

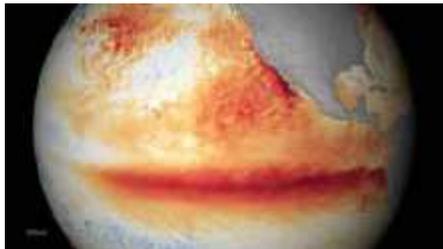
Centre for Business Sustainability, IIM Lucknow
Prabandh Nagar, Off. Sitapur Road, Lucknow- 226013
E-mail: cbs@iiml.ac.in Phone: +91 522 2736987, +91 2736989

Business Sustainability News

International

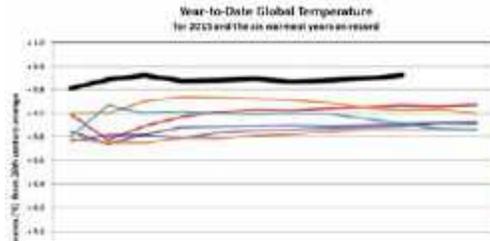
October 2015 becomes first month to cross key global warming boundary

By Andrew Freedman



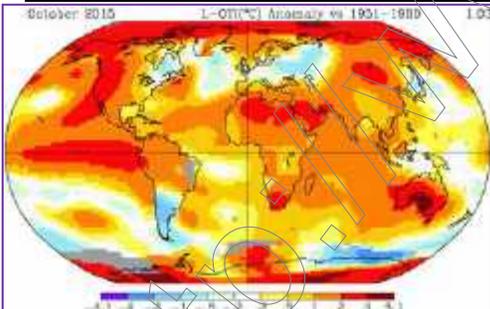
Visualization of sea surface temperature departures from average across the Pacific Ocean, showing the hallmark signs of El Niño. IMAGE: NOAA

The scorchingly hot October seals the deal: 2015 is almost certain to become the Earth's hottest year since instrument records began in 1880. This means the year will beat out 2014, and become yet another data point showing that manmade global warming, plus natural climate variability, is pushing the climate into new territory.



Global average surface temperatures so far this year versus the other warmest years on record.

Global average surface temperatures so far this year versus the other warmest years on record. IMAGE: NOAA NCEI



Global temperature anomalies for the month of October 2015, according to NASA. IMAGE: NASA GISSTEMP

The planet has not been only record warm this year, it's been so unusually mild that the temperature records themselves have set records of their own. This is the case with October 2015, according to new preliminary NASA data released Tuesday.

The information shows that October 2015 was by far the warmest October on record, dating back to 1880. Not only that, but October also had the largest temperature departure from average of any month on record.

The global average surface temperature came in at 1.04 degrees Celsius above average for the month, which is the biggest warm temperature anomaly in recorded history, the NASA data shows.

Importantly, this was also the first time that a single month exceeded the 1-degree

Celsius temperature anomaly, surpassing the 0.97 degree Celsius temperature anomaly in January 2007. This is a symbolic milestone, but one that will be broken more frequently as the climate continues to warm due to increasing amounts of greenhouse gases in the air because of human activities.

The NASA data corroborates information released by the Japan Meteorological Agency (JMA) on Monday, also showing that October was the warmest such month

on record, as the year heads toward setting a record for the warmest calendar year, beating out 2014 for the top spot.

On Wednesday, the National Oceanic and Atmospheric Administration (NOAA) released its October temperature data, and also found the month was the warmest such month on record, and broke the record for the largest monthly global temperature anomaly in 1,630 months of record-keeping. The agency said the month fell just short of the 1 degree Celsius anomaly, at 0.98 degrees Celsius above average, but nevertheless solidly beat the previous record monthly temperature anomaly, which was set in September.

According to NOAA, 2015 is cruising toward the record for the planet's warmest year since instrument records began.

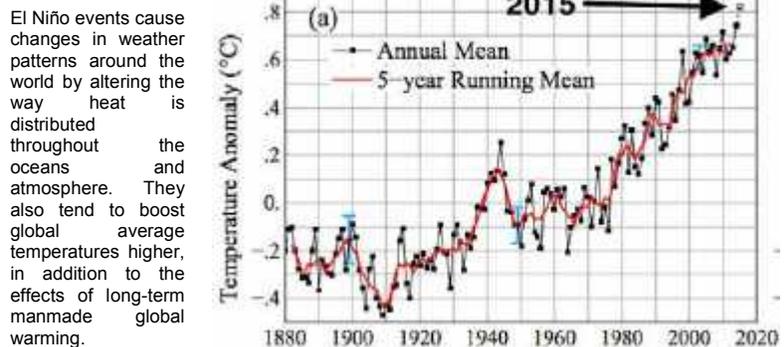
Parts of South America, the Atlantic Ocean, Indian Ocean, Africa, Europe, Australia, the Pacific Ocean and the western U.S. were all record warm in October, according to the NOAA data.

In the JMA data set, which analyzes similar temperature records but processes them differently than NOAA and NASA do, this October beat October 2014 by 0.34 degrees Fahrenheit, or 0.19 degrees Celsius. According to NASA, though, this October beat October of last year by 0.32 degrees Fahrenheit, or 0.19 degrees Celsius.

According to the JMA, this was the largest temperature departure from average for any month so far this year.

The JMA information shows October was unusually mild throughout areas of the Northeast, Central, and South Pacific Ocean, the Indian Ocean, much of North America, parts of Asia, and most of Europe — as well as all of Australia, Africa and the Middle East.

The warmth in the Central Pacific is related to a strong El Niño event that is characterized by unusually mild ocean temperatures along the equator, from the central Pacific to the west coast of South America.



Global average surface temperature anomalies through October 2015, showing where 2015 as a whole is likely to end up. IMAGE: NASA GISSTEMP

El Niño events cause changes in weather patterns around the world by altering the way heat is distributed throughout the oceans and atmosphere. They also tend to boost global average temperatures higher, in addition to the effects of long-term manmade global warming.

The NOAA has found a 97% chance that 2015 will break the all-time calendar year temperature record for the planet. On Tuesday, Gavin Schmidt, who directs NASA's Goddard Institute of Space Studies in New York, said it is now 99% likely that 2015 will set a calendar year temperature record.

According to NASA, the January through October period ranks as the warmest such period in its 136 years of record-keeping, with a temperature anomaly of 0.82 degrees Celsius, or 1.45 degrees Fahrenheit. This beats global average temperature anomalies for the same period last year, which was 0.76 degrees Celsius, or 1.37 degrees Fahrenheit above average.

For the year as a whole, global average surface temperatures are likely to reach 1 degree Celsius, or 1.8 degrees Fahrenheit, above preindustrial temperatures for the first time, according to the UK Met Office, NOAA and now NASA as well.

Even 2014, which was the previous record-holder for the warmest year in recorded history, did not eclipse this symbolic, but important, boundary.

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The benefit of more electronics recycling? Try \$10 billion

By Heather Clancy



E-waste photo by KYTan via Shutterstock

The industry's biggest computer hardware and gadget manufacturers have been pretty quiet about their commitments to accounting for natural capital — aka the environmental costs related to their business activities.

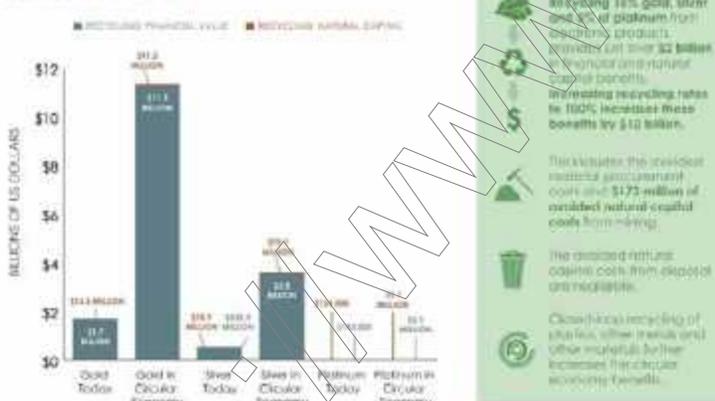
That's not to say they aren't experimenting with recovery and reuse initiatives. Dell and Hewlett-Packard have been particularly innovative about creating closed-loop processes for putting recycled plastics back in service. It's just that with the exception of Dell, no one company is really talking about these programs from a global perspective. At least not publicly.

It actually turns out the computer and electronics industry as a whole does pretty well when it comes to limiting its impact on natural resources, such as water and precious metals such as gold, silver and platinum.

The cost is an estimated \$39 million per every billion dollars in revenue, according to a recent analysis by Trucost on behalf of the Greener Electronics Council, the organization behind the EPEAT green products registry. That compares with an average of \$194 million for other sectors.

But there's a compelling financial case to do more, especially when it comes to recovering precious metals. Increasing the recycling rate to 100 percent industry-wide could generate an estimated \$10 billion in cost savings and natural capital benefits, according to Trucost. For example, creating better closed-loop processes for reusing gold would have a bottom-line benefit of almost \$100 million compared with \$14.6 million at current recovery levels, according to the Trucost data.

CLOSING THE LOOP



Increased closed-loop recycling of plastics and metals could yield real financial and natural capital value for technology manufacturers.

Conversely, the industry is bearing at least \$197 million in natural costs associated with electronics trashed annually in the United States alone. The biggest culprit is televisions, which account for close to half of those costs.

"Enhancing product collection is a critical need, with an estimated 75 percent of products being disposed of annually," wrote Libby Bernick, Trucost senior vice president for North America, in response to a question about the findings.

"In addition, new recycling technologies are being developed to recover higher percentages of precious metals from products by companies such as Greene Lyon Group," she noted. "Finally, more product designs are focusing on post-use disassembly so that materials can be separate from one another following product use. We don't know that any single or

several companies is leading on recovering precious metals. Simply getting computers from consumers to the recycling stream is an important step at this point."

There's no shortage of companies arising to handle electronics recycling (aka e-cycling) programs in some kind of traceable, transparent way. Very few companies have focused on harvesting new revenue out of discarded tech gadgets — Apple, Motorola and Microsoft are among those bucking the trend.

Microsoft and one of its biggest rivals in software, Google, both have accounted for natural capital for several years by setting internal prices for carbon emissions produced by their respective business operations. Microsoft figures it has saved at least \$10 million annually through this exercise.

Over the summer, the software giant — which is becoming a far bigger force in the tablet and cloud computing services markets — entered a partnership with the Natural Capital Project to help other businesses include the value of nature in their own business models.

"We hope that by providing access to a growing library of relevant data and cloud-based tools that assess the value of nature to specific landscapes, places and communities, we can help accelerate change," said Microsoft's chief environmental and cities strategies, Rob Bernard, when the alliance was launched. "These tools have been created based on mathematical models developed and tested by leading scientists in collaboration with end users over the last decade."

One area where you can expect tech manufacturers — particularly those focused on semiconductor fabrication — to spend more attention over the next decade: water scarcity. A company with fabs in Beijing, for example, could see up to 60 percent of its revenue at risk by 2025, according to Trucost's analysis. Companies in San Jose, California, or Hiroshima, Japan, could face even higher risks.

[<Source>](#)

Energy efficient cars, fridges seen aiding climate, GDP



The plug of an electric car lies on the ground at an electric car exhibition in west Sydney July 12, 2011. REUTERS/DANIEL MUNOZ

BY ALISTER DOYLE, Reuters

Tougher energy efficiency standards ranging from cars to fridges could cut annual world greenhouse gas emissions by about a tenth by 2030 while also spurring economic growth, an international report said on Thursday.

The study, by the Global Commission on the Economy and

Climate, urged the Group of 20 to do more to improve the energy use of vehicles, buildings, factories, power plants and household appliances as a way to limit global warming.

The Commission, led by former heads of government, business leaders, economists and other experts, argues that measures to combat climate change can help lift economic growth, rather than depress it as many governments fear.

"Energy efficiency really contributes economically and it is also important in terms of climate change," Russell Bishop, who led the study that included everything from lightbulbs to building insulation, told Reuters.

The report estimated that new voluntary energy efficiency measures, that could vary by country, could cut annual greenhouse gas emissions by the equivalent of between 4.5 and 6.9 billion tonnes of carbon dioxide by 2030.

By contrast, annual world greenhouse gas emissions are now around the equivalent of 50 billion tonnes of carbon dioxide, according to the U.N.'s panel of climate scientists.

Group of 20 leaders will meet in mid-November in Turkey, while almost 200 nations will meet in Paris from Nov. 30-Dec. 11 to try to agree measures to rein in global warming.

The United Nations says government plans so far are too weak to limit warming to a U.N. target of 2 degrees Celsius (3.6 Fahrenheit) over pre-industrial times to limit extinctions of animals and plants, droughts, floods and rising sea levels.

Energy efficiency could fill a big part of the gap to get toward 2C, along with a stronger shift to cleaner wind and solar power from fossil fuels, Bishop said.

The International Energy Agency has estimated that investments in energy efficiency could boost cumulative economic output by \$18 billion by 2035. Some measures, such as insulating home roofs in cold climates, quickly pay for themselves via lower heating bills.

Such savings can free up cash for more productive investments, lifting growth, and also reduce harmful air pollution from burning fossil fuels.

Bishop said that improved efficiency measures should not be too ambitious and should avoid choking industry with red tape. Volkswagen's (VOWG_p.DE) cheating on emissions data from diesel engines highlighted a need for proper oversight, he said.

(Reporting by Alister Doyle; Editing by Catherine Evans)

[<Source>](#)

Could Nanotechnology Dramatically Reduce Clothing's Environmental Impact?

By Kathleen Webber



Image credit: Dropel Fabrics

If washing and drying clothes is a major culprit in the environmental waste wars, what if there were more natural fabrics that repelled stains, resulting in fewer washings? One such solution, introduced by Kelby & Co. at the Fashion Tech Lab demo day this summer, is being rolled out in the market next month.

Dropel fuses hydrophobic (water- & stain-repellent) nanotechnology with cotton fibers to create enhanced cotton that resists stains as stubborn as soy sauce and red wine. Spills can be rinsed off with a squirt of water.

Founders Sim Gulati and Brad Feinstein are working with cotton now, though they say they have the capabilities to blend all types of natural fabrics such as cashmere, silk, linen and wool.

"Maintaining natural feel (softness), breathability, draping and all other fabric characteristics are our differentiators," Feinstein says.

He says Dropel is working in the types of innovation usually reserved for polyester.

"We want to move away from synthetics towards a world where we can use natural textiles with added benefits that require less energy and resources in the process," he says. "We've used synthetics for decades and we believe we're at a point now where we no longer need to resort to petroleum-based fabrics for innovative properties. We provide a sustainable alternative."

The proprietary development process was designed in a research lab and adapted for mass-scale manufacturing. Feinstein and Gulati have filed their first patent application for Dropel.

While the company is currently working with a handful of luxury menswear ecommerce companies, the team sees the fabric as being suitable for women's and children's wear, home furnishings, and uniforms. Dropel Fabrics is expected to come to market soon – the company has begun trials with several brands for Spring and Summer 2016, with some doing full garment manufacturing with the company and others sourcing the fabric. Regardless, the company says brands like that the innovative fabric with embedded technology is a purchase consumers can feel good about.

"We feel sustainability and environmental care are elements of our value proposition," Feinstein says.

