are numbered, but the writing already has been on the wall. U.S. coal is on the decline, and now it won't find a second life in developing countries. Likewise, Big Oil is facing problems — during the second quarter, Exxon and Chevron each posted the worst quarterly results of this decade, due to declining oil and natural gas prices.

But the Paris Agreement also produced many winners. By taking actions that help ensure our planet remains habitable for generations to come, we all win. As does the economy; low carbon technologies could provide \$5 trillion to \$10 trillion of business opportunities and millions of jobs by 2030, according to the WBCSD's Low Carbon Technology Partnerships initiative.

Here are three sectors set to win big:

1. Renewable energy

The obvious winner from COP21 — solar, wind and other renewable energy technologies — will be in high demand in the coming decades, as they constitute a key component of the international effort to cut carbon emissions. With energy contributing around 35 percent of global emissions, according to the EPA, solar, wind and biofuels stand to gain much in a low-carbon world.

But renewables still only account for around 10 percent of the global energy supply, according to research firm Sanford C. Bernstein, and most of that from hydroelectric power. Solar and wind account for 1.6 percent of total energy. In other words: We've got a long way to go before we can rely on renewables for all of our energy needs. But as COP21 signals to investors that renewables are the future, investment in these clean technologies is set to grow.

New investment could unlock opportunities to expand solar in the developing countries of the global South. SunPower CEO Tom Werner told The New York Times that the Paris Agreement would help open investment taps for Africa and India, where access to capital for large projects has been limited. The sheer number of countries participating means that new solar markets can open up.

The wind industry also has won big thanks to the Paris Agreement. GE and Siemens, two major makers of wind turbines, are likely to see business boom as new investment in wind power proliferates in the next couple of years.

2. Energy storage

A lack of advanced energy storage capabilities is one of the biggest barriers to large scale solar and wind energy adoption, and overcoming this will be high on the post COP21-agenda. The sun isn't always shining and the wind isn't always blowing, which is why long-lasting, quickly recharging batteries need to be developed.

Elon Musk made headlines earlier this year when he unveiled the Powerwall, an advanced home battery. The flat wall-mounted package that provides 10 kWh of storage will sell for \$3,500, storing solar energy and allowing customers to cache grid electricity from non-peak periods to use during peak times.

A larger version intended for utilities is the 100 kWh Powerpack, a scalable module that can go up to gigawatt levels at the \$250 per kWh price point. Both are set to begin production next year at Tesla's Gigafactory in Nevada.

3. The IT sector

Information communication technologies — including smartphones, networked sensors and smart grids — can help decarbonize the energy sector by allowing scientists to model climate impacts, create smarter cities and transform factories. And these technologies could generate over \$11 trillion in economic benefits per year by 2030, according to recent research by the Global e-Sustainability Initiative and Accenture.

With the Paris Agreement, the demand for tech tools for decarbonization only will strengthen. Accurately reporting national emissions is a key provision of the agreement, which information tech can facilitate.

Take Ecova's carbon management software, which helps companies approach carbon management from a variety of perspectives, depending on the drivers that affect their business. Likewise, Thinkstep's enterprise software for sustainable performance management builds upon a singular data and analytics foundation that connects to other IT systems, which companies can use for carbon benchmarking, best-practice sharing and impact assessments.

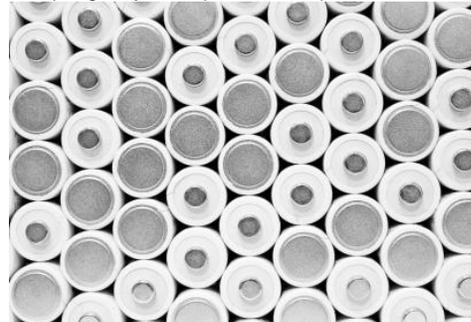
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Paris Climate Deal Expands Opportunities for Energy Storage

Storage will inevitably benefit from an international climate plan. But it's still unclear how much.

By Jason Deign

In the wake of the U.N. talks in Paris, trillions of dollars of investment in green energy had been pledged by development banks, pension funds, corporations and other investors.



Hugh Sharman, a principal at the Danish consultancy Incoteco, said much of that money might need to be earmarked for storage.

"For renewable energy to succeed as a replacement for fossil-based electricity generation, storage needs to be a significant fraction of the world's 5,600-terawatt power industry," he said. He did not project exactly how much would be spent, however.

Cosmin Laslau, a senior analyst at Lux Research, said spending on storage would inevitably increase as a result of higher penetrations of intermittent renewable energy generation.

"Essentially, COP21 is providing a helpful push -- albeit a hard-to-quantify one -- to an emerging market for renewable-tied energy storage that should eventually grow to be worth tens of billions of dollars," said Laslau.

There is growing evidence from Europe that differences in renewable energy generation do not level out over large geographic regions as much as previously thought.

A November review of European wind output posted on Energy Matters, an influential blog, shows clearly that peaks and lulls in wind resources tend to be reinforced across the whole continent, rather than canceling each other out.

"On many occasions, it is flat-calm across most of Europe, and 100 percent backup from other dispatchable sources is required," noted author Euan Mearns.

The findings contradict research by Gregor Czisch, formerly of the Fraunhofer Institute, who concluded in the 2000s that it would be possible to power all of Europe with geographically dispersed intermittent renewables.

They also cast doubt over the wisdom of strengthening interconnections across Europe. The European Commission has estimated transmission system operators need to spend €40 billion (USD\$43 billion) on grid interconnections up until 2020.

If improved connections cannot solve the challenge of renewable energy generation intermittency, then the need for storage becomes even greater.

This is already being reflected in policies for areas with lots of renewable energy, such as California, said Shawn Buckley, CEO of Focused Sun, a solar-plus-storage technology developer in New Mexico.

"When solar was 1 percent of the utility's mix, the utilities didn't care much that solar folks used them as backup on cloudy days," he said. "Now that places like California are requiring 50 percent renewables, U.S. utilities are pushing demand charges."

"But with storage, even for six hours, the solar peak at noon gets pushed to the load peak in the early evening. Everyone loves that," said Buckley.

Buckley said expanded renewables policies as a result of the international climate agreement "will free up funding for storage" as regions of the U.S. start grappling with much more intermittent generation.

Storage will be equally important internationally. However, only one of the world's top three polluters, India, made specific reference to energy storage in its voluntary target.

"One of the important areas of global collaborative research should be clean coal and fossil fuel, energy management and storage systems for renewable energy," it said.

Both of the world's top two polluters -- China and the U.S. -- already have significant battery industries and will likely keep pushing the technology.

Another three of the top 10 polluters -- Japan, Germany and South Korea -- are also starting to invest heavily in residential and grid-scale energy storage. These countries will likely see some of the strongest growth in storage adoption in the coming years.

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Teenagers Win on Climate Change in Washington State Court

SustainableBusiness.com News

Teenagers are celebrating their first big win in court, where a Washington State judge confirmed the state "has a constitutional obligation" to protect natural resources held in the public trust - in this case, protecting the atmosphere from climate change.

Eight teenagers took the state to court when the Department of Ecology refused to set science-based emissions targets, claiming they aren't allowed to regulate greenhouse gases.



Judge Hill, of King County Superior Court, issued a landmark decision which says the youth's "very survival depends upon the will of their elders to act now, decisively and unequivocally, to stem the tide of global warming ... before doing so becomes first too costly and then too late."

The State has a "mandatory duty" to regulate emissions to "preserve, protect, and enhance air quality for current and future generations," the judge writes, finding that Washington's current goals fail dramatically.

"Current scientific evidence establishes that rapidly increasing global warming causes unprecedented risk to the earth, including land, sea, the atmosphere and all living plants and creatures," the judge writes.

"It's incredible to have the court finally say that we do have a right to a healthy atmosphere and that our government can't allow it to be harmed," says 13-year-old petitioner Gabriel Mandell. "This ruling means that what the Department of Ecology does going forward in its rulemaking has to protect us, the kids of Washington, and not just us, but future generations too, like my children and those to come. Now they can't decide to protect short-term economic fears and ignore us because we have constitutional and public trust rights to a stable climate!"

"We will hold Ecology accountable every step of the way to make sure that Judge Hill's powerful words are put into action. This is a huge victory for our children and for the climate movement, says Andrea Rodgers, an attorney with Western Environmental Law Center.

Last year, youth petitioned the state to develop science-based emissions targets and strategies. When it refused to do so, they went to court, and the judge ordered the state to reconsider. But they haven't.

Similar cases are pending in Massachusetts, Pennsylvania, North Carolina, Colorado, and Oregon. 21 youth and Dr. James Hansen are suing the federal government. The petroleum industry has asked to intervene in the federal case, calling it "a direct threat to their businesses."

Imagine that, a bunch of teenagers going to court threatens the entire petroleum industry!

[Source](#)

Another Exciting Announcement: All New Cars Zero Emission by 2050.

SustainableBusiness.com News

Another exciting announcement at COP21 is the commitment to zero emission vehicles (ZEV).

13 US states and four countries signed onto the International Zero Emission Alliance (IZEA), pledging that all new passenger vehicles sold will be zero emissions by 2050.

"We will strive to make all passenger vehicle sales in our jurisdictions ZEVs as fast as possible, and no later than 2050," the pledge states.

Achieving this will accelerate the global transition to ZEVs and reduce transportation emissions by a billion tons a year by 2050, lowering global vehicle emissions 40%, says IZEA. It considers all-electric, plug-in hybrids and fuel cell vehicles as ZEVs.

Countries are: UK, Netherlands, Norway, Germany and the province of Québec. States are: California, Connecticut, Maryland, Massachusetts, New York, Rhode Island, Vermont and Oregon.

If the goal is met, 200 million ZEVs will be sold over the next 35 years in these states and countries alone. As of now, 1 million ZEVs have been sold worldwide, says HybridCars.com. Although that's a small number, it's helped battery costs drop 60%, opening the market more, according to the US Department of Energy.

The top 10 selling EVs globally are:

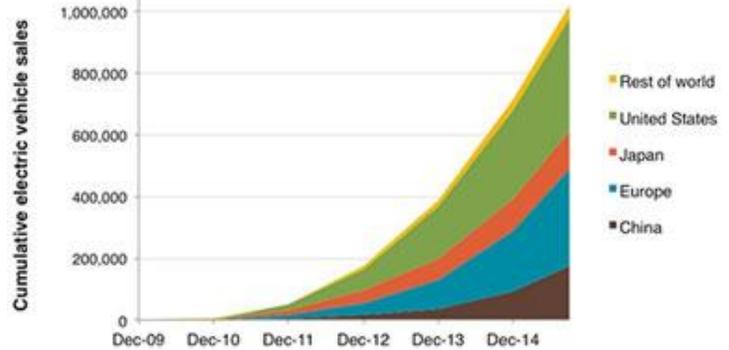
- Nissan Leaf: 200,000
- Chevy Volt: 100,000
- Tesla Model S: 85,000

Since trashing commitments to renewable energy, the UK views this as the main way to clean up air pollution in cities, and plans to invest \$906 million by 2020 to increase electric vehicle sales.

This is obviously a big deal, given that twice the number of cars are expected to be on the road by 2030 - over 2 billion! Transportation is the fastest growing contributor to climate change. It already is responsible for 25% of global emissions, with 75% coming from vehicles.

The growth is propelled by the rise of a consumer class in developing countries, with hundreds of millions of new drivers especially in China and India.

Around 235,000 electric cars are expected to sell in China this year, says the China Association of Automobile Manufacturers, surpassing the US as the world's largest market with 180,000 sold.



Greater Fuel Economy

Another important route to reducing emissions is scaling fuel efficiency - reducing the amount of carbon emitted per mile.

In the US, we now have standards for cars and light trucks to reach an average 54.5 miles per gallon by 2025. Standards are also being raised for medium and heavy-duty trucks. China is aiming for 50.1 miles per gallon, and the European Union 60.6.

Carbon intensity has already been cut 20% and can reach 50% by 2030, says Lewis Fulton at the Institute of Transportation Studies at University of California/ Davis.

But without a huge increase in ZEVs on the road, fuel economy gains will be erased by the sheer number of vehicles added over the coming years.

And incredibly, with gas prices so low, automakers have returned to fighting fuel economy standards in the US and EU, claiming they can't meet them. That's because the bulk of their sales (and promotions) are still gas guzzling SUVs and light trucks, albeit with improved fuel economy.

Another way to bring down emissions is to peak peoples' awareness. The city of North Vancouver, British Columbia voted unanimously to display mandatory climate change labels on gas pumps, as have San Francisco and Berkeley.

North Vancouver's label says, WARNING "Use of this fuel product contributes to climate change which may put up to 30% of species at a likely risk of extinction."



[Source](#)

Climate change and the Victorian bushfires: this is not a coincidence

By Cambell Klose

Climate change remains an esoteric concept for many, but for those trying to save their homes from ever-increasing bushfires, it's all too real and terrifying

The news came in mid-afternoon on Sunday that bushfires were once again threatening north east Victoria and the town of Yackandandah. Worried, I called my parents, who were right in the line of the fire according to the incredible ABC updates.



'You never feel distance as much as when your home is under threat.' Photograph: Cambell Klose

"The wind has changed suddenly and a hot northerly wind is driving the fire straight towards us. We've put the passports in the safe," mum told me.

You never feel distance as much as when your home is under threat.

It was a very anxious afternoon of constantly checking websites for updates on the fire front. Dad reported volatile winds and huge plumes of smoke until eventually the visibility got so bad that it was essentially non-existent. They were cut adrift and surrounded entirely by a surreal yellow pre-fire glow.

Fortunately the cool change came through and we could all breathe a sigh of relief. A group of "Yackandandah expats" who had been texting all afternoon and checking up on each other's families and houses got together and celebrated with some drinks and tales of previous bushfires.

The thing is, we shouldn't have so many tales to tell.

Over the past twelve years Yackandandah has been threatened by three serious bushfires. I remember back in 2003 the haze of smoke that covered the sky for weeks. School was pushed back a week because the grounds were used as a coordination point for the Country Fire Association volunteers who were fighting the blaze.

At night we would sit under the veranda and watch the red line on the distant hills that denoted the fire front, seeing it creep ever closer.

Advertisement

In 2009 I watched on in horror from overseas as the Black Saturday fires tore through Victoria, killing 173 people and destroying houses near where I live. Such was the ferocity of those fires the forests are still scorched today and struggling to regenerate.

This season started early with a controlled burn that went awry in October and destroyed five houses. October is very, very early for bushfires in Victoria.

The costs of bushfires on communities are many. There is the obvious and immediate costs of rebuilding and repairing properties. But there are wider costs that may be less obvious at first. Fires inflict a huge emotional toll on affected communities. In close knit communities like Yackandandah, chances are you will know someone who was affected by the fires.

If there is a fire, the tension between deciding to stay and defending your home, and risking your life in the process, or evacuating and leaving your home to the mercy of a fire is a deeply personal one. Once we had the car packed with our most precious belongings – for me this consisted for a few soccer trophies, for mum and dad it was photo albums and home videos that were irreplaceable – so we were ready to leave at any time for the duration of the fires.

Making this decision is a very emotional one and regardless of what you choose to do, both options are fraught with the chance of loss.

However, sometimes the worst situations can help bring out the best in communities.

Since yesterday I have watched as messages of support and offers of help pour in over social media to people whose properties were damaged by the fire. It is heartwarming to see how a community will react and rally to help those who need it after a disaster like the bushfires, like the time a spotfire broke out in our neighbour's paddock and everyone I knew was out there with shovels, portable water tankers and anything they had to help put the fire out.

If there is one thing that was reinforced to me as I tracked the course of this latest fire online, it is the important role that local media play during natural disasters, providing constant and important advice to residents during the fires. It potentially saves lives, especially the clever use of Twitter and Facebook accounts to live stream the progress of the fire and warn residents when to leave.

The issue of bushfires can't be divorced from climate change. For too many people climate change remains an esoteric concept – something that may happen to someone else in the hazy, far-off future.

Clearly this isn't the case. The effects of climate change are being felt right now and it is having real impacts on Australians and people all across the world.

This is a fact that has been stated ad nauseam, but it is worth repeating again: 10 of the hottest years on record have been since 1998. And 2015 is lining up to be the hottest on record, beating 2014, which was the previous record holder.

Increased hot, dry weather conditions are going to mean more bushfires across the country. Where I grew up in Yackandandah, we didn't experience a serious bushfire from 1988 until 2003. Since then and then there have been three. This is not a coincidence: climate change is not abstract. It is real and it is being felt right now by people I know and care about.

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Pledges at COP21 Would Restore 482,000 Square Miles of Degraded Lands

SustainableBusiness.com News

Stopping climate change takes a lot more than cutting emissions, it requires restoration of Earth's support systems - forests, grasslands, wetlands, mangroves and moving to an ecological agricultural system.

Indeed, about half of world emissions are the result of destroying ecosystems. Reviving soils and forests so they can absorb carbon would consume about 25% of world emissions. Cutting deforestation in the tropics by half in the next five years would keep global temperature rise below the dreaded 2°C, reports *Mongabay*.

While too many of these resources continue to be exploited, there's now a worldwide movement to restore them, for all creatures on Earth.

At COP21, pledges to restore degraded and deforested lands add up to 95,700 square miles in Latin America and the Caribbean and 386,000 square miles in Africa.

Initiative 20x20, a country-led restoration effort backed by conservation groups, impact investors and multilateral funders, has a goal of restoring 95,700 square miles of natural areas - about the size of England - by 2020. About \$730 million has been raised so far for the effort from impact investors and multilateral funders.

Land-use change, forestry and agriculture account for roughly 50% of the region's emissions, and over 200 million hectares are in need of restoration there, according to World Resources Institute and International Union for Conservation of Nature.

[Map of world forests with potential to be restored:](#)



Africa

A similar, but much larger effort is launching in Africa, also led by countries.

AFR100 (African Forest Landscape Restoration Initiative) has the magnificent goal of restoring 386,000 square miles across the continent by 2030. Meeting the goal would reduce 36% of Africa's annual emissions.

10 African countries have signed on so far. The World Bank has pledged \$1 billion and impact investors \$550 million for the effort. Conservation groups will provide technical support, such as the Clinton Foundation, International Union for Conservation of Nature and Jane Goodall Institute.

"The scale of these new restoration commitments is unprecedented. I have seen restoration in communities both large and small across Africa, but the promise of a continent-wide movement is truly inspiring," says Wanjira Mathai, Chair of the Green Belt Movement.

"Restoration is really Africa's gift to the world," says Dr. Andrew Steer, CEO of World Resources Institute. "It will sequester carbon and bring economic benefits to low-income, rural communities. These African leaders are turning their words into action and making a real contribution to respond to the global threat of climate change."

20 years ago, for example, women in southern Niger spent 2.5 hours a day collecting firewood - scarce in the degraded landscape - but now they prune trees on their farms instead.

Both Initiative 20x20 and AFR100 support the Bonn Challenge, a global commitment to restore 150 million hectares of land around the world by 2020; and the New York Declaration on Forests that extends that challenge to 350 million hectares by 2030, while eliminating deforestation.

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"Paris Pact on Water and Climate Change Adaptation" Announced

Source Name: Energetica - India

A broad coalition of nations, river basin organizations, business and civil society today announced the creation of the international Paris Pact on Water and Climate Change Adaptation to make water systems – the very foundation of sustainable human development – more resilient to climate impacts.

The "Water Resilience Focus" event under the Lima to Paris Action Agenda on climate change also highlighted other key partnerships and coalitions to make river basins, lakes, aquifers and deltas more resilient to climate change and reduce human interference with oceans.

Almost 290 water basin organisations are engaged under the Paris Pact on Water and Climate Change Adaptation.

Climate changes, coupled with unsustainable use of water, are causing widespread impacts on societies and economies, creating droughts, floods and warming which affect all water systems and trigger negative and often fatal impacts.

Without improved water resources management, the progress towards poverty reduction targets, the achievement of the Sustainable Development Goals (SDGs), and sustainable development in all its economic, social and environmental dimensions, will be jeopardized.

Paris Pact on Water and Climate Change Adaptation

The pact involves a wide geographic coalition of national and cross-border river basin organisations, governments, funding agencies, local governments, companies and civil society.

It encompasses individual commitments to implement adaptation plans, strengthening water monitoring and measurement systems in river basins and promoting financial sustainability and new investment in water systems management.

These major collaborative projects combined represent over US\$20 million in technical assistance and potentially over US\$ 1 billion in financing. They include:

- A financial commitment by India to build climate resilience through improved groundwater management.
- In the Niger Basin (9 African countries involved), the launch of a 10-year investment plan to strengthen resilience to climate change, with financial support from the World Bank/IDA, WAEMU, KfW, GEF and the countries themselves.
- In Jordan, Lebanon, Monaco, Morocco, Spain and Tunisia, a 7-year commitment under the Mediterranean Water Platform to assess the state and trends of water resources, supported by the European commission.
- In Morocco, a project to increase resilience of the agriculture sector through improved irrigation practice, with financing from IBRD and the Kingdom of Morocco.
- In Mexico: 4-year collaboration to improve management of water resources and water services in the Mexico Valley.
- In Peru, Ecuador, Brazil and Colombia, program Ecocuencas, a 3-year commitment to a financial mechanism for adaptation to climate change in river basins, supported by the European commission.

In China, a 3-year commitment to improve management of the Hai river basin, supported by France.

In central Africa in the Basin of Congo, the launch of a hydrological and meteorological monitoring program benefiting over 160 million citizens, with financing from AFD.

Cities Committing to Strengthen Resilient Water Systems

The Mega Cities Coalition, involving 10 megacities with 85 million people, is establishing a knowledge exchange platform and launching supporting projects.

- The World Bank Group's financial commitment of USD 200 million to enhance Water Security and Climate Resilience in Kenya's Coastal Region.
- A financing program, including 50 million euros from AFD and 15 million euros from Senegal, to protect 300 000 people from flooding Pikine, a suburb of Dakar.

Business Community Engages to Monitor and Reduce its Water Use

The private sector is mobilising a coalition of companies, including 27 which have already committed, under the Business Alliance for Water and Climate Change.

The objective is to reduce risks related to the quality and availability of water. Actions will include water impact measurement and reduction; reporting and transparency; collective action within river basins and taking stewardship of water use through the business value chain.

The alliance will take advantage of the mobilisation of global networks and individual water on the NAZCA climate action portal to monitor, scale-up and initiate other collaborative initiatives after the COP21 climate change conference.

Countries join a coalition to enhance resilience on deltas

The Delta Coalition includes 12 countries (Colombia, Egypt, Indonesia, Japan, South-Korea, Mozambique, Myanmar, Netherlands, Philippines, Vietnam, France and Bangladesh) to bring deltas to the forefront of global policy discussions, build partnerships and focus on action, aiming to increase resilience for almost 250 million people in deltas in these 12 countries.

Beyond these LPAA initiatives, a strong civil society and high level mobilisation

Civil society plays a key role in the water and climate change agenda. All actors, including NGOs, such as SIWI or the World Water Council, French Water Partnership, CLOCSAS-LAC, among others will bring their commitments to enhance water resilience. Furthermore, the Youth Commitment for Water and Climate Change Adaptation has been signed by more than 20 youth networks in the world.

Enhancing action on conservation and resilience of oceans to climate change

[<ReadMore>](#)

We've got a methane problem

By Fred Krupp

As I write this, a massive methane leak from a ruptured natural gas storage facility in California is causing, every day, as much climate damage over the next 20 years as 7 million cars on the road.

And as the climate talks in Paris continued over the weekend, The Washington Post noted an increased focus on short-lived climate pollutants such as methane. This focus is an absolute necessity: If we want to solve climate change, we have no choice but to tackle methane emissions.

According to data from the Intergovernmental Panel on Climate Change, methane pollution is responsible for 25 percent of the warming our planet is experiencing today. It has this incredible impact because it's 84 times more potent than carbon dioxide over the short term.

The largest industrial source of methane emissions is the oil and gas industry, and its environmental impact is staggering: A short-term climate impact equivalent to 40 percent of global coal combustion. That's a lot of potential benefit to the climate, if we can make significant reductions.

That math is why the danger of unchecked methane pollution also offers us such an opportunity.

Better data is on the way

The need for better methane data is something I heard a lot about several years ago when I was part of a panel looking at the environmental impacts of natural gas.

"Methane pollution is responsible for 25 percent of the warming our planet is experiencing today."

That's why Environmental Defense Fund brought together close to 50 leading academic and scientific intuitions and 50 oil and gas companies to launch 16 discrete studies to better quantify oil and gas methane emissions in the United States. More than two dozen peer-reviewed papers have been published from this effort, the latest just this week in the Proceedings of the National Academy of Sciences.

Based on this model, EDF announced a collaborative effort this week with three international oil and gas producers to work toward a series of rigorous, scientific studies to understand global oil and gas methane emissions.

What we've found so far

Studies in the U.S., Canada and Mexico indicate we can cut 40 percent of methane pollution for about 1 cent per thousand cubic feet.

And industry is confirming that meaningful reductions can be achieved for pennies on the dollar. This year, Noble Energy, a large oil and gas producer in Colorado, spent just \$3 million of its \$1 billion in capital budget — three tenths of 1 percent — to comply with state regulations that deliver a 40 percent reduction.

As a whole, the U.S. has committed to a 40-45 percent oil and gas methane reduction by 2025 while Alberta, Canada, has committed to a 45-percent reduction in the same time frame, both goals backed by regulations.

These are encouraging and necessary measures, but more is needed. The International Energy Agency said it will be a "missed opportunity" unless more governments set well-regulated methane goals.

Just as better data in the U.S. and Canada is driving and improving policies there, we hope that better global data will accelerate global oil and gas methane reductions and help the global community tap the potential of these reductions.

With existing technology, we can cut this harmful pollution while increasing the amount of energy available. If we get methane right, it can help the world transition to a cleaner, lower carbon future. If we get it wrong, it will make things a lot worse.

Ambition, data, the right regulations and commitment are required, but evidence suggests we're on the right path. If we get it right, as we can and must, we'll be closer than ever to turning the corner on climate.

[<Source>](#)



Flaring the excess methane from an offshore oil and natural gas well.

Low-carbon tech: opportunity in the trillions

By Mike Hower



Low-carbon technologies can help meet the COP21 climate change goals while nurturing economic growth.

It's not going to be easy, forging a binding international agreement capable of cutting emissions to levels scientists say will prevent the worst impacts of climate change — much less following through with it — but a joint public and private initiative from the World

Business Council for Sustainable Development claims it can get us 65 percent of the way there while sparking economic growth.

Launched last year at COP20 in Peru, the Low Carbon Technology Partnerships initiative provides a platform for businesses to play a more decisive role in helping achieve the U.N. Sustainable Development Goals.

If its ambitions are realized, LCTPi said it could help overcome market barriers and failures to create new investment opportunities and channel finance towards the low carbon economy, providing \$5 trillion to 10 trillion of business opportunities and millions of jobs between today and 2030.

Through the initiative's nine focus areas, businesses have been developing plans to catalyze the research, development, demonstration and deployment of low carbon technologies across the important areas of the economy.

Today at COP21 in Paris, LCTPi unveiled updates on each focus area. Here are the highlights from some key focus areas:

Renewable energy capacity can more than double by 2025

Solar, wind and hydropower are reliable renewable energy technologies that are increasingly competitive, LCTPi said, and 1.5 terawatts of additional capacity can be deployed before 2025. This deployment could reduce cumulative global carbon emissions by 13 gigatons by 2025 and by 35 gigatons by 2030.

To help overcome the key barriers to renewable energy growth, LCTPi recommends businesses proactively engage with policymakers and regulators to promote efficient, reliable, effective and commercially viable integration of renewable energy into grids and electricity markets. Green bonds also should be scaled up by limiting risk through more robust verification and improved transparency.

Working with corporate renewable energy buyers can help scale renewable energy procurement to substitute demand away from fossil fuels, LCTPi said. Accelerated deployment of low carbon microgrids also can promote sustainable electrification of remote areas.

Incentivize carbon capture and storage

At least 1 gigaton of carbon dioxide will need to be stored annually by 2030, according to the IEA, which would add up to between 500 and 1,000 carbon, capture and storage projects. But this is a far cry from today's meager 27 megatons of carbon stored each year — and at the current rate of deployment we would achieve only about 100 megatons by 2030.

A lack of economic incentives is stunting the growth of this technology, LCTPi said, which is why it is proposing the trial implementation a Zero Emissions Credit, or ZEC. One ZEC would be granted to a carbon, capture and storage project for each ton of carbon captured and stored, which would provide a revenue stream for the project by having value in the global marketplace. This value would come from compliance-based systems at a national level where capture and storage of some amount of carbon becomes a requirement.

Until the ZEC is widely recognized, LCTPi is calling for the creation of a provisional Zero Emissions Credit Development Fund to drive early demand.

Chemicals cuts carbon in multiple industries

As an "industry of industries," the chemical sector plays an important role in the transition to a low-carbon world, LCTPi said. Granted, the manufacturing of chemical products is associated with greenhouse gas emissions. The use of many of these products can contribute significantly to global emissions abatement in other sectors.

In the building sector, the chemical industry can provide the advanced materials for improved, cost-effective insulation; renewable energy harvesting and storage; the phasing out of critical materials; sustainable urban living and mobility concepts; zero waste building materials; and the efficient use and reuse of water, to name a few.

In the automobile sector, chemicals can help reduce emissions through lightweight composite materials, low rolling resistance tires and solar reflection windows film.

To reduce the chemical industry's direct carbon footprint, hydrogen can be generated via renewable energy and carbon dioxide use, which enables the production of various chemicals including methanol, methane and ammonia. Producing chemicals from waste and biomass also offers lower-carbon opportunities.

Increase sourcing from sustainably managed forests

The world's forests store 638 gigatons of carbon, more than the amount of carbon that is stored in the entire atmosphere. And deforestation contributes 17 percent of global carbon dioxide emissions, according to the U.S. Environmental Protection Agency, about as much as the transportation sector.

To better protect forests, LCTPi recommends promoting certification for sustainable fiber sourcing. Half of all materials in the global economy also should be made from forest-based renewable resources by 2050.

Looking at the pulp sector specifically, LCTPi said there currently are technologies in the pre-commercialization phase that reduce the emissions intensity of pulp processing by up to 70 percent, which could displace processes that use fossil fuels and free up surplus energy from biomass to be exported to the electricity grid.

[<ReadMore>](#)

Income Inequality = Climate Inequality, Says Oxfam

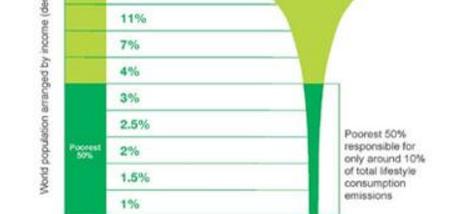
SustainableBusiness.com News

In the US, one of the major themes in our presidential campaign is income inequality between the richest 1% and the rest of our citizens. Not surprisingly, this theme also applies to climate change.

Oxfam's new report - released at COP21 - lays bare "climate-change inequality": the world's richest 1% are also the biggest polluters by far, producing 175 times the carbon emissions as people in the bottom 10% of income.

The richest 10% are responsible for half the world's emissions, while the poorest half - roughly 3.5 billion people - produce only 10% of all emissions.

And the poor are - and will - be most negatively affected by climate change. They can't move to safer ground or even insulate their homes the way rich people can. They tend to live in countries with the least capacity to adapt.



"Climate change and economic inequality are inextricably linked and together pose one of the greatest challenges of the 21st century," says Tim Gore of Oxfam.

Another report, "Carbon and Inequality: From Kyoto to Paris" comes to the same conclusion. "It is the rich Europeans, Americans and

Chinese that emit the most carbon, while the emissions from the world's poorest citizens are falling. The richest 1% of Americans, Luxembourgers, Singaporeans and Saudis emit more than 200 tonnes of carbon per person per year; 2,000 times more than the poorest in Honduras, Rwanda or Malawi," says author French economist Thomas Piketty (who wrote the best seller, "Capital").

Both Oxfam and Piketty conclude the rich should be held accountable for emissions, no matter where they live.

Oxfam points out that the super rich in developing countries like China, India, Brazil and South Africa have high and rapidly rising emissions, but are still "behind" their advanced country counterparts .. and they will soon catch up.

Oxfam says:

"While the richest citizens can and should contribute as individuals to cutting their own emissions through lifestyle changes, wherever they live, they can't solve the climate crisis through voluntary action alone. Their choices are often constrained by the decisions of their governments in all sorts of areas, from energy to transport policy.

"Without question, a weak agreement in Paris is no more in their interests than it is in the interests of the poorest and least responsible. Increasingly members of the richest 10% are experiencing the impacts of climate change themselves, and are mobilizing to demand action from their governments.

"The only beneficiaries of inadequate climate action in Paris and beyond are a much smaller elite with vested interests in the continuation of a high carbon and deeply unequal global economy. The number of billionaires with interests in fossil fuel activities has risen from 54 in 2010 to 88 in 2015, while the size of their combined personal fortunes has expanded by around 50% from over \$200 billion to more than \$300 billion."

Green Climate Fund

Perhaps you can understand then, why poor nations demand financial assistance from advanced nations, which are responsible for the lionshare of emissions.

Poor nations haven't caused the problem but they are most vulnerable to it. They need help to adapt so their people can live.

And the world can't afford ANY more emissions, so developing countries must get assistance to leap frog to renewable energy instead of using coal.

[<ReadMore>](#)

The Beijing bar where the beer gets cheaper as the smog gets worse

A look at the Beijing businesses turning the city's heavy pollution to their advantage: from bars offering air purifiers and cheap beer to companies selling 'pollution fighting' juices

By Jamie Fullerton in Beijing

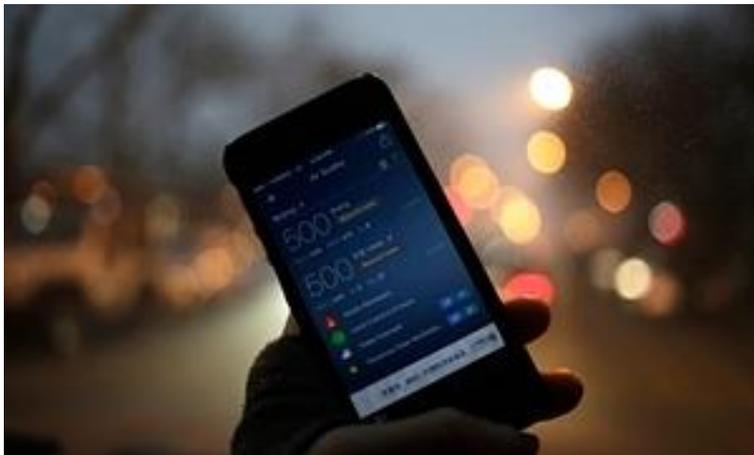


A visitor takes a photo in Tiananmen Square during heavy pollution in Beijing on December 1, 2015. Smog is being blamed for recent downturn in tourists. Photograph: Wang Zhao/AFP/Getty Images

Saturday night at The Distillery, a small bar tucked away in a warren of narrow lanes in Beijing's city centre. The place is almost empty – a few people sit at the bar sipping cocktails and moaning about pollution. "It's a bad smog day so people aren't coming out," says Bill Isler, the American bar owner, buffing glasses through boredom. Conversations in the bar revolve around the smog and the near-constant cloud it causes across the Chinese capital.

Stepping out of the bar, the smoky tang of polluted air instantly hits the back of the throat while visually, the haze creates an apocalyptic vibe. China's Ministry of Environmental Protection's (MEP) air quality index (AQI), the official measure of harmful pollutants in their air, has averaged over 400 micrograms per cubic metre for most of the day. China has weaker severity classifications for air pollution, but according to the World Health Organisation a measurement over 300 indicates a "severely polluted" atmosphere in which the public is advised to not go outside. The WHO puts the safe level at 25.

The city is currently experiencing its worst spell of air pollution of 2015. The environmental and health impacts to China of these high levels of air pollution are well documented, but it has direct impacts on businesses in the country too.



Reading on an air quality monitoring app on 1 December 2015 in Beijing. Photograph: How Hwee Young/EPA

In 2013 the MEP issued guidelines for businesses about how to tackle pollution, including suggestions that workers could take annual leave for smog days or work from home, but the measures were not mandatory. While there are legal limits for work environment factors such as temperature, companies are protected from loss of productivity due to smog by this lack of recognition. Some foreign companies such as Japanese electronics giant Panasonic, meanwhile, offer a "pollution allowance" to foreign workers they base in Beijing to tempt them to stay there.

The tourism industry is particularly vulnerable, with many believing that news reports about smog-cloaked Chinese cities have contributed to the recent downturn in international tourists visiting the country.

"The branding of China is all around the Great Wall and Forbidden City near and inside Beijing, which is now covered in smog," says Roy Graff, managing director of tourism advisory firm China Contact. "International tourists see that and attribute it to all of China, even though in the west of the country the air is pretty good."

As such, hotels in polluted cities are increasingly marketing themselves towards domestic tourists and international business travellers, who visit China regardless of pollution levels. Tour companies are acting too. "No tour operator would admit it on record, but I've found that many that have focused on China are now selling more trips to south-east Asia to offset the downturn," says Graff. "They're diversifying to keep turnover up."

The food and beverage industry is also affected. The marketing team of Mosto, a western-style restaurant in Beijing's busy Sanlitun shopping area, estimates it has a 30% decrease in walk-in business when the AQI is high. Nearby craft beer bar Jing A, a large venue usually packed with ale-swilling customers, saw trade drop by around 30% in early November during a week of particularly bad smog.

However, when pollution peaks and people stay indoors to avoid it, some food delivery services enjoy sales spikes.

Dao Jia, a meal delivery company that employs around 3,000 people across 10 Chinese cities, sees business increase by around 15% when the AQI is high. It's a particularly busy time for them now in Beijing. "In winter here, the public heating system that uses a lot of coal kicks in, so air pollution is heavier compared to the summer," says Sun Hao, CEO of the company. "It really helps us with order volume."



Visitors walk outside the National Stadium in Beijing on 1 December 2015. Photograph: Kim Kyung-Hoon/Reuters

Sherpa's, a smaller meal delivery firm that operates in Beijing, Shanghai and Suzhou, reports a sales spike of up to 30% on high pollution days in the capital. Founder Mark Secchia says that the industry has a history of profiting from depressing trends. "In terms of tragedies ironically helping business, one of the main things that really helped Sherpa's was the SARS outbreak in 2002," he says. "We quadrupled sales because people didn't want to leave their houses."

Other food businesses in China are also finding silver linings in having to operate in a smog cloud. Carrefour, the French supermarket chain, recently ran adverts in the Beijing media trumpeting its first green store in the city, featuring an air cleaning system and electric car charging stations. Staff at Moka Bros, a health-orientated sister restaurant to Mosto, claim it enjoys decent sales during smog days as customers crave healthy food and share photos of their meals on WeChat, China's hugely popular messaging app.

Some actively use pollution as a marketing springboard. Isler, The Distillery bar owner, has air purifiers in his two bars that reduce AQI indoors to around a third of outside levels. When the smog intensifies he sends a message to his bar's WeChat contacts: "Kill your liver, not your lungs, breathe clean air while you drink."

Juice By Melissa, an organic juice company, sells "signature pollution fighting juices" at a discount when the AQI is over 200. Jing A, meanwhile, serves a suitably bitter "Airpocalypse" beer that gets cheaper on a sliding scale as the AQI increases. "We have eight air purifiers pumping and close all the doors," says co-founder Kris Li. "It's not enough to offset the loss smog causes but people do come looking for it. They show us their phones with AQI apps, asking for discounts."

Living in a city as polluted as Beijing can grind. But it seems that increasingly small businesses – and the capital's bargain-hunting boozers – are making the best of it.

[<ReadMore>](#)

US to work with India, China on climate change



Responding to Indian Prime Minister Narendra Modi's "not our fault" message on climate change, the US said President Barack Obama has signalled a willingness to work with India and China for an ambitious climate change agreement.

Obama had "very constructive" meetings Monday with Modi and Chinese President Xi Jinping in on the sidelines on Paris Climate Summit, deputy National Security Advisor Ben Rhodes told reporters in Paris.

"Now, today, very deliberately, President Obama wanted to send a signal with his meetings that we were going to work with China and work with India to pursue an ambitious agreement here in Paris," he said, according to a White House transcript.

The US had helped to mobilise "a truly global effort" over the course of the last seven years with a recognition that "we needed to bring together the entire world, including major emerging economies like China and India", Rhodes said.

"Given the fact that they are more and more the source of carbon emissions, clearly we have felt throughout the course of this administration that China and India need to be a part of the solution," he said.

"I think you heard Prime Minister Modi reiterate with the President his commitment to pursuing an ambitious agreement," Rhodes said, noting, "India has put forward its own targets."

In his meeting with Modi, Obama said "that he certainly understands that whether it's India or another developing country, there has to be a focus on making sure that countries can continue to lift people out of poverty."

"We have a recognition, of course, that you have hundreds of millions of Indians who don't even have access to electricity," Rhodes said.

"At the same time, however, we can pursue an ambitious climate agreement even while India pursues an ambitious development policy," he said. "And, in fact, we can pursue the types of solutions that can meet both climate and development challenges."

Noting that Modi had later joined Obama at the US Mission Innovation event, Rhodes said this "demonstrates a recognition on the part of India and other countries" about making investments in basic research.

"If we are financing both from the public sector but also from the private sector renewable sources of energy, that has the ability to help us raise our ambitions in terms of reducing our emissions, but also can, frankly, be a source of development for countries like India and other countries around the world."

"So I think, with Prime Minister Modi, there was a recognition and a commitment to pursuing an ambitious agreement here in Paris."

In both meetings, Obama clearly "made the point that addressing the challenge of climate change and pursuing sustainable economic development that lifts people out of poverty around the world are not competitive goals."

"In fact, they can be mutually reinforcing. And I think US leadership in working with our traditional allies but also working with China and India is going to be essential to getting a good deal here in Paris," Rhodes said.

As Obama himself acknowledged "advanced economies have important responsibilities, that the whole world has to be a part of this," he said. "And you can't have a bifurcation of our commitments in these various areas that prevents consensus."

Asked to draw a metaphor for how there's the tie between the war on terror and climate change, Rhodes said: "They're very different threats, but they're both very serious. And we have to deal with both them."

"And I think the one common thread is the fact that we need the world with us in this effort."

Arun Kumar / IANS

[Source](#)

Zero Emission Green e-rickshaws To Hit Indian Streets Soon

By Richa Sharma



E-rickshaws are common place nowadays. But do you know that this automobile category is worth Rs 50,000 crore? And OK Play is planning to tap the business potential of e-rickshaws its next-gen, environment-friendly Green E-Rickshaws.

The company, which is so far known in the field of Roto-Moulded plastics, will foray into the automobile industry with these green e-rickshaws.

These will be India's first zero emission Green e-rickshaws that will be manufactured in India. According to OK Play India Limited's managing director Rajan Handa, the bodies of these e-Rickshaws will have a multitude of advantages over the conventional steel bodies such as: these lightweight, maintenance-free ricks can be moulded in a wide range of light fast permanent colors. Interestingly, these e-rickshaws will have over 90% Indian components unlike the other alternatives that have almost 95% Chinese components.

Wondering why OK Play chose e-rickshaws as a segment to make a big foray in Automobile Industry? Rajan Handa said, "The transition was natural as for over 2 decades now, OK Play India Ltd. has been ingeniously using the Roto- Moulded plastics process and has the expertise to create world class, environment friendly...products that excel in both safety and quality. Hence, the decision to choose e-rickshaws to foray into automobile industry by launching next generation, first ever 100% Made In India, zero pollution, most safe, Green e-rickshaws for intra-city transport."

One can't really claim if OK Play would be able to make the most of this recent move, but this indeed is good news for commuters as these rickshaws will contribute in creating a pollution-free world.

(Image Credits: Indiatimes)

[Source](#)

IISc develops solar hybrid desalination system

Source Name: The Hindu

The desperation is not entirely unknown in Peninsular India, where, even with seas surrounding the land on three sides, water often eludes parched tongues.

With desalination — that involves converting saline sea water to potable water — being out of reach currently for the shallow pockets of the government, researchers of Indian Institute of Science (IISc) have hit upon the idea of utilising copious solar energy in the South to reduce the costs of the process.

Ravinder Kumar and Umanand L., from the Department of Electronic Systems Engineering at IISc, have developed a solar hybrid desalination system that works for saline and brackish water. The process described in the *International Journal of Low Carbon Technologies* shows that at its peak (around 27 degree C) could the system can purify nearly 6.5 litres of saline water per sq.m. of the instrument in six hours of use (tested between 9 a.m. and 3 p.m.).

The stepped solar-still, comprising of semi-circular pipe sections welded progressively one next to the other so as to maintain a constant slope was fabricated to serve as the water channel basin. Vacuum jackets were provided to minimize thermal losses. The instrument could hold between 3 and 4 litres for treatment. During the experimentation, solar intensity was observed at 718.76 Watt per sq.m. With the set-up ensuring pressure was high within, saline water saw evaporation at temperatures lesser than 100 degree C. Water was further pumped in and out using photovoltaic cells as a source of energy — making the instrument self-reliant.

Mr. Kumar believed the system met the major objectives of desalination system: to reduce life span cost, while meeting performance requirements. "This system shows promise that the problem of clean drinking water can be solved in any coastal area where seawater and sunlight are available freely," he said.

[Source](#)

120 Countries Sign Up for International Solar Alliance

SustainableBusiness.com News

During his opening remarks at the Paris Climate Summit (COP21), India Prime Minister Modi announced the **launch of the International Solar Alliance**.

Speaking about the 120 countries already signed up, Modi says: "What we are putting in place is an avant garde of countries that believe in renewable energies. What we are showing here is an illustration of the future Paris accord, as this initiative gives meaning to sharing technology and mobilising financial resources in an example of what we wish to do in the course of the climate conference.



Countries signed a Declaration to launch the Alliance, which includes the incredible goal of mobilizing \$1 trillion for the effort by 2030 - to deploy 1 terawatt of solar.

It says, "United by our objective to significantly augment solar power generation in our countries, we intend making joint efforts through innovative policies, projects, programmes, capacity building measures and financial instruments to mobilize more than 1000 Billion US Dollars of investments that are needed by 2030 for the massive deployment of affordable solar energy."

The goal is to spread solar across the developing world through concerted efforts that cut the costs of solar technology and financing. The Alliance will be based at India's National Institute of Solar Energy and run by an international steering committee. Modi hopes to raise an initial \$400 million from membership fees.

"We intend working together towards the development of appropriate benchmarks, facilitating resource assessments, supporting research and development and demonstration facilities, with a view to encouraging innovative and affordable applications of solar technologies," the Declaration says.

Terrawatt Initiative Launches

A parallel effort also launched - The Terrawatt Initiative - which will work with the Alliance to establish the "proper regulatory conditions for massive deployment of competitive solar." This private sector initiative will mobilize financial and corporate support for the Alliance.

It will identify the best regulatory practices that can lead to fast and cost-effective deployment, help countries implement them, and develop and manage an online marketplace for solar financing.

"The ambitions of the International Solar Alliance seem perfectly achievable and respond to a strong expectation from the market. Indeed, resources from solar are well-known, technology is available, capital is abundant. Everything is ready to make this momentum concrete, as soon as the regulatory framework is there. What we need is a solar common market. The private sector is willing, with great impatience, to enter now at full speed into the energy transition and design economic strategies to bring large scale solutions to the world, be it technology providers, financiers or energy companies like ENGIE," says Gérard Mestrallet, ENGIE CEO, who is behind the initiative.

"Solar technology is evolving, costs are coming down and grid connectivity is improving. The dream of universal access to clean energy is becoming more real. This will be the foundation of the new economy of the new century," says Modi.

It could be key to achieving one of the UN's sustainable development goals: achieving universal access to renewable energy by 2030.

"The idea is that larger markets and bigger volumes will lead to even lower costs, making it possible to spur demand," explains Ajay Mathur, India's senior negotiator and at the Paris summit.

In addition to the main goal of massively increasing Indians' access to energy, Modi wants India to deliver the technology at home and elsewhere, rather than allowing companies from advanced nations to carve up the enormous market.

The Alliance is officially called the International Agency for Solar Policy and Application.

[<Source>](#)

Centre makes waste segregation compulsory

Source Name: The Times of India

Waste segregation will now be compulsory when leaving doorsteps. The Union ministry of environment and forest (MOEF) has decided to make it compulsory for waste generators to segregate waste produced by them. In its draft solid waste management rules, the MOEF has stated that state governments will form their own waste management policies for state-level implementation.

The ministry has also banned littering and open burning of solid waste in dumpyards under its jurisdiction. The ban is to be implemented within six months.

The ministry has fixed deadlines for implementing the guidelines. Cities which have more than 10 lakh population will have to implement the guidelines within 18 months, while those with populations between five lakh and 10 lakh will get two years' time.

The new rules state that every waste generator will be required to pay user fees, as may be prescribed by the urban local body from time to time, to the waste collector or any person authorized by the urban local body.

The MOEF stated that the secretary-in-charge, urban development department, in states or Union Territory, commissioner or director of municipal administration or director of local bodies, district collector or deputy commissioner of district in state or Union Territory, members of Central and state pollution control board, and members of urban local bodies will be members of the monitoring body for implementation of the guidelines. The rules further state that segregated solid waste collected from the doorstep has to be transported directly to respective waste processing facilities and the same shall not be segregated at any other place. The MOEF said that all the old and open dumpsites and existing open rational dumpsites shall be carefully investigated and analyzed for their potential of bio-mining and bio-remediation and actions should be taken wherever found feasible.

[<Source>](#)

India to allow ethanol-only vehicles; response to be muted

By Mayank Bhardwaj

India will soon allow automakers to manufacture vehicles that can run entirely on ethanol, but adoption is likely to be slow as the country has not been able to source the sugarcane by-product even for its current low gasoline-blending targets.

Transport minister Nitin Gadkari's announcement to push the cleaner-burning fuel came on the day the Supreme Court of India slapped a temporary ban on the sale of big diesel cars in the world's most polluted city, New Delhi.

"Ethanol is the next big thing and Brazil has already shown the way in terms of running vehicles on the biofuel," Gadkari told a conference of sugar mills.

"The step will not only reduce our dependence on crude oil imports but also help reduce pollution."

The ethanol vehicles will have the flexibility to switch to other fuels, the minister said, adding that more details would be available by Jan. 26.

Shares of Indian ethanol maker Praj Industries jumped more than 13 percent to their highest in about two months in a flat Mumbai market on the news.

Car makers, however, believe the country does not have the infrastructure to launch ethanol-only vehicles. India does not allow imports of ethanol and sugar companies prefer to sell the biofuel to better-paying liquor companies.

"It is very far-fetched ... you can't expect global carmakers to start working on that just for you," said Deepesh Rathore, director at consultancy Emerging Market Automotive Advisors. "Blend is fine, because there are other countries which are running on that. Up to a 20 percent blend is a practical solution."

India, the world's third largest oil consumer, currently wants every liter of gasoline sold to be mixed with 5 percent of ethanol and hopes to eventually raise this level to 10 percent. But actual blending has not climbed above 3 percent.

A local tender issued by refiners Bharat Petroleum Corp, Indian Oil Corp and Hindustan Petroleum Corp in August seeking 2.7 billion liters of ethanol managed to secure only 1.03 billion liters, sources said.

While the Indian Sugar Mills Association has said it is ready to double ethanol supply to 1.25-1.30 billion liters in 2015/16, this would still be far below the current blending requirements even if none of it was sold to liquor makers.

Another reason oil companies find it hard to source ethanol cheaply is the high state duty it attracts because of its use in the heavily taxed liquor industry.

[<Source>](#)



India's Transport and Shipping Minister Nitin Gadkari is pictured in his office in New Delhi, India, August 26, 2015. REUTERS/ANINDITO MUKHERJEE/FILES

Energy Efficiency Top Weapon In Fight Against Climate Change

By Ulrich Spiesshofer, CEO of ABB

One might think – after years of focus on global warming – that all the easy measures for reducing greenhouse gas emissions had been taken. And yet, as governments attend the 21st annual conference on climate change (COP21), some surprisingly low-hanging fruit remains.



Image from an exclusive CleanTechnica interview with ABB CEO Ulrich Spiesshofer.

I don't mean small fruit, either. I'm talking about big, high-yield fruit. Consider this: fitting energy efficient electric motors on all pumps and fans with devices to regulate their speed would save 3,338 TWh (3.3 million GWh), roughly equivalent to the amount of electrical energy produced in the EU in 2013*.

The opportunity is so huge because electric motors are among the biggest consumers of energy. They power all manner of equipment and account for about 40% of all electricity consumed worldwide. In the European Union (EU), they are responsible for about 12% of total CO2 emissions, second only to space-heating products**.

In recent years the EU, along with several other countries, such as the United States and China, has imposed new rules requiring older, energy-hungry motors to be phased out. These rules, known as Minimum Energy Performance Standards (MEPS), specify the minimum acceptable efficiency levels of a product, defining which products can be marketed and sold. Typically, these MEPS become more stringent over time. In the EU, for instance, rules requiring a higher efficiency class of motors came into effect in January 2015.

MEPS in Europe and their equivalents in other countries will ultimately lead to the upgrading of the installed base of electric motors. However, at the current pace of implementation, and taking account of loopholes and enforcement issues, they will likely fall short of the energy savings needed to achieve climate goals, especially given that global energy consumption is expected to increase by 30% over the next 15 years.

One reason is that MEPS specify the efficiency of individual products, in this case electric motors, rather than the efficiency of motor systems. No matter how efficient a motor is, if it cannot regulate its speed according to load, it will always be operating at full throttle. Legislation is gradually changing to take account of this – for instance, EU rules that came into force in January 2015 specify that certain (less-efficient) motors must be able to adjust their speed. But only around 10 percent of motors in service worldwide are currently equipped with (variable speed) drives that allow them to do this, even though the energy savings can be substantial – up to 50% in some cases*.

Another challenge is to establish common MEPS globally. Again, progress is being made in this area, with more and more countries moving towards harmonized standards, but much remains to be done. A recent study commissioned by the European Commission*** concluded that, if the most stringent current MEPS for product energy efficiency were harmonized today, global final energy consumption would be 9% lower, and energy consumption due specifically to products would be 21% lower. This would save 8,950 TWh of electricity, equivalent to closing 165 coal-fired power plants, or taking 132 million cars off the road.

The clock is ticking on climate change. The weight of scientific opinion is that we don't have much more time to turn the tide on emissions, otherwise it will not be possible to limit global warming to two degrees above pre-industrial levels, which is considered the maximum temperature rise we can sustain without triggering potentially catastrophic climate events.

Of all the actions that can and are being taken to limit carbon emissions and mitigate the effects of climate change, none holds out more promise than improving energy efficiency. There are numerous measures that can be undertaken immediately, without fear of harming economic growth; indeed, since most investments in energy efficient technology are paid back within a year or two through lower energy costs, they can significantly boost competitiveness and through the replacement of old equipment generate additional economic activity. Fruit doesn't hang much lower than this.

* Calculation is based on ABB's installed base of variable speed drives, which covers around 20% of the global market and is estimated to be saving some 445 TWh of electricity annually.

** Source: European Commission

*** "Savings and benefits of global regulations for energy efficient products", European Union, September 2015

Tata Power launches special AC Exchange programme in Mumbai to promote energy efficiency

By Moulin Oza, Energetica India

Tata Power has announced that it has launched 'Energy Efficient 5 Star Split AC New Purchase and Exchange Programme' to allow consumers to exchange their inefficient electrical appliances for energy efficient appliances and motivate them to associate with and contribute to ensuring a greener and sustainable planet in a more integrated fashion.

As part of the 'Be Green' initiative to promote the use of energy efficient appliances, the programme aims at unifying consumers in the green movement. The programme has been designed with the objective of helping consumers save energy without compromising on their comfort and manage the increased power demand in Mumbai. Under this scheme, Tata Power consumers may purchase a new BEE 5-star rated split AC or exchange their non-star ACs for BEE 5-star rated split ACs and avail a discount of up to 50 percent on MRP for various models of branded ACs upto 1 Ton, 1.5 Ton capacity. Initiated by Tata Power in partnership with Godrej, the program offers attractive discounts, newer advanced AC models and energy efficient Inverter Technology-based AC models.

Speaking on this initiative, Mr. Ashok Sethi, COO and Executive Director, Tata Power, said, "Tata Power believes that the watchword of our times is 'Green' and 'Evolution'; together comprising the inspiration that green is the only way to evolve. We are dedicated to the cause of green and aim to set new benchmarks through our care for consumers, the planet and its future. It is with this mindset, that Tata Power has launched programmes for all residential appliances like bulb, Tube Light, Ceiling fans, AC and Refrigerator. Our DSM programmes have been implemented post extensive load research, understanding the consumer load curve, time of use, ownership of electrical goods, load profile and affordability of energy-efficient products. We are receiving overwhelming response for the programmes and have always endeavored to provide world class services to our customers."

The offer price of the Energy Efficient 5 Star Split AC Programme includes machine cost, taxes, duties, standard installation charges and buyback of an old AC which will be scrapped in an eco-friendly manner.

Recently, Tata Power also implemented the LED tube light program for its residential consumers to promote the use of highly efficient LED technology amongst households. Under this programme, each residential consumer is eligible to procure 5 LED tube lights fittings at a price of Rs.525/- each, against a market price of Rs.1325/- each. The products are eligible for home delivery and comes with an exclusive three year warrantee.

<Source>

IISc scientists develop solar cooking device

Bengaluru, DHNS:

Scientists from the Indian Institute of Science (IISc) have developed a device whereby "solar energy can be directly brought to the kitchen" paving the way for the use of clean energy for cooking.



The hybrid device transfers solar energy to the kitchen using a solar thermal collector to store the solar energy. Explaining the functioning of the device, a release from IISc said: "The device transfers solar energy to a curved concentrating collector that absorbs the energy and increases the temperature of heat transfer fluid. The fluid is of a special kind whose temperature can go up to 300°C and is stored in a thermally insulated tank. A heat exchanger is positioned

in the kitchen which transfers the heat from the fluid to the food that is meant to be cooked. A pump is used to regulate the heat transfer from the collector to the heat storage tank."

While there are already solar cookers, a number of problems crops up - they can only be used during periods of clear skies, the rate of cooking cannot be controlled, etc, the release said.

Dr Prasanna U R, along with Dr L Umanand, from the Centre for Electronic Design and Technology, IISc, has developed the device. "This cooker can also be used indoors within the kitchen, reducing use of conventional energy. It can be used at any time of the day or night," said Prasanna.

This device allows heat to transfer from the solar collector to the food meant to be cooked at an optimal rate. Despite the apparent advantages of the hybrid solar cooker, scientists say that certain challenges in the technology persist.

"People still need to design this device better so that everything can be installed at home cost effectively and quickly," he said.

<Source>

<ReadMore>

Forthcoming Events



6th International Conference on Environment and Industrial Innovation (ICEII 2016) will be held in Singapore at Hotel Royal during March 12-14, 2016. The aim objective of the 2016 International Conference is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Environment and Industrial Innovation. This conference provides opportunities for the delegates to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration. ICEII 2016 is the premier forum for the presentation of new advances and research results in the fields of theoretical, experimental, and applied Environment and Industrial Innovation. The conference will bring together leading researchers, engineers and scientists in the domain of interest from around the world.

Topics of interest include Catalysis and Environment, Environmental Biotechnology, Environment management, Environmental Chemistry, Environmental Engineering, Environmental Planning of Mines, Environmental Pollution Control, Industrial pollution, Renewable Energy, Wastewater Quality Modelling and Wind engineering. Keynote speakers at the conference shall be Prof. Ki-Hyun Kim, Department of Civil & Environmental Engineering, Hanyang University, South Korea and Prof. GAUTAM SETHI Department of Pharmacology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.

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4th International Conference

on

Advances in Bio-Informatics, Bio-Technology and Environmental Engineering - ABBE 2016

17-18 March, 2016

Birmingham (UK)

The Fourth International Conference on Advances in Bio-Informatics, Bio-Technology and Environmental Engineering - ABBE 2016 will be held during 17-18 March, 2016 at Birmingham City University (City North Campus) Birmingham, UK. ABBE 2016 is being organized by institute of Research Engineers and Doctors to bring together innovative academics and industrial experts in the field of Bio-Informatics, Bio-Technology and Environmental Engineering to a common forum.

ABBE-2016 will provide an excellent international forum for sharing knowledge and results in Bio-Informatics, Bio-Technology and Environmental Engineering. The aim of the Conference is to provide a platform to the researchers and practitioners from both academia as well as industry to meet the share cutting-edge development in the field.

The primary goal of the conference is to promote research and developmental activities in Bio-Informatics, Bio-Technology and Environmental Engineering. Another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working in and around the world. The conference will be held every year to make it an ideal platform for people to share views and experiences in Bio-Informatics, Bio-Technology and Environmental Engineering and related areas.

Invited speakers at the conference are Dr. Mladen Rajko, University of Zadar, Croatia, Prof. Dr. Ing. Stefan Kartunov, Technische Universitat-Gabrovo, Bulgaria, and Dr. Dariusz Jakóbczak, Koszalin University of Technology, Poland.

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SUSCON 5, 2016

5th Annual International Conference on Sustainability

Inspiration, Innovation & Inclusion

March 17-19, 2016

Shillong (Meghalaya)

The forth coming 5th Annual International Conference on Sustainability will be held at IIM Shillong during 17 to 19 March 2016 at their campus. The main themes of the conference are Inspiration, Innovation and Inclusion. The conference is expected to attract participants from different parts of the country as well as delegates from other countries.