Dropel is the latest in a spate of recent fabric innovations aimed at decreasing the environmental impact of textile production and use:

- In 2014, Scientists at City University in Hong Kong revealed a new treatment for cashmere that enables it to self-clean with some help from the sun. The technology coats cashmere fibers with tiny particles of the mineral anatase titanium dioxide. When exposed to sunlight for 24 hours, the mineral starts a chemical reaction creating oxidants that act as tiny electric currents to break down dust, dirt, bacteria and even trickier stains such as coffee and wine. If the project succeeds and is commercialized, it could lead to substantial savings on energy, water, washing liquids and dry cleaning chemicals.
- In April, textile upcycler Worn Again announced a partnership with H&M and Kering to trial a first-of-its-kind textile-to-textile chemical recycling technology that is able to separate and extract polyester and cotton from old or end-of-use clothing and textiles. Once separated, the aim is for this unique process to enable the 'recaptured' polyester and cellulose from cotton to be spun into new fabric, creating a circular resource model for textiles.
- In August, Swiss upcycled bag and clothing brand Freitag expanded its F-fabric line of European-grown and -produced workwear with a compostable, cotton-free jean — the E500 jean line will comprise 81 percent linen and 19 percent hemp. The jeans will contain neither rivets nor nylon thread, making each pair 100 percent compostable after the removal of buttons.
- In September, adidas announced Sport Infinity, the sportswear giant's plan for a new breed of sporting goods that will never be thrown away. Instead, football (soccer) players will be able to constantly reimagine and recycle their dream products using an inexhaustible 3-D "super-material." The company's goal is for every gram of sportswear to eventually be broken down to be remolded again into new products in a waste-free, adhesive-free process
- And just last month, Levi Strauss launched its Levi's Wellthread™ Collection, which touts a holistic approach to sustainable product design: The line was made in 100 percent cotton for easier recyclability, by empowered workers — and includes the first garments to feature Levi's Water<Less™ fabric, which saves more than 65 percent of the water in the dye process, as well as Water<Less denim finishes, which use up to 50 percent less water.

[<Source>](#)

Tips:

Pick any newspaper now days, on the front page itself you will find news about smog in Delhi and Beijing. Smog in Beijing has reached dangerous levels and Delhi is also following the pursuit. Measures are being taken to reduce automobiles on roads for reducing emissions, which is further contributing to smog. Rise to the occasion and take preventive measures to keep the air fit to breathe. There are concerns that air pollution is not only affecting visibility but also taking toll on vision. A recent survey at AIIMS has revealed that 10% to 15% people are subject to chronic irritation and dry eyes because of constant exposure to high level of pollutants.

For convenience here are some tips to reduce pollution which will be handy, though most of us know these facts but knowing it is not going to help we have to apply these in our life.

- Maintain your automobiles properly to keep pollution under control: Change engine oil and filters periodically as prescribed, ensure that carburetor are clean and properly tuned, ensure correct air pressure in tyres as prescribed by manufacturer also keep wheels properly aligned.
- Drive vehicle properly: avoid sudden acceleration and braking, maintain optimum speed, avoid excessive idling of your vehicle on signals etc.
- Car pooling is another good option thus number of vehicles on roads can be reduced considerably and so will reduce emission.
- Plan your trip by linking trips in such a way that it saves fuel and thereby reduces emission.
- Use public transport like buses or Metro to commute. In metro cities MRTS (Mass Rapid Transport System) is an excellent option that may be used for commuting.
- Do not burn waste and garbage in open. Segregate recyclable waste & biodegradable waste and dispose accordingly. For food wastage you may have a compost pit in your kitchen garden and put it in, this will provide excellent manure for your plants etc in the kitchen garden.
- Avoid fossil fuel driven vehicles for short distances. Either walk down small distances or ride a bicycle. Thus you will save the environment and will also remain fit.
- Displace factories away from densely populated areas and plant trees as much as possible.
- Thermocol or Styrofoam is a very common packaging material used for safe packaging of delicate articles. If Styrofoam is burnt in open it releases very harmful gases. Therefore it must be sent for recycling it dissolves in Acetone or Butane very easily. Styrofoam is also used for making disposable glasses and plates. Never dispose it with other garbage.
- To purify indoor air one may place plants like Chrysanthemum, bamboo palm, Lady Palm, Rubber plant, Philodendrons, and Fern etc.
- Purchase environment friendly air conditioners and refrigerators. In conventional cooling devices HFCs and CFCs are used that are very dangerous.

Belgium to power 170 trains with wind energy

By admin, **GREENTECH LEAD**



Belgium has launched an ambitious project to power 170 trains by wind energy — and the first seven of the planned 25 turbines entered service on Saturday, local media reported on Sunday.

Sudpresse newspaper group said turbines will be built along the main rail line from Leuven to Liege, generating enough power for every high-speed and local train using the line.

The number of trains to be covered by the wind energy project represents about five

percent of the country's total rail traffic, Belgian railtrack operator Infrabel said.

Belgian broadcaster RTL reported that once all 25 turbines are operating, they are expected to produce 35,000 megawatt hours — enough energy to power 10,000 homes. About two-thirds of the produced electricity is needed for the rail line and the surplus will be added to the domestic electricity supply grid.

Philippe Van Troeye, production director at Belgian energy firm Electrabel, told reporters on Saturday: "Wind energy, like solar power, is intermittent, but it will play a more and more important role in our energy provision in the future."

[<Source>](#)

Norway promotes plug-in hybrid shipping

By Steve Hanley



Norway depends on ships for much of its national and international commerce. It also has an extensive network of ferries that cross its many fjords, inlets, rivers and harbors. While we here at Gas 2.0 focus mostly on carbon emissions from land based vehicles, the truth is, ships spew enormous amounts of carbon dioxide into the atmosphere during every

voyage. Some estimates suggest one large container ship is responsible for as much atmospheric pollution as 50 million cars (mostly from sulfur dioxide emissions) each year it is in operation!

Norway takes its duty to be a good citizen among the world's nations seriously. It has built a national network of renewable energy sources over the past 20 years, so that today it gets as much as 90% of its electricity from hydro, wind and solar power. The city of Oslo recently announced it plans to eliminate 350,000 cars from its central business district by banning cars entirely over the next 4 years.

Now, according to The Maritime Executive, Norway is moving ahead with plans to construct a fleet of plug-in hybrid ships to service its marine industries. In a joint program with the Norwegian government, Oslo-based DNV GL recently launched the Green Coastal Shipping Program, which aims to create the most environmentally friendly vessels in the world. The ships will use LNG and batteries as energy sources.

"We envision a fleet of offshore vessels, tankers, cargo, container, bulk and passenger ships, ferries, fishing and aquaculture vessels, tugs and other coastal vessels, run entirely or partly using batteries, LNG or other green fuels," said DNV GL's Narve Mjøse, who is the program director for the Green Coastal Shipping Program.

The first project is a cargo ferry plug-in hybrid for short ocean voyages. The second is a battery powered coastal tanker project. The third project is a hybrid vessel for commercial fishing operations, while the fourth will convert a cargo ship into a hybrid battery and LNG carrier. Converting existing vessels into LNG carriers has been seen as cost-effective to many small operators.

In addition to the low emissions vessels, the program will develop a green port facility that uses less energy than usual and has a minimal carbon footprint. It will make use of electric heavy duty vehicles and cranes and will have dockside charging stations to service the plug-in hybrid ships.

"The shipping industry is very well equipped to lead the way in the green shift. This can contribute to exports of good, future-oriented and environmentally friendly solutions," says Monica Mæland, the Minister of Trade and Industry.

[<Source>](#)

Gamesa Reveals New 3.3 MW Turbine Designed For Medium Wind Speeds

By Joshua S Hill, *Clean Technica*

Spanish turbine manufacturer Gamesa has revealed its newest wind turbine, a 3.3 MW model designed for medium wind speed sites.

The global wind industry is fast becoming one of the most entrenched and reliable methods of new electricity generation, but not every location is made the same. Potential wind farm locales do not always experience the same wind conditions as others, even within relative close proximity to one another. Entire regions — such as India, for example — have comparatively lower wind speeds than others.

This discrepancy between locations means that one wind turbine isn't always the right turbine for every potential wind farm.

As a result, wind turbine manufacturers have placed a lot of emphasis on researching and developing wind turbines that are designed for specific wind-type locations — low, medium, high, etc.

Following in this path, one of the world's largest and most experienced wind turbine manufacturers, Gamesa, based out of Spain, this week revealed its newest 3.3 MW wind turbine designed specifically for medium-wind speed locations. The first G132-3.3 MW wind turbine prototype is expected to be installed in mid-2016, with serial production expected in the first quarter of 2017. The turbine is based on technology that has been proven in Gamesa's existing 2.0 MW and 2.5 MW platforms, and includes a new turbine blade made from fiberglass and stretching 64.5 meters which "features a new family of aerodynamic edges which increase annual output while minimising noise emissions."

The turbine will be available in four different tower heights ranging from 84 meters to 134 meters, and is expected to be able to deliver 50% and 30% more energy than Gamesa's G114-2.0 MW and G114-2.5 MW turbines respectively.

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West Antarctic ice melt could raise seas by 3 meters

Source Name: *Times of India*

Melting ice in West Antarctica is a major concern for global sea levels, and a key area may already be unstable enough to unleash three meters of ocean rise, scientists said Monday.

The study follows research out last year, led by NASA glaciologist Eric Rignot, warning that ice in the Antarctic had gone into a state of irreversible retreat, that the melting was considered "unstoppable" and could raise sea level by 1.2 meters (four feet).

This time, researchers at Germany's Potsdam Institute for Climate Impact Research pointed to the long-term impacts of the crucial Amundsen Sea sector of West Antarctica, which they said "has most likely been destabilized."

While previous studies "examined the short-term future evolution of this region, here we take the next step and simulate the long-term evolution of the whole West Antarctic Ice Sheet," the authors said in the Proceedings of the National Academy of Sciences.

They used computer models to project the effects of 60 more years of melting at the current rate.

This "would drive the West Antarctic Ice sheet past a critical threshold beyond which a complete, long-term disintegration would occur."

In other words, "the entire marine ice sheet will discharge into the ocean, causing a global sea-level rise of about three meters," the authors wrote.

"If the destabilization has begun, a three-meter increase in sea level over the next several centuries to millennia may be unavoidable."

Even just a few decades of ocean warming can unleash a melting spree that lasts for hundreds to thousands of years.

"Once the ice masses get perturbed, which is what is happening today, they respond in a non-linear way: there is a relatively sudden breakdown of stability after a long period during which little change can be found," said lead author Johannes Feldmann.

The authors noted that Antarctica's situation presents the largest uncertainty in sea level projections for the coming centuries, and that studying the vast region poses many challenges.

And indeed, just days before the PNAS study was released, another scientific paper used NASA satellite data from 2003 to 2008 to show that Antarctic ice had gained mass, and had packed on enough to exceed the amount lost in other areas.

"We're essentially in agreement with other studies that show an increase in ice discharge in the Antarctic Peninsula and the Thwaites and Pine Island region of West Antarctica," said a statement by Jay Zwally, a glaciologist with NASA Goddard Space Flight Center whose study was published October 30 in the Journal of Glaciology.

"Our main disagreement is for East Antarctica and the interior of West Antarctica — there, we see an ice gain that exceeds the losses in the other areas."

According to climatologist Michael Mann, who was not involved in either study, the use of older satellite data could be the cause for the disconnect.

"It sounds to me as if the key issue here is that the claims are based on seven-year-old data, and so cannot address the finding that Antarctic ice loss has accelerated in more recent years," he told AFP.

[<Source>](#)

French wine industry's love affair with pesticides blamed for worker health problems

A growing number of lawsuits in France have begun to expose the serious risk faced by those working on non-organic vineyards

By Andrew Wasley and Amanda Chaparro



Harvesters at work in France's Languedoc region. The country uses 60,000 tonnes of pesticides per year and is the largest user by volume in Europe. Photograph: Owen Franken/Corbis

Blessed with plentiful sunshine and quality soils, the Tari family's medium-sized operation has been certified organic since 1989. This certification strictly regulates the manner in which the wine can be produced, in particular limiting the chemical inputs that can be used.

"We tried from the beginning [to] grow vines in a clean and proper way," says Wenny. "We do not use synthetic chemicals, only natural ones."

While the Tari vineyard is something of a success story, not all French farmers who choose to avoid pesticides are so fortunate. Last year, organic winegrower Emmanuel Giboulot faced a potential penal sentence for

going against official instructions to spray crops, arguing the insecticide harmed beneficial pollinating insects.

The pesticide problem

Only 8.4% of vineyards in France are organic, making Chateau de Brau different from the large majority of French wine growing estates. France deploys around 60,000 tonnes of pesticides each year and is Europe's most prolific user by volume. Grapes are notoriously prone to disease and pests, with large quantities of pesticides used in conventional cultivation systems, mainly through crop spraying.

But the French wine industry's love affair with pesticides is coming under scrutiny over concerns about its health and social impacts. Earlier this year, a landmark legal action was launched by lawyers acting for the daughter of a vine grower, James-Bernard Murat, who died from cancer linked to his use of pesticides over a 40 year period.

Valérie Murat wanted to pursue the legal action to establish responsibility for her father's death, spurring on France's first ever criminal investigation of its kind into the *homicide involontaire* (manslaughter) of a vineyard worker.

Numerous studies have suggested links between pesticide use and a range of health impacts, including cancers, Parkinson's disease and other chronic conditions. Murat's illness was officially recognised as being linked to his profession in 2011 – one of around 40 cases where agricultural workers have had medical problems directly attributed to their work.

This case is just the tip of the iceberg, according to François Lafforge, Valérie Murat's lawyer and a specialist in health and environmental cases. Although the Murat case is the only one currently in the criminal courts, his office alone has now begun 45 legal proceedings relating to farmers, agribusiness workers and researchers, with around 10 directly concerned with vineyard workers. He estimates that there could be up to 100 similar cases in the pipeline across France.

"This legal action can lead to [a] prison term or fine if the violation is recognised," says Lafforge. "It is an exemplary case, we hope that [the] procedure will come to a successful conclusion and that [it] will be used for reference to farmers exposed to similar products."

The French authorities and the wine industry will be watching closely as the Murat case could open the way for claims against pesticide producers, vineyard owners and even the French state.

Not everyone believes there is a link between pesticides and illness. Julien Durand-Réville, from the Union des Industries pour la Protection des Plantes, an agricultural trade body, said: "Professional illnesses have a lot of origins/factors ... medical history, sun, tobacco, alcohol, diet, exposure to fumes from gas and oil ... Moreover practices and products have changed. Farmers don't use pesticides as much as before and products are less dangerous."

Wenny Tari knows a thing or two about wine. She and her husband Gabriel have been making it since 1982, when they inherited a vineyard in France's picturesque Languedoc region in the south of the country.

Their 40 hectare Chateau de Brau vineyard is home to more than 170,000 individual vines, including some of the world's best known grape varieties such as merlot, cabernet sauvignon and chardonnay. They produce around 150,000 bottles of wine a year, 20,000 of which are exported to the UK.



Wenny and Gabriel Tari. Photograph: Wenny Tari



Greenpeace campaigners protest against the use of pesticides in farming and mass-market retailing in Roques, near Toulouse. Photograph: Remy Gabalda/AFP/Getty Images

In 2008 the French government pledged to halve the country's pesticide use by 2018. However, earlier this year it was reported that use had actually increased and the target reduction had been delayed until 2025.

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Africa Takes Leap to Solar Lighting

SustainableBusiness.com News

For many years, small solar companies have been bringing light to off-grid communities in Africa, and now the effort is taking leap forward.

14 African countries announced they are joining Energy Africa to bring solar to the 620 million people who still lack access to electricity.

Until now, progress has been too slow - at the current rate, 300 million people will still be without light by 2040, former UN Chief Kofi Annan, told The Guardian.