The topics of interest include important topics like: Sustainability Development Agenda 2030, Green Economy for Sustainable Development, Energy for the Future, Water Resources: Crisis and Management, Environment, Climate Change Impact Mitigation and Adaptation, Sustainable Supply Chain Management, Governance and Ethics towards sustainability, Sustainability: The Role of Social Media, Leadership and the Spirit of Sustainability, Micro-finance & Micro-credit for Sustainable Development, Sustainable Innovation and Ecopreneurship, Green manufacturing and Traditional Wisdom on Sustainability.

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2016

International Conference on Sustainable Waste Management (ICSWM 2016)

March 26-28, 2016

HONG KONG

2016 International Conference on Sustainable Waste Management (ICSWM 2016) will be held in Hong Kong during March 26-28, 2016. Science and Engineering Institute host this conference. It is a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Sustainable Waste Management.

We aim to provide opportunities for the delegates to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration.

Topics of interest are following but not limited to:

- Industrial waste
- Reduce, reuse, recycle and recovery (4Rs)
- Energy from waste
- Environmental remediation
- Waste processing
- Agricultural waste
- Environmental impact
- Source separation schemes for solid waste
- Biological treatment techniques (composting & anaerobic digestion)
- Recycling
- EU policies and strategies for solid waste management
- Solid waste prevention techniques
- Household solid waste treatment technologies
- Socio-economic issues related to solid waste management
- Household solid waste collection techniques
- Integrated management in islands & other isolated areas
- Characterization of waste residues
- Energy from Waste (biomass, oil sludge, syngas, etc.)
- Decision support tools in the waste management field

Prof. Charles M. Falco, University of Arizona, USA, Prof. David Lin, National University of Tainan, Taiwan, Prof. Chawalit Ratanathamsakul, Chulalongkorn University, Thailand, Prof. Danny Sutanto, Australian Power Quality & Reliability Centre, University of Wollongong, Australia and Prof. Frank Gunzer, German University in Cairo, Egypt.

[<ReadMore>](#)

Sustainable Energy & Technology Asia (SETA 2016)

23rd to 25th March 2016

Bangkok

SETA 2016 International Conference and Exhibition will be held in Bangkok, Thailand during 23rd and 25th March 2016. The conference is scheduled to be held at BITEC (Bangkok International Trade and Exhibition Centre). The SETA 2016 aims at bringing together planners, regulators, researchers, engineers, scientists, economists, operators, manufacturers, industry, scholars, etc., to exchange and share their experiences in research, planning, implementing and operating energy systems.

The Conference and Exhibition will be an ideal platform for participants to share views and experiences as well as to discuss the practical approach to sustainable uses of energy in the Region. The topics of the Conference will cover the whole spectrum of energy use from electricity generation to transport, from industrial use to household use. Topics have been grouped under four themes viz.: Energy Policy & Planning, Electrical System Technologies, Transportation & Alternate Fuels, and Sustainable Energy and Green Technology.

Although it may seem very diverse, the Conference will focus on important issues and topics. Practical solutions are expected to be reached at the end of the Conference. Apart from Thailand speakers from China, France, Germany, India, Japan, Malaysia, Singapore and United States of America shall give their deliberations at the conference.

[<ReadMore>](#)

The Times of India, Delhi dated
November 26, 2015

'2015 to be hottest year ever, warming to continue in 2016'

Announcement By UN Comes 5 Days Ahead Of Climate Summit

TIMES NEWS NETWORK

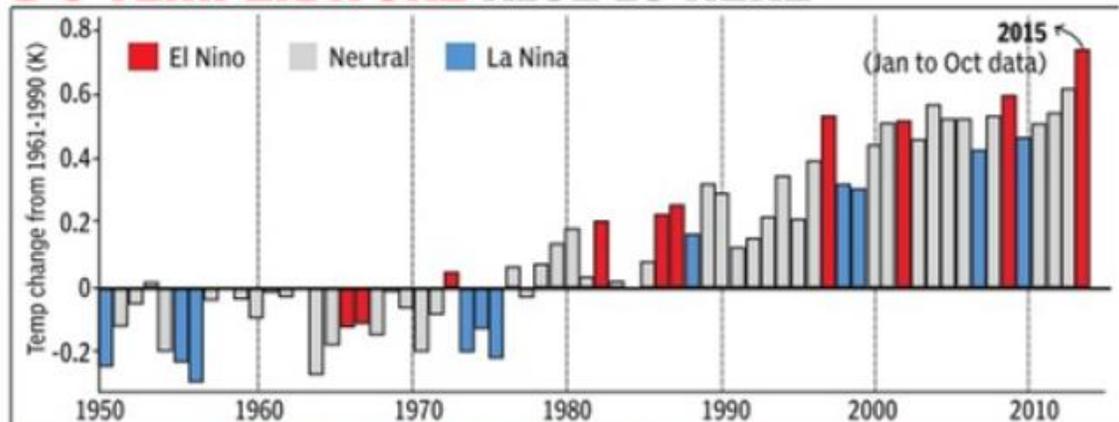
Five days ahead of the Paris climate summit, the UN's meteorological agency sought to inject urgency into the negotiations by announcing that global temperatures were set to rise 1° Celsius above the pre-industrial era in 2015, which was on course to be the hottest year on record by a wide margin.

World leaders will meet in Paris on November 30 and, over 12 days, try to hammer out a deal to limit global greenhouse gas emissions to a level that restricts worldwide temperature rise to 2°C by the end of the century.

Setting the tone for the crucial talks, the World Meteorological Organisation on Wednesday said 2015 was making history for a number of reasons. "This year is likely to be the hottest year on record, with ocean surface temperatures at the highest level since measurements began. It is probable that the 1°C threshold will be crossed," said WMO secretary-general Michel Jarraud. "This is all bad news for the planet."

Based on initial data, WMO said global average sur-

1°C TEMPERATURE RISE IS HERE



Residents cool off at Sydney's Bondi beach as temperatures in the city soar

- 2015 almost certain to be **hottest year on record** around the world (since 1880)
- Avg temperatures this year likely to reach global warming milestone of **1 degree C above pre-industrial level**
- Last month was **warmest Oct on record** and recorded the greatest ever departure from avg temperatures for any month. Earlier record set in Sept 2015
- 2011-2015 set to be **warmest 5-yr period on record**

face temperature for 2015 so far was around 0.73° C above the 1961-1990 average of 14° C. It said this year's high temperatures were due to the effects of the El Niño weather phenomenon in tandem with global warming and that the trend would continue next year.

"We are witnessing a powerful El Niño event, which is still gaining in strength. This is influencing weather patterns in many parts of the world and fuelled an exceptionally warm October. The over-

all warming impact of this El Niño is expected to continue into 2016," Jarraud said.

The statement comes a week after the US weather agency said October this year had seen record high temperatures for the sixth month in a row.

Global land and ocean surface temperatures this October were 0.98° C above the 20th century average, breaking the record of September 2015 for the highest deviation from average temperatures

for that month.

In fact, according to US agency NOAA, every month this year other than January and April has been the hottest on record.

WMO listed a number of extreme weather events during the year, including the major heatwave that affected India in May and June, with average maximum temperatures exceeding 42° C widely and 45° C in some areas.

For the full report, log on to www.timesofindia.com

Using Waste Plastic for Road Construction Mandatory Now

Move to overcome growing problem of plastic waste disposal

Rajat.Arora@timesgroup.com

New Delhi: The government has made it mandatory for road developers to use waste plastic along with bituminous mixes for road construction to overcome the growing problem of disposal of plastic waste in India's urban centres.

Road developers will now have to use waste plastic along with hot mixes for constructing bitumen roads within 50 km of periphery of any city that has a population of over five lakh. In recently released guidelines for developers, the government said that in case of non-availability of waste plastic, the developer has to seek the road transport & highways ministry's approval for constructing only bitumen roads.

"Urban local bodies, which are usually short of financial resources, can make money by selling the plastic waste generated by cities to road developers. They can sign memorandums of understanding with the road construction companies," a senior government official told ET.

India generates 56 lakh tonne of plastic waste annually. As per a study by the Central Pollution Control Board, 60 large cities in India generate over 15,000 tonne of plastic waste every day. Delhi generates close to

7,000 tonne of waste every day, of which over 10% is pure plastic but cannot be disposed even by waste-to-energy plants because of environmental reasons.

In an observation earlier this year, the Supreme Court had said that the country was sitting on a plastic time bomb.

Plastic will add to the longevity of roads by making them water resistant and also increasing the resistance of roads to change in weather.

The government expects this measure to bring down the cost as well for road developers, from about ₹10 crore for one km of road length at present.

"The cost factor is yet to be analysed, but it will be slightly less than 100% bitumen," the official said.

The ministry will also encourage state governments and rural development ministry to make use of plastic waste mandatory in construction of roads.

"The same technology can also be used for construction of rural roads as it will enhance their quality as well as longevity. These roads can have a plastic coating mixed with bitumen," the official said.



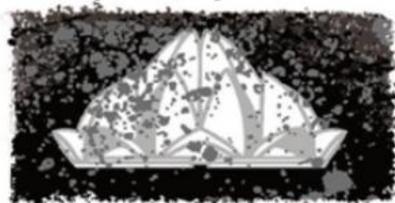
Developer has to seek ministry nod for bitumen-only roads in case waste plastic is not available

The Times of India, Delhi dated November 26, 2015

The Times of India, Delhi dated November 28, 2015

Bring Euro VI to check pollution: IIT-K

Draft Report Says 60% Of Bad Air In Winter Due To Vehicles, Norm Must Be Enforced By 2020



LET DELHI BREATHE

Jayashree.Nandi@timesgroup.com

New Delhi: IIT Kanpur has recommended that Euro VI fuel standards be introduced in Delhi at the earliest in order to check the rising air pollution. It has also recommended that LPG be considered as an alternative and coal burning in power plants or otherwise be stopped completely. The IIT Kanpur team recently submitted a draft report which said that vehicles are responsible for 60% of the air pollution in winter.

The report, which is based

on modelling exercises and on real-time data collected over two-and-a-half years between 2012 and 2015, will be finalised in December once Delhi government officials meet Professor Mukesh Sharma, the lead investigator of the study. "Vehicles are a major source of pollution in winter and IIT Kanpur has given us a list of recommendations but we have to see which of these can be implemented quickly," said Ashwani Kumar, secretary environment, Delhi government.

Euro VI norms call for 10 ppm sulphur in diesel compa-

WRAPPED IN A SMOG SCREEN

POLLUTION WATCH AT 6.30PM ON FRIDAY			
Location	Status	AQI	Lead pollutant
Anand Vihar	Severe	470	PM 10
Mandir Marg	Very poor	332	PM 2.5
RK Puram	Very poor	356	PM 10
Punjabi Bagh	Very poor	367	PM 2.5
Shadipur	Very poor	327	PM 2.5

Source: CPCB

Average PM 2.5 concentration on Friday	200 µg/m3	160 µg/m3	Forecast
185 µg/m3	Nov 28	Nov 29	

Source: SAFAR/MoES



red to 50 ppm sulphur stipulated by the Euro IV standard, which is being used now. "Even if we consider the present growth rate of vehicles in Delhi, as many as 5 million new vehicles will be added to the existing fleet of 8 million. So implications of not having Bharat Stage VI in PM and NOx emission load will be enormous in terms of health damage. Also, remember the

future stock will remain on road for at least 10 years. In view of this, the government should not ignore IIT's recommendations and must bring BS VI not later than 2020," said Vivek Chattopadhyay of Centre for Science and Environment (CSE).

However, the Auto Fuel Policy Committee for 2025 has recommended Euro V be implemented by April 2020 and

Euro VI by April 2024. But International Council on Clean Transportation (ICCT) in a letter to the ministry highlighted that implementing Euro V may not address high emission of nitrogen oxides from heavy duty vehicles that can cause emphysema, bronchitis and heart disease.

Gufran Beig, project director, SAFAR under ministry of earth sciences, said

the IIT report may be highlighting the impact of various seasons on pollutants. "The reason vehicular emissions are higher in winter is probably because fine particles cannot disperse due to lower boundary layer. The emissions will be the same in summer as well," he said. Prof Sharma could not be reached for comments.

The environment department has decided to make the draft report public soon.

Meanwhile, a blanket of smog covered the city on Friday as the air quality deteriorated once again and the moisture in the air seemed to trap the particles very close to the surface. Even though PM 2.5 (fine, respirable particles) levels were going up to 400 micrograms per cubic metres in certain places.

"There is a lot of moisture in the air causing fog. Sunday onwards pollution levels may reduce because minimum temperature may increase," Beig added.

Deccan Chronicle, Hyderabad
dated November 29, 2015

COMMON WEALTH

Poor nations to get climate funds

■ The decision is in sync with India's demand for providing financial resources to developing nations

Valletta (Malta), Nov. 28
Commonwealth leaders have agreed to set up a climate change hub to facilitate access to funds for the small and poor countries, a decision which is in sync with India's demand for providing adequate financial resources to developing nations to reduce green house gas emissions.

The decision to set up the hub by Commonwealth, a bloc of 53 countries, came days before world leaders meet at the crucial climate change summit in Paris eyeing an ambitious goal of significantly limiting global warming.

Commonwealth Secretary General Kamlesh Sharma said the leaders have also decided to set up a new mechanism to help poor countries manage debt accrued on climate management. He said nitty-gritties of the new set up was still being worked out. He said various island nations and small countries were facing difficulty in securing financial support to bring down green house gas emissions and the hub will provide funds to them.

"These small states are often told about money but none of them know

number to dial," Sharma, the outgoing secretary general, said adding hub will make "climate finance, a reality".

Around 30 heads of state and government including Australian Prime Minister Malcolm Turnbull, Sri Lankan President Maithripala Sirisena, British Prime Minister David Cameron, Canadian Prime Minister Justin Trudeau and Pakistan Prime Minister Nawaz Sharif participated at the Commonwealth summit which discussed ways to combat terrorism besides tackling climate change.

India was represented at the summit by External Affairs Minister Sushma Swaraj. The session on climate change was attended by UN General Secretary Ban Ki-Moon and French President Francois Hollande who said despite the terrible terror attack in Paris, he wanted to attend the Commonwealth Heads of Government Meeting to discuss climate change considering seriousness of the issue. Hoping that a universal agreement would be reached at Paris conference, he said a couple of countries may pose hurdles in achieving the goal as they feel some of the obligations can block

PARIS MEET IN NUMBERS

150 The number of heads of state and government expected to attend opening ceremonies on Monday

195 The number of nations which are members of the United Nations Framework Convention on Climate Change (UNFCCC)

18 The tally in hectares, equivalent to 45 acres, for the area of the talks venue, located just north of Paris in Le Bourget

21,000 The tonnage of greenhouse gas produced by the conference, equal to the annual carbon dioxide (CO2) emissions of 4,420 cars

their development. The French President, however, did not name the countries he was referring to. "Man is man's worst enemy. We have



Activists wear masks of (from left) Francois Hollande, Narendra Modi, Barack Obama, Xi Jinping, and German Chancellor Angela Merkel ahead of Paris summit. —AP

4,12,000 The number of meals to be served over the scheduled duration of the November 30-December 11 talks

32 The number of negotiating rooms at the sprawling conference centre in Le Bourget

2,800 The number of police officials who will be responsible for security. Some 8,000 additional law enforcement personnel are to be deployed at France's borders. 100 UN security personnel as well as 300 security guards deployed

70,000 The number of additional places that

have been created on public transport in Paris are during the conference. Special bus lines and 200 electric cars to ferry conference delegates

176 million euros is the budget for the event

seen this with terrorism and we have seen it also with climate," he said.

India had forcefully articulated its concerns of the developing countries

in finalising a policy statement of Commonwealth countries in dealing with climate change which is likely to have an impact in negotiations.

Global protests on climate change

Paris, Nov. 28: Protesters joined a worldwide wave of marches on Saturday demanding leaders craft a pact to avert a climate catastrophe when they gather in a still-shaken Paris.



Bangladesh people attend a Climate March rally. —AFP

From Australia to the Philippines, Bangladesh to Japan, people rallied at the start of a weekend of popular protests pleading for world powers to overcome the logjams when the UN climate summit officially opens in the French capital Monday.

"Protect our common home," declared placards held aloft as thousands gathered in Melbourne.

Some 150 leaders including US President Barack Obama, China's Xi Jinping, India's Narendra Modi and Russian President Vladimir Putin will attend the start of the Paris conference, which is tasked with reaching the first truly universal climate pact, binding 195 nations to new emission limits from 2020.

The goal is to limit average global warming to two degrees Celsius, per-

haps even less, over pre-Industrial Revolution levels by curbing fossil fuel emissions blamed for climate change.

If they fail to do so, scientists warn of a world that is increasingly inhospitable to human life, with superstorms, drought, and rising sea levels swamping the land.

On the eve of Saturday's protests, French President Francois Hollande, host of the November 30-December 11 talks, warned of the obstacles ahead. The French leader called for "a binding agreement, a universal agreement, one that is ambitious." —AFP

Deccan Chronicle, Hyderabad
dated November 30, 2015

Green buildings viable: Experts

DC CORRESPONDENT
HYDERABAD, NOV. 29

Dispelling the perception that eco-friendly or green buildings are costly to construct, Indian architects have said that with a little bit of modification, the cost of construction could be the same.

Member of Total Architectural and Interior Solutions and MD of Modern Safety Glass, Sadhiq said, "We can construct a green building with the same



budget as of a conventional building. Also, modification would not mean a drop in quality; rather the design would be made simple."

He was speaking on the sidelines of a discussion called Design Dialogues, organised by architectural bodies here on Sunday.

Indian Institute of

Architects executive committee member Yashwant Ramamurty said, "We lack in quality. Basically, we copy from the West as we are low on quality. This is due to lack of professional architectural institutes in the country. We have only three institutes who produce an average of 80 graduates annually."

Further, cheap imports from China hammered their businesses, though the scenario stabilised after imposition of anti-dumping duties.

The Times of India, Delhi dated November 30, 2015

The Economic Times, Delhi dated November 30, 2015

PM: Climate Change Fight is Everyone's Responsibility

In his 'Mann Ki Baat,' Modi urges for energy conservation

Press Trust of India



New Delhi: Preparing to attend the world meet on climate change in Paris, Prime Minister Narendra Modi on Sunday said it is the responsibility of all to ensure that earth's temperature does not rise as global warming is already creating disasters like recent heavy rainfall in Chennai. He asked people to adopt energy conservation and efficiency measures like the maximum use of solar-powered items.

In his monthly radio programme 'Mann Ki Baat,' Modi recalled his proposal for setting up a SAARC disaster response mechanism and said the recently-held 'table talk exercise and best practices seminar' in Delhi was a good beginning.

"We keep receiving news about the natural disasters from every corner of the world. Such are the tragedies which have never been heard earlier or imagined. We are now experiencing the impact of fast-changing climate. In our own country, massive rains recently hit Tamil Nadu and caused losses to it as well as other states. Several people lost their lives. I offer my condolences to them," he said.

"The whole world is worried about climate change. There are discussions everywhere over it and concerns are being expressed. There is acceptance for it (cli-

mate change) as an index before any work is done. The temperature of the earth should not increase now. It is the responsibility and concern of all," he said in his 20-minute programme.

His emphasis on the responsibility of all assumes significance as the developed world is placing greater onus on developing nations like India in the fight against climate change. India has been maintaining that developed countries have been the major polluters over centuries and should assume greater role in fighting global warming by funding and transferring low-cost technology to developing nations.

The need for an ambitious but equitable agreement

By Sunita Narain

World leaders meet on Monday in Paris, not to discuss terrorism, but to discuss another of our generation's biggest threat, climate change. It is clear that already, when temperatures have risen by less than 1°C, over pre-industrial era, the world is seeing weird and devastating weather events. In India, farmers are hit again and again with unseasonal rain, hail and extreme rain and temperatures, which is crippling their livelihoods, driving them to destitution and even death. Therefore, Paris needs to arrive at an effective and ambitious agreement to reduce emissions and to keep the world below the 2°C rise guardrail — an increase that is seen to be least risky and most attainable today.

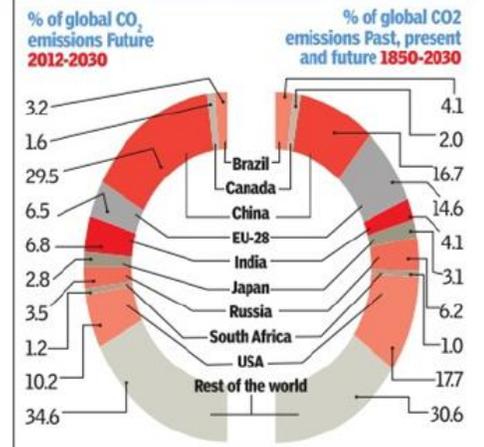
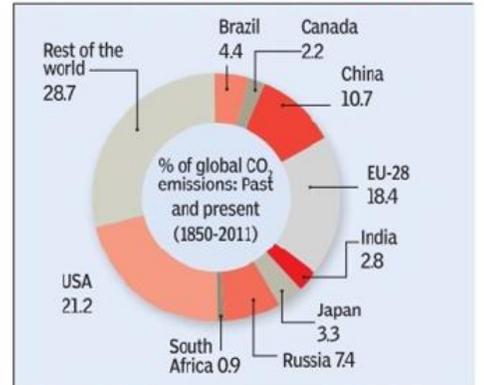
But we also know that limiting the rise of temperatures also limits the amount of carbon dioxide that can be emitted in the atmosphere. So, Paris is about an agreement to share the global carbon budget. The fact is that in spite of all the talk and all the rhetoric, the world has still not delinked growth from emissions. This is the really inconvenient truth — not what former US president Al Gore made famous through his film on climate change.

The stakes are high. In Paris, the very terms of the agreement will change. Instead of requiring countries to cut emission based on their contribution to creating the problem, each country can decide how much it will cut. Furthermore, all countries are needed to take action, not just the countries, which are responsible for the bulk of emissions in the atmosphere. In this way, the firewall, which differentiated between the developed world responsible for climate change and the countries, which needed right to development, will be removed. In this way, equity and differentiation will be erased.

But this is not all. The UN has accepted that the intended nationally determined contributions (INDC) — actions submitted by all countries to reduce emissions by 2030 — will take the world to at least 2.7°C rise, if not much more. So, the world must also agree to how it will ratchet up the commitments of all countries to cut emissions further. This is where the real rub lies. How will it share the carbon budget?

According to the Intergovernmental Panel on Climate Change, to keep the world be-

EMISSIONS: GLOBAL SCENARIO



low 2°C, with a 66% probability, the budget is some 2,900 billion tonnes of carbon dioxide between 1870 and 2100. Industrialised nations have emitted the bulk of the 1,900 billion tonnes of carbon dioxide in the atmosphere. The world is left with 1,000 billion tonnes. The aim of the INDC is to surreptitiously appropriate the carbon budget. The US, for instance, has already used up some 21% of the used carbon budget. Between now and 2030, as per its lacklustre INDC, it will take up another 8-10%. In this way, the INDC is not just a country's commitment to reduce emissions, it is its intention to occupy global carbon space. Once this space is taken, it is difficult to vacate.

The only way now to operationalise equity is to make sure that all countries are required to take actions to reduce emissions based on the fair share of the carbon budget. But rich industrialised world do not want this discussed.

This is why western media has started an orches-

trated campaign to paint India, which is asking for a fair share, as the climate villain.

But this is why India must set the narrative straight. We are not climate deniers — we are worst hit by climate change. We are taking action to cut emissions. India's INDC is more ambitious than the US in terms of moving towards non-fossil fuels. The US in 2030, will have only 30% non-fossil in its energy mix, we have committed to 40%. The US even today has more per capita consumption of coal and its switch to natural gas means it is moving away from renewables. The fact is that natural gas is only marginally cleaner than dirty coal. It keeps the US locked into fossil fuels.

So, Paris is not just about an agreement to cut emissions, it is also about how the world will operationalise equity. Otherwise, socialist France will pre-empt climate apartheid.

(The writer is the director general of Centre for Science and Environment)

The Times of India, Delhi dated November 30, 2015

World rallies to save the Earth

'325,000 People
Across 175
Nations Part
Of Protests'

Paris: Protesters linked hands near the heart of the Paris terror attacks on Sunday but others clashed with police, giving an emotional jolt to world leaders flying into the French capital to try to save Earth from climate catastrophe.

As hundreds of thousands of people joined protests worldwide, the human chain aimed to send a highly symbolic message to leaders on the eve of the official opening of a 195-nation UN climate summit in Paris.

French authorities cancelled two climate demonstrations in the City of Light after gunmen and suicide bombers killed 130 people on November 13 for security reasons. Though the Paris protests were overwhelmingly peaceful, a small band of anti-capitalist militants clashed with riot police in the late afternoon leading to the arrests of about 100 people.

Instead of marching, many activists left thousands of pairs of shoes — weighing more than four tonnes according to organisers — on Place de la Republique square. A pair of running shoes was left by UN Secretary General Ban Ki-Moon, and Pope Francis sent shoes to be placed on his behalf.

In the first organised demonstration in the French capital since the attacks, climate protesters of all ages lined the wind-blown streets to link up in a two-kilometre (1.2-mile) human chain. "He-



CLIMATE OF PROTEST: (Clockwise from top) Hundreds of pairs of shoes are displayed at de la Republique in Paris during a climate rally on Sunday. Rallies in Berlin (Germany) and London (UK)

ar our voices! We are here!" they chanted. Protesters left a 100-metre gap in the human chain outside the Bataclan concert hall, the site where gunmen killed 90 people, as a mark of respect to the victims.

Some 150 leaders, including US President Barack Obama, China's Xi Jinping, India's Narendra Modi and Russia's Vladimir Putin, will attend the official start on Monday of the UN conference tasked with reaching the first truly universal climate pact.

About 2,800 police and soldiers will secure the site of the November 30-December 11 conference, and 6,300 others will deploy in Paris.

The goal of the climate talks is to limit average global warming to no more than two degrees Celsius (3.6 degrees Fahrenheit), over pre-Industrial Revolution levels by curbing fossil fuel emissions blamed for climate change.

Rallies demanding curbs on carbon pollution have been growing around the world sin-

ce Friday, with marches involving tens of thousands across Australia on Sunday kickstarting a final day of people-powered protest. In London, where thousands of people rallied, Oscar-winner Emma Thompson called on world leaders to grab the "historic" opportunity to reach a deal.

More than 325,000 people across 175 countries were involved in the rallies, according to a preliminary estimate by Greenpeace, one of the organisers. AFP

The Economic Times, Delhi dated November 30, 2015

India to Unveil Game Changer Global Solar Alliance Today

Group of 120-odd countries united for International Agency for Solar Tech & Applications

Urmi.Goswami
@timesgroup.com

Paris: Prime Minister Narendra Modi and French President Francois Hollande will launch a global solar alliance on Monday to kick off the two-week long UN-sponsored climate change negotiations in Paris.

India has been the key force working to bring together 120-odd countries for International Agency for Solar Technologies & Applications (INSTA), marking its commitment to both collaborative action and adopting a cleaner development path.

Described as potentially a "true game changer" by host France's ambassador for climate change Laurence Tubiana, the solar alliance indicates India is interested in moving away from traditional fossil fuel energy systems. To this end, it is looking at collaborations, and not handouts or aid, to make the transition.

"The solar alliance brings together countries that have high solar resource, which have been relatively underexploited, and represents a large market for solar technology," said Ajay Mathur, senior negotiator and India's principal spokesperson for the Paris summit. "The idea is that larger markets and bigger volumes will lead to lower costs making it possible to spur demand," he said.

The alliance will bring countries located within the Tropics of Cancer and Capricorn on a single platform. These typically have high solar resource, some with as many as 300 days of sunshine. At the same time, many of these countries have high levels of energy poverty. The alliance proposes to bridge

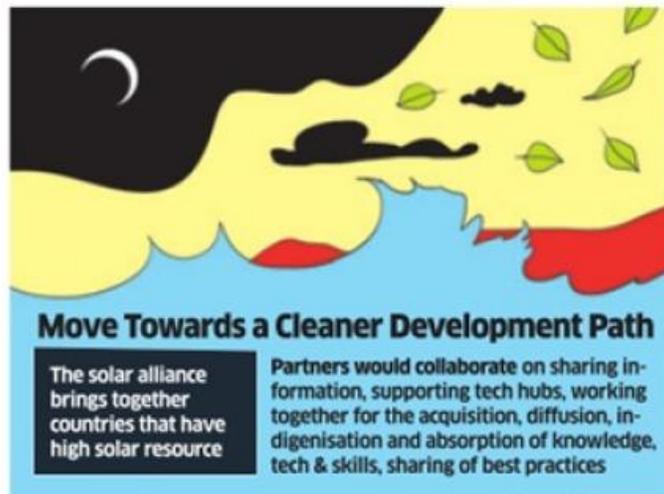


Illustration: ARINDAM

this gap. In doing so, it endeavours to address the lack of energy access, and create economic opportunities in a manner that is clean and sustainable.

It will include countries from the African continent, China, Australia, United States, and host of the 2015 UN-sponsored climate change talks, France. The United Nations has keen interest to join the alliance as a founding member.

India will organise a two-hour meeting in Paris on Tuesday to take the alliance forward.

INSTA will work to increase investments in solar technologies and applications that focus on income generation for the poor, particularly in rural areas. It will in partnership with member countries and other institutions develop projects and programmes to promote solar applications. Another important focus will be to develop innovative financial mechanism to access low cost, long tenure financial resources.

As part of its effort to drive down costs and increase the

the LIC, SBI, as well as corporations like NTPC, ONGC, and Coal India to contribute to the corpus. The interest on the corpus will be used to meet the recurring cost.

"This alliance is a delivery institution, it doesn't propose to replicate existing institutions, but to supplement and complement them," said Upendra Tripathy, secretary at the ministry of new and renewable energy.

Experts say that such a collaborative effort will not only help curb emissions, but also help avoid future emissions. It is argued that increased access to energy through solar deployment will help countries by creating direct and indirect employment opportunities. It will be possible for micro, small, and medium enterprises that form the manufacturing backbone of the economy to augment its productivity in a manner that is clean and sustainable. The potential for gains are immense.

The idea is to create collaborative platforms for increased deployment of solar technologies to improve access to energy and create opportunities for better livelihoods, especially in rural and remote areas. The effort is to improve the standards of living in clean and sustainable manner. "The alliance will have innovative delivery and financial mechanism. It will run with projects and programmes in partnership with member countries and organisations," Tripathy said.

The alliance will work with partner countries to identify national opportunities to accelerate development and deployment of existing solar technologies. As partners, countries will choose the activities they want to pursue together.

The Times of India, Delhi dated
December 01, 2015

A fake volcano can fight warming

There's a cheap, quick, dirty, and controversial way to combat global warming that isn't on the agenda of the UN climate summit. It involves replicating the planet-cooling effect of a volcanic eruption.

When Mount Pinatubo in the Philippines blew in 1991, its emissions briefly reversed most of the global warming that had occurred since the start of the Industrial Revolution. The idea is to mimic Pinatubo by using a fleet of modified business jets to inject fine droplets of sulfuric acid into the stratosphere, where they would combine with water vapor to form fine sulfate particles that reflect sunlight away from the earth.