"We must now come together to break the deadly interaction between poverty and unsustainable energy systems," he says, noting that Africa doesn't have to follow the carbon-intensive pathway.

Last year, around 7.5 million tiny solar systems were sold in Africa, an incredible increase from the 40,000 sold in 2009, according to the White House.

A combination of low-cost solar and LED lights, and increasing access to mobile phones makes this possible. Now, even in remote areas, people can pay for solar electricity via cell phone.

"As a businessman, I view this transition not as a burden but as a historic opportunity, and I feel strongly that universal access to clean, renewable sources of energy can be achieved in our lifetime - even in this generation," says Sir Richard Branson, who plans to invest.

The UK and US made fresh commitments to help through financing. The US announced commitments that will provide solar to 500 million people by 2020, through \$125 million in funding.



energy," Alex Rugamba of AFD told *Bloomberg*.

In South Africa alone, 4.3 gigawatts of renewable energy projects have come online in just the past four years, providing about 10% of the country's electricity. Large solar and wind projects are also in the pipeline across the continent.

This year, Environment Ministers across Africa released the Cairo Declaration, with all 54 countries demanding that global warming be limited to 1.5C by 2100. In it, they also pledge to an "inclusive green economy" and to improve protection of the continent's abundant natural resources and wildlife.

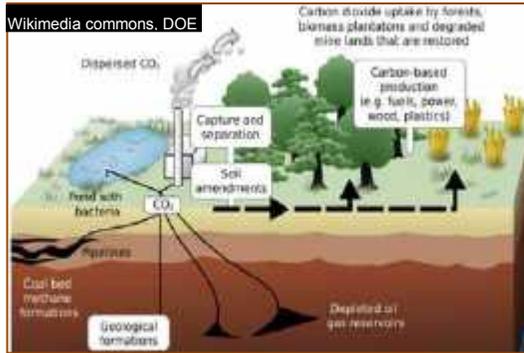
On that front, Kenya, Tanzania, Uganda, Madagascar and Mozambique signed the Zanzibar Declaration, agreeing to work together to stop trade in illegal timber. National forest agencies will share intelligence, implement log export bans and develop monitoring and reporting systems. It also urges countries that receive illegal lumber to prioritize the issue.

Over the past 10 years, primary forest cover is down by 6.3 million hectares, according to the UN Food and Agriculture Organization (FAO). This is an alarming rate, says World Wildlife Fund.

[<Source>](#)

Beyond emissions: The promise of products from captured carbon

By Barbara Grady



Carbon sequestration, carbon removal technologies.

Jose last week at which Noah Deich, founder of a non-profit business incubator called the Center for Carbon Removal, discussed the concept with several scientists and entrepreneurs working on in the field.

Scientists — and now U.N. officials — are worried that reductions in carbon emissions will be too gradual, he said. "So, we have to get rid of what we have."

Amanda Ravenhill, executive director of Project Drawdown and a former professor at Presidio Graduate School of Management, put it this way: When carbon emissions in the atmosphere exceed 350 parts-per-million, major climate disruption begins to happen. "We are at 400 ppm," she said. In other words, we are beyond preventing damage by just stopping the increase.

But Ravenhill's organization has identified 100 ways to draw carbon from the atmosphere — some major such as recycling carbon into products and some minor such as planting a tree.

"The good news is there are tons of solutions," Deich pointed out. "We can build systems that suck carbon out of the air and then we could use that material" to build products or produce energy.

We also can return to agricultural practices in which photosynthesis is allowed to happen in abundance and take its full course so that decaying roots leave carbon in the soil, rather than release it into the air as agricultural waste would from a back of a truck or in a landfill.

In essence, there are three broad areas of carbon removal:

- 1. Biological solutions** that allow carbon to be sucked out of the air through photosynthesis. This, of course, is already happening. But preventing deforestation and reforestation once-forested areas would allow this powerful natural carbon sink to expand. Within agriculture, it is believed that rotational grazing or allowing animals to be grass fed, from birth to finish, will regenerate the soil by allowing more plants to populate.
- 2. Chemical removal solutions that create products** with carbon sucked from the air and recycled and combined with catalysts to make plastic-like materials.
- 3. Bio energy solutions that capture carbon from burning biomass to create energy** and then sequestering the remaining carbon. In the field, this is called bioenergy with carbon capture and sequestration.

Friday, the U.N. Framework Convention on Climate Change released its analysis of the country commitments that have been submitted so far. It stated in summary, "The estimated aggregate annual global emission levels resulting from the implementation of the INDCs do not fall within least-cost 2 degrees Celsius scenarios by 2025 and 2030."

So these carbon removal technologies could be important. Let's start with the last, bio energy.

Bio energy from capturing, sequestering and burning carbon

Daniel Sanchez, a Ph.D candidate in energy and resources at the University of California, Berkeley and a researcher in the Renewable and Appropriate Energy Laboratory, has been designing a bio-energy process that captures carbon from air, burns it to produce energy and then sequesters the carbon byproducts.

He is trying to flip the fossil fuel equation on its head. "We now take carbon from the ground, bring it up and burn it. What if we reversed that?" he said.

"I am working on taking carbon dioxide out of the air, burning it and putting it in the ground, in the soil where it belongs. This is bioenergy with carbon capture and storage."

The team has the science down in his lab at Berkeley, but he is working on developing a scalable solution that can be commercialized.

He calls it bio carbon capture sequestration because it goes beyond just capturing carbon in the air and burning it, which would be sort of carbon neutral. Sequestering what is burned removes carbon so becomes carbon negative.

"The challenge is cost," Sanchez said at VERGE. There are two commodities created that have some value — energy and carbon elimination. "But we don't yet value one of them," or the cost of carbon emissions in the economy because carbon does not yet have a price on it in the U.S. other than in some areas such as California where cap and trade system is play.

Still, even in California, "the price of carbon is an order of magnitude smaller" than where it should be to reflect its true influence in the economy.

But the team will continue to work on making scalable, low-cost versions of the bioenergy with carbon capture and sequestration process.

Soil

The interesting thing is that soil, particularly agricultural soil, is generally carbon deficient and needs more carbon — at least in most of the developed world — after years of agricultural use of pesticides and fertilizers that boost the nitrogen content of soil.

According to a 2007 discovery by scientists at the University of Illinois, that deficiency results because, although soil and plants need nitrogen, adding more nitrogen to stimulate faster growth cycles also causes faster than normal decomposition cycles and stimulates the growth of microbes which feed upon the carbon and other nutrients in the soil, thus depleting those nutrients.

Professor Peter Byck of Arizona State University is one of a growing number of proponents of changing agriculture so that plants are allowed their normal pace of photosynthesis and decay and the soil gets to reap the carbon from the process.

"Our soils should be 7, 8 or 9 percent carbon but instead they are 1 or 2 percent," Byck said at VERGE. "No one knew when we invented nitrogen (based pesticides) that would happen."

What if the way we grazed turned the carbon problem on its head and created a carbon sink?

He advocates that cattle and other farm animals be grazed through rotational grazing and grass fed from birth to slaughter, or grass finished as they call it in the industry.

"What if the way we grazed turned the carbon problem on its head and created a carbon sink," with methane and carbon going into the soil and oxygen being released in the air, he said.

Byck, who teaches in both the sustainability graduate program and the school of communications, has been working on both the science and the communications of this issue. After producing the acclaimed movie "Carbon Nation," he more recently created a second film "Soil Carbon Cowboys," that traces life on two ranches whose farmers switched from conventional cattle grazing as practiced in the U.S. for the last 50 or so years to rotational grazing without the use of fertilizers and pesticides.

Byck describes the method as returning to grazing practices of a century ago and the way bison currently grazes in the U.S. When land was plentiful, animals were allowed to roam to new areas after they chewed all the grass in one. Bison in the U.S. west still roam.

But land is no longer cheap. However, farmers can rotate grazing fields by steering cattle to stay in a new section of their fields and allowing a former grazing area to lay fallow long enough to replenish plant life and let the photosynthesis cycle complete itself so the carbon releases and stays in the soil.

Products

Pulling carbon from the air to use as an ingredient in products is a solution being studied on many fronts — including by commercial companies ranging from Coca-Cola Company to car-maker Audi, to industrial giants Schlumberger and ADM to startups Cool Planet, NewLight Technologies and Liquid Light, to cement maker Solida Technologies.

Our VERGE panel did not discuss commercialization efforts underway, but in a conversation with GreenBiz, Deich shared this list of product innovations that are in various stages of R&D and early commercialization.

Some, as GreenBiz has reported, are already in early commercial stages. LiquidLight is producing beverage bottles made from captured carbon for Coca-Cola Company. Newlight Technologies has captured and sequestered carbon from the air and recycles it to a resin it calls AirCarbon, a thermoplastic material that performs like petroleum-based plastic.

Dell computer is using it AirCarbon for packaging computers and Sprint uses it in cases for mobile phones. More recently, Vinmar International signed a deal to buy 1 billion pounds of AirCarbon over the next 20 years.

Project Drawdown

Project Drawdown, as we've written previously, is about advancing the numerous solutions that will begin to draw down the carbon in the air. The organization has started this work by publishing a book and creating a database listing 100 potential solutions and publishing them in a book.

Here's a sample from the list of 100: "ocean biomass, avoided deforestation, livestock feedstock silvopasture, sustainable rice production, forest reforestation, rotational grazing, building with wood." Silvopasture is an agricultural practice of growing trees in forage pastureland for livestock. Practitioners say the trees take stress off the forage by providing some shelter and variants of nutrients.

Interestingly, some of the 100 solutions are actions that solve other problems, such as hunger or cleaning up the oceans. "If we solve climate change we can change other problems we have in our society," Ravenhill said.

Some solutions listed are technological, such as carbon absorbing glass and biochar, while others are clearly social, such as girls education, which likely would reduce population growth and thus demand on the world's resources.

Project Drawdown is foreseeing "the point at which greenhouse gases peak and begin to go down year after year," Ravenhill said. It is creating a detailed description of solutions that are currently in use and the impact they will have in 30 years from now.

Its aim in publishing the 100 solutions in a book and making information available on a database is that people will read about actions they can take that work in reducing carbon.

"We think access to this information will speed up the climate renaissance," Ravenhill said.

[<Source>](#)

Dow, Dais Analytic and water innovation

By Barbara Grady

The notion that water is a resource available for the taking, anytime anywhere, has fast evaporated in the last couple years as severe droughts plagued many parts of the world



Dow's Terneuzen plant in the Netherlands accepts 10,000 cubic meters of municipal household wastewater each day, has it purified by the water company, and uses it to generate steam and feed its manufacturing plants.

While lack of clean, drinkable water has been a problem in developing countries for millennia, in the U.S. clean water has been taken for granted until recently.

Now water has a price, as farmers, real estate managers, industrial companies, food processors — and residents — in vast parts of the West and midwest have found out.

The good news is that where there's a market need, innovation follows.

Thus innovations on recycling water, treating used water to pristine levels, and reusing water have been multiplying in the past year or two.

A few have been put into commercial use, but many are on the cusp of that transition to commercialization, waiting chiefly for the economics to make sense. Even in scarcity the true value of water is not being reflected in the market because of how water is delivered in this country.

Nonetheless, the breakthroughs are impressive and finding their way chiefly into agriculture and industrial processes.

Think membranes

The technology of reverse osmosis, though it has been feasible for 30 years, has been the subject of intense R&D lately and the kernel of new commercial processes. With scarcity of water — or cheap water — being felt by municipal water districts, large businesses, commercial real estate managers and farmers, research in the technology went into high gear.

"Thirty five years ago we saw the emergence of membrane technologies, particularly the beginnings of reverse osmosis technology," said Snehal Desai, global business director for Dow Water & Process Solutions.

But when water shortages were being felt in the middle east and Australia, water businesses turned to boiling ocean water to desalinate it for other uses. The plentiful oil in the middle east made this economical.

Boiling ocean water then became the de facto method of desalination.

Now, that's shifting, with perfections in reverse osmosis and other technologies.

"For the first time we see the possibility of shifting from thermal to electrical" purification systems for large scale water recycling, Desai told GreenBiz.

"Reverse Osmosis allows shift from using fuel to using electrical pumps as pressure to an effect push water across a membrane. That membrane is designed to reject the salt and push the water through," he said.

The advances they've invented allow those membranes to reject a whole lot more than salt and so advanced reverse osmosis is being used to purify already used water

Dow Chemical's Water Process Solutions division is the world's largest manufacturer of reverse osmosis water purification systems.

"There's been quite a lot of advancement in ten years," he said, The reverse osmosis has been perfected to have much higher throughput of water and separating out increasingly tiny and even imperceptible elements that are not water. "It is also reduced cost per gallons of water when treated.

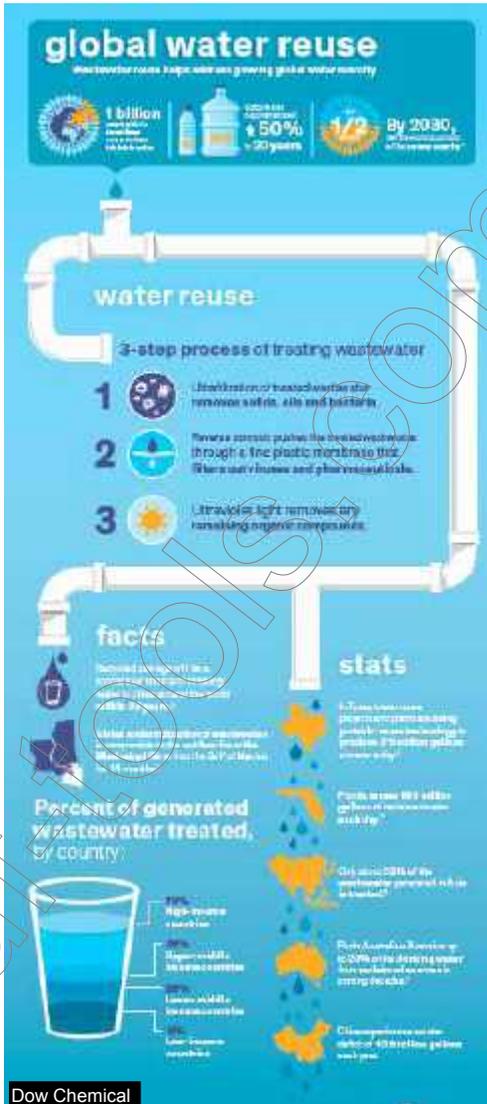
For a decade, it has been working in Carlsbad, CA with the San Diego County Water Authority water district to build and perfect a massive ocean water desalination plant to increase the region's water supply. Now that plant is working and providing drinking water to parched Southern California communities through using an advanced reverse osmosis process to desalinate the water and also purify if of any other substance including bacteria and pathogens.

"Salts are not the only things that membranes can reject. They reject other contaminants from reused water," he said. "Reverse osmosis has gotten to the level of purity that people are seeking" to make it a source of water.

The Carlsbad plant can produce 50 million gallons per day of desalinated water that exceeds state and federal drinking water standards. It provides water for 112,000 households.

Then, in Northern California, the Santa Clara Valley Water District has completed construction of a new water purification system that is already providing millions of gallons a day to some of its 15 municipalities. It is slowly ramping up the volume of purified water it produces.

The Santa Clara system sends water first through microfiltration process that extracts not only solids but bacteria and such. Then the water is pumped through a very slightly



permeable reverse osmosis membrane that blocks any remaining toxins or non-water molecules that remain. Lastly, the water is further treated with ultra-violet light and hydrogen peroxide process.

At the moment, the route purified recycled water from both systems takes is to be pumped into aquifers after treatment. That's not because it isn't drinkable — it is, in fact it exceeds federal and state drinking standards. Instead it is largely because of public distrust.

California water regulators directed that recycled purified water be re-injected into the aquifer where it will travel the same routes to households and businesses. Moreover, the earth has for billions of years proven to be the ultimate recycler of water, doing a good job or restoring it to purity levels.

Even in California, reused water, though passing federal and state drinking standards, is being used for non potable uses such as agriculture or industrial cooling. Desai said the earliest adoption has been in industrial settings, where companies are already feeling the higher cost of water, and secondly in municipal or county water districts.

Other applications using reverse osmosis

The science of a membrane allowing only water molecules to pass through has generated other applications.

One of those is the cooling process in large office

buildings and many industrial processes.

Often water is used to cool air in a heating-ventilation-and-cooling system. Cool water is circulated through a system to grab the heat from a room or from an industrial process, as a way to cool it down. But typically as cool water meets heat some of it evaporates into the air. Though most of the water is generally recirculated in such systems, a percentage of it evaporates in the process of meeting the hot air.

Dais Analytic, a firm just emerging from development stage into commercial operation, has a technology for preventing that water to be lost in the air - and prevent evaporated water from carrying germs with it into cooled spaces.

Again through the use of membranes — or a proprietary version of a plastic wall that allows water molecules to pass through but not air or gases — Dais has figured out a way to capture for reuse 90 percent of the water in a cooling system and prevent evaporated water from escaping into a room that is being cooled.

Therefore, says CEO Tim Tangredi, its cooling systems need much less water, half to 75 percent less water than traditional HVAC cooling systems where additional water has to be continually added to replace evaporated water.

Its nano filtration process that only allows moisture to penetrate and pass through the barrier also prevents germs from being transmitted into a cooled room, Tangredi said.

"We use a water recycling technology. On one side of the membrane is flowing contaminated water and on the other side is the cold loop of clean water. The water molecules on the dirty side are attracted to the clean side" and flow through the membrane, Tangredi explained. "The membrane, as a solid piece of plastic does not transmit air or gas or anything else through it. Only moisture can go through it."

Dais is marketing it as a barrier to bacterial transmission and keeping the working fluid isolated in an otherwise closed system for increased safety, reducing the likelihood of passing dangerous germs and viruses.

Dais has two large customers in pilot operations. One is a steel mill with a cooling operation and the other is an petroleum refinery.

Tangredi claims the company's product is "revolutionary" but it is still transitioning from lab to commercialization, however, so it's a wait and see.

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Another Nail in the Coal Coffin In Advance of Paris Climate Summit

SustainableBusiness.com News

In what's being called a breakthrough in advance of the UN Climate Summit (COP21), countries (COP21), countries put another nail in coal's coffin.

Members of the 34-nation Organization for Economic Cooperation and Development (OECD) agreed they will no longer finance new inefficient coal-fired power plants, cutting off public funding for 85% of coal plants in the pipeline.

As of January 1, 2017, the world's wealthiest countries will stop subsidizing these plants through export credits - a policy the Obama Administration has been pressing for.

Export agencies typically finance 5-7 coal plants a year, and many banks follow OECD guidelines for their lending practices, so this should have a ripple effect, Jake Schmidt of Natural Resources Defense Council (NRDC), told the Washington Post.

"This agreement is a sign that using scarce public financing to support overseas coal expansion is coming to an end. It will help spur more renewable energy opportunities by redirecting this financing towards climate solutions instead of climate destruction," Schmidt says.

"This is a big step forward," an Obama Administration official told reporters. "It removes a kind of negative carbon price, and puts clean energy technologies, like renewable energy, on a stronger footing to compete with higher-carbon energy sources."

Over the past seven years, OECD countries helped finance over \$35 billion worth of coal plants, supporting a quarter of the 15.3 gigawatts of new plants that have come online since 2005 (outside of China).

Two years ago, the US Export-Import Bank, the World Bank and European development banks put this policy in place, with some loopholes. As part of the climate agreement with the US, China will pull back on funding high emissions projects in developing countries, eliminating Japan's objection.

To get Australia and South Korea on board, a compromise was accepted that allows OECD countries to continue providing export credits for coal plants with carbon capture technology and for slightly less efficient plants of 500 megawatts or less in countries where at least 10% of the population has no access to electricity.

That's even though solar and wind makes much more sense for people without electricity - because they don't have access to the grid.

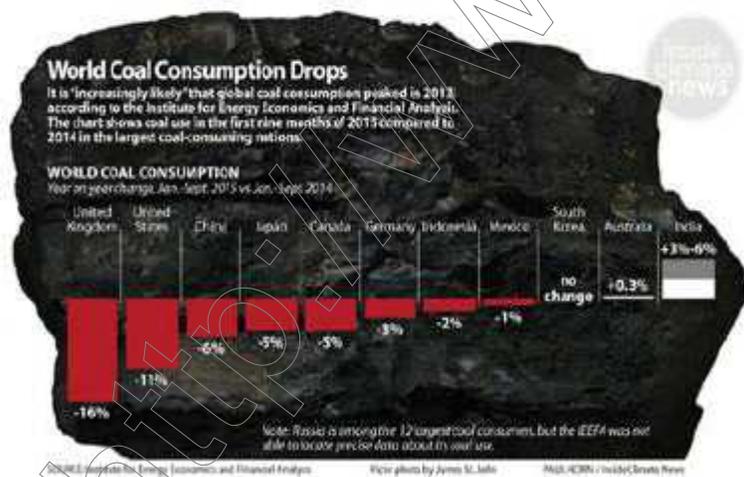
"While this deal represents an important advance on coal finance, it also creates a serious obligation for OECD countries to vastly step up financing of broad-scale clean energy projects in developing countries, or they risk justifying critics who contend they are denying the world's poor access to the energy they need to escape poverty. Clean energy finance will be a key issue in Paris climate negotiations," Paul Bledsoe, a climate official in the Clinton Administration, told the Washington Post.

No More Coal in Britain, Japan

In related news, Britain announced it will close all coal plants by 2025. After crushing its renewable energy industry, the conservative majority favors expansion of natural gas and nuclear.

And in Japan, Environment Minister Tamayo Marukawa blocked construction of two new large coal-fired power plants, which together would produce 2.3 gigawatts of electricity.

Worldwide, coal consumption peaked in 2013, and will likely drop 2-4% this year, despite near decade-low prices, according to a report by the Institute for Energy Economics and Financial Analysis.



This year, China - which uses half the world's coal - cut consumption 5.7% and in the US, use is down 11% from last year. Among the biggest users, only India and Australia increased consumption - other countries are either flat or declining, reports *InsideClimate News*.

<Source>

The future is here: mass-market hydrogen cars take to Britain's roads

Source Name: The Guardian

Billed for the last decade as a clean alternative to petrol or electric vehicles, hydrogen cars are no longer a car show concept but a driving reality. The challenge for manufacturers now is widescale adoption.

The first mass production hydrogen cars, billed for more than a decade as a clean alternative to petrol and diesel vehicles but only glimpsed as concepts at automotive trade shows, have arrived on British roads.

The most abundant element in the universe has added allure for carmakers in the wake of the Volkswagen pollution scandal and revelations about the gap between lab and real-world emissions tests.

Leading the charge are South Korean manufacturer Hyundai, with a £53,000 "crossover" - a squashed SUV that looks like a normal car, and the world's biggest carmaker, Toyota, with a futuristically styled saloon priced at £66,000. Honda has promised to launch its model in the UK during 2017.

"The only emissions out of the back of the car is water, either as water vapour or droplets, so you have no CO2, no NOx, no particulates," said Robin Hayles, manager of sustainable fuel development at Hyundai.

"You have the advantages of petrol and diesel in terms of range, performance and refill times, and the advantages of an electric vehicle: zero emissions, very smooth to drive, and instant torque."

The NOx pollution emitted by diesel engines - which VW's 11m affected cars underplayed - has led to the UK breaching EU pollution safety limits since 2010. It is expected to be blamed for a doubling of the UK's current 30,000 annual premature deaths from pollution in a report out next month.

Those buying or leasing the hydrogen cars to tackle that pollution are companies involved in the infrastructure to power them and businesses such as taxi firms looking to advertise their green credentials. Organisations such as Transport for London, which powers one of its routes with eight hydrogen buses, have also bought them.

Hyundai or Toyota have not sold a single car to an individual consumer. That might be partly explained by the fact that even after an EU-funded £15,000 grant, these first hydrogen cars cost around twice as much as most of the electric cars they are competing against as a clean alternative to diesel and petrol.

Nearly 7,000 "pure electric" cars have been registered in the UK this year, including the £21,000 Nissan Leaf and £31,000 BMW i3. Such cars cost about a quarter of the cost of petrol and diesels per mile travelled, while the new hydrogen models cost a similar amount to refuel as conventional cars.

However, the future of a £5,000 government grant to reduce the upfront cost of electric and hydrogen cars is in doubt after February next year - its fate will be decided in this month's autumn statement.

Hydrogen backers cite the cars' range and quick refuelling as two reasons they will win out against their battery-based rivals. While Tesla's electric sports car will run for nearly 300 miles between charges, most electric cars have a range of around 100 miles. Hyundai's hydrogen car runs for a more petrol-like distance of more than 360 miles.

"Mainstream EV [electrical vehicles] isn't quite there yet," said Neil Spires, product manager for Mirai at Toyota, which believes while electric cars are fit for inner city use, the future belongs to hydrogen cars. Globally, Toyota is producing 700 Mirai this year, with 3,000 next year, most of them for sale in its home market of Japan.

Actor Robert Llewellyn, who plays Kryten in TV show Red Dwarf and presents a YouTube series about greener cars, said: "I try to remain 'energy agnostic' about alternatives to internal combustion engines: anything that doesn't require the ridiculously inefficient burning of a finite fuel source to do the job is an improvement. Therefore hydrogen fuel cell hybrids or battery electric cars are a big step in the right direction."

In the UK there are question marks over where drivers will fill up with gas, which takes around three minutes compared to 30 for even the most rapid electric charging points. There are currently just four public refuelling stations in the UK, in locations including Hendon, Heathrow, Swindon, that rely on hydrogen deliveries by tankers.

A newly opened station in Sheffield uses a greener method: a wind turbine that produces hydrogen from water via electrolysis.

"That's the holy grail," said Spires, though he added that even when the hydrogen is made from natural gas, as more than 90% of it is in the UK, it was more environmentally friendly than oil. "You still have a positive story there, even with 'brown hydrogen'."

The industry says the total number of stations will rise to around nine or 10 by the end of 2016.

"That is the biggest challenge [infrastructure] we have," said Hayles. "Hydrogen's always been 10 years away, but it's not 10 years anymore - the car's there, the station's there. It's just [what we need to do is] giving the confidence to all the parties necessary to make sure it's adopted at much wider scale."

<Source>

Extreme heatwaves could push Gulf climate beyond human endurance, study shows

Oil heartlands of Abu Dhabi, Dubai, Doha and Iran's coast will experience higher temperatures and humidity than ever before on Earth if the world fails to cut carbon emissions

Reported by Kareem Shaheen, *The Guardian*

The Gulf in the Middle East, the heartland of the global oil industry, will suffer heatwaves beyond the limit of human survival if climate change is unchecked, according to a new scientific study.

The extreme heatwaves will affect Abu Dhabi, Dubai, Doha and coastal cities in Iran as well as posing a deadly threat to millions of Hajj pilgrims in Saudi Arabia, when the religious festival falls in the summer. The study shows the extreme heatwaves, more intense than anything ever experienced on Earth, would kick in after 2070 and that the hottest days of today would by then be a near-daily occurrence.



In places such as Abu Dhabi, by 2070 the hottest days of today would be a near-daily occurrence. Photograph: Westend61/Alamy

"Our results expose a specific regional hotspot where climate change, in the absence of significant [carbon cuts], is likely to severely impact human habitability in the future," said Prof Jeremy Pal and Prof Elfatih Eltahir, both at the Massachusetts Institute of Technology, writing in the journal *Nature Climate Change*.

They said the future climate for many locations in the Gulf would be like today's extreme climate in the desert of Northern Afar, on the African side of the Red Sea, where there are no permanent human settlements at all. But the research also showed that cutting greenhouse gas emissions now could avoid this fate.

Oil and gas rich nations in the region, particularly Saudi Arabia, have frequently tried to frustrate international climate change negotiations. The Gulf, where populations are rising quickly, was hit in 2015 by one of its worst-ever heatwaves, where temperatures topped 50C (122F) and led to a significant number of deaths.

Prof Eltahir said: "We would hope that information like this would be helpful in making sure there is interest [in cutting carbon emissions] for the countries in the region. They have a vital interest in supporting measures that would help reduce the concentration of CO2 in the future."

The new research examined how a combined measure of temperature and humidity, called wet bulb temperature (WBT), would increase if carbon emissions continue on current trends and the world warms by 4C this century.

At WBTs above 35C, the high heat and humidity make it physically impossible for even the fittest human body to cool itself by sweating, with fatal consequences after six hours. For less fit people, the fatal WBT is below 35C. A WBT temperature of 35C – the combination of 46C heat and 50% humidity – was almost reached in Bandar Mahshahr in Iran in July 2015.

The scientists used standard climate computer models to show that the fatal WBT extremes would occur every decade or two after 2070 along most of the Gulf coast, if global warming is not curbed. Using the normal measure of temperature, the study shows 45C would become the usual summer maximum in Gulf cities, with 60C being seen in places like



Kuwait City in some years.

Pilgrims walk on a road in Mina, near the holy city of Mecca, September 2015. Photograph: Ahmad Masood/Reuters

Near the Red Sea coast of Saudi Arabia, where Mecca and Jeddah lie, the WBT is not projected to pass the fatal 35C level, but would be 32C or 33C. This would make the Hajj

extremely hazardous, said the scientists. "One of the rituals of Hajj – the day of Arafah – involves worshipping at the site outside Mecca from sunrise to sunset. In these kind of conditions, it would be very hard to have outside rituals," said Eltahir.

Air conditioning might be able to protect people indoors and those in wealthy Gulf oil states might be able to afford it, said the scientists, but less wealthy nations would suffer. In Yemen, for example, the WBT would reach 33C. "Under such conditions, climate change would possibly lead to premature death of the weakest – namely children and the elderly," they said.

However, global action to cut carbon emissions would mean the fatal WBT would not be passed and that temperatures in Saudi Arabia would experience much smaller rises. "The [Gulf] countries stand to gain considerable benefits by supporting 'the global efforts' to cut emissions, said the scientists.

"The consequences of major heatwaves for human health has become apparent from the death toll of recent events such as those in Chicago in 1995, Europe in 2003 [30,000 deaths] and Russia in 2010 [50,000 deaths]," said climate scientist Prof Christoph Schär, at ETH Zurich, Switzerland and who was not involved in the study. But he said the new study "concerns another category of heat waves – one that may be fatal to everybody affected, even young and fit individuals under shaded and well-ventilated outdoor conditions."

Schär said the work showed the threat to human health from climate change may be much more severe, and occur much earlier, than previously thought. "It also indicates that reducing global greenhouse gas emissions and adaptation efforts are essential for the inhabitants of the Gulf and Red-Sea regions."

The Gulf is vulnerable to very high WBT because regional weather patterns mean it has clear summer skies, allowing the sun to strongly warm the waters of the Gulf, which are shallow and therefore heat up more than deeper oceans. This heating of the sea also produces high humidity, meaning cities near the coast are most affected.

What's it like living in today's Gulf heatwaves

Growing up in Dubai in the Gulf, the thing I looked forward to the most every summer was leaving.