Scientists estimate that a few grams of sulfate would be enough to counteract the warming effect of a ton of carbon dioxide. The cost of this planetary protection? Perhaps



The idea is to replicate the planet-cooling effect of a volcanic eruption

0.01% of the annual world GDP. In other words, almost nothing. The cost of stopping the entire planet from warming would be not much more per decade than the \$6 billion Italy spends to protect one city, Venice, from rising sea levels. That's the calculation of a leading figure in the debate over geoengineering, David Keith, a professor of applied physics at Harvard and of pub-

lic policy at Harvard's Kennedy School of Government.

Naturally, there's a catch. Several, in fact. The sun shield would merely mask the rising concentration of greenhouse gases, like perfuming a skunk. It adds one pollutant to counteract another. It could reverse progress towards closing the hole in the ozone layer by ripping apart ozone molecules. Sulfate particles falling

from the sky could cause air pollution deaths. It would leave fertile coral reefs exposed to deadly bleaching. It could cause a war if one country decided it was harmed by another's climate meddling. Even Keith allows that it's a "brutally ugly technical fix."

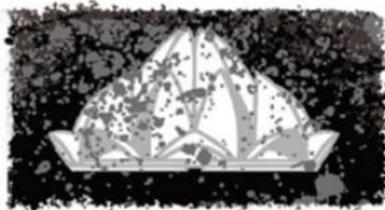
Critics' biggest worry: It would be perceived as a get-out-of-jail-free card for the planet. If pausing global warming is as easy as sending a fleet of modified Gulfstream G650s into the stratosphere with payloads of sulfuric acid, the weak pressure to cut back on emissions of greenhouse gases might get even weaker.

This leaves humanity in a strange place. An effective but flawed technique for stopping global warming is shunted aside while negotiators try to fix the problem the right way, through cutting emissions. BLOOMBERG

The Times of India, Delhi dated
December 01, 2015

Govt wants ideas to clean up city air

Urban Labs Innovation Challenge Launches Today; Submit Proposals Within 3 Months



LET DELHI BREATHE

Neha.Lalchandani
@timesgroup.com

New Delhi: With air pollution at a 'very poor' level in Delhi, the government is crowdsourcing ideas to improve the quality of environment. It will award the best ideas received through Urban Labs Innovation Challenge that will be launched on Tuesday in association

with University of Chicago.

Michael Greenstone, director of Energy Policy Institute and Urban Labs' Energy and Environment Lab, spoke to TOI about the city's pollution problem and the objectives of the programme. "I think we have a tremendous opportunity here to combine the best of government action and academic research to solve one of the biggest

problems in Delhi, and one of the biggest problems that all governments in the world are facing, and that is the environment challenge."

Greenstone, who has researched extensively on energy and environment issues in developing countries, said Delhi's air is among the most polluted in the country, with several factors, including vehicular pollution and open burning, contributing to it. His research in north China had indicated that people there live 4-5 years less than those in the country's south due to the government's policy of giving subsidised coal during winter.

"Exposure to much higher concentration of particulate matter had the unintended consequence of reducing life expectancy by an average of 4-5 years. That study was



“ If the Indian government brings down particulate levels in air to the permissible limits, life expectancy will increase by about three years

MICHAEL GREENSTONE
Director, Urban Labs

useful in isolating the cause of air pollution." He added that, if the Indian government brings down particulate levels in air to the permissible limits, life expectancy would increase by about three years. "This applies to 660 million people, including those who live in Delhi."

Crowdsourcing is being used for environment and energy issues for the past few

months, but in the US it has been used for other social challenges as well, for example crime. In Chicago, the results of a similar competition were announced recently when residents suggested solutions to the city's energy problems. The winning project focused on ways for low-income homes to conserve energy.

"Delhi's air pollution

problems have been long in the making and cannot be solved immediately. However, one important thing to do is to gather reliable real-time information on sources of pollution," Greenstone said adding, "Providing the regulators with this information can be very effective. Secondly, it is very necessary to make a strong link between pollution and its impact on health. This will help us come up with low-cost solutions to combat pollution."

On Tuesday, the government will announce the programme, giving interested parties three months to submit their proposals. The winning candidate's project will be tested by the university to look at its implementability and scalability. The project will be made public by the summer of 2016.

Leaders In A Huddle. World Waits With Bated Breath Capitals Delhi, Beijing Choke On Polluted Air

Amit Bhattacharya & Jayashree Nandi | TNN

New Delhi: As world leaders met in Paris on Monday to commit to a united fight against climate change, the capitals of India and China remained blanketed in heavy smog triggered by pollution. The difference was that Beijing sounded an alert for its citizens while in Delhi it was business as usual.

Authorities in Beijing have issued an 'orange' pollution alert, the second highest of four, wherein outdoor activities in schools and construction work is suspended and residents are warned to stay indoors, agencies reported.

The reports said late Monday afternoon, the level of fine pollution particles (PM 2.5) in the Beijing air had crossed 600 micrograms (mcg) per cubic metre, around 24 times WHO's safe level for a 24-hour period.

Delhi, meanwhile, witnessed one of its worst smog of the season, with visibility remaining less than 800 metres through



Neeraj Paul



Boutros

Both Delhi and Beijing (right) were enveloped by smog on Monday. Authorities in the Chinese capital issued an 'orange' pollution alert asking residents to stay indoors. On the other hand, Delhi failed to warn citizens of the spike in pollution levels as it has no protocol for such situations

Monday. PM 2.5 levels were in the 'severe' category in many parts of the city with the most polluted spot, Anand Vihar, showing levels up to 530 mcg/cubic m between 2.30pm and 8pm.

Despite being labelled by WHO as the world's most polluted city, there's no protocol in Delhi for warning residents when pollution levels spike. PM 2.5 levels at individual air

monitoring stations have in the past few days crossed the 600 mark. Many residents complained of a choking feeling as a white smog hung in the air through the last day of November, a month that saw Delhi's air quality dip alarmingly.

"Monday morning (6-8am) saw the densest fog of the season in Delhi. In November, such thick fog usually forms only after

rain, when moisture levels go up. Since there has been no rain, it's likely high pollution, combined with moisture and absence of winds caused the fog," said R K Jenamani, director of Met office at IGI Airport.

Like in Delhi, local emissions have combined with weather to produce the year's worst pollution in Beijing. The public has been warned to

take protective measures when engaging in outdoor activities and those suffering from respiratory diseases advised to stay indoors. China has a four-tier colour-coded weather warning system with red representing the most severe weather followed by orange, yellow and blue. The last time Beijing issued an orange alert was in February 2014.

Sunshine nations ink solar alliance

Vishwa.Mohan@timesgroup.com

LINE OF NO CONTROL

SANDEEP ADHWARYU

Paris: Forging an effective group of over 100 sunshine countries as a block to get a better deal in the growing renewable energy market, PM Modi with French President Francois Hollande on Monday launched an International Solar Alliance on the sidelines of the climate summit.

The idea for such an alliance was conceived by Modi in January and thereafter India had pursued the subject with as many as 121 countries which are solar-rich, lying fully or partially between the Tropics of Cancer and Capricorn.

The concept of the alliance was to present these nations as an effective group to get finance and technological support from investors for the solar energy market. Most of the countries of the alliance get nearly 300 days of good sunshine a year and therefore are most suited to move on the solar path if they get cutting-edge technology and adequate finance for investment.

Modi said, "In the Indian tradition, sun is the source of all forms of energy



As Rig Veda says, Sun God is the soul of all beings, moving and non-moving. Today, when the energy sources and excesses of our industrial age have put our planet in peril, we

must turn to the sun to power our future." Highlighting the unique convergence between ecology, economy and energy that can shape the future of solar-rich nations, the PM said, "We will attract investments in the solar

sector; encourage JVs and develop innovative financing mechanism." The headquarters of the alliance will be located at the National Institute of Solar Energy in Gurgaon.

For the full report, log on to www.timesofindia.com

The Times of India, Delhi dated December 01, 2015

Beijing on smog alert, Delhi silently chokes

As world leaders met in Paris on Monday, a thick smog of pollution hung over Delhi and Beijing. However, while Beijing sounded an alert for its citizens, it was business as usual in Delhi, report Amit Bhattacharya and Jayashree Nandi.

Beijing issued an 'orange' alert, the second highest of four levels, that requires suspending outdoor activities in

schools and construction work and warning residents to stay indoors. On Monday afternoon, the PM 2.5 level in Beijing air had crossed 600 micrograms per cubic metre.

In Delhi, Monday saw one of the season's worst smog spells with visibility less than 800 metres. PM 2.5 levels were in the 'severe' category in many parts, reaching up to 530 in Anand Vihar.



Deccan Chronicle, Hyderabad dated December 02, 2015

PARADOX AT CLIMATE SUMMIT

■ Mega conference in Paris to tackle global warming will itself emit 3,00,000 tonnes of carbon dioxide

Paris, Dec. 2: It is estimated that climate change summit in Paris which aims to tackle global warming will itself emit 3,00,000 tonnes of CO2. The top world leaders and businessmen, and activists have travelled from across the world for the summit.

Mostly the leaders arrived in planes and some by train or cars. The average round trip per attendee is expected around 9,000 miles, according to the calculation by *Wired* and *Steven Siqf* of *climateParis.org*.

Taking the fuel consumption of a Boeing 747 — around 16.5 miles per gallon — which the website describes as a 'happy medium between private jets and bullet trains', around 27 million gallons of fuel will be used by travellers attending the conference.

According to the rough calculations, each gallon of fuel produces around 21 pounds of carbon dioxide. The total CO2 released by planes flying to and from Paris is thought to be about 575 million pounds (2,90,000 tons).

But given that some planes will very likely carry more than one attendee, this figure is likely to be at the very highest end.

In an opening speech at the summit, Prince Charles warned world leaders that 'we are becoming the architects of our own destruction' as he called for immediate action to halt global warming. The Prince of Wales urged them to 'think of your grandchildren, as I think of mine' as well as the billions of people without a voice and the youngest generation as they try to secure a new global deal.

Over the next fortnight negotiators from 195 countries will attempt to hammer out a deal that will put the world on a path to prevent temperatures rising by more than 2C above pre-industrial levels.

—Agencies



US President Barack Obama and French President Francois Hollande (R) have dinner at the Ambroisie restaurant in Paris, with John Kerry (2nd R), Segolene Royal, (3rd R) and Laurent Fabius, (2nd L). —AFP



PRIME MINISTER MODI'S DEMAND FOR A FAIR SHARE OF CARBON SPACE FOR DEVELOPING COUNTRIES HAS SUGGESTED THE WAY TO OPERATIONALISE EQUITY
— SUNITA NARAIN, Director general, Centre for science and environment

INDIA AS A WHOLE, WILL EXPERIENCE 1-1.5 DEGREES CELSIUS INCREASE IN MEAN ANNUAL AIR TEMPERATURE FROM 2016 TO 2045, WHICH COULD HAVE PROFOUND IMPLICATIONS FOR AGRICULTURE AND CROP PRODUCTION
— A STUDY

■ Britain's Prince Charles, indigenous leaders and other dignitaries met Tuesday to call attention to shrinking global forests from South America to Russia and Africa, in part because of illegal logging.

■ More than 180 countries have pledged to cut or curb their emissions, but scientists say much bigger reductions are needed to limit man-made warming of the Earth to 2 degrees Centigrade (3.8 degrees Fahrenheit) over pre-industrial times, the internationally agreed-upon goal.

WHAT HAS HAPPENED SO FAR?

■ On Monday, rich countries announced a new fund to do a lot for climate pledging a total of \$248 billion to it. The Obama administration didn't specify where its \$51 billion pledge would come from; Obama has struggled to persuade the Republican-run Congress to fund his climate goals, amid concerns that his energy plan is unattainable.

■ The talks, which run through Dec. 11, are aimed at a broader, tougher replacement to the 1997 Kyoto Protocol. That treaty required only rich countries to cut their emissions, while this time the goal is for everyone to pitch in.

■ One of the proposals involves saving the world's forests, which absorb carbon dioxide released by burning oil, gas and coal.

US WANTS INDIA, CHINA ON BOARD

Paris, Dec. 1: The world can pursue an ambitious climate agreement that can meet both climate and development challenges of countries like India, the US has said as it underlined the need for getting India and China on board to make the UN climate summit a success.

"We can pursue an ambitious climate agreement even while India pursues an ambitious development policy. And, in fact, we can pursue the types of solutions that can meet both climate and development challenges," US Deputy National Security Advisor Ben Rhodes said.

Rhodes also said that for the success of the Paris summit, it is essential that both India and China are on board the fight against global warming.

—PTI

Obama's plane emits more CO2 than driving 72 cars

Paris, Dec. 1: President Barack Obama may warn that carbon dioxide is causing global warming, but his flight to Paris to join other world leaders at the United Nations climate summit emitted more CO2 than driving 72 cars for a year.

Obama's Paris jaunt will send more CO2 into the atmosphere than 31 American homes' energy usage for an entire year. The president's trip is equivalent to burning 3,68,331 pounds of coal or 797 barrels of oil, according to the *Environmental Protection Agency's* carbon footprint calculator.

Just one leg of the presi-



Obama coming out of the Air Force One. —via web

dent's Sunday trip to Paris emitted 189 tonnes of CO2 after travelling 3,855 miles and burning 19,275 gallons of jet fuel, according to *Daily Caller News Foundation* calculations based on past presidential flights. Obama's return

flight to Washington D.C., would double the amount of CO2 burned to 378 tonnes — more than 72 cars driving for a year.

Obama has been criticised for past plane rides in the name of fighting global warming. Earlier this year, Obama flew down to the Everglades for Earth Day and was hammered for potentially damaging the fragile ecosystem and costing taxpayers more than \$8,66,000. World leaders gathered on Monday in Paris to kick off the UN's 21st attempt to get countries to sign onto an agreement to cut CO2 emissions.

—Agencies

The Times of India, Delhi dated December 02, 2015

Warming could cause fall in oxygen level

London: Falling oxygen levels caused by global warming could be a greater threat to the survival of life on Earth than flooding, according to researchers from the University of Leicester in the UK.

The study has shown that an increase in the water temperature of the world's oceans by around six degrees Celsius — which some scientists predict could occur as soon as 2100 — could stop oxygen production by phytoplankton by disrupting the process of photosynthesis.

"Global warming has been a focus of attention of science and politics for about two decades now," Sergei Petrovskii, professor at Leicester's department of Mathematics, said. "A lot has been said about its expected disastrous conse-

quences; perhaps the most notorious is the global flooding that may result from melting of Antarctic ice if the warming exceeds a few degrees compared to the pre-industrial level," Petrovskii said.

"About two-thirds of the planet's total atmospheric oxygen is produced by ocean phytoplankton — and therefore cessation would result in the depletion of atmospheric oxygen on a global scale. This would likely result in the mass mortality of animals and humans," he said.

While mainstream research often focuses on the CO2 cycle, as carbon dioxide is the agent mainly responsible for global warming, few researchers have explored the effects of global warming on oxygen production. ■

'India seems to be home of lost causes'

Photos: Sanjeev Rastogi

Ghosh flags bid to industrialise climate change

Brace for impact, because the catastrophic fallout of climate change will happen no matter what actions world leaders pledge to take at the Paris summit. That was the grim message of author Amitav Ghosh, who has just completed a non-fiction work on the subject.

"I have a dark view of things, as anyone who engages with the issue of climate change would. These impacts are going to very powerfully destabilise our society," he said.

During the course of an interaction with TOI's editorial team, Ghosh said the world had lost the window of opportunity to contain global temperature-rise by 2 degrees. "No human crisis has found people so unprepared. 2015 was the cutoff year for emission cuts. We've already reached carbon levels of 400 ppm in the atmosphere... We need to be afraid of the tipping point."

"Two degrees is a global mean average. The rise is not going to be equal in all parts of the world. We (India) are probably going to get a 4-degree rise," he cautioned.

That will have an enormous impact on India and the role of a responsible media must be to "prepare us for what's coming". In

“ People don't want to engage with climate change because it's not sexy. The effect is felt in out-of-way places, on unseen people. But when the impact is really felt, people like us... will be hit the worst. We are absolutely not climate-resilient. Take away our electricity and we're dead

making there. You could see the islands disappearing. After cyclone Aila, so much land that was previously fertile, was swamped.

"Now, wherever you go on India's west coast, you will see Bengalis as manual labour and sex-workers. Many of them climate refugees," he opined.

In Ghosh's view, extreme climate events in India were likely to become more potent because these would tend to exacerbate existing crises such as the overexploitation of underground water. "Especially in north India, we see the ways in which climatic change and human-made change are catastrophically converging. There is this strange nexus of pumping up water from the upper Ganga aquifer coinciding with the sudden shift in rainfall patterns that's making the region drier."

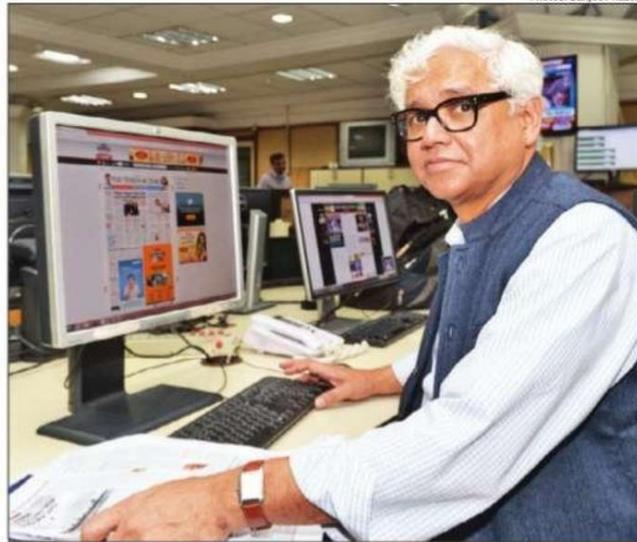
Water was an issue the writer dwelled on at length, from questioning the logic of growing water-intensive crops in Punjab - saying it was akin to exporting water from the semi-arid state in the form of rice - to the grim prospect of the perennial rivers of the region going dry.

"We face a situation where, certainly in my children's lifetime, we could see the Ganga, the Yamuna and the Indus reduce to seasonal flows. Even today, the Indus runs dry before it reaches the sea," he said.

Responding to a question on India's stand at the climate talks, Ghosh said he supported the issues of climate justice and historical responsibility that the country has been raising. "These are things you cannot deny. It's perfectly clear that the West does not want to acknowledge any of these," he said.

Ghosh though appeared deeply sceptical of the Breakthrough Energy Coalition launched by global billionaires who have pledged to put in money on climate change research.

"They are trying to industrialize climate change if you like," he said. "Bill Gates has put in a lot of money but he is also one



IN THE EDITOR'S CHAIR: Amitav Ghosh checks out the Times of India website

'Mumbai a catastrophe waiting to happen'

Reacting to an article commissioned by him as TOI guest editor and written by Adam Sobel on 'What Mumbai needs to learn from superstorm Sandy', Amitav Ghosh said: "I fear Mumbai is a catastrophe waiting to happen. We've seen what happened in Chennai. Mumbai will be far worse. It's the financial capital."

Ghosh shared his experience of growing up with the cyclone fears. "I grew up on the east coast where we spent time worrying about cyclones. If a cyclone hits Mumbai, it'll come in from the southwest. All sea-facing houses... where Ambanis and others live, will be hit first. Thereafter, it will hit the Bhabha Atomic Research Centre, we could have a tragedy on the

scale of Fukushima... When the cyclone comes, it'd go straight into them. Just like in Miami," he said. "Look at the city's geography. It has 12 million people. How are you going to evacuate them?"

Reacting to Ghosh's concerns, TOI asked National Disaster Management Authority (NDMA) on whether it had a contingency plan for Mumbai. It said BMC has a flood map for the city, had commissioned a disaster-risk management master plan for floods and earthquakes, a Mithi river flood simulation project and a hazard risk vulnerability assessment for Navi Mumbai. Ghosh said dealing with cyclones and superstorms didn't seem to be high on its list of priorities.

of the biggest investors in geo engineering. Some of these solutions could completely kill the monsoons."

Ghosh felt China was better prepared for climate change than



Arya Prabhari

India. "China's circumstance in climate change is completely different from ours. We don't recognize this, but China has been

moving very, very fast. I heard Lord Nicholas Stern say that last year, for the first time, China's coal consumption had actually dipped by 5%. "In China, when they make up their mind, they're able to move at incredible speed. Another author, Naomi Oreskes, says if there's one country that will weather the impacts of climate change, it is China," the 59-year-old author stated.

At the same time, he held up a number of Indians as trailblazers in their fields -people such as Debal Deb, who has been collecting heritage seeds, Ashish Kothari who has worked on adaptability and Sunita Narain for her path-breaking work on climate justice.

"It's not that we don't have expertise, we have good reporters. But what is very striking in India is the absence of any broad public engagement with climate change," Ghosh added.

"People don't want to engage with climate change because it's not sexy. The effect is felt in out-of-way places, on unseen people. But when the impact is really felt, people like us -who frankly have a carbon footprint equivalent to anyone in the West -will be hit the worst. We are absolutely not climate-resilient. Take away our electricity and we're dead."

The writer also lamented the fact that logical steps to lessen the impact of changing climate, such as asking farmers to pay for electricity to check the indiscriminate use of groundwater, cannot be taken in India. "Such huge vote banks are involved that politicians cannot reverse these decisions," he said.

“ Bill Gates has put in a lot of money in fighting climate change but he's also one of the biggest investors in geoeengineering. Some solutions could completely kill the nonsoons

this context, Ghosh found the government's push for 'make in India' anachronistic. Quoting economist Joseph Stiglitz he said it was quite clear that the door was closing on manufacturing-driven growth in less developed countries. "But India seems to be a home for lost causes. We are adopting this doomed model of consumerism at a time when it's collapsing in its birthplace, the US... When the Soviet Union was collapsing we had Bengal adopting the communist model."

The writer said India must not just prepare for extreme events of the future but also deal with climate disasters playing out now: "I have spent a lot of time in the Sunderbans. That's where I became interested in the issue. As far back as 2000, we could see the impact salt water intrusion was

The Times of India, Delhi dated December 02, 2015

► Ghosh was born to an Army officer's family on July 11, 1956 in Kolkata, and grew up in India, Bangladesh and Sri Lanka

► He was educated at the all-boys Doon School where he edited The Doon School Weekly

► His contemporaries at the school included author Vikram Seth and Ram Guha

► He attended St. Stephen's College and Delhi School of Economics before completing his D. Phil. in social anthropology at St Edmund Hall, Oxford

► He worked for a New Delhi daily before moving on to the world of literature



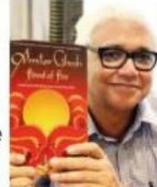
HE IS THE AUTHOR OF 'THE CIRCLE OF REASON', 'THE SHADOW LINES', 'IN AN ANTIQUE LAND', 'DANCING IN CAMBODIA', 'THE CALCUTTA CHROMOSOME', 'THE GLASS PALACE', 'THE HUNGRY TIDE' AND THE IBIS TRILOGY

● 'Circle of Reason' won France's Prix Médicis in 1990

● 'The Shadow Lines' won the Sahitya Akademi Award and the Ananda Puraskar the same year

● 'The Calcutta Chromosome' won the Arthur C. Clarke award for 1997 and 'The Glass Palace' won the International e-Book Award at the Frankfurt book fair in 2001

● 'Sea of Poppies' was shortlisted for the Man Booker Prize, 2008 and was awarded the Crossword Book Prize and the India Plaza Golden Quill Award



HE IS MARRIED TO DEBORAH BAKER, A WRITER AND EDITOR

The Times of India, Delhi dated
December 02, 2015

London revisited? 1952-like situation in the air

Doctors Say People With Pre-Existing Respiratory Diseases At Most Risk



DurgeshNandan.Jha
@timesgroup.com

New Delhi: The prevailing conditions could lead to Delhi's very own "Great Smog". The original Great Smog was the infamous air pollution that London experienced in December 1952. Doctors in the capital are explaining the current fall in Delhi's air quality in terms of the British occurrence, warning that as then, a huge

number of lives could be affected, especially of people who have pre-existing respiratory conditions.

The burning of crop stubble in the states neighbouring Delhi is producing an effect similar to the Great Smog's to add to the capital's vehicular pollution, explained Dr A B Dey, professor and head of geriatric medicine at AIIMS. He added, "It will turn acute if urgent measures are not taken."

Dey's caution cannot be taken lightly because an estimated 4,000 people succumbed to respiratory ailments exacerbated by the 1952 smog, which had also forced the English authorities to shut down industrial units and schools and to issue public advisories on places to avoid. While no such drastic action is being contemplated in Delhi, doctors admitted that patients are themselves preferring to stay indoors or leaving the city for a spell.

"We tell those suffering respiratory distress to avoid going out during the dawn and dusk hours when pollution levels are at their peak," said Dr J C Suri, professor and head of pulmonary medicine at Safdarjang Hospital. The presence of respirable pollutants in the air not only effects breathing, but leads to fresh problems. According to Dr GCK Khilani, professor of pulmonary

medicine at AIIMS, when a person inhales, the heavier pollution particles get stuck in the upper respiratory tract leading to sore throat and cough, while smaller particles cause infection of the lower respiratory tract. "High pollution levels have also been linked with increased risks of heart attacks and strokes," he added.

Persistently high levels of pollution also prolong the recovery period for patients suffering from respiratory illnesses, warned Dr Arup Basu, chest specialist at Sir Ganga Ram Hospital. He cited the example of a 65-year-old asthma patient in critical condition who has not responded to treatment over five days when he would normally be up and about in two days of care. "We have tried a range of medications, from antibiotics and steroids to nebulisers, but the patient is still struggling

to breathe," said Basu.

Since children breathe more time every minute than adults, they take in a proportionately greater volume of air, thus increasing their vulnerability. As a global report pointed out, "Irritation caused by pollutants that would produce only a slight response in an adult can result in potentially significant obstruction in the still-developing airways of a young child."

Can air purifiers help in such a situation? Most experts are divided on this. "There is no data to prove their efficacy in reducing pollution's impact on health," said Suri. He and other medical experts feel that it is more important to address issues such as vehicular pollution and burning of farm waste at the official level, while getting the vulnerable to avoid crowded areas and peak traffic hours at the individual level.

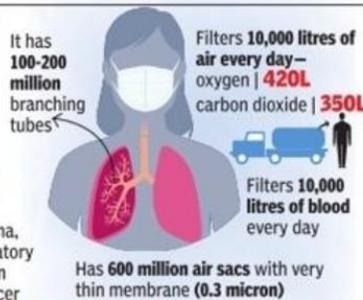
KNOW YOUR LUNGS

Effects of pollution | When we breathe in dirty air, pollutants like sulphur dioxide, oxides of nitrogen and the particulate matters enter the lungs through the respiratory tract. It causes irritation due to cellular damage and breathing difficulty. People whose lung function is already compromised, for example COPD patients, are unable to tolerate additional impairments

Common illnesses caused due to pollutants

Children: acute respiratory illness, increased incidence of respiratory symptoms and infections and lowered lung function

Adults: Asthma, COPD, respiratory tract infection and lung cancer



PREVENTIVE MEASURES

Children: Should avoid playing in dust; wear mask while going out in high-traffic areas; asthmatics should keep inhalers handy; contact doctor for unusual cough or breathing difficulty



Adults: Avoid congested areas; roll up car windows while driving in peak traffic hours; Metro is a better option compared to buses for people dependent on public transport; wearing mask is advisable but not necessary for everyone; one should drink plenty of water

Elderly: Avoid early morning walks, get vaccinated for seasonal influenza, contact doctor for unusual cough or breathing difficulty

Green idea may fetch you ₹2cr

New Delhi: Looking to ensure clean environment in the capital, the Delhi government is inviting innovative solutions from people and institutions across India as part of a contest for which it has teamed up with a wing of the University of Chicago.

Even as the city's air quality continues to be classified as 'very poor' and extremely hazardous for inhalation as per the National Air Quality Index, the first-of-its-kind collaborative project was announced between the Delhi Dialogue Commission (DDC) and the Chicago Urban Labs, a wing of the American university.

As part of the initiative, the government will award up to Rs 2 crore for funding the most promising solutions.

Details on participation in the contest can be accessed at urbanlabsdelhi.uchicago.in.

Ashish Khetan, vice-chairman of DDC, stressed on the need for changing the government's mindset of "holding back data" from the public. "Whatever little data they (governments) generate is absolutely outdated, but they still don't want to share the data as if it's an atomic bomb formula," he said.

"Through this contest, I believe Delhi would find answers to some of the big questions staring at us all. How to provide clean drinking water to the city of 20 million and growing population? We have already been rated the most-polluted city in the world," he said.

The Times of India, Delhi
dated December 02, 2015

'Innovation only way to both go green & grow'

Vishwa.Mohan@timesgroup.com

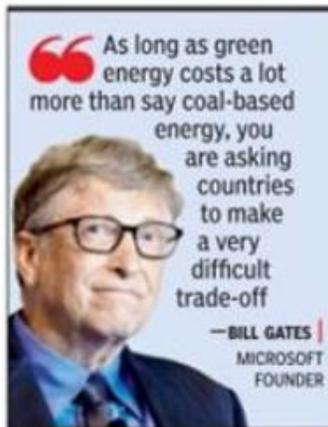
Paris: Microsoft founder Bill Gates has backed PM Modi's case for India's growth, saying it will be unfair to ask developing countries to shift to low carbon strategies as long as clean energy costs much more than fossil fuels. He added that vigorous innovation was the

only way to close the gap. Gates told

FULL COVERAGE: P 28 & 30

TOI that slowing down development to go green is a difficult trade-off. "So if you say to a developing country like India because of green reasons you slow down the development, that is a very difficult thing as we know development can save lives, provide education to kids, take care of health, and there are so many benefits of energy usage".

Pitching the merits of the coalition of 28 of the world's wealthiest investors that he



helped launch here, Gates said initiatives like Breakthrough Energy Coalition can make a big difference. "The only way you can achieve both goals (fighting climate change and boosting economic growth) is to have innovation that brings down the premium for clean energy ideally to zero or even invent a source of energy which is cheaper than coal-based energy," he said.

► **'Tata, Ambani boost', P 25**

Tata, Ambani will boost green alliance: Gates

► **Continued from P 1**

Microsoft co-founder Bill Gates's arguments are in sync with Prime Minister Narendra Modi that India is not responsible for global warming and needs carbon space to grow to pull millions out of poverty and provide electricity, transport, housing, education and health. India has called for subsidised transfer of green technology and asked developed nations to accept higher carbon control targets in keeping with historical responsibilities.

"As long as the energy that is green (or zero CO2 energy) costs a lot more than say coal-based energy then you are asking countries to make a very difficult trade off," Gates said.

The Breakthrough Energy Coalition is an international group that includes India's Ratan Tata and Mukesh Ambani and is intended to promote research for delivering affordable and reliable carbon free power.

Gates expressed the hope that the number will grow further and efforts would result in providing solutions to the world where poor and developing countries do not have to compromise on economic growth and poverty eradication.