Summer meant going back to my birthplace in Alexandria in Egypt, but it also meant getting away from temperatures that could hit a hellish 50C, when going to the beach wasn't an option, unless you enjoyed scorching your soles in the sand to swim in tepid seawater while burning your skin in the blazing sun.

Summer is something you work around in the Gulf. You try to ensure your time spent outside is kept to a minimum because the high humidity of seaside cities, such as Dubai, will leave your clothes soaking wet within minutes. It means an intricate hop from air-conditioned site to air-conditioned site – your apartment to your car to the supermarket or the shopping mall or a friend's similarly temperature-controlled abode. It means never having to use a water heater because your shower will always be hot – even scaldingly so if you dare to take one at midday.

[<ReadMore>](#)

Scientists create cheaper, high performing LED

Source: *Buffalo Breeze (IANS)*

Researchers at Florida State University have developed a new type of light-emitting diode, or LED that could lead to cheaper, brighter and mass produced lights and displays in the future.

Energy-saving LED lighting is already sold in stores, but widespread adoption has been slow because of the costs associated with the material and the quality.

"We came up with our novel approach to solve some critical problems and get a high-performance LED," said associate professor Biwu Ma.

The researchers used an organic-inorganic hybrid form of the material perovskites to build the highly functioning LED.

Perovskites are any materials with the same type of crystal structure as calcium titanium oxide. Other researchers experimented with perovskites to build LEDs in the past but could not build particularly effective ones.

The researchers believed this organic-inorganic hybrid could perform better, if the formula could be appropriately tweaked.

After months of experiments using synthetic chemistry to fine tune the material properties and device engineering to control the device architectures, they ultimately created an LED that performed even better than expected.

The material glowed exceptionally bright.

It is measured at about 10,000 candelas per square metre at a driving voltage of 12V. Candelas are the unit of measurement for luminescence.

It was also quick and easy to produce.

The researchers said they can produce the material in about an hour in the lab and have a full device created and tested in about half a day.

Additionally, while bare hybrid perovskites tend to be unstable in humid air, the nanostructured perovskites exhibit remarkable stability in ambient environment because of the purposely designed surface chemistry.

Such chemical stability largely reduces the requirement of sophisticated infrastructure to produce this new type of LEDs and could be of huge benefit for cost-effective manufacturing in the future.

The findings appeared in the journal *Advanced Materials*.

[<Source>](#)

One Million Clean Cookstoves Cut CO2 Emissions, Fuel Costs

Source Name: *Clean Technica*

Wood-burning clean cookstoves are pretty low-tech compared to many of the devices, gadgets, and concepts usually featured at *CleanTechnica*. Their impact, however, ranks right up there with much more complex clean technology. Clean, efficient cookstoves not only reduce indoor air quality issues created by open fires, but also reduce deforestation and give women more time for education, and work that they find more fulfilling.

US-based Envirofit was one of the first social enterprises to move into the clean cookstove space, and it's just recently sold its millionth unit. I shared some of its findings and reflections recently at *sustainablog*; we've republished that post for you here.

Got thoughts on the benefits and impact of appropriate technology for cooking in the developing world? Share them...

I've been writing about clean cookstoves for years: these simple pieces of technology are wonders of sustainability. They address dangers to human health posed by open-fire cooking; they also free up lots of time for women in the developing world. And, they contribute to waste prevention by allowing for much more efficient use of wood fuels.

While this might seem like a relatively small thing, keep in mind that billions of people in the developing world cook over open fires... often inside their homes. Affordable technology that reduces the health and environmental impacts of such cooking practices can make an immense difference. One of the first companies in this space, Envirofit, now has a sense of the global impact of clean cookstoves, as they're just reached the milestone of one million stoves sold.

The video above gives you some insight into the impact created by those stoves in various parts of the world. The company also released some of the discoveries it's made in its eight-year story, including an eventual prevention of 17 million tons of CO2 emissions over the lifetime of those stoves, and a \$200 annual reduction in fuel costs per family using an Envirofit stove. No doubt this also results in a lot of trees left standing, and, by extension, forest ecosystems preserved or rejuvenated.

Want to know more about the company's journey to selling one million clean cookstoves? Take a look at the report they've released in conjunction with this milestone (which included eliminating a lot of waste in their own processes and practices). Got your own stories or experiences to share concerning cookstoves as waste-reduction devices?

[<Source>](#)

Climate curbs will slow temperature rise; more needed for 2C goal: U.N.

BY ALISTER DOYLE and SUSANNA TWIDALE



Smoke rises from the chimneys of a thermal power plant in a suburb of Shanghai March 9, 2015. REUTERS/ALY SONG

Plans by about 150 countries to curb greenhouse gas emissions will slow climate change this century but they need to do more to limit rising global temperatures to two degrees Celsius (3.6 Fahrenheit), the United Nations said on Friday.

Scientists say warming must be kept below 2 degrees by the end of the century to stave off the worst effects of climate change such as floods, droughts and rising sea levels.

National strategies would restrict a rise in world emissions to the

equivalent of 56.7 billion tonnes of carbon dioxide per year by 2030, four billion less than expected without the extra action, from 49.0 billion in 2010, it said.

"It is a very good step... but it is not enough," U.N. Climate Change Secretariat Christiana Figueres said during a presentation of the report in Bonn.

The plans, known as Intended Nationally Determined Contributions (INDCs), will be the building blocks for a U.N. deal expected at a summit set for Paris from Nov. 30 to Dec. 11 to fight global warming in the years from 2020.

Figueres' Secretariat did not formally project a likely temperature rise by 2100, because most INDCs only stretch to 2030 but she said indications from independent analysis showed the pledged reductions would limit temperatures rises at 2.7 degrees.

Almost 200 governments agreed in 2010 to limit warming to 2 degrees above pre-industrial times, meaning Paris will have to agree ways to increase action in coming years. Temperatures have already gained by about 0.9 degrees Celsius (1.6 Fahrenheit).

Figueres said negotiators in Paris would have to decide how the INDCs would be enshrined in the new agreement and how to periodically review the pledges.

"Many countries have been healthily conservative about what they have put forward," she said, adding that many countries and particularly China, are likely to achieve greater emission reductions than the targets they have put forward.

Friday's report is the most authoritative attempt to sum up the impact of INDCs and was welcomed by financial investment groups.

"Strong national plans provide the kind of vital market signals required from policy makers if investors are to curb the risk of stranded assets in the fossil fuel sector and to make the huge investments in low-carbon technologies," said Stephanie Pfeifer, chief executive of the International Investors Group on Climate Change.

Environmental groups said the report showed the Paris agreement needs to be a starting point for deeper emission cuts.

"We insist that the Paris Agreement sets up a mechanism to get countries to further drive down emissions, without delay," said Martin Kaiser, head of international climate politics at Greenpeace.

"The world needs a clear and inspiring signal from Paris that the game is changing, that all countries are taking climate science seriously, embracing the full potential of clean, renewable energy and phasing out fossil fuels," he said in a statement.

[<ReadMore>](#)

Free Electricity in Texas Thanks to Wind Energy

SustainableBusiness.com News

In Texas, wind farms are producing so much electricity that it's becoming a selling point for the state's utilities - free electricity at night!

That's right, all the electricity customers use from 9PM to 6AM is free.

Why? Because since Texas deregulated utilities, competition is intense, and if they can get people to shift energy use away from daytime peak hours, utilities can buy energy cheaper while avoiding the need for building more power plants. And it's a selling point to keep their customers.

Indeed, residential customers save as much as \$50 a month during the peak summer season, reports the *NY Times*.

10.6% of the state's electricity comes from wind as of 2014, powering about 3.3 million homes. While the grid is regional in the rest of the US, Texas has its own, mostly separate grid, which means all the wind energy produced stays in the state.

Winds are stronger at night, producing more electricity.

Utility TXU's "Time of Use Plan" offers free electricity at night and slightly higher rates during the day to encourage people to adjust when they use appliances like dishwashers and washing machines. The company is widely advertising the plan in radio and TV commercials, on highway billboards and in social media campaigns, reports the *NY Times*.

"We are still in the formative stages of this," Paul Wattles at grid operator ERCOT, told the *NY Times*. "If we can reach critical mass - and 290,000 is already a pretty good

number - but if that number started to double or triple, you could start seeing a significant shifting of load, and that is the whole point."

Soon, however, energy storage systems will start working in tandem with wind, allowing the energy to be used throughout the day. That will help Texas use a lot more than 10% electricity.

Texas, the top state for wind capacity, has more than 14.1 gigawatts (GW) installed in 127 projects and there's 7.6 GW more in the pipeline. **ERCOT expects to get 15% of electricity from wind by 2017.**

Still, bright Red Texas is one of 26 states suing the EPA to prevent the Clean Power Plan from taking effect.

This year, Dallas ranks #1 in the US for municipal renewable energy use, followed by Houston, which was #1 last year. In Dallas, all government buildings run on 100% wind and Houston gets half its electricity from a mix of wind and solar.

[<Source>](#)



World's climate pledges not yet enough to avoid dangerous warming – UN

Analysis of plans put forward by nearly 150 countries suggests temperatures will reach just under 3C by the end of the century rather than 2C target

By Fiona Harvey

Pledges by most of the world's countries on climate change are likely to lead to less than 3C of global warming over the century, analysis of the data by the United Nations suggests.



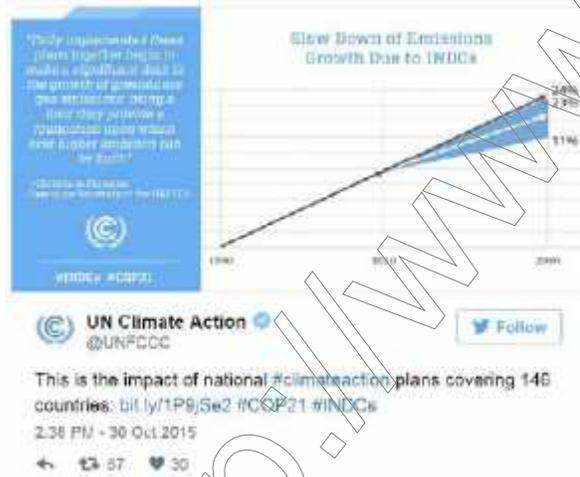
Christiana Figueres, the UN climate change chief: 'These national climate action plans represent a clear and determined down-payment on a new era of climate ambition from the global community of nations'. Photograph: Patrik Stollarz/AFP/Getty Images

However, while the plans represent a significant advance on current trends, which would result in as much as 5C of warming if left unchecked, they are not enough in themselves to limit global warming to the 2C threshold that countries are preparing to agree on. This is widely regarded scientifically as the limit of safety, beyond which many of the effects of climate change - floods, droughts, heatwaves, sea level rises and more intense storms - are likely to become much more dangerous.

Christiana Figueres, executive director of the UN Framework Convention on Climate Change, said: "These national climate action plans represent a clear and determined down-payment on a new era of climate ambition from the global community of nations. Governments from all corners of the earth have signalled through their INDCs that they are determined to play their part according to their national circumstances and capabilities."

She added: "The INDCs have the capability of limiting the forecast temperature rise to around 2.7C by 2100, by no means enough but a lot lower than the estimated four, five, or more degrees of warming projected by many prior to the INDCs."

The French hosts of the conference, and the UN, are hoping that a regular review mechanism will also be agreed in Paris, by which the INDC pledges could be ratcheted up in further steps, probably every five years.



The UN praised governments for coming forward with plans to limit their greenhouse gas emissions, to kick in from 2020 when current commitments expire.

The plans from 146 countries that cover nearly 90% of global emissions, known as INDCs or Intended Nationally Determined Contributions in the UN jargon, will form the centrepiece of the make-or-break Paris conference on climate change this December.

Publication of the UN's assessment of the INDCs means another hurdle has been cleared on the road to an agreement in Paris, as checking the ambition and fairness of the plans was always intended to be a key step before a deal could be signed.

Other milestones have already been reached: a draft text is in preparation, much slimmed

down from previous unwieldy versions, and evidence has been produced that current pledges from rich countries to provide financial assistance to the developing world will reach required levels by 2020.

However, there is still no guarantee of a deal in Paris and there was disquiet in some quarters over the UN analysis. Campaigners called for more effort on the part of the world's big emitters to bring down carbon further and faster.

Tim Gore, head of food and climate policy at Oxfam, said: "We welcome the fact that so many countries have made public pledges to cut their emissions – some by significant amounts, others less so. The UN's verdict reveals that, while the world is making progress, much more needs to be done. While this round of pledges is a step in the right direction, they only take us from a 4 C catastrophe to a 3 C disaster."

Stephen Cornelius, chief adviser on climate change at WWF-UK, said: "The more that we do now, the easier and cheaper it will be. The Paris climate deal must include ways to encourage countries to take on tougher emissions targets. These targets must be fair and fit the scientific evidence in order to avoid the worst impacts of climate change."

Another key group expressing concern were the Least Developed Countries (LDCs) who play a major role in the UN talks, one of the few forums where their voices carry as much weight as those of the richest countries.

Some of the world's poorest countries are unhappy with the 2C target, because they are likely to be most damaged by climate change - not least the small islands of the world, many of which may be swamped by sea level rises at 2C but have a chance of survival if emissions are cut further and warming limited to 1.5C by 2100.

Giza Gaspar-Martins, the Angolan diplomat who chairs the LDCs group, said: "Today's analysis shows the urgent need to address the lack of ambition within the INDCs. Current plans will only slow emissions by a third, which is clearly not enough to keep us within safe limits. Governments must do more in Paris, but the work does not end there. For the INDCs to succeed they must be adjusted before 2020 and reviewed in five year cycles from 2020 to ensure national actions quickly and rapidly progress, or we all face a grim and uncertain future."

He added: "The current plans to mitigate emissions do not keep us even within a temperature rise of 2C. However from the LDCs' perspective, it is far worse than that. For 48 of the world's poorest and most vulnerable countries, economic development, regional food security and ecosystems are at risk in this 2C 'safe zone'. So we once again call on the world to grow its ambition for a 1.5C target."

Arguments over whether to opt for a 2C target or toughen it to 1.5C were one of the factors that derailed the Copenhagen talks in 2009, when developed and developing countries jointly agreed for the first time to limit their emissions, to a 2020 deadline, but failed to sign a full treaty.

Another factor that could push forward the potential emissions reductions from the Paris talks is a new emphasis on sources of warming that have been largely sidelined in the carbon-focused UN arena.

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Obama's Visionary Memorandum: Development Must Not Harm Natural Resources

SustainableBusiness.com News

Today, President Obama issued a visionary Presidential Memorandum, "Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment."

Essentially it says that no development project sanctioned by the government should be at the expense of our natural heritage.

He calls for "no net loss" of natural resources and indeed, prefers projects have a "net benefit" for our nation's land, water and wildlife. Economic development and environmental protection must go hand in hand.

"We all have a moral obligation to the next generation to leave America's natural resources in better condition than when we inherited them. It is this same obligation that contributes to the strength of our economy and quality of life today," the memo says.

The memorandum directs federal agencies to establish clear standards to avoid, mitigate, or offset impacts from development projects such as mining, drilling, logging and transmission lines on national public lands and waters.

It also encourages agencies "to promote investment by the non-profit and private sectors in restoration or enhancement of natural resources." He points to performance contracts and other Pay for Success approaches as a way to finance measurable environmental benefits.

Does it include this US tar sands project?! This beautiful landscape it being destroyed as I write:

"By creating a 'no net loss' standard for infrastructure and development projects under federal jurisdiction, the White House is setting a new precedent that human needs for food, fuel and fiber must not come at the expense of the environment. The President is creating a path for economic and environmental prosperity because he understands that, as our nation's industries grow and thrive, we must also protect and enhance the natural systems that sustain us.



"It's only every few decades - once in a generation - that we see this level of presidential action on conservation," says Fred Krupp, Executive Director of Environmental Defense Fund.

Here's an example of private investment in restoration:

"In September, investors began restoring more than 23,000 acres of wetlands in northern Minnesota. The area, which is one of the most important bird habitats in the state and home to many other significant plant and animal species, was drained in the early 1900s

and abandoned. Decades later, it is being voluntarily restored in exchange for credits which can eventually be used to offset smaller areas of wetlands lost to development elsewhere in the state.

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Renewable energy made up half of world's new power plants in 2014: IEA

International Energy Agency says figures are a "clear sign" of a transition from coal to clean energy

By Damian Carrington

Renewable energy accounted for almost half of all new power plants in 2014, representing a



Thermo-solar power plant in Beni Mathar, Morocco. Photograph: Graeme Robertson for the Guardian

"clear sign that an energy transition is underway", according to the International Energy Agency (IEA).

Green energy is now the second-largest generator of electricity in the world, after coal, and is set to overtake the dirtiest fossil fuel in the early 2030s, said the IEA's World Energy Outlook 2015 report, published on Tuesday.

"The biggest story is in the case of renewables," said IEA executive director, Fatih Birol. "It is no longer a niche. Renewable energy has become a mainstream fuel, as of now." He said 60% of all new investment was going into renewables but warned that the \$490bn of fossil fuel subsidies in 2014 meant there was not a "fair competition".

Amid the energy transition, the IEA said the price of oil, currently under \$50 a barrel, was likely to recover only to \$80 by 2020 and see modest growth beyond.

The IEA said investment in oil exploration and production was set to fall by 20% in 2015, as high cost projects in the US, Canada, Russia and Brazil continue to be shelved. But it said US shale oil producers could move back into profit with prices of \$60-\$70 a barrel.

The IEA, which was founded in response to the oil shocks of the 1970s, also warned that if the oil price remained at \$50 for a decade or more, cheaper oil from the Middle East would come to dominate exports, with 75% market share.

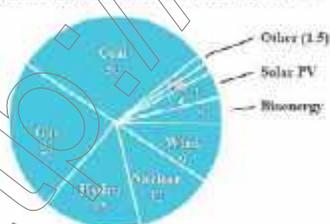
Birol said that the scenario was "unlikely", but that if it came to pass, "reliance on a very few number of countries in a region that is in turmoil may not be the best news for oil security."

"Now is not the time to relax," he said. "Quite the opposite: a period of low oil prices is the moment to reinforce our capacity to deal with future energy security threats."

The rapid rise of renewables charted in the new IEA report will lead to a dramatic slowdown in the growth of carbon emissions, the agency said. But, just weeks ahead of a crunch UN climate change summit in Paris, the IEA calculated that the world was still on course for 2.7C of global warming, significantly above the 2C considered to be the threshold of dangerous warming. "A major course correction is still required," said the report.

IEA estimate of world electricity generation in 2040

Percentages of world electricity generated by type based on IEA 'new policies scenario'



GET THE DATA EMBED

"World leaders meeting in Paris must set a clear direction for the accelerated transformation of the global energy sector," said Birol. "The difference between the 2.7C and 2C is not something meaning you can take your jacket off and adapt to life - it will have major implications for all of us."

The IEA projects "turbulent times" ahead for coal: "Coal has increased its share of the global energy mix from 23% in 2000 to 29% today, but the momentum behind coal's surge is ebbing away and the fuel faces a reversal of fortune." It projects a 15% share by 2040.

Huge changes in China are a major factor in coal's decline, said Birol: "The era of the China boom in terms of energy demand growth is coming to an end. This is a major story and has implications for the entire world." He said China had the biggest energy efficiency programme in the world and that "China is the champion of renewables", as well having a major nuclear programme and likely growth in unconventional gas.

But the IEA expects coal demand is set to triple in India and in south-east Asia by 2040. "South-east Asia is amazingly important and not getting much attention," said Birol. "It is the only region in the world where the coal demand is increasing its share." He said, in the absence of climate policies, cheap coal and renewables would squeeze out gas in the region.

"India is moving to the centre stage of energy," said Birol, becoming the main global driver of coal consumption and oil demand in the world by 2040 as well as accounting for 20% of the globe's solar power installations. "The choices India makes will be important for all of us, and therefore there is a need for supporting India's push for clean and efficient technologies."

Benjamin Sporton, chief executive of the World Coal Association, said: "This IEA report is a reminder of the continuing role of coal and the need to ensure it is used as cleanly as possible through the use of low-emission coal technologies."

The IEA has been criticised in the past for underestimating the speed of solar energy deployment. "The global breakthrough of renewable energy has happened much faster than anticipated," said Emily Rochon, global energy strategist at Greenpeace International. "The IEA is catching up on renewable energy trends, but it is still failing to see the full potential of change. We believe that with the right level of policy support, the world can deliver 100% renewable energy for all by 2050."

Birol said the IEA's previous forecasts for hydropower and wind power had been correct and that solar projections were based on the government support existing at the time. "If the policies change, the numbers will change as well," he said. "They may need to be revised [upwards] next year. I hope so."

<Source>

US Announces First-Ever Goal to Cut Food Waste

SustainableBusiness.com News

After the enormous amount of food the US wastes became a news item this year, the EPA and USDA announced our first-ever national goal to reduce it.

The goal is to cut food waste in half by 2030.

"Let's feed people, not landfills. By reducing wasted food in landfills, we cut harmful methane emissions that fuel climate change, conserve our natural resources, and protect our planet for future generations" says Gina McCarthy, EPA Administrator.

Indeed, an incredible 31% - 133 billion pounds - of the US food supply is dumped rather than eaten. It is the single largest source of municipal solid waste, responsible for 18% of methane emissions from landfills. And landfills are our third largest source of methane.

An average American family of four throws out about \$2,275 in food every year, according to the Natural Resource Defense Council. Cutting waste by just 15% would provide enough food for over 25 million Americans a year.

The majority of food waste (54%) happens during and after food harvesting, particularly while it's handled and stored. The rest occurs during processing, distribution and consumption.



"Wealthy countries must move away from export-driven agricultural policies and leave space instead for small-scale farmers in developing countries to supply local markets," he says. "They must also restrain their expanding claims on global farmland by reining in the demand for animal feed and agrofuels, and by reducing food waste," says Olivier De Schutter, UN Special Rapporteur on the Right to Food. He says the world's food system needs a complete overhaul starting with a move to local, sustainable farming.

In 2013, USDA and EPA launched the US Food Waste Challenge, a platform for organizations across the food chain to share best practices on ways to reduce, recover, and recycle food. As of last year, there were more than 4,000 active participants, well surpassing the goal of 1,000 participants by 2020. And EPA is working with about 800 grocers, restaurants, venues, stadiums, and other organizations to reduce wasted food through prevention, donation, and composting. Last year, they captured 600,000 tons of food under EPA's Food Recovery Challenge.

Last year, Massachusetts banned commercial operations from sending food waste to landfills as part of its climate action plan. New York City enacted a similar law but it applies only to restaurants.

<Source>

Tapping into Nature: Using bioinspiration to sink carbon

By Chris Garvin, Cas Smith, Erika Hanson and Allison Burnett



Shutterstock/Lorna Roberts

Mollusks capture carbon and combine it with calcium to build strong, intricate seashells.

This is an excerpt from the *Tapping into Nature* report by Terrapin Bright Green.

Carbon is an integral part of life's "economy." Unlike the anthropogenic buildup of carbon in the atmosphere and ocean, carbon is used by organisms to accomplish functions, and it is exchanged in cyclic flows between organisms and regional ecosystems. The abundance of carbon dioxide (CO₂) and methane (CH₄) should be viewed as a ubiquitous resource and business opportunity.

Achieving goals such as New York's 80 percent reduction in greenhouse gas (GHG) emissions by 2050, relative to 2010 levels, will require not only easily achievable measures, such as retrofitting existing buildings to reduce energy use-related emissions, but also new strategies such as reusing carbon to ensure a prosperous low-carbon economy. If properly funded, these additional reduction measures will come from bioinspired technology.

Selected strategies

Capture

Carbon in the form of CO₂ is captured by a large subset of organisms in our ecosystems. Plants, algae and cyanobacteria — all primary producers — supply the base layer of materials, or carbon feedstocks, to the ecosystem. Similarly, technologies currently in development will allow industry to capture carbon emissions directly from waste flue streams. GHG emissions produced by our economy can be captured and integrated into our existing material stream, moving us toward a cyclic carbon economy.

Systems and materials that use waste carbon, such as Blue Planet's carbon-sequestering concrete, will create a much needed "sink" in the global carbon cycle and represent a huge economic opportunity for companies who accomplish this feat.

Storage

The sequestration of carbon occurs in life's materials; all organisms are composed of carbon-based materials. The temporary storage of carbon in the ecosystem varies from days to eons, but carbon always moves through a cyclic process. In contrast, most of our synthetic materials and fuel move linearly from fossilized carbon to landfills, oceans and the atmosphere. Companies and researchers are mimicking natural carbon storage by incorporating waste carbon into valuable fuels, polymers and construction materials that comprise billion-dollar markets. Artificial photosynthesis is one such innovation that is beginning to tap and even expand these markets.

Utilization

Carbon is cycled from molecule to molecule across organisms, incorporated into materials to meet various needs; the use of carbon is intimately connected to the storage of carbon. Often, stored carbon (whether from fossil or living sources) acts as a building block and as a temporary vessel for energy, allowing organisms to intake, store and later use the carbon molecules as a material feedstock and chemical energy. Innovative companies, such as Novomer, are beginning to use waste CO₂-derived molecules when creating materials.

Existing products

The production of one ton of cement typically results in the emission of about one ton of CO₂. With the annual global production of cement at roughly 4 billion tons, the construction industry is a major carbon emitter.

California-based Blue Planet has developed a technology that captures CO₂ from flue streams and creates carbonate minerals to replace the Portland cement or aggregate components of concrete. Their low temperature and low pressure process is inspired by the biomineralization of corals, which use dissolved CO₂ to grow solid reefs. Blue Planet's process has overcome the high capital and operating costs of similar technologies. When paired with a cement or coal plant's flue stream, the technology can produce concrete that is carbon negative. Scaled globally, Blue Planet could sequester more than 10 million tons of CO₂ over the next four decades.

This type of technology is needed to reduce the 5 to 7 percent of global CO₂ emissions attributed to cement production. Pilot scale operations are underway in the U.S.; Terrapin is working with Blue Planet to identify potential sites in New York.

Converge Polyols

Conventional plastics, such as polyethylene and polypropylene, consist of chains of carbon atoms derived from petroleum. Novomer, a chemical company based in Massachusetts and New York, has taken inspiration from the carbon cycle in photosynthetic organisms and developed technologies that capture and use waste carbon monoxide (CO) and CO₂ in the creation of valuable polymers and chemical intermediates. Their proprietary catalyst enables the low temperature (~35°C/95°F) and low pressure incorporation of CO₂ into the molecular backbone of plastics, resulting in a CO₂/CO-derived carbon content of 50 percent.

Novomer's Converge materials boast high performance metrics and cost competitiveness. After scaling to a production rate of thousands of tons per year, their products are being used in commercial applications by several adhesive and polyurethane manufacturers, including Germany-based Jowat AG.

[<ReadMore>](#)

Here's an unexpected answer for the groundwater shortage

By Kirsten James



Within a paradox lies a clue to easing the groundwater shortage. Here, a water treatment plant at twilight.

Within a paradox lies a clue to easing the groundwater shortage. Here, a water treatment plant at twilight.

El Niño is expected to be "Godzilla" strength this year, bringing record-setting precipitation to California's parched landscape.

Congressional representatives in October sent a letter to Gov. Jerry Brown asking about his plans to ensure that when El Niño's storms hit, the water is captured.

This is a smart question — but part of the answer is not what these elected officials likely would anticipate. More dams, greater surface storage and looser environmental permitting do not add up to a sustainable water supply for California. We need to think outside of the box.

In an average year, groundwater meets about 40 percent of the state's water demand. In a drought, it meets more than 60 percent of the demand. The state's increasing reliance on groundwater, especially during drought years, has created serious problems, such as reduced groundwater in storage.

At the same time, California's farmers are wrestling with hundreds of thousands of acres of fallowed fields and declining profit margins due to water scarcity.

The California Water Foundation released a report recently showing the potential to significantly improve groundwater levels in San Joaquin Valley by directing excess river flows from winter storms to active farmland.

By flooding fields when the rains do come, we can help slow declining groundwater levels.

The conservative findings show that groundwater overdraft in San Joaquin Valley's eastside could be cost-effectively reduced by 12 to 20 percent each year. In other words, by flooding fields when the rains do come, we can help slow declining groundwater levels.

The report makes clear that outreach will be needed to get farmers to participate in these projects — and economic incentives likely will be needed, too.

But at the end of the day, if growers come on-board using farmland and existing infrastructure to divert and convey the water, it will make these projects very cost-effective.

While it is counterintuitive to think that California may be in a state of drought emergency and flood emergency at the same time, this is becoming a looming reality. Climate change likely will proliferate such events with more frequent periods of drought and high intensity of rains when they do come.

This paradox gives us the opportunity to think about drought and flooding in the same context. As shown by the study's findings, tapping the state's farmland for groundwater recharge could be an important piece of the puzzle in reducing water scarcity risks and putting the state's future water supplies on a more sustainable path.

[<Source>](#)

76,000 Led Lamps to Light up Rural India

Source: The Climate Group

NEW DELHI: More than 800 rural villages in Uttar Pradesh, India's most populous region, will be lit with 76,000 solar street lighting units provided by Philips Lighting, as part of a government initiative to drive sustainable electrification in rural areas in the country.



The LED-solar street lighting project will provide electricity to 800 rural villages across 40 districts in the Indian state of Uttar Pradesh, as part of a flagship scheme of the state's Chief Minister and is developed by Philips Lighting in partnership with the Uttar Pradesh New and Renewable Energy Development Agency.

Krishnan Pallassana, India Director, The Climate Group,

comments: "This project shows the good things that happen when companies, people and the government work together. The importance of LED street lights in terms of safety, emissions savings and money savings is clear, and The Climate Group is thrilled to see our partner Philips Lighting working to improve safety and quality of life for villagers in Uttar Pradesh."

Similar projects from Philips Lighting have resulted in major benefits for the local community, spurring the local trade economy and improving life quality. These initiatives are particularly beneficial in a region that already suffers from prolonged power cuts, which sometimes last 4-5 hours a day in rural areas.

The Climate Group has long advocated the benefits of LED street lighting around the world and in 2014, began a global consultation program in partnership with Philips Lighting to address the remaining barriers to LED scale up. At Climate Week NYC we also launched a new campaign LED = Lower Emissions delivered to encourage local governments, cities and utilities to drive full scale adoption of energy efficient LED street lighting around the world by 2025.

In India, we are aiming to improve living conditions of rural communities by connecting them to clean energy as part of our core project Bijili – Clean Energy for All. Over the last two years Bijili has reached over 60,000 people, delivering affordable and reliable solar power and LEDs to rural villages.

The project was driven by the fact that nearly 50% of India's rural population has little or no access to grid based electricity and relies on dangerous kerosene lamps as its primary source of lighting. India's government also highly subsidizes kerosene for lighting, spending US\$2 billion per year for lighting alone. A transition to a LED lighting system would result in annual savings of 6.7 billion litres of kerosene, corresponding to around 17 million tons of CO₂ avoided - and improved health and living conditions for the local population.