The coalition was launched in Paris together with the 'Mission Innovation', an initiative of 20 governments, including the US, India, France, UK, Germany, China, Japan and Australia.

Asked about Indian partners of the coalition, Gates said that when he approached Mukesh (Ambani), he was very quick to say he was enthused. "Reliance is a very fast moving and technology-oriented industry. ...It is good that his (Mukesh Ambani) company is involved in this (the Coalition). It's fantastic," he said.

About Ratan Tata, Gates — co-chair of the Bill and Melinda Gates Foundation — said, "Ratan Tata is somebody I know through his philanthropic works and I really admire him. It was a big boost to have him agree". He noted that Ratan Tata, in fact, talked to University of California and brought it on board.

Besides Tata and Ambani, Jack Ma of China's Alibaba Group, Richard Branson of UK's Virgin Group, Meg Whitman of HP, Vinod Khosla of US' Khosla Ventures, Chris Hohn of UK's The Children's Investment Fund and the University of California are among the investors in the Gates-led coalition on global warming.

The Economic Times, Delhi dated December 02, 2015

GREEN ENERGY IMPETUS

Solar Alliance in Paris; Renewables Initiative at Home



The political fraternity and institutions are queueing up for a slice of solar pie

Anubhuti.Vishnoi@timesgroup.com

New Delhi: While India leads the global solar alliance of 120 nations, MPs, ministers and institutions alike are lining up to make hay while the sun shines.

Power minister Piyush Goyal has taken the lead on switching to renewable energy back home. In Golavali village of Maharashtra — which he has adopted under the Saansad Adarsh Gram Yojana, Goyal ensured uninterrupted power supply to three schools simply by switching to solar.

The village also has 40 such green streetlights, backed by lithium ion batteries when the sun goes down. "Streetlights run on full intensity from 6 pm to 10 pm. From 10 pm to 6 am, they switch to 50% intensity mode. This way more economy of power is ensured. Using lithium ion batteries has also helped as these can be charged even in diffused sunlight. The set-up at schools and lights has run well enough since July," officials from the Solar Energy Corporation of India (SECI) told ET.

The solar economy is now making inroads into areas where regular power supply is scarce

In Jharkhand's Bokaro, the scale is even larger, with 400 solar-backed streetlights installed and running after BJP MP Ravindra Kumar Pandey stepped in, also roping in the Power Finance Corporation.

Women and child development minister Maneka Gandhi is also said to be in talks for supply of solar lanterns in her constituency Pilibhit, while many MPs from eastern

Uttar Pradesh have also approached the ministry of new & renewable energy (MNRE) and SECI for solar solutions.

The Delhi government's secretariat will run on a 3MW plant now — replacing its defunct coal-fired unit with solar. It is not just politicians who see merit in switching to solar. The Border Security Force only last week commissioned a 5MW project for the border in Rajasthan. Delhi Metro Railway Corporation is increasingly opting for solar powered stations and even entire lines if possible.

MNRE is now increasingly focusing on sector-specific solar outreach. On the educational front, the Centre is reaching out across universities, IITs and NITs which have sprawling campus space and considerable real estate for self-sustaining rooftop solar power solutions. The culture ministry is also in talks with SECI and MNRE — the Centre has a 40,000 MW roof top solar energy target.

As far as the country's solar targets are concerned, officials say these are right on track.

The Times of India, Delhi dated December 02, 2015

Effort not wasted as city ragpicker bags UN award

Nitisha.Kashyap@timesgroup.com

New Delhi: For him it was just a means of livelihood and he had never thought that collecting e-waste from households would have its rewards. But this 35-year-old waste picker from Hazrat Nizamuddin area was pleasantly surprised to get a call to attend COP21 in Paris. Mohammad Khokhan Hamid is going to receive the UN Climate Solutions Award for keeping the environment clean.

Hamid, who lives with his wife and two children, started picking waste when he was 14. He would collect it from households and then dump it in Jahangirpuri and Azadpur. Now, he collects waste from 90-odd houses on Pandara Road in central Delhi.

"Three years ago, I got in touch with Chintan, an NGO collecting e-waste and recycling it. They explained that burning electronic waste was hazardous not just for people but even the environment. The toxic metals and flame retardants result in severe environmental problems," Hamid said.

Chintan had started a project 'From Toxic to Green' under which e-waste is channelised safely. They discourage waste pickers to burn them and give incentives on recycling. The NGO works with Safai

Sena, which has 12,000 members including waste pickers, doorstep waste collectors, junk dealers and other recyclers.

The organisation has trained around 2,000 waste pickers, including Hamid, on how to deal with e-waste and solid waste. "These people play a key role in mitigating e-waste related carbon emissions in Delhi," said Chitra Mukherjee, head of programmes at NGO Chintan Environmental Research and Action Group.

The prospect of receiving the award has given Hamid a great sense of pride in his work and himself. He was initially apprehensive about going to Paris, but his wife, Ayesha, asked him not to step back. "Language would be an issue and I may not be able to speak to my family till the time I will be there. But my wife assured me that she will handle everything here," he said.

Three months ago, when Chintan broke the news to him no one believed him and he had to show his passport to prove it. He has since safely kept his passport inside a suitcase. This is the first time he would be going anywhere outside Delhi. "I am yet to shop for my Paris visit. I have been told that it is going to be colder than Delhi so I have to buy warm clothes," he said excitedly.

Anindya Chattopadhyay



PICKING UP FAME: Hamid with his family at their house in Nizamuddin Basti

SUCH A WASTE

E-waste adds to pollution woes

■ Citizens dump e-waste along with garbage, poses threat

M. ROUSHAN ALI | DC HYDERABAD, DEC. 2

Even as the crucial climate summit in Paris is discussing ways and means of reducing global warming, there is no system of collection of electrical and electronic waste from houses, colonies, educational institutions, private and government offices in Telangana and Andhra Pradesh. As a result, citizens either dump their e-waste along with the garbage generated at home or sell it to the local kabadiwala, in both cases causing harm to the environment. The local kabadiwala sells it to scrap dealers who do not have the proper knowhow to dispose of the e-waste.

It is estimated that nearly 4,000 metric tonnes of e-waste is generated every year at homes, educational institutions, private and government offices in Hyderabad, Vijayawada, Visakhapatnam and other towns. The pollution control boards of both the states have failed to set up or even facilitate through private agencies, e-waste collection centres for citizens and other categories of users. The two boards have failed in creating awareness about the heat, toxic gases and radiation emitted by electrical and electronic gadgets that are used daily at home and that add to global warming if not disposed of properly.

In fact, there are guidelines laid down by the Central Pollution Control Board for collection, refurbishment,

■ There are only two authorised private players in e-waste management in the city. One is the Ramky group and the other is Earth Sense.

■ People can call Ramky or Earth Sense representatives to collect their e-waste. Ramky and Earth Sense are not paying anything for e-waste unless it weighs 200 kgs. Residents of colonies can pool in and give the e-waste in bulk to get money. The amount to be paid is decided based on the utility and category of e-waste.

■ FOR HYDERABAD CITIZENS:

■ To call Ramky representatives for e-waste collection, call 90321-24522

■ For Earth Sense, call toll free 1800-419-9888 or 99496-69984

recycling and disposal of e-waste in every state. And these guidelines have been adopted by respective state PCBs but its implementation has been confined to the websites of the two boards.

Though there are two agencies in Hyderabad — Ramky and Earth Sense — authorised by the Pollution Control Board to collect e-waste fr-

om even residential areas, both the firms have done little to collect it from colonies or at least by placing bins in association with Residential Welfare Associations.

TSPCB chief environmental scientist Dr Ravinder passed the buck stating it was the duty of the authorised agencies to create awareness, place bins and collect e-waste. The TSPCB is also identifying locations in the city where bins have to be placed for collection of e-waste.

Earth Sense Hyderabad general manager Kashyam Devulapalli said they had attempted placing bins at various locations in Cyberabad area for e-waste collection. But residents dumped even kitchen waste into the bins.

Also, the government should identify the space where the bins should be placed as each bin will cost a minimum of ₹25,000 as it needs bigger bins to accommodate worn out computers, refrigerators, air conditioners. The APCCB is considering encouraging e-waste collection centres across the state.

At a meeting held recently with all officials of the board, member secretary B.S.S. Prasad emphasised the need for e-waste management in the state in view of increasing e-waste. Streamlining of e-waste collection can be done only if something is paid to those who come forward to give away their old gadgets and other electronic and electrical devices, he added.

GREENHOUSE GASES EMISSION

WE PRODUCE GREENHOUSE GAS EMISSIONS FROM BURNING FUEL WHEN WE DRIVE, BURNING OIL OR GAS, OR USING ELECTRICITY GENERATED FROM COAL, NATURAL GAS, AND OIL. THE EMISSIONS VARY DEPENDING ON A PERSON'S LOCATION, HABITS, AND PERSONAL CHOICES.

LIST OF E-WASTE HAZARDOUS COMPONENTS:

CATHODE RAY TUBES: Lead, barium and other heavy metals percolate into ground water and release toxic phosphor.

PRINTER CIRCUIT BOARDS: Removing computer chips results in tin and lead inhalation, and possibly brominated dioxin, beryllium, cadmium and mercury inhalation too.

DISMANTLED PRINTED CIRCUIT BOARD PROCESSING: Open burning of waste boards causes toxicity in workers and nearby residents from tin, lead, brominated dioxin, beryllium, cadmium and others.

CHIPS AND OTHER GOLD-PLATED COMPOUNDS: If its chemical are stripped using nitric and hydrochloric acid, it may result in acid contact and may result in permanent injury. Inhalation of mists and fumes of acids, chlorine and sulphur dioxide can cause respiratory irritation to severe effects.

PLASTICS FROM COMPUTER AND PERIPHERALS: Shredding and low-temperature melting: Probable hydrocarbon, brominated dioxin and PAH exposure to workers living in the burning works area emission of brominated dioxins and heavy metals and hydro-carbons.

Polychlorinated biphenyls used in condensers and transformers cause cancer, affect immune, endocrine and reproductive systems.

Chloro Fluoro Carbons found in cooling units like ACs cause toxic emissions when they are combusted. Arsenic found in small quantities in the form of Gallium Arsenide in LEDs are poisonous.

Lead, which is found in batteries and printed wiring boards, causes damage to nervous and circulatory systems and also causes learning disabilities in children.

Climate change affects AP, TS

V. NILESH | DC HYDERABAD, DEC. 2

Climate change is as much a local worry as it is global. Over the years minimum and maximum temperatures have been rising in Andhra Pradesh and Telangana. This year Hyderabad and other parts of Andhra Pradesh and Telangana are yet to experience the expected drop in temperatures for winter.

Minimum temperatures are above normal by 2-7°C in Telangana and 2-4°C in AP. For example the normal minimum temperature in Bhadrachalam in TS is 17°C but the town recorded 24°C on Tuesday. Summer temperatures this year were abnormal for most part. Hyderabad recorded one of the hottest days in the past five decades at 44.3°C on May 22, with the maximum ever recorded temperature being 45.5°C. Heat waves this year caused deaths of more than 2,000 people in both states with most of the deaths recorded in AP.

The mercury touched 48°C in some parts of Telangana in May, which was unheard of until 2013. In AP maximum temperatures hovered close to 47°C, close to highest ever recorded temperatures. The IMD's 2014 annual report officially declared that the year was hottest ever in the last 40 years

■ **MINIMUM TEMPERATURES** are above normal by 2-7°C in Telangana and 2-4°C in AP.

■ **HYDERABAD RECORDED** one of the hottest days in the past five decades at 44.3°C on May 22

and that maximum temperatures for most part of 2014 stayed higher than 1-2°C in Telangana, Andhra Pradesh and most parts of the country. A report by IMD of climate change trends across the country between 1951 and 2010 revealed that winters have been becoming warmer in AP and TS states over the years as maximum temperatures have been rising by 0.02°C in winter and also in post-monsoon months. Minimum temperatures have been rising by 0.02°C per year in November and by 0.01°C in December February and March.

In summer maximum temperature has been increasing by 0.01°C but in May and July it has been increasing by 0.02°C per year. Recently there have been reports by World Meteorological Organisation that 2015 is likely to be the hottest ever year on record and 2016 might be even hotter. However, there have been no such reports on it by the IMD yet.

RICH NATIONS, HIGH EMISSIONS

■ According to reports, the richest 10 per cent of the population produces half of earth's emissions

Le Bourget, Dec. 2: The richest 10 per cent of people produce half of Earth's climate-harming fossil-fuel emissions, while the poorest half contribute a mere 10 per cent, British charity Oxfam said in a study released on Wednesday.

Oxfam published the numbers as negotiators from 195 countries met in Paris to wrangle

over a climate rescue pact. Disputes over how to share responsibility for curbing greenhouse-gas emissions and aiding climate-vulnerable countries are among the thorniest and longest-running issues in the 25-year-old UN climate process.

"Rich, high emitters should be held

accountable for their emissions, no matter where they live," Oxfam climate policy head Tim Gore said in a statement.

"But it's easy to forget that rapidly developing economies are also home to the majority of the world's very poorest people and while they have to do their fair share, it is rich countries that should still lead the way."

The report said that an average

RICH AND DEVELOPING remain deeply divided on the issue of "differentiation" — how to share out responsibility for curbing greenhouse gas emissions

person among the richest one percent emits 175 times more carbon than his or her counterpart among the bottom 10 percent. Rich and developing

nations remain deeply divided on the issue of "differentiation" — how to share out responsibility for curbing greenhouse gas emissions, which derive mainly from burning coal, oil and gas.

Developing countries say the West has polluted for much longer and should shoulder a bigger obligation for cutting back.

They also demand assurances of finance to help them shift to less-polluting renewable energy, shore up defences against cli-

mate impacts such as sea level rise, droughts and superstorms, and to cover damage that cannot be avoided. "We hope advanced nations will assume ambitious targets and pursue them sincerely."

"It's not just a question of historical responsibility — they also have the most room to make the cuts and make the strongest impact," Indian Prime Minister Narendra Modi told on Monday during the opening of the summit by world leaders.

Yet many rich nations, led by the United States, reject the idea of a "bifurcated" approach with obligations placed on one group of countries, and not the other. They point to the risk of carbon emissions — as measured by volume, rather than per capita — from emerging giants such as China and India. Oxfam said its analysis "helps dispel the myth that citizens in rapidly developing countries are somehow most to blame for climate change."



Deccan Chronicle, Hyderabad dated December 03, 2015

IT cos generate 4K tonnes of e-waste

DC CORRESPONDENT
HYDERABAD, DEC. 2

IT and ITes companies located in and around Hyderabad generate over 4,000 metric tonnes of e-waste annually. According to a report from National Association of Software and Services Companies Foundation, while 39 per cent of the companies store their e-waste for a period of one year; 15 per cent of the companies dispose them within six months.

Realising the challenge for collection and scientific disposal of e-waste from the IT sector, the Telangana state government, TS Industrial Infrastructure Corporation and Nasscom Foundation have come together along with some NGOs to collect e-waste from IT companies in bulk and also place bins in the campuses of IT companies. TSIIC environ-

mental engineer Maloth Nanu said that they have conducted a study to take feedback on what steps should be taken to collect e-waste. "We facilitate IT to give their e-waste to authorised companies which have technology and technical knowledge to scientifically dispose off the e-waste," he said.

Mr Nanu said the important part of the TSIIC-Nasscom Foundation programme is to identify from the e-waste generated by IT companies whether some of it can be repaired, refurbished and re-used. "Recently, 10 such computers were repaired and given to an ITI college in Khairatabad," he said. Other e-waste is sent for recycling after

which the left over material is disposed off scientifically.

As part of clean e-India initiative, the Guide Foundation for Development a NGO from Hyderabad, has also joined hands with Attero, an asset management and recycling company to implement "safe and responsible" waste collection and recycling of electronic and electrical goods in the city. Clean e-India initiative was jointly launched in April 2013 by International Finance Corporation.

GFFD plans to approach informal waste collectors (kabaadiwalahs) and transform them into an organised network. As part of this association, GFFD will take the lead to create a robust ecosystem for responsible electronic waste collection and disposal by generating awareness amongst educational institutions and residential complexes.

PROPOSED E-WASTE CENTRE IN VIZAG YET TO TAKE OFF

SUMIT KUMAR ONKA | DC
VISAKHAPATNAM, DEC. 2

The port city is yet to become smart with regard to recycling of electronic gadgets. The government's plan to set up an e-waste disposal centre in the city has failed to take off so far. After a lot of hue and cry, an e-waste treatment plant has been proposed to be set up at Jawaharlal Nehru Pharma City.

AP Pollution Control Board's Vizag division environment engineer Lakshmi Narayana said efforts are on to set up e-waste disposal centre at the earliest in the city. A survey is going on as to how much e-waste is generated per month in the city, he added.

E-wastes are taken by unauthorised collectors

■ VIZAG PORT among other ports has emerged as major import point of e-waste into India.

for extraction of metals from the products or sometimes taken to Bengaluru and Hyderabad for processing.

At a time when the city itself is unable to dispose of the locally generated e-waste, dumping from the West is adding to the woes of e-waste disposal.

Vizag port among other ports in Chennai and Gujarat has emerged as major import point of e-waste into the country. Though, local customs feign ignorance of any import of these used gadgets, traders in Delhi, confirm that, they get these used items from Vizag.



FOR DISPOSAL of old bullets, ammunition, explosive material, detonators and weaponry, both police and defence personnel submit them back to Ordnance Factory. Civilians have to send to the factory, or go back to the shop where they bought it, or go to PS with the licence.

Little done to cut emissions

DC CORRESPONDENT
HYDERABAD, DEC. 2

Overdependence on coal-based thermal power plants for energy requirements in Telangana and Andhra Pradesh continues to be a major cause of worry for environmentalists as well as the government.

Both TS and AP are taking up projects to add 30,000 MW of thermal power plants in the next five years to achieve power for all 24x7. Environmentalist S. Jeevanand Reddy said coal fired thermal power plants are one of the main contributors for atmospheric pollution and greenhouse gases.

Emissions that come from these plants are major contributors to greenhouse gases and

global warming. Emissions like carbon dioxide, carbon monoxide, sulphur dioxide and nitrogen dioxide lead to global warming and possible acid rain. "Particulate emissions — the fine dust that emanates from the stacks of power plants is a health hazard. Elements like mercury, cadmium and lead are hazardous," he said. As it is, TS and AP have existing power plants with an installed capacity of 18,531 MW of which nearly 13,000 MW is dependent on fossil fuels, a majority of which is coal based. Renewable energy source based plants account for less than one per cent of the total installed capacity apart from which 3,734 MW is hydroelectric based.

House blocks emission rules, Obama set to veto

Washington: US House of Representatives voted to block President Barack Obama's regulations on reducing greenhouse gas emissions—a move certain to spark his veto — as negotiators work on a climate deal in Paris.

The two measures, rolling back the Environmental Protection Agency's new emission rules for existing and new power plants, passed the chamber largely along party

NY plans electric vehicle fleet

New York mayor Bill de Blasio on Wednesday announced his plans to build what he called the largest electric vehicle fleet in any US city and to slash traffic emissions. The "NYC Clean Fleet" project eyes plans to cut municipal vehicle emissions by half by 2025 and 80% by 2035. City hall said it would replace 2,000 fossil fuel sedans with plug-in electric vehicles over the next 10 years. AFP

lines, with all but four Democrats opposed to each.

The so-called disapproval resolutions, which already passed the Senate, dealt a symbolic yet harsh rebuke to Obama. The White House has said Obama would veto the resolutions and Congress does not appear to have sufficient votes to override it. Many conservatives in Congress deny that climate change is a result of human industry and agriculture, and have opposed emissions controls. AFP

World's richest 10% produce 50% of CO₂: Report

London: The richest 10% of people produce half of the Earth's carbon emissions, while the poorest half—most threatened by droughts and super storms linked to climate change—contribute a mere 10%. British charity Oxfam said in a study released on Wednesday.

The richest 10% have, on average, carbon footprints 11 times that of the poorest 3.5 billion people on the planet, the campaign group said in its report. One of the biggest obstacles facing negotiators from 196 countries, attending the Paris climate meet, is how to find the billions of dollars needed by developing nations to enable them to stop using fossil fuels and adapt to the weather shocks.

"Climate change and economic inequality are inextricably linked and pose one of the greatest challenges of the 21st century," Tim Gore, Oxfam's head of food and climate policy, said.

Emissions are rising fastest in developing countries, Oxfam said. Yet emissions relating to goods and services consumed by the richest citizens in China, India, Brazil and South Africa are way behind those of their counterparts in the wealthiest countries of the Organisation for Economic Co-operation and Development, it said.

Oxfam found that India's richest 10% use on average just one quarter of the carbon used by the poorest half of the population of the US. It also said total emissions of



'SOLUTIONS TREE': An art installation called the 'solutions tree', where people can post ideas to problems posed by climate change, is displayed in Paris on Wednesday

Tuvalu faces threat from rising sea

The PM of Tuvalu, the world's fourth smallest nation, has appealed for help from EU leaders to stop its disappearance from Earth. Enele Spooga arrived in Brussels on Monday to call on EU leaders for support. The islands, home to just 10,000, is under threat from rising sea levels as it is just 4m above sea level. He called on Europe to reduce greenhouse gas emissions to keep warming down to 1.5°C. He said: "We need to save Tuvalu to save the world." THE INDEPENDENT

China's poorest 600 million people are one third of the total emissions of US's richest 10%, some 30 million people. REUTERS

← The Times of India, Delhi dated December 03, 2015

The Times of India, Delhi dated December 03, 2015

NGT tells govt to act after 5-day smog

Seeks Report On Measures Taken So Far

Neha.Laichandani @timesgroup.com

New Delhi: With the city experiencing smog for the fifth day in a row, National Green Tribunal on Wednesday morning directed the Delhi government to convene an emergency meeting and discuss measures for immediate pollution abatement. It has also asked the government to come out with a notification, highlighting measures it has already taken to control the increase in pollution.

"What is the status of air pollution? All you can say is that there is no pollution... All stakeholders who are dealing with pollution indicate that Delhi is highly polluted. The levels of PM2.5 and PM10 are beyond prescribed limits. We cannot permit such a state of affairs causing serious environmental pollution to prevail," said the bench.

The four-member committee, comprising member secretaries of Delhi Pollution Control Board and Central Pollution Control Board, the director health services and the environment secretary, met on Wednesday evening and will carry on with the deliberations on Thursday as well.

Ashwani Kumar, secreta-

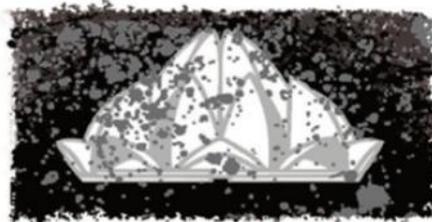
HERE'S WHY BEIJING'S AIR HAS BECOME A LOT CLEANER THAN DELHI'S

INDIA HAS LAX STANDARDS AND NO ALERTS				CHINA HAS STRICTER NORMS AND A FOUR-LEVEL ALARM SYSTEM			
Alerts	Health Impact	Description	AQI	AQI	Description	Health Impact	Alerts
None	Minimal Impact	Good	0-50	0-50	Excellent	Air quality satisfactory, and air pollution poses little or no risk	<ul style="list-style-type: none"> ➤ When PM 2.5 levels are higher than 150 µm/m³ Children, elderly with cardiovascular or respiratory conditions warned, dust prevention at construction sites ➤ PM 2.5 levels above 150 µm/m³ for 3 days Vulnerable groups to stay indoors, power plants, factories asked to reduce emissions ➤ PM 2.5 levels more than 150 µm/m³ for 3 days and more than 250 µm/m³ on some days factories close, no outdoor activity ➤ PM2.5 above 250 µm/m³ Schools close, power plants cut emissions, car use regulated as per licence number
	May cause minor breathing discomfort to sensitive people	Satisfactory	51-100	51-100	Good	For some pollutants there may be a moderate health concern for a small number of people	
	May cause breathing discomfort to the people with lung disease; discomfort to people with heart disease, children and elders	Moderate	101-200	101-150	Slightly Polluted	Sensitive groups may experience health effects. General public not likely to be affected	
	May cause breathing discomfort to people on prolonged exposure; discomfort to people with heart disease	Poor	201-300	151-200	Moderately Polluted	Heart and respiratory system of everyone may be affected; serious health effects on sensitive groups	
	May cause respiratory illness to the people on prolonged exposure; pronounced effect in people with lung and heart diseases	Very Poor	301-400	201-300	Heavily Polluted	Patients with heart and lung diseases severely affected; healthy people are commonly affected	
	May cause respiratory effects on healthy people; serious health impacts on people with lung/heart diseases	Severe	401-500	>300	Severely Polluted	Weaker endurance in activities and significant severe health warnings among healthy; certain diseases have early appearance	

AQI (Air Quality Index) based on PM 2.5 levels

ry environment, said, "We will look at specific geographical areas where pollution levels are worse and come up with solutions. This means that we will first have to identify such places based on our own data, experience and the report on air pollution that IIT Kanpur has made for us." He said the report had found the severest pollution in a third of Delhi.

The IIT study has not been released yet, but sources said it has mapped Delhi based on pollution levels. "The city has been divided into grids and



LET DELHI BREATHE

areas have been marked based on locational variation in pollution load. This report will form a basis for the recommendations by the committee but there are other factors

that will be considered as well," said a source. "Real-time monitoring of air pollution is also being done—in six locations by DPCC and another 10 by SAFAR. This will give an idea of some critical areas, although if it is felt that some other places are vulnerable too, a quick sampling from them can also be carried out. The solutions will be source-based, though with air pollution, any measure that is taken to reduce it in one location will impact a much larger area."

The committee will list

areas according to priority and then prepare an action plan. Areas like Anand Vihar and Civil Lines are likely to be covered.

At 8pm on Wednesday, Anand Vihar, an area bordering Delhi and Uttar Pradesh with an inter-state bus terminus, had PM10 levels of 940µg/m³ against a standard of 100, and PM2.5 levels of 229µg/m³. A residential area like RK Puram, which is seeing massive construction activity at present, had PM 10 levels of 568µg/m³ and PM 2.5 levels of 257µg/m³.

The Times of India, Delhi dated December 04, 2015

City is like a gas chamber: High court

Govts Told To Act Immediately

TIMES NEWS NETWORK

Alarmed at the current air pollution levels in the city, the Delhi high court on Thursday termed it like living "in a gas chamber" and demanded an immediate action plan from the Centre and the state government to combat deteriorating air quality.



The high court has given the Centre and the Delhi government till December 21 to enlist the steps being taken to tackle air pollution in the capital

Zeroing in on emissions by construction-related vehicles as key pollutants in the capital, a bench of Justices B D Ahmed and Sanjeev Sachdeva ordered a clampdown on both, asking the government agencies to take steps.

"The level of PM2.5 has crossed level of 60, still the government hasn't done anything!" the court said, dismissing the plans filed by the environment ministry and the Delhi government as "noncomprehensive". The governments have been given time till December 21 to enlist the steps. Referring to dust particles floating due to construction activities, the court said the civic agencies and the state government must ensure that no construction takes place without taking care of minimal generation of pollutants.

The high court also took a serious view of extreme air pollution being caused by unrestrained burning of trash and leaves in the city and the adjoining areas. It asked the Delhi government to ask all subdivisional magistrates to get cracking against the offenders. The government must widely

publicise that such practices are prohibited, it added.

Turning to a status report by traffic police identifying 14 choke points leading to congestion and idling vehicles, the court said more personnel could be deployed, besides putting up plastic bollards, to segregate carriageways and regulate flow of traffic.

The judges also told the traffic police to



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book those violating yellow lines and don't

adhere to lane driving. "Publicise (that) there would be strict action and fines for violations," it said while hearing a suo motu case on increasing air pollution in Delhi. In certain areas, the traffic police can install automatic synchronised traffic light changing system to discipline flow of vehicles, it added.

The bench further expressed concern over the plight of traffic constables manning lanes, saying the force must provide proper protective gear, including masks, to its personnel.

With regard to the poor air quality on the Delhi high court premises, the bench directed the registry to ensure that air purifiers are put up within two weeks in each courtroom as well as public access areas.

*The Times of India, Delhi
dated December 04, 2015*

Bad air: Delhi races ahead of Beijing

Jayashree.Nandi
@timesgroup.com

After a neck-and-neck race with Beijing over the past few winters, Delhi may soon find itself without a rival for the 'most-polluted-city' crown. The Chinese city is doing its best to fall behind although, as happened last week, it sometimes nudges ahead with a wind-aided spurt.

A recent assessment by Beijing-based Greenpeace East Asia shows that between August 2014 and August 2015, Delhi's levels of PM2.5 (fine, respirable pollution particles) were far higher than those in Beijing.

Using data from Delhi Pollution Control Committee (DPCC) and Beijing Municipal Environmental Monitoring Centre stations in Beijing, Greenpeace East Asia found that the Chinese city's monthly PM2.5 averages were between 100gm3 and 200gm3. Delhi's monthly averages for October, November, December and January were well above 200gm3. A microgram (g) is a thousandth part of a milligram.

Not only the Chinese government but also civil society organisations are now saying that Beijing's air quality is improving steadily due to aggressive anti-pollution policies. Average annual PM2.5 levels fell by about 25% from November 2014 to November 2015, after more modest reductions since 2012.

"This November was the worst on record in Beijing since 2010, largely due to the horrendous smog episode that the city just experienced. However, even after that,

2015 is on track to be by far the best year on record," said Lauri Myllyvirta, global campaigner, coal at Greenpeace. "This reduction is not happening only in Beijing but all across eastern and central China, and it can be verified from NASA satellite imagery along with official data."

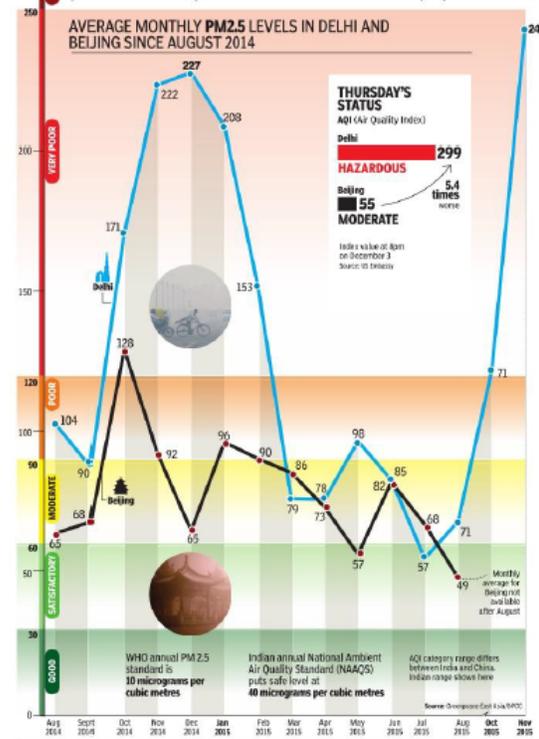
Other Chinese cities have also shown improvement, say activists. A Greenpeace East Asia analysis of data from 360 Chinese cities released last year reveals "modest" air quality improvements in coastal regions and cities such as Beijing over 12 months. Even the industrialised Hebei province, just outside Beijing, has improved by 31%.

"Our analysis shows that the government's strict pollution control measures are working," said Zhang Kai, climate and energy campaigner at Greenpeace East Asia.

On the other hand, DPCC's average PM2.5 data for winter months in Delhi shows no improvement whatsoever. DPCC monitors air quality at RK Puram, Mandir Marg, Punjabi Bagh, Civil Lines and Anand Vihar. Some of the stations have in fact shown an increase in PM 2.5 pollution. Only IGI Airport showed considerable improvement in December 2013, January 2014, and January, February, October and November this year. This might be because construction activity--a major polluter--at Aerocity which started in 2010 finished by 2014. Spokespeople for Aerocity said they also have a traffic plan for the area. "Delhi and Beijing started

DELHI'S WINTER CURSE IS BACK

Last year air pollution in Delhi more than doubled between August and December, making the winter air quality in the capital very poor. Beijing's air too worsens in winters, but to a much less extent. Delhi didn't do anything to clean up. Consequently, in November 2015, Delhi's air quality became worse than the very poor level of December last year. December 2015 could be much worse and air quality could become severe



Beijing's air quality is improving steadily due to aggressive anti-pollution policies. Average annual PM2.5 levels fell by about 25% from November 2014 to November 2015

significantly reducing coal consumption in industry and power plants--coal-burning is responsible for an estimated 60% of PM2.5 in China."

In 2013, China had released an air pollution action plan called Air Ten, setting targets for 2017 that gave it the momentum to act quickly. Three of Beijing's four coal-fired power plants have been shut down and the last one will be closed in early-2016. A new air pollution law will also take effect next year," said a campaigner from Greenpeace East Asia.

Severe pollution has undermined public health in both cities and reduced life expectancy.

C. Arden Pope III, Mary Lou Fulton Professor of Economics at Brigham Young University, told TOI: "The estimates are that living in a highly polluted city such as New Delhi results in an estimated loss of life expectancy of about three years."

In an article about China published last year, he and Dr Doug Dockery at Harvard School of Public Health, had said life-time exposure to ambient air pollution in a city like Beijing may also result in an estimated loss of life expectancy of approximately three years.

neck and neck. Both had severe pollution levels but Beijing never lost the momentum in dealing with it. They implemented restraint policies such as limiting car numbers and scaling up public transport at the same time," said Anumita Roychowdhury, head of Centre for Science and Environment's (CSE) Clean Air campaign. "Now they are considering implementing the California emission standards by December 2017 which are among the most stringent in the world. We cannot do with small steps anymore in Delhi."

Experts say Beijing may have been able to achieve rapid improvements in air quality by idling coal-burning power plants, which helps it meet climate targets along with controlling air pollution.

"Based on our analysis of weather patterns in Beijing and the fact that the fall in pollution levels is the largest since satellite records started in 2003, we are confident in saying that the fall in pollution levels is due to a real reduction in air pollutant emissions," said Myllyvirta. "China has achieved this by

The Times of India, Delhi
dated December 04, 2015

India, China warn rich nations on funding

Issue Could Make Or Break Summit: Group Of 134 Nations

Vishwa.Mohan@timesgroup.com

Paris: Flagging the issue of finance as super-critical to the success of the climate change summit, a group of 134 countries, including India and China, on Thursday emphasised that the contributions of rich nations must be categorically stated.

"The (issue) of finance is critical...It will make or break (the summit)", the group said. Articulating the united stand over the issue, which divides the developed and developing world, group chair ambassador Nozipho Mxakato-Diseko from South Africa said the UN Framework Convention on Climate Change

(UNFCCC) is explicit on what needs to be done. The G77 and China, which forms the biggest group in the ongoing Paris climate talks, on Wednesday strongly objected to attempts made by rich nations to dilute the Convention that call on developed countries to extend support to poorer nations. It in its first formal statement, the group said, "The G77 and China is deeply concerned with the attempts to introduce economic conditions in the finance section currently under negotiation here in Paris".

Asked about the economic conditions, the chair on Thursday termed such a move by the rich nations as an attempt

to escape from their responsibility as laid out in the Convention. Mxakato-Diseko said, "These countries jumped out of the Kyoto protocol. They did not even ratify it...World should be asking these small group of countries (rich nations) what is their responsibility".

Though she was clearly referring to the US, which initially signed but never ratified the protocol, and also Canada which later opted out of the protocol, she chose not to call out the two. Asked to name the countries, she said, "We don't name and shame

them. But, they name us." Her remarks, on behalf of the entire 134 developing countries came just a day after the group flagged its concerns over the approach of rich nations towards finance.

She late on Wednesday evening said, "Any attempt to replace the core obligation of developed countries to provide financial support to developing countries with a number of arbitrarily identified economic conditions is a violation of the rules-based multilateral process and threatens an outcome here in Paris".

The group on Wednesday expressed its concerns over the narrative which suggests that the world has changed since the UNFCCC was adopted in 1992 due to the dramatic economic development gains

STICKING POINTS



Explaining Climate Finance

- All groups of developing countries - G77 plus China and Like Minded Developing Countries (LMDC) - flagged Climate Finance strongly
- There is a goal to mobilise \$100 billion a year from both public and private sources by 2020
- There is, however, no clear roadmap to mobilise \$100 billion a year from 2020
- Rich nations are expected to contribute to the Green Climate Fund (GCF) - a multilateral fund to help poor/developing countries fight climate change
- Rich nations want the emerging economies, including India, too contribute to the GCF
- Rich nations also want that the money to be provided to only poor nations and not to countries like India

POINT COUNTERPOINT

- World has changed since United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992 due to dramatic economic gains of some developing countries like China, South Korea and UAE among others
- It is time to expand the pool of so-called 'donors' of climate 'aid' and to narrow the list of those eligible to receive this 'support' to only the 'poorest of the poor'
- 134 countries of G77 plus China group, including India, want all rich nations to contribute to the GCF and the money be made available to all developing countries
- Developing countries want rich nations to keep loans and existing overseas development aid out of climate finance
- Developing countries also want the rich nations to scale up their contributions to GCF beyond \$100bn per year target
- As of Nov 2015, GCF has raised \$10.2bn equivalent in pledges from 38 governments
- Out of \$10.2bn, only \$5.9bn has been capitalised to the fund
- India says it would also contribute but it will not be part of GCF



of some of the developing countries (China, South Korea, Saudi Arabia and UAE among others) and hence that it is time to expand the pool of

so-called "donors" of climate "aid" and to narrow the list of those eligible to receive this "support" to only the "poorest of the poor".

"This narrative serves narrow national interests of developed countries and says little about reality. If the world has really changed so

much, we ask why it is that after all these decades all our members remain developing countries with little or no voice in global decision-making processes and institutions", said the ambassador.

The G77 and China stressed that nothing under the UNFCCC can be achieved without the provision of means of implementation to enable developing countries to play their part to address climate change.

Mxakato-Diseko said that the full picture of financial arrangements for the enhanced implementation of the Convention kept on eluding the Group. "We believe that it will help the process if all matters related to finance, whether it is under the Convention, the Kyoto Protocol and under the ADP (Ad Hoc Working Group on the Durban Platform for Enhanced Action) can be discussed in a comprehensive and coherent manner, regardless of where they will be reflected in the end, whether in the decision or the agreement", she said.

The group also emphasised that it is now time for all developed countries to convert their pledges to the Green Climate Fund (GCF) into contribution agreements, as well as scaling up commitments in the ADP process.

Under the Convention, developed countries are obliged to provide financial resources, including technology transfer and capacity building to all developing countries.

For the full report, log on to www.timesofindia.com

India, US to Work Closely to Fulfil Climate Pledges

Urmi.Goswami
@timesgroup.com

Paris: The US said it hopes to work with India to devise a mechanism that will ensure transparency and accountability of efforts that countries pledge to make in the post-2020 period under the Paris Agreement. US special envoy for climate change Todd Stern said the transparency mechanism had been discussed at Monday's bilateral meeting between Prime Minister Narendra Modi and President Barack Obama.

Stern said the Prime Minister had suggested that industrialised countries should help developing countries with capacity building to undertake the requisite monitoring and reporting of climate actions that countries had pledged. "The Prime Minister actually suggested a capacity-building effort to help developing countries to do exactly the kind of reporting required. And we explained that we have actually been working on exactly on such kind of proposal," Stern said. "I hope we can work with the Indians on that."

The US is of the view that there must be a common transparency mechanism for all countries under the Paris Agreement. It is of the view that all countries must be held equally accountable for fulfilling its climate pledges.

"You need to be able to give everybody in this arena confidence and trust that those INDCs (intended nationally determined contributions) are getting carried out," Stern said. India and other developing countries have argued that the transparency system developed in Cancun in 2010, which has different reporting requirements for developed and developing countries, should be maintained. India's position has been that the two systems, International Assessment and Review (IAR) for developed countries and International Consultation and Analysis (ICA) for developing countries, are very new. These systems need to be implemented for some time before these are discarded.

The US has consistently called for legal parity while ensuring flexibility for developing countries, that is, all countries are subject to the same system with some leeway for developing countries. "We strongly support the notion of one system, one umbrella that covers everybody with all appropriate flexibilities built in for countries who need it on the basis of their capacities. We understand that," the US lead negotiator said.



Right now we have a bifurcated system, one way for the developed countries, another way for developing countries. What exists for the developing countries is an improvement over what existed before. It is actually moving in a better direction. It needs to move in a still better direction." US SPECIAL ENVOY FOR CLIMATE CHANGE TODD STERN

now being held more accountable than before.

"Right now we have a bifurcated system, one way for the developed countries, another way for developing countries," Stern said. "What exists for the developing countries is an improvement over what existed before. It is actually moving in a better direction. It needs to move in a still better direction."

The objection to a common framework also stems from the lack of adequate capacity and ability in developing countries to undertake the more rigorous accountability check that industrialised countries are required to be subjected to.

The tussle over transparency is at the core of the divergence over how differentiation between developed and developing countries should be operationalised.

The US has made it clear that a common transparency framework is one of its non-negotiable positions. "The transparency, or MRV (measurement, reporting and verification), is an enormously important part of this agreement, I would say core part of this agreement," Stern said, reiterating President Obama's comment that review of climate pledges must be legally binding.

To ensure greater acceptability of its transparency framework, the US is ready to offer support for developing countries. "We need to be moving in ramping up and moving in a positive direction and with the kind of capacity building support that countries need in order to do the right kind of inventories, to do the right sort of reporting. We are actually putting forward a proposal in that vein."

(This correspondent is in Paris at the invitation of Climate Action Network South Asia (CANSA), which is South Asia node of Climate Action Network, a consortium of NGOs)

The Economic Times, Delhi dated December 04, 2015

The Economic Times, Delhi dated December 05, 2015

Chennai Floods Echo at Paris Climate Meet

French envoy says rains indicate that world urgently needs to tackle climate change

Urmi.Goswami@timesgroup.com

Paris: The incessant rains in Chennai have become part of the discussions thousands of miles away in the Paris suburb of Le Bourget, where diplomats and officials from over 190 countries are working on finalising a new global regime to tackle climate change.

French foreign minister Laurent Fabius, the chair of the global negotiations, expressed his solidarity with those affected by the tragedy inflicted by the torrential rainfall. "Flooding in Chennai has taken a tragic toll. I want to express solidarity with those affected by this tragedy," he said.

For Fabius the rains in Chennai, which has already received twice the amount of rainfall it receives in December, marks yet another stark reminder that the world must act decisively in tackling climate change. "The unprecedented magnitude of the flooding confirms yet again that we no longer have time; we must take concrete and urgent



Rescue operations are underway in rain-hit Chennai

action against climate disruption," he said in a written statement. In the 24 hours preceding Wednesday morning, Chennai received 330 millimetres of rain.

The United Nations' climate science body, the Intergovernmental Panel on Climate Change predicted in its fifth assessment report that risks associated with extreme events will continue to increase as the global mean temperature rises.

On Wednesday, environment minister Prakash Javadekar said that the excessive rains in Chennai were not on account of climate change. Experts agree that it is not possible to link individual weather events to climate change. However, they stress that to delink extreme weather events such as these from climate change is incorrect. Scientists maintain that unchecked climate

change will spell an increase in the periodicity and intensity of aberrant climate events, leading to what climate science says will be the new normal. "Climate change may not be directly responsible for flooding in Chennai but it has definitely contributed to it," said Harjeet Singh, international policy manager for climate change at Action Aid.

As the world quibbles about the role of climate change in the worst rains that Chennai has experienced in over a century, the subcontinent's vulnerability to extreme weather events has become clear.

Over the past few years, as the world has worked towards a new global agreement, the subcontinent has experienced many successive extreme weather events — the Uttarakhand floods following unseasonally heavy rains, the flooding in the Kashmir Valley, the heavy rains and landslides in Malin in the Western Ghats.

According to Global Climate Risk Index 2016, published by Germanwatch, a think tank working on climate change, India is among the ten countries most affected by the impact of rising temperature. In 2014, extreme events led to losses to the tune of 0.5% of GDP. All point to the one central message that Fabius has sought to give to the negotiators in Le Bourget — there is no time to waste; this is an urgent problem that needs a solution now.

The Times of India, Delhi dated December 05, 2015

India thwarts coal heat at Paris summit

RICH-POOR DIVIDE OVER CARBON SPACE

AS PER IPCC ESTIMATES Carbon space of 2,900 Gt (giga-tonne) available to stay below 2 degree Celsius mark



Global avg temperature rise must be below 2°C to prevent disastrous consequences of climate change

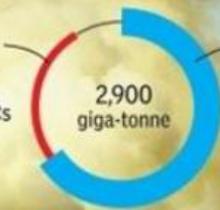
With 17% of world population, India accounts for only 4.49% of the world electricity consumption and 4.6% of the world's energy consumption

Even in 2030, India will be far behind rich nations and China in terms of per capita emission

Global average temperature may rise by 2.7°C by 2100 from pre-industrialization (1850) level with existing emission cut targets

Countries like US, China, Russia and Japan need to scale up their emission cut targets

World will emit another **748.2 Gt** of CO₂ by 2030 (aggregate of INDCs of all countries)



World has already emitted **1,900 Gt** of CO₂ between 1850-2011, mostly by burning coal for energy

AS PER GLOBAL EMISSIONS ESTIMATE US, EU nations, Russia, Japan, Canada and Australia contributed 2/3rd of total emission between 1850-2011

1850-2011 US and EU both emitted **10 times more CO₂** each than India

India is **4th biggest emitter** after China, US and EU but its rank is **120th** in terms of per capita emission

PER CAPITA EMISSION ESTIMATE FOR 2030 (IN TONNE)



Counters Rich Nations' Propaganda

Vishwa.Mohan @timesgroup.com

Paris: As talks at the ongoing climate conference headed for the crucial high-level segment in the next 48 hours, rich nations tried to pressure India on its coal use, ignoring the fact that they have already occu-

piated the carbon space the developing countries now need for their economic growth and energy requirements.

Countering the rich nations' narrative, Indian negotiators and civil society members on Friday flagged how it was important for the country to use coal, of course through clean technology, to provide electricity to the 300 million Indians whose homes are still without power. Indian negotiators asked those who indulged in such propaganda to answer how countries like India should fulfil the aspirations of

UP girl picked to interview UN secy-gen

A 19-year-old student from Lucknow, Yugratna Srivastava, has been chosen to interview UN secretary-general Ban Ki-moon at COP21, the climate summit in Paris. She will interview him at the 'Earth to Paris' event on December 7. "The best part was a mail (from the UN secretary-general's office in New York) which said they can't imagine a better person than me to do this interview," Yugratna told TOI from Paris.

Isha Jain

people without electricity if not through coal. Civil society members, on the other hand, sought to expose the rich nations which have not only achieved development through coal use but still use it substantially along with gas.

"Seventy eight million homes and 300 million people still don't have electricity in India after 67 years of independence. Our government is desperate to provide them electricity," said environment secretary Ashok Lavasa.

"While we are determined to fulfil the aspirations of these people, we are also exploring all possible, better ways for doing it," he added in his address at an event organised by the Delhi-based think-tank Centre for Science and Environment (CSE) at the India pavilion.

"How will we accommodate the interests of the countries who have to develop (to end poverty and provide electricity to millions of people?" asked the environment secretary before experts from CSE presented details on the limited carbon space needed by developing countries to grow.

The discussion at the event echoed India's position on the issue of carbon space, reflecting what PM Narendra Modi

had said at the climate summit's inaugural on

Monday as he pitched for space for India to grow. Seeking to show a mirror to all those who have been indulging in anti-India propaganda over the use of coal, CSE deputy director general Chandra Bhushan said as environmentalists, "we are against the use of coal, but we are also against the use of gas and other fossil fuel resources". Earlier, he made a presentation detailing coal and gas use by rich nations in their total electricity mix. It shows that though the share of coal in the total energy mix for the US, Japan, EU, and Australia is less than India's in percentage terms, the overall use of fossil fuel is still quite substantial, despite their shift to nuclear energy long ago. "We cannot say coal is bad and gas is good. We cannot be selective about fossil fuel," he added.

For the full report, log on to www.timesofindia.com

The Economic Times, Delhi dated December 05, 2015

The Economic Times, Delhi dated December 07, 2015

State of Forest Report 2015

Forest and tree cover in India as per India State of Forest Report 2015

CATEGORY	AREA(Sq Kms)	Per cent of geographical area
Very dense Forest	85,904	2.61
Moderate Dense Forest	3,15,374	9.59
Open Forest	3,00,395	9.14
Total Forest Cover	7,01,673	21.34
Tree Cover	92,572	2.82



India's Forest Cover Goes Up, Shows Report

Our Political Bureau

New Delhi: India's forest cover increased by 3,775 square km since 2013, taking the total to 701,673 sq. km, or 21.34% of the country's geographical area.

In the very dense forest category, the thickest and oldest of forest patches, an increase of 2,402 sq. km was offset by a shrinking of 3,371 sq. km in moderately dense forest areas, according to the India State of Forest Report 2015 released on Friday.

There were worrying signs for the northeastern states, an area that accounts for one-fourth of the country's forest cover. The report, published by the Forest Survey of India, noted that "there is a net decline of 628 sq. km in forest cover as compared to the previous assessment."

Similar trends were observed in the 2013 forest report, where both the northeastern states and the moderately dense forest areas recorded a decline in cover.

India now has no more than nine contiguous uninterrupted forest patches measuring over 10,000 hectares.

"The nine forest patches constitute 39.84% of India's total forest cover. Another 13% area is covered by forest patches measuring 5,000-10,000 hectares. Overall, this means that 79% of the total forest area in the country is covered by uninterrupted patches of at least 11 sq. km. This is very good news, showing forest size is not decreasing and it is also a great challenge to maintain this," said Dr Anmol Kumar, Director General of the Forest Survey of India.

Assessments of the status in tiger

reserves, disclosed for the first time, showed that while forest cover in core and buffer areas of Corbett National Park increased in 1990-2000, it decreased in 2000-10 due to flooding of rivers and rotational felling. In Dudhwa Tiger Reserve, there is a positive change in the forest cover, while in Valmiki Tiger Reserve, there has been a decrease of forest cover and carbon stock.

The report records an increase in mangrove cover by 112 sq. km and a rise of 103 million tonnes in the country's forest carbon stock to over 7 billion tonnes.

Kumar said the increased forest cover and carbon stock was an indicator that India is well equipped to meet targets enunciated in the Intended Nationally Determined Contributions (INDCs) aimed at limiting climate change.

"India has set out a target to create an additional carbon sink of 2.5-3 billion tonnes carbon dioxide equivalent in forests in its INDCs for the ongoing COP21 meeting in Paris. It appears very possible to meet this target through strong afforestation measures, use of alternative fuels and sustainable forest management practices," he said.

Environment minister Prakash Javadekar said the forest report was a great indicator to the world at the time of the global climate meet Paris that India is increasing its forest cover even as global warming challenges loom large.

While there is an increase in the Very Dense Forest category, there is a decrease of 3,371 sq kms in the moderately dense forest areas

BLOWING HOT & COLD It's been the hottest year so far. But horticulturists went ahead & created a bumper crop. In contrast, frost has eaten our grain

Global Warming, El Nino may Wither Wheat Crop

Late planting set to delay harvest, hit farm yields, magnifying rural distress

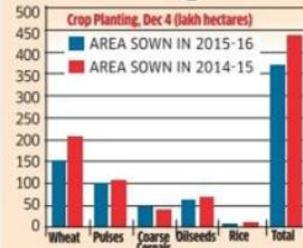
Prashant.Krur@timesgroup.com

Chandigarh: Rising temperatures due to greenhouse gases and El Niño are said to be taking a toll on the wheat crop as late planting in the hottest year on record is set to delay the harvest and severely hit farm yields, magnifying rural distress.

The late onset of winter and exceptionally dry conditions after the weak monsoon have prompted late crop sowing by farmers. They have suffered crop damage due to two consecutive failed monsoons and unseasonal rain and hailstorms in February and March, which damaged the winter-sown crop just before harvest time. Wheat planting is already 27% lower than last year. Experts said even if weather conditions improve and farmers resume planting, the crop will mature by May, denying it the cool weather for better yields.

"Delayed sowing will expose the crop to higher temperature at the time of maturity. Winter chill is crucial for grain formation as the high temperature reduces output," said Indu Sharma, director of the Karnal-based Indian Institute of Wheat and Barley Research. Sow-

Shrivelling Grain



The current year has been the hottest since 1901, says MET

BP YADAV
CHIEF, METEOROLOGICAL DEPT

This year El Nino effect is strong and its impact is also prolonged. The winter is likely to be warmer and shorter

ing of wheat has been affected in high-production zones in UP, Madhya Pradesh, Haryana, Bihar and Rajasthan. Weather scientists said the effects of El Niño is exacerbating the situation.

"This year El Niño effect is strong and its impact is also prolonged," India Meteorological Department director BP Yadav told ET. "The winter is likely to be warmer and

shorter this time." The IMD said the current year has been the hottest since 1901. The World Meteorological Organisation (WMO) said 2015 is likely to be the hottest on record, while 2011-2015 is the hottest-ever five-year period.

"This is due to a combination of a strong El Niño and human-induced global warming," it said. "The overall warming impact of this El Niño is expected to continue into 2016." WMO secretary general Michel Jarraud said November 25. Sharma said wheat output and quality can be hit if February and March are warmer than usual. Agriculture experts are alarmed that the El Niño impact could last for years. Higher temperatures have already affected the sowing of wheat and mustard.

'Metro removes more carbon than it adds'

GREEN INITIATIVE

NET EMISSION REDUCTION (carbon dioxide in thousand tonnes)	PROJECTION OF FURTHER REDUCTION	Year	
		2021	2031
2013-14 103	Energy-efficient buildings	88.8	138
14-15 147	Solar	1573	786.5
15-16 157	Metro operations	12,204.7	55,776.7
	Total	12,450.8	56,701.2

TIMES NEWS NETWORK

New Delhi: In a special presentation on the Delhi Metro at the climate change talks in Paris, DMRC said that the system is carbon neutral, removing more carbon from the atmosphere than it contributes.

Anuj Dayal, executive director, corporate communications, DMRC, who presented the paper at the conference, said, "DMRC is the only Metro getting carbon credits for its regenerative braking and modal shift projects."

He also spoke about the revenue that DMRC was earning from the sale of carbon credits from its two greenhouse gas mitigation projects, the first of their kind in the world for the transport sector.

"The Delhi Metro Rail Corporation has a well laid out sustainability plan for the future and the next step is to capture the positive health impacts from DMRC's operations, given the state of pollution in Delhi," said Dayal.

Delhi Metro, which carries 2.7 million passengers each

day at present, is the world's first ever rail-based system to earn carbon credits. Through various measures, DMRC has reduced emissions by 1,03,000 tonnes of carbon dioxide in 2012-13. By 2013-14, emission reduction had touched 1,57,000 tonnes. The agency is targeting a savings of 26.60 million tonnes by 2031.

"The main works undertaken for GHG mitigation are under the categories of energy-efficient buildings, use of solar energy and Metro operations. DMRC is currently using 150 MW of power, while we have already commissioned a 3 MW plant and awarded contracts for another 8 MW. By 2021, we will take this up to 50 MW. Other works undertaken include preservation of topsoil, monitoring of air and noise pollution, dust collection, tree plantation, water recharge, and wheel washing," said sources.

With all its new stations being built as 'green buildings', DMRC is recording 30-35% savings in energy and a 50% reduction in lighting power density.

The Times of India, Delhi dated December 07, 2015

The Times of India, Delhi dated December 08, 2015

As Delhi debates, Beijing declares war on pollution

Chinese Capital Orders Odd-Even Vehicle Curbs

Jayashree Nandi & Saibal Dasgupta | TNN

New Delhi/Beijing: While Delhi continues to debate 'tough' anti-pollution steps announced by the city government, Beijing on Monday issued its first 'red alert' on air pollution since the system was put in place in 2013, taking tougher and immediate measures to deal with a problem which appears to be comparable to what Delhiites face.

FULL COVERAGE: P 3, 5, 16

As haze filled the Beijing system — with smog enveloping the city all day and visibility down sharply after sunset. Delhi's average AQI on Monday was 333, according to CPCB. This may appear higher than Beijing but the two AQIs aren't directly comparable.

However, there was a stark difference in the way

DEALING WITH AIRPOCALYPSE

Monday's Air Quality: Delhi Was As Bad

BEIJING | HEAVILY POLLUTED

2nd worst category in China's grade, with AQI* value of 201

DELHI | VERY POOR

2nd worst category in India's grade, with AQI value of 333

*AQI values of the 2 cities aren't comparable, but grades are

► PM2.5 concentrations in Beijing have been hovering around 300 micrograms, while these have reached higher peaks in Delhi in the past few days

BEIJING ISSUES RED ALERT

► Odd-even traffic curbs imposed from 7am on Tuesday till midnight of Thursday

► Polluting factories, construction shut down for the period

► Kindergartens advised to close for 3 days



► Smog to clear a bit, but brace for dense fog, P 5

Beijing reacted to the smog on Monday. It ordered odd-even number traffic curbs for three days starting Tuesday — similar to Delhi government's proposed measure from January 1 that has evoked a sharp reaction from citizens and political parties.

► Curbs once a week, P 5

The Times of India, Delhi dated December 08, 2015

Alert or not, Beijing has curbs once a week

► Continued from P1

Besides, polluting factories and construction sites in Beijing are being shut down and the administration has urged kindergartens to remain closed while not issuing a formal order to them. The city has a 4-tier smog alert system. Red, the highest alert, is issued when PM 2.5 concentrations have hit more than 250 micrograms per cubic metres for three consecutive days.

Beijing is considered far ahead of Delhi in tackling sources of air pollution. In 2013, it released an air action plan which set a target of bringing down average PM 2.5 concentrations to moderate levels by 2017. The city has since been working on this plan.

Beijing doesn't just have a variety of measures to counter vehicular emissions which include a lottery system to limit vehicle purchases and colour coding of vehicles based on emission compliance, according to Greenpeace East Asia, it has shut down three out of four coal power plants in Beijing. The

CHINESE PRESCRIPTION

ISSUE	POLICY INITIATIVES
Compliance with standards 	Vehicle inspection and maintenance, setting up remote sensors to test vehicle on-road emissions
Grossly emitting vehicles 	Retrofit buses with diesel particulate filters, retrofit taxis with three-way catalytic converters, subsidising early scrappage of older vehicles (6 years+)
Traffic management 	Motorcycles banned within Fourth Ring Road, zone restriction for yellow-label (polluting) vehicles, limited vehicle usage on certain days, zone-wise restriction for non-local vehicles
Vapour recovery 	Regulation for Stage I and II recovery, retrofit equipment on tanker trucks and at gas stations
Alternative fuel vehicle 	Introduction of compressed natural gas buses, promotion of new energy vehicles, introduction of liquefied natural gas buses, separate licence cap for new energy vehicles
Vehicle population control 	Lottery system to limit new vehicle purchases

last one will be closed early 2016. Coal-burning is responsible for an estimated 60% of PM 2.5 in China.

Delhi's decision to temporarily close down its two thermal power plants has also been welcomed by environ-

mentalists and is being seen as a measure that will improve air quality to an extent. The average PM 2.5 concentrations in Delhi from 6 am on Sunday to 6 am on Monday was about 216 micrograms per cubic metres about 3.6 times

the Indian safe standard.

According to the official Xinhua news agency, Beijing government will implement the system of restricting cars with number plates with odd or even numbers on alternative days between 7 am on Tuesday and midnight of Thursday.

According to the Beijing Municipal Environmental Monitoring Center, heavy air pollution will linger until Thursday. It is expected to disperse Thursday afternoon as a cold front arrives. The warning was an upgrade from an orange alert issued over the weekend when factories are closed, people asked to wear masks among others.

Even without an alert in place, Beijing restricts use of private cars for one day in a week.

"Delhi has made a beginning. It has announced its smog emergency measures. Of course, we now need a very good implementation strategy and a strategy to deal with the public health aspect of the problem. Despite people opposing the odd and even idea because of a variety of reasons, we have to understand

that it is an emergency measure just like Beijing's," said Anumita Roychowdhury, head of Centre for Science and Environment (CSE's) clean air programme.

Delhi's odd and even formula has been opposed by some because it may lead to people buying more vehicles to cheat the restriction or changing license number plates. They have also raised concerns about mobility of the disabled, the sick or those in emergency services getting affected.

As far as China is concerned, the move to issue the red alert is being seen as the government's efforts to project Beijing's seriousness about implementing president Xi Jinping's promise at the Paris talks to take action against greenhouse gas (GHG) emissions. Beijing had avoided issuing the alert on November 30 when average AQI crossed 400 and reached 550 at certain times of the day.

According to an analysis by CSE, the odd-even driving restriction during the 2008 Olympics was associated with at least 38% reduction in PM10 concentrations.

Deccan Chronicle, Hyderabad dated December 08, 2015

CLIMATE CHANGE ■ Bangladesh is among the 10 nations most hit by consequences of extreme weather events

An island which could disappear in 50 years

Kutubdia, Dec. 7: Hamida Begum has fled her home on Bangladesh's Kutubdia island more times than she can remember while her neighbours have already given up the battle to prevent theirs being swallowed by the sea.

"I am scared our house will be washed away as well some day and during the monsoon season we can't live here at all," says the mother-of-four, standing outside the only one of a row of mud-brick shacks still intact. "But this is our land and besides, we don't have money to go elsewhere." Although around 1,00,000 people still reside on Kutubdia, few have any illusions they are living on borrowed time, with Coast — a Bangladeshi NGO — warning the whole island could disappear underwa-



Fishermen carry their fishing nets as they walk along the coastline of Kutubdia Island, some 330 kms from Dhaka — AFP

ter within 50 years. Tens of thousands have already left for good, mainly heading to the teeming capital Dhaka or a slum

area of Cox's Bazaar, a resort town some 80 kilometers away. In the build-up to the climate conference in Paris, there has been focus

on low-lying island nations such as the Seychelles or those in the South Pacific which face obliteration if sea levels continue rising at

■ IN 2009, THE government set up a climate change trust fund, earmarking around six percent of the annual budget on adaptation measures. ■ ON KUTUBDIA, authorities have erected a network of flood defences and stilted cyclone shelters where residents retreat during monsoons which turn what is a slice of paradise in the Bay of Bengal

current rates. But their populations are dwarfed by the numbers living on the dozens of Bangladeshi islands and

vulnerable coastal areas in what is one of the world's flattest — and poorest — nations. "We have a long coastline, where about 39 million people live," said Bangladesh's environment secretary Kamal Uddin Ahmed.