Mark Kenber, CEO, The Climate Group, comments on LED street lighting: "As an emissions-cutting and money-saving technology, LED street lighting is the big no-brainer. Our global trials and stakeholder consultations have shown that, when it comes to tackling climate change, LEDs are the lowest of the low hanging fruit and easiest to implement. With the number of street lights around the world likely to hit 350 million by 2025, local governments, utilities and financial institutions need to work together to ensure that all new and existing street lights are LED or of equivalent energy efficiency by 2025."

[<Source>](#)

Bird Mobility brings small electric vehicles in India

By admin, Greentech Lead

Personal mobility devices seller Bird Mobility on Tuesday announced new environmental friendly green personal transportation vehicles for the India market.

Bird Mobility will be exclusively distributing small electric vehicles (SeV) Gocycle, Ninebot products, Bird Board Drifter scooter, Acton's M scooter, Rocket skate and Blink (power skate board) in addition to the Segway Personal Transporter (PT) in the Indian market.

"At Bird Mobility we focus on offering innovative solutions by bringing in best global brands that are known for developing safe, unique products thus redefining personal transportation for consumers and businesses in India," said business head Rony Abraham in a statement.

Gocycle is an automotive lightweight electric bicycle while Bird Board is an electric self-balancing skateboard, the statement added.

The company is also adding Segway Personal Transporters GEN II special edition models Ninebot E and Ninebot One that are smaller versions of Bird Segway Personal Transporter (PT) to its portfolio of products.

Retailing via a dedicated e-commerce portal and through existing e-commerce players in the future is also an option for Bird Mobility, the statement added.

Bird Mobility pioneered the sale of personal mobility devices Segway Personal Transporters.

[<Source>](#)

By 2030, Solar Power to Make Up 18% of India Energy Generation

Source: The Economic Times

NEW DELHI: Solar energy is expected to account for 18 per cent of total power generation capacity in India by 2030 from one per cent at present, playing a key role in the country's efforts to achieving 40 per cent installed power capacity from renewable energy.

In its recently-submitted Intended Nationally Determined Contributions (INDC) ahead of the crucial climate change conference in Paris from November 30 to December 11, India has committed to achieving 40 per cent cumulative electric power installed capacity from non-fossil based fuel based energy resources by 2030.

From the current power generation capacity of one per cent, solar energy mix will be scaled up to 18 per cent, official sources said as they gave a break up for how India intends to achieve its INDC commitments.

Also, by 2031/32, wind energy generation will be at 10 per cent from the current nine per cent while nuclear power would remain at 2 per cent, as at present. Generation of hydro - electric power will, however, decrease from the present 17 per cent to nine per cent, the sources said.

Coal power accounts for around 61 per cent of the electricity generation today, but would be reduced to 57 per cent in 2031/32, they said.

Noting that renewable energy generation today accounts for 28 per cent of the total capacity, the sources said that if India is going to meet energy needs of all by 2030, the total installed renewable capacity would be in excess of 8,00,000 MW from the present 2,60,000 MW.

"We are talking of an increase in renewables by 10 times," sources said.

Elaborating on the limitations of expanding capacity generation vis-a-vis non-fossil fuel-based resources like hydro electricity, sources said there are a lot of challenges, including the issue of rehabilitation of displaced people, access to such places as most of them are geographically inaccessible.

"So, expansion of hydro-power is relatively limited," they said.

[<Source>](#)

Climate change study centre to come up Aurangabad

Will analyse weather data collected over the years for better predictions in drought-prone regions.

Written by Nisha Nambiar .



Over 14,000 villages across the state have been declared drought affected.

With the state facing drought conditions following a rainfall deficiency of 40 per cent this monsoon, Maharashtra's disaster management cell has proposed to set up a climate change study centre in Aurangabad in Marathwada, the region worst hit by the drought.

Earlier this month, over 14,000 villages across the state, among them 67 villages from Pune district, were declared drought affected by the state government.

To ease the situation, cloud seeding has already been carried out in these regions and data collated. However, need for a climate change study centre was felt in the region to carry out research and record climate changes throughout the year by analysing weather data over the years.

"With successive drought-like conditions in the state, the centre has been proposed to help study drought, excessive rainfall and hailstorms which the state has been facing in the recent past years," said Suhas Diwase, director of the state's disaster management cell. The divisional commissioner in the Marathwada region has already given permission for land required to set up the centre.

At the end of the southwest monsoon this year, the rainfall deficit in Marathwada was 40 per cent, almost the same like last year which was 42 per cent. The Konkan region recorded a rainfall deficit of 31 per cent this year while central Maharashtra recorded a deficit of 33 per cent. In Vidarbha, the figure was 11 per cent.

Diwase said a lot of data had already been collected for the cloud-seeding exercise carried out at a cost of Rs 200 crore. "We already have a lot of data collected during cloud seeding in the state. The data will be studied with the help of India Meteorological Department, Indian Institute of Tropical Meteorology as well as the private agency that carried out the cloud seeding," he said, while adding that the new centre will focus on predicting and understanding the state's weather conditions so that the state is better prepared.

It may be recalled that the state had earlier signed a memorandum of understanding with the Energy and Resources Institute (TERI) for a study on climate change but there was no progress on the report. The proposed centre in Aurangabad will also study long-term change in crop patterns and water usage.

State's Relief and Rehabilitation Minister Eknath Khadse has already approved the proposal.

[<Source>](#)

Coal India has created more green cover than it has destroyed

By PRATIM RANJAN BOSE

Source: *The Hindu, Business Line*



Has planted 2.5 hectares of forest for every hectare lost to mining: CIL arm

An arm of State-owned Coal India Ltd (CIL) claims that the organisation's afforestation efforts have more than made up for the deforestation caused by its mining activities.

For the sceptical, a recent satellite survey by the Hyderabad-based National Remote Sensing Centre, an arm of the Indian Space Research Organisation, offers proof.

"For every hectare of forest damaged or destroyed by mining activity, we have recreated 2.5 times of forest," said AK Debnath, Chairman and Managing Director of the Central Mine Planning and Design Institute Ltd (CMPDI).

CMPDI is a consultancy arm of Coal India (CIL) and offers a wide array of services to the Central government, as well as to all State and privately owned companies with exposure in the mining sector.

Interestingly, even the Union Ministry of Environment and Forests (MoEF) refused to buy CIL's claim on forest creation.

"They refused to accept our claim and the remote sensing agency was asked to assess the ground situation.

"In a report submitted two months ago, the remote sensing authorities validated our claim," Debnath told *BusinessLine*.

Stress on reclamation

Debnath agreed there may be issues in the quality of the forests created in the past — through State agencies — especially with regard to reclamation of microorganisms.

"Earlier we used to plant only trees. It takes 20 years for creation of the ecosystem under normal course," he said.

The miner is now focussing on three-tier biological reclamation in the progressive mine closure plan for open-cast projects. It means as the mine progresses, the mined part is reclaimed. As per the changed guidelines, CIL is now first creating grasslands, followed by creating shrubs and planting trees.

After a successful pilot in Jharkhand, the new techniques are now being made mandatory for all projects.

"We cannot bring the earth to its original shape due to the swelling factor. We remove more earth to extract every tonne of coal.

"Naturally, while reclaiming the land, there will be changes in shape. But we can help create a quality forest, if not a better forest than it was," said Debnath.

According to him, in many cases, the forest land was highly deforested or thinly forested before CIL took it over.

Recharging groundwater

Debnath feels popular discourse on environment often bypasses Coal India's contribution in recharging groundwater tables.

"When we close a mine we intentionally leave a void at the last cut. It is done to store rain water. We adopted this practice decades ago as surface water is not acidic in India," he said.

This serves two purposes — it reduces the dependence on ground water; it recharges groundwater tables.

"Seventy per cent of the water requirement of CIL and the surrounding habitations are met through this mine water," he observed, adding that no disturbance in the groundwater table is ever noticed beyond 300-400 metres from the edge of the mine.

[<Source>](#)

Delhi to lead Centre's 'solar city' initiative

By SWETA GOSWAMI, *The Hindu*

If all goes as planned then Delhi will soon lead the 55 cities being developed as "solar cities" under the Centre's Smart City initiative. Central Delhi, which has been identified for the project, is likely to harness as much as 1.8 megawatt (MW) of solar energy by March next year.



To implement the Solar City project in posh Central Delhi, the area's civic body-cum-discom New Delhi Municipal Council (NDMC) is working on a detailed proposal to increase the region's proposed solar power generation by an additional 5 MW. For the first phase, the civic agency has already identified around 28 government buildings where solar power systems shall be installed.

Speaking to *The Hindu*, NDMC chairperson Naresh Kumar said, "A private contractor has already been appointed. Phase-I of the project shall be completed by March 2016. The second phase will have installations having a total capacity of 2.2 MW." The contractor shall build, operate and maintain the systems, he added.

Mr Kumar also said that the project would be extended beyond the initial plan of generating 4 MW of electricity through solar energy.

"We will also set up a ground-based solar plant for which we are looking for land. This plant is first going to be of 5 MW and will later be extended to about 20 MW," he said. For this, the NDMC is looking for at least 5 acres of land outside its area. In fact, the council is already in talks with the Delhi Development Authority for the same.

As of now, the NDMC generates 110 kW of solar power through two systems set up in its schools. While one is a 60-kW plant at N.P. Bengali Girls' School, Gole Market, the other is a 50-kW solar plant at Navyug Senior Secondary School, Mandir Marg.

In 2014, the NDMC had signed an MOU with Solar Energy Corporation of India (SECI) for development of solar rooftop on all its buildings.

The NDMC already generates 110 kW of solar power through two systems set up in its schools. While one is a 60-kW plant at N.P. Bengali Girls' School, Gole Market, the other is a 50-kW solar plant at Navyug Senior Secondary School, Mandir Marg

[<Source>](#)

India can achieve 175-GW renewable energy capacity by 2022: KfW

According to reports, German bank KfW director (South Asia) Claudia Arce said India can increase renewable energy capacity to 175 GW 2022 but it needs to quickly take discoms on board, find a win a win situation for them, for banks and for the government so that they can go hand in hand.

Besides, India will have to focus on quality installations to attract more investors and also address the issue of certification.

She informed KfW had already provided 1.3 billion euros for Green Corridor project which is being completed while another 1 billion euros already sanctioned for solar capacity addition during 2015-2022.

Arce on the sidelines of InterSolar India conference told *Business Standard*, "India's target of installing 175 GW of renewable capacity by 2022 is on the lines of what other countries including Germany did. India can do quicker to meet its goal. Even if it is completed by 2025 it is good achievement."

However, she insisted that discoms will have to be convinced to embrace renewable targets. Further, the government will have to focus on quality installations during the renewable energy capacity addition.

"Because if you do not bring the quality installations people will invest but if the things after five years are broken people will not believe that the model will work. Therefore from the beginning India will have to look at quality and also address the issue with regard to certification so that people are not disappointed later on," Arce said.

Arce informed that KfW about three years ago started flagship Green Corridor project by providing finance of 1.3 billion euros. "Under the green Corridor project, new transmission lines will feed the electricity obtained from renewable into the public network. Together with Powergrid's national lines, states will strengthen the transmission network in India. Electricity will thus be transported more effectively in future," she said.

Further, Arce said KfW will provide another 1 billion euros exclusively for the solar capacity addition in India. "Now this year we are starting Indo German solar partnership and its mainly KfW is providing finance for the same. This would be another one billion euros in financing solar capacity addition. It will be spent during 2015 and 2020 but efforts will be made to complete early also as KfW did in case of Green Corridor project," she noted.

[<Source>](#)

Indian Railways to Issue Green Bonds

By Smiti Mittal

One of the world's largest rail networks is planning to raise funding through green bonds to finance development of renewable energy infrastructure.

Indian Railways is expected to issue its first green bonds to finance project development in accordance with the capacity addition targets announced this year. According to officials of the Ministry of Railways, details about the green bonds issuance are being worked out and will soon be made public.

As per the updated National Solar Mission, which envisages 100 GW of operational solar power capacity by March 2022, the Indian Railways has also set a target to install 1 GW of solar power capacity. It is expected to use un-utilised land it owns to set up large-scale solar power projects.

The projects are expected to be set up with support from the Ministry of New & Renewable Energy through financial assistance from the National Clean Energy Fund.

The Indian Railways, earlier this year, introduced solar power panels atop coaches. These solar power systems are used to supply electricity for air-conditioners, fans, and lighting.

Green bonds have emerged as a very attractive investment as well as fund raising instrument in India this year. The Indian Government has reportedly asked at least 8 financial institutions to raise funds for renewable capacity expansion. These funds are expected to be raised through issuance of green bonds.

Public sector entities like Rural Electrification Corporation, Power Finance Corporation, IDBI Bank, Indian Renewable Energy Development Agency, and private sector entities like India Infrastructure Finance Limited, ICICI Bank, and Yes Bank, have all been asked to issue green bonds to raise funds for renewable energy projects.

<Source>

India's energy emission growth at 8.2%, highest globally: PwC

Source: The Economic Times



According to the report, ...)

NEW DELHI: Buoyed by strong economic activity, India's energy emission growth was highest in the world at 8.2 per cent last year, says a report.

According to the report by global consultancy firm PwC, the sharp rise was on account of double-digit growth in demand for coal, as power consumption surged.

"India's energy emissions rose at 8.2 per cent on-year in 2014 - highest in the world, driven by a double-digit growth in demand for coal, as power consumption increased in line with the rapid 7.4 per cent growth in GDP," the report said.

Global emissions rose just 0.5 per cent, albeit on a much lower world GDP growth of 3.3 per cent, it added.

"The country's carbon intensity grew 0.7 per cent, as renewable energy adoption remained slow. However, its share in India's energy mix remained unchanged at 7 per cent, despite high growth in coal-fired power generation," PwC said.

It further said, India's carbon intensity, despite rising in 2014, is about half that of China, and is still less than the global average.

Ahead of the climate change summit in Paris later this month, India has pledged to curb its greenhouse gas emissions by up to 35 per cent from the 2005 level.

In its Intended Nationally Determined Contribution (INDC) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in October, India announced

that it aims at achieving around 40 per cent cumulative electric power installed capacity from non-fossil-fuel-based energy resources by 2030.

India said that it would need, as per preliminary estimates, around USD 206 billion between 2015 and 2030 for implementing adaptation actions in agriculture, forestry, fisheries infrastructure, water resources and ecosystems.

"India's Intended Nationally Determined Contribution (INDC) unveiled ambitious 2030 plan. There is a strong focus on renewable energy, energy efficiency, smart cities and stringent emission standards for coal fired power plants among others," PwC India Executive Director Sustainability Arvind Sharma said.

"With this ambitious plan which cuts across thematic areas ranging from mitigation to adaptation, we believe that India is in a good position to access low cost finance and clean technology," he added.

These observations are part of PwC's seventh annual Low Carbon Economy Index which models major economies' carbon intensity.

PwC in its report said, "India has taken several steps to control emissions and carbon intensity, including stringent emission standards, nationwide energy conservation programme, a recent four-fold increase in carbon tax, establishing smart cities, and building additional forest cover."

Being the fourth largest emitter and expected to be the world's fastest growing major economy, India's carbon intensity management will play an important role in determining world's ability to limit the global temperature rise to two degree Celsius by the year 2100, it said.

<Source>

Use processed waste water to generate power: Govt to cos

Source: The Economic Times



(In a push to the 'Swachh Bharat'...)