"If we have to shift those people to other areas it will be a big task for us because ours is a very densely populated country and we cannot really take all those people to other areas," Bangladesh, along with the Philippines, Myanmar, and Haiti, is among the 10 nations most affected by the consequences of extreme weather events, according to a new climate survey released by advocacy group Germanwatch.

In 2009 the government set up a climate change trust fund, earmarking

around six percent of the annual budget on adaptation measures.

On Kutubdia, authorities have erected a network of flood defences and stilted cyclone shelters where residents retreat during monsoons which turn what is a slice of paradise in the Bay of Bengal into a near warzone. But they are fighting a losing battle, with Kutubdia's surface area having shrunk by around a quarter in the last three decades. Many of the concrete blocks erected to stem the tide have collapsed or become buried under sand as water laps further inland. "We have to move each time the waves come over and go and stay with a landlord who we have to pay rent to further inland. It's very painful for us," said Begum. — AFP

The Times of India, Delhi dated
December 09, 2015

Forget visibility, air pollution is taking a toll on your vision

Durgesh Nandan Jha
@timesgroup.com

New Delhi: It's not just the heart and lungs that air pollution knocks out of shape. Doctors in the city are reporting an increase in eye-related complaints arising from pollution. A recent survey conducted at AIIMS has revealed that 10-15% of people suffer from chronic irritation and dry eyes—conditions that are directly related to constant exposure to a high level of pollutants.

Dr J S Titiyal, professor and head of cornea, cataract and refractory surgery service at the institute, said the incidence of these problems and their related complications will increase if urgent action is not taken to improve air quality.

"Such patients require medications such as artificial tears, anti-allergic medicines and, in some cases, steroids. But these can cause severe side-effects, including loss of vision, on long-term use," he said.

AIIMS recently conducted a questionnaire-based survey of 5,000 people who visited the hospital during the

ADVERSE EFFECTS

SHORT TERM | Pollutants are allergic and toxic to eyes. **Short-term exposure can cause redness, grittiness and watering of eyes.** It tends to go away on medications, such as artificial tears and anti-allergic drugs

LONG TERM | Prolonged exposure to pollutants can damage outer layer of the eye. It can alter lipid profile and water content of tears. In many cases, doctors say they find patients suffering from chronic irritation



AIIMS SURVEY | Experts screened nearly 5,000 people with no eye disease. Nearly 10-15% said they had itchiness and dry eyes. Most of them were in the age-group of 20-40 years

A survey conducted at AIIMS has revealed that 10%-15% of people suffer from chronic irritation and dry eyes

year 2013-2014 to assess the prevalence of eye problems.

It found that 10-15% of the respondents complained of symptoms such as watery eyes, redness and itchiness, etc. Doctors said 65% of the

respondents who complained of eye problems were men in the age group of 20-40 years.

Dr Titiyal said dry eyes, which was a common problem among the respondents, is generally seen in elderly patients. "Due to prolonged exposure to pollution, which affects the tear cells, even younger people are getting these problems, which is worrying. It affects their productivity and puts them at risk of

serious complications," he said.

Dr Mahipal Sachdev, chairman and medical director of Centre for Sight, also said the number of patients seeking treatment for chronic irritation of the eyes and allergic conjunctivitis has increased.

"Earlier, we used to find such cases during the pollen season. But now they are coming throughout the year. Pollution certainly has a role to play in it. Particulate matter and toxic fumes get stuck in the outer surface of the eye and damage the tear film," he said.

While long-term measures to decrease the level of air pollution are needed, eye experts said people should take preventive measures, such as using protective goggles, to decrease the eye's contact with air-borne toxins. "Do not rub the eyes if they are itching. Using artificial tears can help at times. However, for the long term, people should take preventive measures such as washing the eyes regularly and wearing protective goggles while visiting heavily polluted areas," said another doctor.

'Glaciers in Everest have shrunk by 28% in 40 years'

Beijing: Glaciers on Mount Everest, source of major Asian rivers like Brahmaputra, have shrunk by 28% over the past 40 years due to climate change, according to a report.

The glacial shrinkage area is compared to the measurements taken in the 1970s in the report released by the Chinese Academy of Sciences (CAS), Hunan University of Science and Technology, and Mount Qomolangma Snow Leopard Conservation Centre.

The glacial area on the south slope of the world's highest mountain, in Nepal, has decreased by 26% since the



Mount Everest has been getting warmer for the past 50 years, giving rise to glacial lakes and raising river levels downstream, says a report

1980s, the report said.

Part of the report also said Everest, known as Mount Qomolangma in Tibet, has

been getting warmer for the past 50 years.

Kang Shichang, a researcher with the State Key Labo-

ratory of Cryospheric Sciences under the CAS, said the data was based on long-term remote sensing and on-site monitoring.

At present, there are 1,476 glaciers in China's Mt Qomolangma national nature reserve, covering 2,030 square kilometres, state-run Xinhua news agency reported.

The shrinking glaciers have resulted in swelling of glacial lakes and higher river levels downstream, Kang, who has led several glacier inspection teams, said.

Remote sensing data showed that the area of a glacial lake in Mount Everest nature

reserve increased from about 100 square kilometres in 1990 to 114 square kilometres in 2013, Kang said.

Mount Everest is the source of a number of major Asian rivers, including Brahmaputra and Ganges.

Earlier in May, a group of international researchers had warned that the estimated 5,500 glaciers in the Hindu Kush-Himalayan region—site of many of the world's tallest peaks, including Mount Everest—could reduce their volume by 70-99% by 2100, with dire consequences for farming and hydropower generation downstream. [en](#)

The Times of India,
Delhi dated
December 10, 2015



Carbon footprints don't lie: World's richest 10% release 50% of its CO2

Person In Richest Half Emits 17.6 Tons CO2, That In Poorest 50% Just 1.57 Tons

Subodh.Varma@timesgroup.com

As the rich countries of the West lock horns with the developing world at Paris on the question of who will cut how much carbon emissions, a new study by Oxfam shows the jaw dropping chasm between emissions of the two sides. The richest 10% people of the world are responsible for almost half of all global carbon emissions while the poorest 50% — some 3.5 billion people — cause just 10% of it in one year.

Here's another way of looking at this: a person belonging to the poorest half of the world emits just 1.57 tonnes of carbon dioxide per year while a person belonging to the richest 10% emits 17.6 tonnes — over 11 times more. If you compare the richest 10% with the poorest 10%, the gap is mind-boggling. The carbon footprint of the richest is 60 times larger than that of the poorest at a global level.

Why is this relevant to the Paris talks? Because in the smoke and mirrors of global negotiations, the commitment of the rich countries to their own lifestyles — and its humongous carbon footprint — is so entrenched they are unable to give it up, forcing changes on the str-



uggling poor of the developing world. This is all the more unjust because it is the developing world that is going to bear the brunt of extreme climate change effects, as a recent World Bank study of 52 nations showed.

Oxfam has made these calculations for consumption rather than production as is normally done. In this way, what happens is that if a soft drink made in China is consumed in the US, the emissions in production, transportation etc are counted in US. This is more logical as the reason for making the drink was a demand in US, as was its ultimate destiny.



The vast majority of the world's richest 10% stay in OECD countries — North America, Western Europe, Australia, New Zealand and Japan. In fact, a third of them stay in the US. So the culpability of rich countries in emissions is reaffirmed, with the additional information that it is their profligate consumerism that is driving emissions.

Where does India fit into this? Oxfam's estimates reveal that per person emissions of India's richest 10% are about 2 tonnes, just a quarter of even US' poorest 50%, whose emissions are 8.57 tonnes.

If you compare the poorest half of the population of India and the US, the contrast is even starker: India's poorest 50% have a mere 0.42 tonnes per capita emission while for the US it is 8.57 tonnes a year, over 20 times more.

This incredible equation shows the wide and deep chasm between consumption-driven emissions in the first world and the third world. It also shows the locked down nature of the rich economies where even the poor cause more emissions than the rich of the third world.

So, what does it mean for the climate change negotiations in

Paris? While it is a global crisis and everybody has to chip in, the magnitude of the problem is directly linked to the lifestyle choices and economic trajectories of the rich countries. Without even going into the question of historical responsibility, even on the basis of current emissions, the scale of emissions from the richer bloc is orders of magnitude more than India and other third world countries. Hence, the richer bloc of countries need to not only make deeper cuts, they also need to pay more to compensate for the damage caused by climatic changes in the third world.

The Times of India, Delhi dated December 11, 2015

Green shoots: The best air purifiers cost the least

DurgeshNandan.Jha
@timesgroup.com

It's not just air purifiers, but the sale of indoor plants have also increased with the decline in air quality in Delhi. The demand for plants such as Sansevieria, Areca Palm, English Ivy and Boston fern, which are known to reduce the negative impact of toxic fumes, have gone up.

Nursery owners say people are buying them by the dozen to counter the impact of pollution, particularly if they have a family member with respiratory illness. Those with little space to put flower pots are opting for vertical gardens, a concept utilised successfully at Rashtrapati Bhawan.

"Sansevieria, also referred to as mother-in-law's tongue perhaps because of its sharp leaves, is the most popular. While most plants imbibe oxygen at night, this one released it at night," said A M Khan, owner of Rajdhani Nursery in Jor Bagh of South Delhi. "A

THESE PLANTS WILL CLEAN YOUR AIR

- SPIDER PLANT**
Where: Useful in kitchens with gas stoves
Why: Controls carbon monoxide, xylene
- SANSEVIERIA, OR MOTHER-IN-LAW'S TONGUE**
Where: Potted plant, can be put in balcony or near the window
Why: Helps absorb carbon monoxide
- BOSTON FERN**
Where: Best for hanging baskets, grows easily in bright to medium light
Why: Reduces formaldehyde, xylene
- ARECA PALM**
Where: Can be kept anywhere, but especially useful in carpeted rooms or those with freshly painted furniture
Why: Reduces negative impact of xylene and formaldehyde
- ENGLISH IVY**
Where: Best for hanging baskets, effective in freshly painted rooms, or those with computers, printers, fax machines, and at petrol stations
Why: Acts against benzene, formaldehyde, xylene

few years ago, there were no takers for this plant and we dumped nearly 2,000 of them. But now we are searching for it from our suppliers in Karnataka, Trivendrum and other places due to the increased demand," he added. Padmachand Saini, owner of

Joginder Nursery, said the sale of plants known for their air purifying qualities have gone up 40% post-Diwali.

There are few studies to show the science behind the belief that plants help curb pollution. One of them, which proponents the theory

and horticulturalists like Saini refer to, is done by the National Aeronautics and Space Administration (NASA). It states: "Low-light requiring houseplants, along with activated carbon plant filters, have demonstrated the potential for improving indoor air

quality by removing trace organic pollutants from the air in energy efficient building." Dr Sandeep Salvi, director of the Pune-based Chest Research Foundation, claimed the theory about certain plants helping improve indoor air quality has also been proved through exposure experiments. "The microbes in soil and leaves absorb volatile chemicals, thus reducing pollution," he said.

Some of the buyers whom TOI spoke to said that plants are a good idea, regardless of whether it is backed by science or not. "Our cities have turned into concrete jungles. We must change it for better health. Inhouse plantation and making the back lanes green is my way of doing it," said Payal Kapoor, a resident of Safdarjung Enclave.

As per the 2010 global burden of disease report, outdoor air pollution caused more than 6.2 lakh premature deaths in India and nearly 18 million healthy years of life were lost that year.

The Times of India, Delhi dated December 11, 2015

The Times of India, Delhi dated December 12, 2015

If Delhi was Beijing, it would shut 29/30 days

HERE'S HOW BEIJING'S SEVERE IS DELHI'S POOR

China's worst grade air, 'severely polluted', is triggered at an AQI value of 300. If it persists for three days, a red alert is sounded. In India, AQI at 300 is only 'poor', the third worst

City	Red alert days	Days data captured	Worst AQI
Agra	20	30	500
Ahmedabad	5	7	447
Delhi	29	30	500
Faridabad	21	30	500
Jaipur	10	11	484
Kanpur	21	30	500
Lucknow	29	30	500
Mumbai	0	30	500
Muzaffarpur	26	30	500
Patna	22	26	500
Pune	11	30	500
Varanasi	23	30	500

Source: Greenpeace India-East Asia



TIMES NEWS NETWORK

New Delhi: When air pollution hits a certain danger mark in Beijing, the government issues a red alert that automatically puts curbs on factories, construction work and vehicles. If Delhi had a similar system, then almost right through November, the stipulation on cars with odd- and even-numbered license plate using the roads on alternate days would have been in force. Schools and factories would also have remained shut for the entire month.

According to an analysis by Greenpeace India and East Asia, on 29 out of November's 30 days, the quality of air in Delhi was so poor that a smog alert should actually have been declared, as in Beijing, and emergency measures imposed to bring the severity down. Greenpeace extrapolated data from the Central Pollution Control Board's air quality index (AQI) to identify the days in November that breached the benchmark for a pollution alert under the Chinese system.

In the 91 days between

September and November, Delhi hit the red mark as many as 33 times. In the same period, Lucknow had 40 poor days. "The problem is not limited to Delhi, as several other cities across North India faced similarly high levels of pollution," said the Greenpeace statement on Thursday.

According to the organization, a red alert is sounded in Beijing when there is the likelihood that an AQI of 200—which indicates the presence in the air of around

POLES APART

350 microgram per cubic metre of PM10 (coarse pollution particles)—will linger on for more than three consecutive days. In the Indian AQI system, such a level would be reached at a score of 300.

Beijing counters pollution at four levels, red being the most dangerous. At that point, power plants are directed to cut emissions, factories are shut down, schools are closed and only odd- or even-numbered cars are allowed to ply on alternate days to take half the vehi-

lar population off the roads. "Beijing issued its first formal red alert on December 8, entailing very strict measures to curtail pollution emissions from factories, vehicles, construction and other activities, as well as closing down schools to protect students," said Lauri Myllyvirta, Global Campaigner, Greenpeace East Asia.

Myllyvirta said these measures helped mitigate the impact of the event. In the three days after the alert, the Chinese capital's air quality has improved dramatically, according to residents and government spokespeople there.

The China Environment Protection Bureau reported an air quality index of 37 at 9 pm on Thursday. The AQI was less than 100 for most of the day after hovering around a whopping 300 on Wednesday.

In Delhi, Thursday's AQI was 350, which is defined as "very poor" under the Indian AQI system. The AQI at RK Puram at 9 pm was 426 (severe), while that at pollution hotspot Anand Vihar was identical at 426.

Cleaner diesel is on the way, could be used in cars in 5 yrs

London: Scientists have discovered a new method which can be used to produce much cleaner diesel, expected to be used in cars in 5 to 10 years. Researchers developed the new approach which can quickly be scaled up for industrial use.

The production of fuel involves the use of catalysts. These substances trigger the chemical reactions that convert raw material into fuel.

In the case of diesel, small catalyst granules are added to the raw material to sufficiently change the molecules of the raw material to produce usable fuel.

The catalyst that was used for this particular study has two functions, represented by two different materials—a metal (platinum) and a solid-state acid.

During the production process



FUELLING A GREEN INITIATIVE

for diesel, the molecules bounce to and fro between the metal and the acid. Each time a molecule comes into contact with one of the materials, it changes a little bit. At the end of the process, the molecules are ready to be used for diesel.

The assumption has always been that the metal and the solid-state acid in the catalyst should be as close together as possible, which

would speed up the production process by helping the molecules bounce to and fro more quickly.

However, researchers have now discovered that this assumption is incorrect. If the functions within a catalyst are nanometres apart, the process yields better molecules for cleaner fuel. "There has to be a minimum distance between the functions within a catalyst. This goes against what the industry has been doing for the past 50 years," said Johan Martens, a professor.

The new method can optimise quite a few molecules in diesel. Cars driven by this clean diesel would emit far fewer particulates and carbon dioxide. The new technique can be applied to petroleum-based fuels, but also to renewable carbon from biomass.

Allow only eco-friendly plastic, says high court

Abhinav Garg @timesgroup.com

New Delhi: Don't create something you can't destroy, the Delhi high court told plastic manufacturers on Friday, sending a strong signal against another type of pollutant.

"We need to examine this issue very carefully. Only biodegradable plastic should be permitted," a special bench of Justices B D Ahmed and Siddharth Mridul observed while hearing a plea challenging a Delhi government ban notified in 2012, but stayed ever since.

The All India Plastic Industries Association argued that Delhi government has no power to ban it since it's a Union Territory and the Centre's nod is mandatory. The counsel for the association also informed the court that the Centre is likely to introduce new rules on sale and manufacture of plastic which may overrule the state's ban.

HC has fixed the next hearing for February, saying it will await the proposed new rules before dealing further with the manufacturer's arguments. According to the 2012 notification, no person can manufacture, import, store, sell or transport any kind of plastic bag in the city.

The petitioners have argued that the ban violates their fundamental rights, more so, since it bars them from manufacturing plastic for sale to neighboring states. "Delhi government, in a fanatic pursuit to endorse its pre-determined agenda of completely closing down the plastic bags industry, in arbitrary and unreasonable manner brushed aside the objections of the petitioners," the plea states.

The Times of India, Delhi dated December 11, 2015

Tribunal bans plastic use from Gomukh to Haridwar in Ganga

Seema.Sharma@timesgroup.com

There will be a complete ban on use of plastic of any kind from Gomukh to Haridwar along the Ganga with effect from February 1, the National Green Tribunal directed on Thursday while slapping a penalty of Rs 5,000 per day on erring hotels, dharamshalas and ashrams spewing waste into the river.

The decision taken by the bench, headed by NGT chairperson Justice Swatanter Kumar, also held that polluting industries operating without consent from Uttarakhand Environment Protection and Pollution Control Board shall be closed with immediate effect.

Vinod Singhal, member secretary UEPPCB, told TOI. "The UEPPCB has already enacted a law banning use of polythene of 40 micron or below. However, it was not properly implemented. However, the execution



GREEN MEASURES

of the NGT order lies with the municipal corporation or local bodies which is the statutory body in this regard."

The green panel divided cleaning work of the Ganga into different segments—Gomukh to Haridwar, Haridwar to Kanpur, Kanpur to UP bor-

der, UP border to border of Jharkhand and border of Jharkhand to Bay of Bengal.

The tribunal also prohibited throwing of any construction and demolition wastes into Ganga and its tributaries, failing which violators will have to pay a compensation of Rs 5,000 per incident.

On the issue of mining on the river bed, the NGT said it shall be carried under strict supervision. "No mechanised river bed mining would be permitted. No JCBs would be permitted to operate on the river bed," it said.

For the full report, log on to <http://www.timesofindia.com>

The Times of India, Delhi dated December 12, 2015



CO2 Emission Norms for Aircraft Likely by Feb

MihirMishra@timesgroup.com

Geneva: Like cars, aircraft will be subjected to CO2 emission norms. The International Civil Aviation Organisation (ICAO) is developing a certification standard for such emissions and it is likely to come into force early next year.

"ICAO is working on developing a certification standard for CO2 emissions for aircraft. The certification should be out by February next year," said Michael Gill, director, aviation environment, International Air Transport Association. According to Gill, these

regulations will be drawn up to tell manufacturers how to measure CO2 emission levels.

"It will take into consideration size, weight and the varying stages of flights and conditions encountered," Gill said at IATA's Global Media Day.

IATA also revised its 2015 profitability forecast for airlines to \$33 billion from an initial estimate of \$29.3 billion. The revision was on the back of lower oil prices and stronger demand for passenger travel. For 2016, the international airline body expects net profits to increase to \$36.3 billion at a net profit margin of 5.1%. IATA director General Tony Tyler said even though it was an

achievement to grow at such profitability, it still is fragile.



IATA expects revenues in 2016 to rise by 0.9% to \$717 billion

fragile than sustainable," Tyler said at a press conference in Geneva. IATA expects revenues in 2016 to rise

by 0.9% to \$717 billion, which is marginally less than \$758 billion in 2014. It has declined to \$710 billion in 2015 due to currency fluctuations. Demand in passenger travel is expected to grow by 6.9% in 2016 from an estimated 6.7% this year. Tyler said Indian aviation industry would be one of the biggest growth drivers in the Asia Pacific region, which is expected to grow from \$5.8 billion profits in 2015 to \$6.6 billion in 2016. However, overall profit per passenger in 2016 is forecast at \$5.13, well behind that of US and Europe.

(The correspondent was invited by IATA to attend its Global Media Day in Geneva)

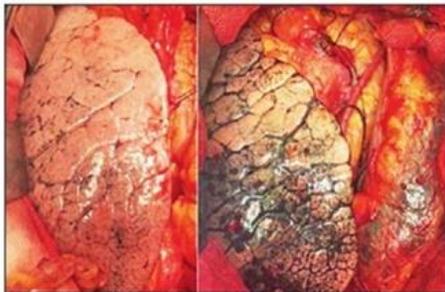
Trehan proves bad air kills lungs

DurgeshNandan.Jha @timesgroup.com

New Delhi: Cardiovascular and cardiothoracic surgeon Dr Naresh Trehan on Friday showed what many of us had been suspecting for a long time—air pollution is damaging our lungs.

Trehan compared the lungs of a 55-year-old man living in Himachal Pradesh with those of a 52-year-old man living in the capital. While the former's lungs appeared pink, the Delhiites' lungs were darker in colour. Trehan has explained this as a side-effect of breathing in air laced with pollutants.

"The men came to the hospital last week for heart surgery. I was shocked to see the difference in the colour of their lungs," said Trehan,



SMOKING GUN: A Himachal man's lung (L) is pink and healthy but pollution has blackened a Delhi man's organ

who has also shared his findings with CM Arvind Kejriwal in a bid to highlight the urgent need to curb rising pollution levels. The CM later re-tweeted the images.

Trehan has also supported

Delhi government's odd-even formula but added that long-term measures must be looked into. "Overloaded trucks cause 10 times more pollution than those ferrying the allowed weight. The law

must deal strictly with defaulters. There should be limitations on diesel-run vehicles as well. Also, people must be made aware of the urgency of the situation so that they can make small changes in their own lives like carpooling," he added.

Dr Vikas Maurya, senior consultant of respiratory medicine at BLK super-specialty hospital, said he too has seen many patients from Delhi with lungs as damaged as a smokers'. "Pollution is emerging as a silent killer in Delhi. It weakens lungs, affects heart function as well as overall performance levels of young and otherwise healthy individuals," he said. He added that particulate matter enters the respiratory tract causing inflammation in the mucosa and long-term damage.

The Times of India, Delhi dated December 13, 2015

Delhi-B'luru in solar car? Yes, he can

Nandita.Banerji @timesgroup.com

New Delhi: When the strange looking contraption wheeled into Delhi on December 1, the people who saw it did not think it was much of a car. But with the capital grappling with dangerous pollution levels, much of it vehicular in origin, Syed Sajjad Ahmed's idea of a solar-powered "car" is perhaps not to be scoffed at. What is more, the prototype has proved that transport can depend on the sun, having traversed over 3,000 km from Bengaluru to the capital.

The four-wheeler is on display at the India International Science Fair at IIT Delhi and is a curiosity both for its technology as well as for its inventor, a former school dropout. First designed in 2004, the car has undergone continual experimentation to be where it is now, an ungainly-looking machine with spoke wheels that, however, can take varied terrain in its stride. It is also a tribute to a man who overcame the lack of college education to pursue his interest in mechanics as a hobbyist.

A luckier Ahmed, now 63 years old, would perhaps have entered an engineering college and specialised in automoti-

SUNNY SIDE UP

CREATOR

Syed Sajjan Ahmed (63)

► Started off as a fruit vendor, started his own repair shop where he started tinkering with electrically powered vehicles

► Drove into India International Science fair at IIT-Delhi in the "butterfly" all the way from Bengaluru

CAPACITY | Two persons

SPEED | Up to 30kmph



BODY OF WORK

- First designed in 2004, it has FIVE photovoltaic panels of 100 watt each, for converting solar energy into power
- Runs on a lead acid battery, which is charged by the five panels
- Complete day of charging in the sun gives a

- run of about 40km
- Battery backup can be charged electrically as well; FOUR units of electricity charges it for an additional run of 60km
- Lightweight spoke rimmed Motorcycle tyres
- Specially fabricated chassis

work. But precarious family finances put paid to his ambitions, and dropping out of school, he set about selling fruit to augment the domestic budget. His innate understanding of mechanical things inspired him to leave the fruit cart behind and set up an electronics repair shop, where he honed his skills in electrical

work. Approaching 50, he felt hurried to achieve his lifelong itch of developing something "useful for the society". In 2002, he yoked his knowledge with the idea of a socially-useful product and created an electricity-powered two wheeler. Ahmed then progressed to a car powered by the sun. He regularly updated and modified

his 2004 brainwave and the car at IIT Delhi is the result.

The squat, square vehicle employs five photovoltaic panels on the hood, bonnet and back to charge regular lead acid batteries. It can run at speeds of up to 40 kmph on a full charge and has an average speed of 30 kmph. The battery pack is also capable of being

charged by electricity in which case it runs an additional 60 km.

The drive from Karnataka to Delhi was a big test for Ahmed's car. He started from Bengaluru with a cousin on November 1 and took 30 days to reach the capital. "We hit a few hurdles on rocky terrain on the way and had a few issues with the brakes," he says. "The tyres had to be changed too, otherwise the car performed really well."

It cost him a little over Rs 1 lakh to give his innovation a physical form. Participation in the India International Science Fair, he hopes, will help his concept gain recognition and attract funding for further development. "At the moment, it is only a working model," says the greying man. "With proper support from the authorities and industry, its environment friendly design can be the answer to many urban problems."

Fired by former President APJ Abdul Kalam's call to "inspire, ignite, innovate and educate the public, especially students", he wants to do his bit for the country. As homage to Kalam, Ahmed will drive from Delhi to Rameswaram in Tamil Nadu, Kalam's hometown, on his way back to Bengaluru.

The Times of India, Delhi dated December 13, 2015

Rich nations will give \$100 by 2020 for climate fund

Vishwa.Mohan @timesgroup.com

Paris: The differentiation of responsibilities in fighting climate change, between developed and developing countries, and the stress on sustainable development in the Paris agreement was an "important achievement" for India, Union environment minister Prakash Javadekar said on Saturday.

The differentiation is maintained across all pillars of actions mentioned in the draft — mitigation, adaptation, finance, technology transfer, capacity building, and transparency.

In the pact, the countries commit to limiting the amount of greenhouse gases emitted by human activity to the same levels that trees, soil and oceans can absorb naturally, beginning at some point between 2050 and 2100. Some scientists who had criticised earlier drafts praised the agreement for including

language that essentially means the world will have to all but stop polluting with greenhouse gases by 2070 to reach the 2-degree goal, or by 2050 to reach the 1.5-degree goal.

Though climate finance (money to be given by rich nations to developing countries for adaptation and mitigation efforts) has also been taken care of, the move to put it in the decision text is a bit of a concern as the quantum of contribution will not be legally binding on rich nations.

The developed countries will provide \$100 billion by 2020 and potentially scale it up later, but this point is not there in the agreement (legally binding) part of the text. Still, it stipulates that the \$100 billion will be a floor and not the ceiling as the

FINE PRINT OF DEAL AFTER 13 DAYS OF NEGOTIATIONS

- > Legally-binding climate deal text released on Saturday forms bedrock of deal
- > It has 31 pages, 21 of these legally binding
- > This text has zero dissent. A month ago, there were 1,600 sticking points
- > India's concerns taken care of — sustainable lifestyles, consumption patterns, climate justice addressed in preamble
- > Text has India's stand on sharing climate action responsibility between developed and developing countries
- > Countries to do more on climate action in 2018, it'll be voluntary



French president Francois Hollande and UN secretary-general Ban Ki-moon with other leaders react during the final plenary session at the World Climate Change Conference near Paris

- > Developed nations must enhance climate action, developing nations can do it on the basis of their capacity
- > Finance legally binding, but haze over amount
- > Developed world will continue to contribute \$100bn a year. This point not in legally binding segment

TEMPERATURE TARGET | Long-term goal within 2°C, efforts will be "pursued" to limit it to 1.5°C

new quantified target will need to be set up by 2025.

Environmentalists see red in shifting the point to the decision (non-binding) text of the final draft. Sunita Narain, chief of the Delhi-based thinktank Centre for Science and Environment (CSE), said, "The differentiation has been maintained by stating that developed countries will provide support to developing countries for both mitigation and adapta-

tion. This is the only place where equity has been operationalised. "But we know that the promise of finances has always been illusory. So, whereas the previous draft mentioned \$100 billion to be made available, it has now been removed in the current draft agreement".

She, however, welcomed the fact that the draft agreement is under the UN Framework Convention on Climate Change (UNFCCC) and will

be guided by its principles of equity and common but differentiated responsibilities (CBDR) — the point very crucial for all developing countries ever since they had been working on the draft.

The shift in finance clause, however, brought rich countries on board. It is learnt the US-led umbrella group of developed countries and EU nations are fully agreed to the text. Though they did not want differentiation to be maintained on all pillars of the UN Convention, they moved a bit when developing countries sought to compromise on the clause of finance and the issue of loss and damage (financial help extended to vulnerable countries hit by disasters).

The agreement put loss and damage in a separate article but it doesn't provide basis for compensation or liability. These kinds of compromises are there in the agreement for both rich bloc and developing countries.



NO PLAN B

The Times of India, Delhi dated December 15, 2015

By 2100, global temperatures may rise by 8°C

Billions Of People At Risk From Flooding, Drought & Food Shortages: UK Study

London: The global land surface temperatures may rise by an average of almost 8°C Celsius by 2100, if significant efforts are not made to counteract climate change, a new study has warned.

Such a rise would have a devastating impact on life on Earth. It would place billions of people at risk from extreme temperatures, flooding, drought and food shortages, researchers said. The study by researchers at the University of Edinburgh, UK, calculated the likely effect of increasing atmospheric levels of greenhouse gases above pre-



POINT OF NO RETURN? The finding breaches the UN's safe limit of 2°C, beyond which dangerous climate change can be expected

industrialisation amounts. It found that if emissions continue to grow at current rates, with no significant action taken by society, then by 2100 global land temperatures

will have increased by 7.9°C Celsius compared with 1750. This finding lies at the very uppermost range of temperature rise as calculated by the Intergovernmental Panel on Climate Change (IPCC). It also breaches the United Nations' safe limit of 2°C, beyond which the UN says dangerous climate change can be expected, researchers said.

Researchers first created a simple algorithm to determine the key factors shaping climate change and then estimated their likely impact on the world's land and ocean temperatures. The study was based

on historical temperatures and emissions data. It accounted for atmospheric pollution effects that have been cooling Earth by reflecting sunlight into space, and for the slow response time of the ocean.

"Estimates vary over the impacts of climate change. But what is now clear is that society needs to take firm, speedy action to minimise climate damage," said Roy Thompson, a professor at the University of Edinburgh. The findings were published in the journal Earth and Environmental Transactions of the Royal Society of Edinburgh. P71

Volcanic event caused ice age

A large-scale volcanic event during the Jurassic Period may have caused the 'ice-age' that took place on Earth around 170 million years ago, a new study by researchers at Camborne School of Mines in UK has found. Researchers have found evidence of a large and abrupt cooling of the Earth's temperature during the Jurassic Period, which lasted millions of years. It coincided with a large-scale volcanic event — called the North Sea Dome. The study was published in the journal Nature Communications. P71

Chinese restaurant bills patrons for 'clean air'

Vanessa Piao & Patrick Boehler

Beijing: Has clean air become such a luxury in China that restaurants can charge patrons for it?

That question was on many minds on Tuesday after Xinhua, the state news agency, reported that a restaurant in the eastern province of Jiangsu was doing just that. The restaurant, in the city of Zhangjiagang, near Shanghai, was adding 1 renminbi, or about 15 cents, per customer as a "clean air fee." The debate on social media has been divided between those who contend that clean air is a basic right, not a commodity, and those who counter that the restaurant has incurred costs to install purifiers to clean the air and is thus entitled to charge for that service.

Xinhua quoted an unnamed official in Zhangjiagang as saying that air was a natural resource essential for humanity's continued existence and that the restaurant had a duty to provide a clean environment, including air. The restaurant had been given seven days to retract the fee, Xinhua report-



GASPING FOR BREATH: Smog in Shanghai hit the highest level since January on Tuesday prompting schools to ban outdoor activities and authorities to limit work at construction sites and factories

Canadian firm sells bottled fresh air

China's pollution problems continue, a Canadian company has cashed in on the crisis by selling bottles of fresh mountain air to people for up to \$28 each. Sales of Vitality Air — bottled fresh mountain air from Banff and Lake Louise, Canada — have soared in China. A single bottle of the "premium oxygen" costs \$27.99 while a bottle of its Banff air costs up to \$23.99. The company started marketing the product in China less than two months ago. Harrison Wang, Vitality Air's China representative, told Mail Online that the minute the bottles went on sale on the internet, they were sold out almost instantly". THE INDEPENDENT

ed. A post on a website run by the Zhangjiagang government said such fees were unreasonable. But it also demanded an alternative approach. "It is those who pol-

lute the air who should be made to pay," the post read. Some online commenters said the restaurant was just looking for new ways to raise its revenue. NYT NEWS SERVICE

The Times of India, Delhi dated December 16, 2015

The Economic Times, Delhi dated December 16, 2015

BETTER THAN LAST YEAR

Delhi Air Much Cleaner: SAFAR

Jayashree.Bhosale@timesgroup.com

Pune: Delhi's air is much cleaner than expected and significantly less polluted than last year, although the cold and calm weather should have intensified the haze, said the agency that monitors air quality.

The air is likely to remain cleaner than last year in the next few days also, said Gufran Beig, director of the System of Air Quality and Weather Forecasting and Research (SAFAR), under the ministry of earth sciences.

"There was steady decline in the pollutants for last one week. Initially, we thought it could be daily changes, but it was consistent. On Saturday, pollution shot up suddenly. That was more related to weather than to the emission levels. The weather is clear today (Tuesday) in Delhi and will be more or less similar for next two days," Beig said.

However, air pollution is likely to deteriorate in the last week of the month and early January, he said.

The capital has seen a lowering of particulate matter, both PM 2.5 and PM 10, in recent days. PM 2.5 or particulate matter of 2.5 microns in diameter denotes fine, breathable particles, while PM 10 refers to bigger and relatively less dangerous ones. The development comes amid a debate about proposals to restrict the use of personal vehicles and the closure of power plants in the city where an estimated 80,000 trucks, many of them overloaded, poorly maintained and heavily polluting pass through every night.

The air in Delhi's Lodhi Road area, albeit at some distance from the routes that trucks take, has improved to "moderate" levels in recent days but the rest of the city's air quality remains "very poor." But it could easily have deteriorated to "severe" as winter takes hold, the agency said in a statement entitled "First good indicator of air pollution in Delhi." "The Delhi levels of PM2.5 settled at 129 microgram /m3 which is — although still in 'very poor' category— significantly very low in number for such kind of weather conditions," Beig said. "At the same time, during last year (2014), the level of PM2.5 for Delhi was 196 microgram /m3, with minimum temperatures in the same range but maximum temperature much higher (at 24 degrees Celsius) as against 16 degrees Celsius this year." "Colder temperatures normally tend to increase PM levels if winds are calm. In Delhi, (from) December 10 onwards, temperature (has been) falling, which elevates the PM levels under favourable conditions but contrastingly, steady fall in the concentration of PM10 and PM2.5 has been recorded," the statement said.

The Times of India, Delhi dated December 16, 2015

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The Economic Times, Delhi dated December 17, 2015

SC ENFORCES 3-MONTH BAN FROM JAN 1

No Registration of Diesel Cars Over 2Lt in Delhi

Entry of trucks built before 2005 barred; all taxis told to run on CNG from April 1

Samanwya.Rautray
@timesgroup.com

New Delhi: The Supreme Court banned the registration of diesel-powered private vehicles of two litres and more for three months in Delhi besides halting the entry of trucks made before 2005 into the city. As for goods vehicles made since then, the court strengthened barriers to their entry into the Capital as part of efforts aimed at reducing the level of airborne impurities in one of the world's most polluted cities. The court also wants all city taxis to run on compressed natural gas (CNG) from April 1 next year.

M&M, one of the automakers most affected by the order, dropped 5.4% on BSE.

Green Cess Doubled ▶▶ 21

Court Ruling



Registration of diesel-run SUVs and cars with engines beyond 2,000 cc banned in Delhi and NCR till March 31

Green cess on loaded trucks entering Delhi raised by 100%

Trucks, which are not Delhi-bound, will not be allowed to enter the Capital

Trucks registered before 2005 cannot enter Delhi

All city taxis must run on CNG from April 1

Use of curtains at construction sites to prevent dust being spewed into air

Masks for Delhi's traffic police personnel

Delhi roads to be paved and vacuum-cleaned

Civic authorities told not to burn solid waste and arrange for proper disposal

Green Cess Doubled

▶▶ From Page 1

On a conference call, the company said it's working toward re-engineering existing engines to conform to the two-litre limit and will push for more petrol engines.

Mahindra Group Chairman Anand Mahindra tweeted: "Even if we believe the decision on diesel vehicles isn't optimal, we'll honour it and develop vehicles that comply with their stipulations. At the core of Mahindra's DNA is the unshakable belief that 'When the going gets tough, Mahindra gets going.' We thrive on challenges & rise above them."

The ban on two-litre private diesel vehicles in the National Capital Region will run from January 1 to March 31, which is when cleaner diesel of Euro IV standard is expected to become available in NCR. While this implies that the ban may be temporary, the court reiterated its view on such vehicles.

"It is noteworthy that diesel vehicles of 2,000 cc and above and SUVs are generally used by more affluent sections of our society and because of the higher engine capacity are more prone to cause higher levels of pollution," said the bench of chief justice TS Thakur and justices AK Sikri and R Banumathi.

"A ban on registration of such vehicles will not therefore affect the common man or the average citizen in the city of Delhi," the court said in its order on Wednesday.

The pollution issue in Delhi needs to be examined in a holistic manner, the Society of Indian Automobile Manufacturers (SIAM) said in a release.

The "order banning private diesel passenger vehicles and SUVs of 2,000 cc engine capacity and above, is most unfortunate. While this would certainly hurt some segments of the automotive industry, it will not bring about any perceptible improvement in the air quality of Delhi", it said.

The manufacturers' lobby group also said cars were not a major polluter.

"This order has been passed

after totally ignoring the findings of... the recent study... which mentions that the vehicles are responsible for only 20% of the pollution in Delhi, out of which only 14-15% is attributable to passenger cars," SIAM said. "This makes the overall pollution load of passenger cars a minuscule number of just 3%."

The Supreme Court also doubled the environment compensatory cess (ECC) on loaded trucks to curb the entry of goods vehicles that use Delhi as a transit hub. The ECC is Rs 700 for vehicles of two axles and Rs 1,300 for those of three axles and above.

Trucks will be checked at the entry points of Kundli on National Highway-1 and Rajokri on NH-3 and diverted to alternate routes bypassing Delhi. These two border posts account for a large chunk of the trucks entering the city, estimated at around 30,000 daily.

The court clarification came amid complaints that trucks carrying supplies bound for other parts of the country were still entering the city after paying the ECC on the pretext that these were meant for Delhi.

"The true intention, however, was that vehicles not bound for Delhi are diverted to alternative routes to bypass Delhi. The levy of ECC has no doubt resulted in some diversion of such vehicles but a very large number of vehicles not bound for Delhi still appear to be entering Delhi on payment of ECC," the court said. "In the circumstances, we consider it necessary to make it clear that no vehicle which is not bound for Delhi will be allowed to enter from NH-8 which connects Jaipur to Delhi and NH-1 that connects the states of Punjab, Haryana and other northern states to Delhi via Kundli border."

The court also directed all taxis including aggregators such as Ola and Uber plying in the NCR to shift to CNG by March 31, 2016. The court also asked the authorities to ensure the use of curtains to prevent dust being spewed into the atmosphere from construction sites and masks for Delhi's traffic police, who're exposed to the city's pollution for prolonged pe-

riods everyday.

The court hinted at a one-time ECC on the registration of personal cars running on diesel engines below two litres. Roads in the city will need to be paved and vacuum cleaned to check dust levels by April 1, 2016, it said.

The court also asked civic authorities not to burn solid waste and to arrange for proper disposal in a scientific manner. The court will take the case up again on January 5, 2016, for further hearings to assess the impact of its orders passed with the consent of both the central and Delhi governments on the city's pollution levels.

The top court order will be in addition to the National Green Tribunal order, which is restricted to Delhi. The NGT ordered the suspension of last week of all registrations of diesel vehicles until January 6.

Environment Minister Prakash Javadekar said the Centre will study the apex court's orders and also called upon people to take the initiative in controlling pollution.

"Today, the Supreme Court has given some orders which we will study. But everyone needs to play his own part in controlling pollution," he said. The minister also said two bypasses would be constructed within two years so that trucks not bound for Delhi don't enter the Capital.

M&M said the court's order affects sales of vehicles that represent about 2% of monthly sales. "The company would hope that at the end of the interim period (of March 31), the judiciary and the regulators would look at the impact of these measures and take a holistic view on improving the air quality of Delhi, taking into account the overall impact of each action," it said in release.

The Times of India, Delhi dated December 18, 2015



LED plan cuts peak load by 145MW, saves ₹61L daily

Sanjay.Dutta@timesgroup.com

New Delhi: The Narendra Modi government's programme to get consumers to replace less efficient CFL or incandescent lights with LED bulbs at a discount has reduced Delhi's peak load by 145MW and creating savings of over Rs 61 lakh daily in power bill.

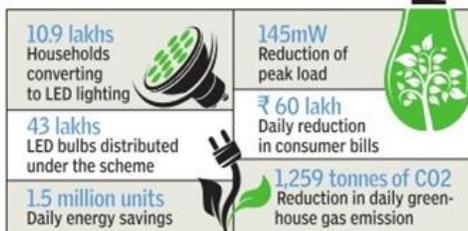
The PM had announced the campaign, called Domestic Efficient Lighting Programme (DELP), on January 5. It was rolled out on June 1 in Delhi and will close on De-

ember 31. Since its launch, 43 lakh bulbs have been distributed among nearly 11 lakh households in the capital, resulting in an estimated daily energy saving of 1.5 million units.

The scheme is also yielding environmental dividend. Energy Efficiency Services Limited, the nodal agency implementing the scheme in the participating states, reckons a reduction in daily greenhouse emissions equivalent to 1,259 tonne of CO₂ in Delhi.

Power minister Piyush

HOW DELHI 'LED' THE WAY



Goyal has projected a target of distributing six crore LED bulbs through the DELP

scheme. The government has already distributed about 3.88 crore LED bulbs. This

has reduced the countrywide peak demand by 1,292mw, saving Rs 5,000 crore. The scheme is also estimated to save more than 11 million units of power and brought down daily greenhouse emissions by 11,288 tonne of CO₂.

In a related development, the renewable energy ministry has stopped subsidy on CFL-based solar lighting system to encourage the use of the LED version.

Under the DELP scheme, consumers in Delhi can avail of up to 10 LED bulbs per domestic household on upfront

payment. These technically superior LEDs are available at a discounted price of Rs 93 each, against a market price of around Rs 350.

Each LED bulb helps a consumer save anywhere between Rs 160 to Rs 400 per year and has a life expectancy of 25,000.

The bulbs are available at kiosks across Delhi and the list of the same is available on www.delp.in. To avail the scheme, the customer needs to provide a copy of the latest power bill as well as a copy of any ID proof.

The Economic Times, Delhi dated December 19, 2015

Odd or Even? Not Trucks, Not Cars, Just Wood Smoke



WHODUNNIT? One of many culprits behind high pollution level

Two studies blame wood smoke as top polluter, another names power plants

Prachi.Verma @timesgroup.com

New Delhi: Less than a fortnight before the odd-even formula for private cars is implemented in Delhi to curb pollution levels in the city, three studies have found that the actual culprit in winters is not vehicular emissions. Two reports — one by former faculty members of Indian Institute of Technology, Delhi, and the other by US, Indian and University of Birmingham researchers — said wood smoke is the prime contributor to the presence of PM 2.5 — fine particles with a width of 2.5 microns or less — in the air in winters. According to the third study, power plants are the main source of this pollutant.

The first two studies also point out that the total number of cars on the road may be less than the 2.8 million that are registered in New Delhi. The actual number of private cars being run is only half of the vehicles that get registered, said former IIT-Delhi professor Dinesh Mohan. This is because vehicles are often not de-registered when they are trashed or sold, he said.

Mohan was part of the team that produced a report titled "Benchmarking Vehicle and Passenger Travel Characteristics in Delhi for On-road Emissions Analysis" after conducting the study over a three-year period that ended in 2014.

Brick Kilns too Major Polluters >> 8

Brick Kilns too are Major Polluters

>> From Page 1

According to the report, wood smoke accounted for 23.3% of the PM 2.5 in winters and vehicular traffic 16.2%.

"A number of brick kilns around Delhi bring in a lot of PM 2.5 mass to the city and are one of the leading sources for pollution," said Mohan.

Further, IIT-Delhi claims that so far, all studies on pollution in the national capital have been restricted to the city or

parts of Delhi and have not taken areas in the National Capital Region into account.

"There is a need for an integrated study on the air quality of Delhi to be conducted, which would also include NCR besides Delhi. We (IIT-Delhi) are in the process to conduct this," said a professor at IIT-Delhi, who along with other faculty members made a proposal to the Central Pollution Control Board and the Delhi Pollution Control Committee last week to conduct an integrated study in the region.

Meanwhile, a

yet-to-be-released study by IIT-Kanpur holds power plants to be the main source of pollutants, contributing 30% of the total PM 2.5 mass in the city's air during winters. According to people working closely on the IIT-Kanpur study, the other sources are crop/bio-mass burning (26%) and diesel vehicular pollution (26%). Wood smoke is included in crop/bio-mass burning.

"In the summers, the fly ash (from construction and charcoal burning) is the main contributor to the high PM 2.5 levels in Delhi," said a person familiar with the IIT-Kanpur study.

Energy sector accounts for 58% of GHG emissions: Govt

TIMES NEWS NETWORK

New Delhi: The government on Monday informed Parliament that the energy sector in the country was the biggest emitter of greenhouse gas (GHG) emissions.

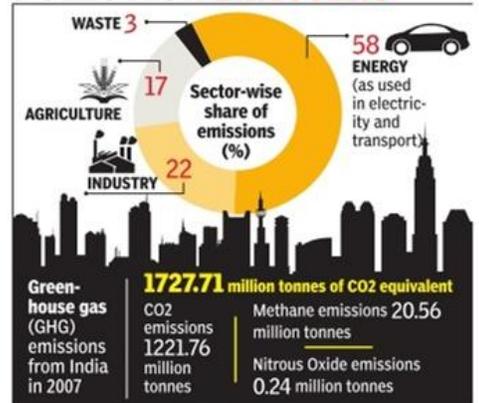
The energy sector contributed 58% of the overall emissions in India whereas the share of industry amounted to 22%, followed by 17% from the agriculture sector.

The figures were shared in Rajya Sabha by environment minister Prakash Javadekar in response to a question.

In his written response, Javadekar said, "As per a report 'India: Greenhouse Gas Inventory-2007', the net GHG emissions from India in 2007 with Land Use, Land Use Change and Forestry (LULUCF) were 1727.71 million tonnes of CO2 equivalent.

"Out of which, CO2 emissions were 1221.76 million tonnes, methane emissions were 20.56 million tonnes and nitrous oxide emissions were 0.24 million tonnes."

POLLUTION EMITTERS



Source: Government figures laid before RS quoting from 'India, Greenhouse Gas Inventory-2007'

Listing to the measures being taken by the government to transform Indian agriculture into a climate resilient production system, the minister said, "The government had launched 'National Ac-

tion Plan on Climate Change' on June 30, 2008, which has operationalised eight 'national missions' in specific areas of climate change."

For the full report, log on to www.timesofindia.com

The Times of India, Delhi dated December 22, 2015

Soon, 'hydricity' may generate 24x7 power

Solar Energy Coupled With Hydrogen From Superheated Water Eliminates Restarts, Shutdowns

Washington: Scientists, including those of Indian-origin, have proposed a new "hydricity" concept for round-the-clock power by not only generating electricity from solar energy but also producing and storing hydrogen from superheated water. "The proposed hydricity concept represents a potential breakthrough solution for continuous and efficient power generation," said Rakesh Agrawal from Purdue University in US. "The concept provides an exciting opportunity to envision and cre-



ELECTRIFYING CONCEPT

ate a sustainable economy to meet all the human needs including food, chemicals, transportation, heating and electricity," he said.

Hydrogen can be combined with carbon from agricultural biomass to produce fuel, fertiliser and other products. "If you can borrow carbon from sustainably available biomass you can produce anything: electricity, chemicals, heating, food and fuel," said Agrawal.

Hydricity uses solar concentrators to focus sunlight, producing high temperatures

and superheating water to operate a series of electricity-generating steam turbines and reactors for splitting water into hydrogen and oxygen.

The hydrogen would be stored for use overnight to superheat water and run the steam turbines, or it could be used for other applications, producing zero greenhouse-gas emissions, researchers said.

In superheating, water is heated well beyond its boiling point — in this case from 1,000 to 1,300 degrees Celsius — producing high-temperature steam to run turbines and

also to operate solar reactors to split the water into hydrogen and oxygen.

"In the round-the-clock process we produce hydrogen and electricity during daylight, store hydrogen and oxygen, and then when solar energy is not available we use hydrogen to produce electricity using a turbine-based hydrogen-power cycle," said Mohit Tawarimalani, professor at Purdue. "Because we could operate around the clock, the steam turbines run continuously and shutdowns and restarts are not required."

The Times of India, Delhi
dated December 22, 2015

'Pollution now an emergency'

New Delhi: Air pollution in national capital is of an "emergency nature", the Delhi high court on Monday observed and said this situation would not have arisen if the authorities had implemented laws and rules in place to prevent environmental degradation.

A bench of justices Badar Durrez Ahmed and Sanjeev Sachdeva was of the view that while legislations were in place for ensuring maintenance of air quality levels, individuals and departments tasked to enforce the rules, "have not done their work".

It directed officers of all concerned authorities, including Delhi Pollution Control Committee (DPCC), that "all the rules have to be followed to the 't' as the situation today is of an emergency nature".

"This situation would not have arisen if all authorities had implemented the rules," the court said.

The court, referred to particulate matter-PM 2.5 and PM 10 and said as per the statutory norms their levels are not to exceed 60 microgram per cubic meter per day and 100 mi-

crogram per cubic meter per day, respectively. However, as per DPCC monitoring stations, their levels are always far in excess of 400/500.

It directed DPCC, represented by advocate Sanjeev Ralli, to "analyse data from 2011 onwards and to provide us a monthly average chart of each pollutant."

HC ALARMED

Another exercise the panel has been directed to carry out is to give a weekly chart of the pollutants during the months from October to February for all the years from 2011 to 2015.

DPCC has also been asked to provide the court with details of action taken by it, against any violations, in the last five years.

Meanwhile, on the issue of traffic management to reduce the timings of idling vehicles, the court observed that despite its direction for zero tolerance towards violation of rules, especially by people who jump onto other carriageways to get ahead during traffic snarls, police was doing nothing. **en**

The Times of India, Delhi dated December 23, 2015

Secondary particles pose bigger threat: IIT-K report

Jayashree.Nandi
@timesgroup.com

New Delhi: The national capital is facing a more serious pollution crisis from secondary particles, in addition to tiny pollution particles (PM2.5) being emitted from various sources like transport, waste burning or dust. The recent draft IIT Kanpur report has flagged that secondary particles which are formed from chemical reactions between gases like sulphur dioxide (SO2) and oxides of nitrogen (NOx) and not emitted directly from a particular source pose a larger problem.

In a meeting with vehicle manufacturers and Union ministries of transport and petroleum on Tuesday, members of Environment Pollution Control Authority (EPCA) highlighted how high levels of secondary particles in Delhi's air makes strict control of diesel emissions even more pertinent.

About a quarter of the PM2.5 in Delhi is from secondary particles, according to experts and the theory that road dust is the worst source may not be true as it doesn't emit gases.

Sources told TOI that EPCA raised the issue of polycyclic aromatic hydrocarbons (PAHs), a carcinogen present in Delhi's air, when the Society of Indian Automobile Manufacturers (SIAM) raised objections to diesel being singled out for its pollution contribution. Since NOx is mainly a contribution of diesel emissions, experts said vehicular emissions are responsible for a major portion of the sec-



ondary particles in Delhi. Diesel fumes are also responsible for PAH in the city's air.

Government sources said they discussed the issue of secondary particles found by IIT Kanpur. "We have requested the IIT Kanpur team to give us a source-wise break up of what could be causing these secondary particles. Is it mainly vehi-

cles or thermal plants or something else? The gases interact with each other, crystallize and then form such secondary particles," he said. The draft report has been submitted to the Supreme Court.

There were also deliberations on the timeline for introduction of BS-IV and BS-VI. While the MoPNG officials pre-

sent said they will be able to supply BS-IV fuel by April 2016 in the entire country, except a few hilly and border states, and BS-VI fuel by 2020, SIAM said they will not be able to introduce BS-IV before 2017 and BS-VI before 2023.

EPCA was of the view that India can transition to BS-VI directly skipping BS-V altogether. But technology companies such as Bosch said there are technology issues with transitioning to BS-VI earlier. SIAM's view is to move to BS-V to 2020 and BS-VI to 2023. EPCA members asked manufacturers if it is so difficult to transition to BS-VI by 2020, why can't diesel be stopped altogether in the passenger vehicle category.

As for moving to BS-IV in the heavy vehicle category, all three major manufacturers said they had type approval to manufacture. EPCA members said there can be a reduction of 80% in PM emissions from heavy diesel vehicles once they transition to BS-IV. As of now not a single BS-IV heavy vehicle has been registered in Delhi despite the fuel being available.

SIAM submitted that it is for a fleet renewal policy where incentives are given for scrapping of old vehicles that are still on BS-III or BS-II norms. But EPCA, headed by former director (enforcement) Bhure Lal said they have a strong objection to the proposal. "We are still 15 years behind Europe. There is no point in scrapping the fleet and then people ending up new vehicles of the older technology. We don't support any scrapping unless new norms are in place," a member said at the meeting.

CHARTING THE GREEN COURSE

DELIBERATIONS AT EPCA MEETING ON TUESDAY



manufacturers have the technology and type approval for transition to BS-IV from BS-III. Could lead to 80% reduction in PM emissions from trucks

➤ EPCA pushes for BS-IV transition in heavy diesel vehicle segment as early as possible

➤ Considers exempting CNG and light commercial vehicles from paying environment compensation charge (ECC)

➤ Two-wheeler manufacturers can't move to BS-IV right away

➤ BS-IV fuel by April 2016, except to a few border areas in the Northeast and a few other states

➤ Vehicle manufacturers say they can move to BS-IV only by 2017 and BS-VI by 2023

➤ Heavy diesel vehicle

Petroleum and natural gas ministry to supply BS-VI fuel by 2020

The Times of India, Delhi
dated December 23, 2015

Green bid: Govt issues strict norms for thermal plants

Existing Power Stations Must Comply In 2 Yrs

Vishwa.Mohan
@timesgroup.com

New Delhi: Moving towards stricter emission norms to minimise pollution, the Union environment ministry has notified revised norms of emission standards for coal-based thermal power plants and made it mandatory for the existing ones to meet these parameters within two years.

Besides tightening the emission norms, the ministry through the notification — issued on December 7 — also fixed water consumption parameters for all the plants, making it mandatory for them to use water more efficiently.

Under the revised norms, the new power plants (to be commissioned from January 1, 2017 onwards) will have to achieve 'zero waste water discharge' standard by putting up adequate captive infrastructure. All upcoming power plants will be given environmental clearance only after getting such commitments under the new norms.

"The new standards are aimed at reducing emission of PM10 (particulate matter), Sulphur Dioxide, and Oxide of Nitrogen, which will in turn help in bringing about an improvement in the ambient air quality (AAQ) in and around

EMISSION CHECK

Thermal power plants are categorised into 3 categories for fixing emission standards:

- 1 Installed before Dec 31, 2003
- 2 Installed after 2003 and up to Dec 31, 2016
- 3 Installed after Dec 31, 2016

- There are different emission standards for all these three categories
- New thermal power plants (TPPs), to be installed from Jan 1, 2017 onwards, will have strictest emission norms
- Particulate matter (PM) standards for TPPs have been made stricter even for older plants
- Standards pertaining to sulphur dioxide (SO₂), oxides of nitrogen (NO_x) and mercury are new ones; they did not exist earlier



ACCORDING TO NEW STANDARDS

- | | |
|---|--|
| 1 For TPPs existing before December 31, 2003, PM standards fixed at 100mg per cubic metre | standards fixed at 50mg per cubic metre |
| 2 For TPPs existing after 2003 and up to Dec 31, 2016, PM | 3 For TPPs to be established from Jan 1, 2007 onwards, PM standard fixed at 30mg per cubic metre |

TILL NOW

- PM standards for TPPs with power generation capacity of more than 210MW were 150mg per cubic metre
- For TPPs having generation capacity of less than 210MW, PM standards were 350mg per cubic metre
- These plants will now have to meet the standards within two years

thermal power plants", said the ministry in a statement. "The technology employed for the control of the proposed limit of sulphur dioxide (SO₂) and nitrogen oxide (NO_x) will also help in control of mercury emission (at about 70-90%) as a co-benefit," it added.

Going by the notification, the newer power plants will eventually be much cleaner as the revised norms will help keep strict tabs on emission of all pollutants. In case of PM10, the new plants will have to restrict the emission

to 30 mg per cubic metre as compared to 100 mg per cubic metre in older plants. Similarly, in case of SO₂ and NO_x, the new plants will have to restrict the emission at 100 mg per cubic metre as compared to 600 mg per cubic metre of the older plants, irrespective of their installed capacity.

"Limiting the use of water in thermal power plant will lead to water conservation as thermal power plant is a water-intensive industry," the statement said.

"It is a welcome step. It will

make sure that the existing plants are improved and the new plants are set up using state-of-the-art (clean) technology", said Centre for Science and Environment's (CSE) deputy director general Chandra Bhushan while reacting to the new norms. The CSE had in February strongly pitched for stricter emission norms for thermal power plants after it analysed the functioning and status of major coal-based power plants across India.

For the full report, log o to www.timesofindia.com

*The Times of India, Delhi
dated December 24, 2015*

New low: Air quality worse than Diwali day

After A Brief Respite, Pollution In Capital At Its Most 'Severe' In 2015

TIMES NEWS NETWORK

Anindya Chattopadhyay

New Delhi: After several days of slightly better air quality in the city, pollution levels have started rising alarmingly from Tuesday onwards.

According to System of Air Quality and Weather Forecasting and Research (SAFAR) under the ministry of earth sciences (MoES), Delhi on Wednesday recorded the worst air quality in 2015 with an AQI of 442 for PM 2.5 (fine, respirable pollution particles). The average PM 2.5 concentrations were even higher than the Diwali day, at 295 micrograms per cubic metres, which is about 5 times the safe standard.

The AQI bar turned a dark maroon indicating "severe" pollution from red or "very poor" level on Tuesday. Central Pollution Control Board's AQI also showed air quality deteriorating from "poor" to "very poor" category Tuesday onwards with an AQI of 375 being recorded on Wednesday. Even Delhi Pollution Control Committee's monitoring showed a 24-hour av-



NOT A PRETTY SIGHT: Large-scale biomass burning by people to fight cold is adding to the pollution

erage PM2.5 level of about 366 micrograms per cubic metres in RK Puram and 336 micrograms per cubic metres on Mandir Marg. According to SAFAR, the day after Diwali, the concentration was 274 micrograms per cubic metres, which is about 20 micrograms per cubic metres lower than Wednesday's readings.

On the same day last year, the PM 2.5 concentration was 204 micrograms per cubic metre.

The sudden spike in PM 2.5 levels is mainly due to the meteorological conditions. Particles blowing towards Delhi from the Indo-Gangetic plains area could also contribute to bad air in the city. "Today's is the highest AQI recor-

ded in 2015 with both PM2.5 and PM10 reaching the highest levels. There is a medium range transport of pollutants from IGP area, which is already much polluted. The upper part of the boundary layer brings polluted air that gets settled close to the surface in Delhi. The IGP regions include Kanpur, Varanasi, Luck-

now, Patna and others that have also shown a jump in pollution in the past few years," said Gufran Beig, project director, SAFAR.

He said one reason for the increase in pollution could be large-scale biomass burning by people to fight cold in these regions.

On Tuesday at 11pm, PM 2.5 levels peaked to 822 micrograms per cubic metres, about 14 times the standard.

Anumita Roychowdhury, head of CSE's clean air campaign said this is exactly why pollution emergency measures are required in Delhi. "Some days will be poor while some severe when the meteorological conditions turn hostile even as the overall levels continue to remain high. Delhi will be experimenting with an emergency measure for the first time with odd-even car days, but if too many categories of people are exempted, it will not work," she said.

The forecast by SAFAR for the next two days is "severe" on December 24 and "very poor" on the Christmas day.

*Edited by: Prof. Sushil Kumar
Centre for Business Sustainability,
IIM Lucknow*