NEW DELHI: In a push to the 'Swachh Bharat' campaign, government will soon make it compulsory for power plants to use processed waste water and also allow sourcing any amount of electricity generated from waste under new power tariff policy.

"We will come out with new tariff policy very soon. It will allow distribution companies to buy any amount of power produced from waste," Power Minister Piyush Goyal said at a social entrepreneur award function.

Further, the power plants will have to compulsorily use processed municipal waste water available in their vicinity (in 100 km radius), he added.

The proposed tariff policy is aimed to provide incentives to renewable energy projects as well as efficient use of resources by power generation plants based on conventional sources of energy like coal-based thermal projects.

The minister also said that the new measures will give push to the government's 'Swachh Bharat' drive.

He added that Public Sector Undertakings (PSUs) under his ministries will spend 5 per cent of their profits under CSR instead of 2 per cent.

Under the new companies law, certain class of profitable entities are required to shell out at least two per cent of their three-year annual average net profit towards CSR (corporate social responsibility) activities.

Goyal also said that the government would soon resolve issues related to power distribution companies.

<Source>

India to introduce Euro-VI fuel by 2020 to reduce pollution

Source: The Economic Times

NEW DELHI: India plans to shift to Euro-VI emission compliant petrol and diesel by 2020 to cut carbon pollution, oil minister Dharmendra Pradhan said on Thursday.

"We already have BS-III, equivalent to Euro-III specifications, across the country and BS-IV, in major cities which will shortly be extended to the entire country. A revised Auto Fuel Policy is in the offing which will lead to introduction of BS-VI fuels by 2020," he said.

Oil refineries will need to invest Rs 80,000 crore in upgrading petrol and diesel quality to meet cleaner fuel specifications by 2020.

Addressing a workshop on 'Carbon Emission Management', he said the fuels meeting Euro-IV or Bharat Stage (BS)-IV specifications are to be supplied throughout the country by April 2017 and BS-V or Euro-V grade fuel by April 1, 2020.

But now instead of stepwise upgradation from BS-IV to BS-V and then from BS-V to BS-VI, the government is planning to switch over directly from BS-IV to BS-VI auto fuels by April 1, 2020.

BS-IV fuels contain 50 parts per million (ppm) sulphur, while BS-V and BS-VI grade fuel will have 10 ppm sulphur.

Oil refineries had previously upgraded technology and invested over Rs 55,000 crore for production and supply of BS-III/IV fuels. Another Rs 80,000 crore investment would be required for further upgradation.

Currently, BS-IV auto fuels are being supplied in whole of northern India covering J&K, Punjab, Haryana, Himachal Pradesh, Uttarakhand, Delhi, parts of Rajasthan and western UP. The rest of the country has BS-III grade fuel.

From April 1, 2016, all of Goa, Kerala, Karnataka, Telangana, Odisha, Union Territories of Daman and Diu, Dadra and Nagar Haveli and Andaman & Nicobar will get BS-IV fuel. The rest of the country will get supplies of BS-IV fuel from April 1, 2017.

"We have decided to reduce carbon emissions across the entire value chain. We will try to increase efficiency and reduce flaring and venting in the upstream segment," Pradhan said.

To reduce pollution and green house gas (GHG) emissions, use of gas as transport fuel (CNG) in cities is being encouraged.

"We are also studying the feasibility of using LNG as a transportation fuel for inter-city movement of heavy vehicles," he said.

India, he said, has pledged to improve the carbon emission intensity of its GDP by 33 to 35 per cent by 2030 from 2005 level and to create an additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent through additional forest and tree cover by 2030.

<Source>

Soon, windmill project in Jaisalmer to power trains

Source: The Economic Times

Now, trains in state are set to run on wind energy. To promote non-conventional energy sources, the Railways with an investment of Rs 160 crore has set up wind power project at Dangri village at Fatehgarh sub-division of Jaisalmer district.

The 25MW project is ready for generating power and is likely to be inaugurated by Union rail minister Suresh Prabhu on November 22.

According to high official sources of railway electrical section, the Union rail ministry to reduce diesel consumption and fuel expenses, is working on an action plan for running engines and trains on non-conventional power. In the next five years, the rail ministry will set up around 1000MW solar power projects and a large number of windmill units.

For the purpose, the rail ministry's associate company IRCTC has set up a new firm Railway Energy Management Company (REMC). The firm is working on setting up solar power project and windmill projects and is inviting tenders from the private sector. Railway will be signing MoUs with these companies to purchase power at cheaper rates for 25 years.

As per sources, at present around Rs 20,000 crore is being spent on fuel, whereas the expense on power is just half and looking to this, more emphasis is being given to electrification of railway lines. With the possibility of increased power consumption, efforts have been started to set up power projects involving non-conventional sources. In this regard, the railway board last year on January 24, 2014, had issued orders to set up windmill projects of 25MW.

NWR CPRO-cum-DGM Tarun Jain said, "an agreement was signed with Inox infrastructure company on December 18, 2014, for setting up windmill power project of 25MW in Dangri area at Fatehgarh sub-division in Jaisalmer and now this project is complete". Around 13 windmill poles have been set up in this project and now these windmill units have started generating power, he said.

Jain said union rail minister suresh prabhu is expected to inaugurate this project on nov 22. Detailed programme and confirmation is yet to receive, but preparations have been started for this expected programme.

<Source>

India gets its first blind-friendly railway station in Mysuru

Source: DNA Web Team

The station also has platform numbers written on walls in Braille making it easier for visually-challenged people to find their platform



Mysore Junction Railway Station. Image credit: Christopher J-Fynn Wikimedia Commons

The country's first-railway station that is blind-friendly is now in Mysuru, Karnataka. A report in The Hindu states that the railway station now has transit maps and train schedules in Braille at various points across the station.

The maps indicate the layout of the station as well as distances to utilities like toilets, staircases, platforms etc. These maps are on display across the station as well. The station also has platform numbers written on walls in Braille making it easier for visually-challenged people to find their platform. The report adds that even the menu card at the canteen will be available in Braille soon.

According to the report, a private company has sponsored this project and they are taking inputs from a visually challenged association to implement it. They are looking at roping in NGOs and volunteers as well.

Non-AC conventional coaches that have been manufactured after 2013 now come with Braille-embedded metal signage on berths, toilets, washrooms, door, etc. The Braille-embedded displays in the station will carry this integration further.

<Source>

Villagers Near Karnaprayag Built a Road with Natural Materials and a Strong Will

By Nisha Chawla, The Better India

If we cannot do what we will, we must will what we can. So, when residents belonging to a cluster of villages near Karnaprayag in Uttarakhand got tired of waiting for forest officials to clear a mountain road project, they decided to take charge. And in just 10 days, about 300 villagers built their own road connecting Bhatkwal with Bainoli village.

Men and women worked for almost eight to nine hours a day, and carved out a three kilometre long motorable road with basic tools like chisels and hammers. And they managed to do so without cutting even a single tree.



Picture for representation only. Photo Credit: draskd/Flickr

"We strongly believe in strengthening the environment, and all of us had vowed not to raze any trees to build the road. Luckily, there were not many trees on the stretch," Kunwar Singh, a 56-year-old ex-serviceman told The Times of India.

Ironically, they were told that the project was not being initiated because forest officials believed that it would involve shredding of trees. The road was supposed to be built under the Pradhan Mantri Grameen Sadak Yojna.

Most of these villagers come from the mountain regions of Bhatkwal, Chorasain and Bainoli near Karnaprayag. The villages are located at altitudes of 5,000 to 7,000 feet about sea level, and accessibility between them is very difficult. Thus, travelling for healthcare facilities or children's education becomes a very troublesome task. So they formed a Sangharsh Samiti (Agitators' Group), to solve their problem themselves. Women also played a very active role in this project.

"All of us held a meeting, and decided that we will go ahead with the road construction ourselves. We followed the survey plan that officials had prepared for making the road. All the materials used were natural – like the sheets of rocky stones and mud from hill sides which were utilized to build the stone walls on both sides of the road. The villagers simply donated their time and effort and there was no substantial cost involved in the construction," says Pushpa Devi, who was involved in the exercise.

<Source>

Visakhapatnam Port to be Most Energy-efficient in India

By Express News Service

HYDERABAD: Visakhapatnam Port Trust (VPT), one of the fastest growing major ports in the country, would be the most energy-efficient port in the country.

The VPT management is planning to complete LED lighting of the port area before the proposed visit of Prime Minister Narendra Modi to Visakhapatnam Port in the month of February.

Chairman of Visakhapatnam Port Trust MT Krishna Babu asked energy secretary Ajay Jain to prepare a Detailed Project Report(DPR) in coordination with Energy Efficiency Services Limited (EESL) for installing around 3,000 number of 120 Watt LED streetlights in place of existing 250 Watt High Pressure Sodium Vapour (HPSV) lamps apart from installing 9 Watt LED bulbs in the administrative offices and other places in the port area.

In order to speed up the project work, the State Energy Conservation Mission (SECM) is contemplating organising a meeting with the Chairman of VPT, Managing Director of EESL, Saurabh Kumar, officials of SECM, GVMC commissioner Praveen Kumar and officials of various organisations on October 30 in Visakhapatnam. The officials are likely to take a final call on the project during the meeting.

Visakhapatnam Port has three harbours - the outer harbour, inner harbour and the fishing harbour. The outer harbour has six berths capable of handling vessels with a draft up to 17 m while the smaller inner harbour has 18 berths that are Panamax compatible.

Visakhapatnam Port is undergoing a modernisation and expansion programme aimed at increasing its capacity to 130 million tonnes by 2016-17, entailing an investment of Rs 13,000 crore. Keeping all this in mind, the VPT management has decided to adopt energy-efficiency initiative in the port area.

Ajay Jain, who is also the vice-chairman of SECM, on Sunday said Efficient Street Lighting Programme undertaken by the Greater Visakhapatnam Municipal Corporation (GVMC) with the support of EESL, had yielded excellent results by which GVMC is saving around 40 to 45 per cent of energy.

"With VPT opting for energy efficiency methods, it could also save a considerable amount of energy," he said.

Krishna Babu, in his letter, stated that during his recent visit to Delhi for a high-level meeting of shipping & surface transport ministry, the top brass of officials of various ministries had acknowledged the work of AP government in implementation of Energy efficient Street Lighting programme in the entire GVMC area, which had received widespread appreciation around the globe.

Ajay Jain further stated that the GVMC LED street lighting project taken up within a short span of time in the splendid recovery path after Hudhud cyclone has gained global attention and recognition from several international agencies working on energy efficiency.

According to him, the Bureau of Energy Efficiency(BEE) and EESL are evincing interest to conduct an international event called 'Global Energy Efficiency Summit-2015' in Visakhapatnam from December 17 to 19.

"Chief minister N Chandrababu Naidu has accorded his consent to conduct the summit at Visakhapatnam and directed officials to put all out efforts to attract even International energy efficiency agencies from different countries," he said.

According to Ajay Jain, Chief Secretary IYR Krishna Rao, who is also the chairman of SECM, had requested union power ministry to invite top level global experts in the field of Energy Efficiency apart from leading international financial institutions such as World Bank (WB), Asian Development Bank (ADB), JICA, International Energy Agency (IEA), KfW & GIZ from Germany.

64L LED BULBS GIVEN AWAY

The Domestic Efficient Lighting Programme (DELP), which is the flagship programme of AP government on the energy-efficiency front, is under implementation in Krishna, Vizianagaram and Visakhapatnam districts. Phase-II programme is scheduled to be launched in Chittoor district on October 27. So far, about 64 lakh LED bulbs have been distributed under this programme cumulatively in the entire state.

Paper that gives back

By APOORVA SRIPATHI, *The Hindu*.

Jaipur-based Tomato & Co's seed paper concept lets you plant paper and watch it grow into the vegetables and fruits you love.



Some of the stationery.

Plantable paper sounds like a do-it-yourself (DIY) activity straight out of the social bookmarking site, Pinterest. And as with most DIY activities on that site, plantable paper sounds like it could be a recipe for disaster. But, thankfully, it's not that.

Seed paper, as it's also known, is handmade paper embedded with seeds that can germinate and sprout when sown. Jaipur-based Tomato & Co. does just that and till date has sold 7.5 lakh sheets of seed paper. Try and imagine

coffee cup sleeves that grow into herbs, door tags that transform into carrots or greeting cards into fragrant lemons.

It all started when Kritika Parwal was studying in the U.S. and had to think of an out-of-the-box marketing solution for one of her classes. As she was from Jaipur, she knew of a lot of handmade paper manufacturers, and so she pitched the idea of seed paper, theoretically. "It worked. I received an amazing response from my professors and classmates," she laughs, over the phone. After graduation, Kritika wanted to start something of her own, and was thinking on the lines of a social-sustainable business. "I was at a party and happened to meet a brand manager from Kissan and I told him about my idea. The next morning, he called and asked me to do this for them. I spent about 15 days at Sangner (Rajasthan), going back and forth over the process, procuring little samples and experimenting with them. Eventually, a few plants grew and we've worked out a nine-step process that will be patented soon," she adds.

Their first seed paper contained tomato seeds. No surprise then that the company has been named after that. Soon, Unilever placed an order for three lakh pieces. Kritika's team has also been part of Kissan's innovative ad campaign, where the ketchup giant distributed tomato seeds in Mumbai and Delhi through sachets stuck to the morning newspaper. "That's when we realised that there's a huge market for something like this. Imagine events that use a large amount of wristbands, nametags and other paper-based products that are only thrown out in the end. That's where plantable paper comes in — these products can be recycled to grow into something useful," Kritika says.

Kritika manages to simplify the paper-making process: the organic pulp (got from shredding paper and soaking it in water) is placed on screens and flattened out, dried under the sun, rolled a few times and then calendared or smoothened out. Some of the challenges, she explains, are avoiding chemicals that go into the binding process, procuring organic paper and finding an alternative to calendaring, as it tends to destroy seeds.

She admits that it took them a long time to understand the business model and the costing method to make this viable — all their seeds are sourced from Jaipur, the colours used are organic dyes such as indigo, saffron etc. and the paper density (calculated in gsm) varies depending on the clients' requirements. "Our pricing is all over the place; we are a little expensive," Kritika says, adding that they're a "double bottomline" organisation — one that looks at profit and also at the number of seeds that have been sown.

Apart from calendars, wedding invites, post cards, coffee cup sleeves, bookmarks, coasters and more, Tomato & Co also plans to sell greeting cards soon. If you still haven't found an excuse to grow your own batch of tomatoes, it's time you gifted yourself one — in the form of a bookmark, perhaps.

[<Source>](#)

Algae could be a new green power source

PTI

TORONTO: Researchers led by an Indian-origin scientist have developed a novel technology that harnesses electrical energy from blue-green algae that could be used to power cell phones and computers in future.

A team led by Concordia University engineering professor Muthukumar Packirisamy created a power cell that harnesses electrical energy from the photosynthesis and respiration of blue-green algae.

"Both photosynthesis and respiration, which take place in plants cells, involve electron transfer chains. By trapping the electrons released by blue-green algae during photosynthesis and respiration, we can harness the electrical energy they produce naturally," said Packirisamy.

Also known as cyanobacteria, blue-green algae are the most prosperous microorganisms on earth, evolutionarily speaking, researchers said.

They occupy a broad range of habitats across all latitudes. And they have been here forever: the planet's early fauna and flora owe their makeup to cyanobacteria, which produced the oxygen that ultimately allowed higher life forms to flourish.

"By taking advantage of a process that is constantly occurring all over the world, we have created a new and scalable technology that could lead to cheaper ways of generating carbon-free energy," said Packirisamy.

He noted that the invention is still in its early stages.

"We have a lot of work to do in terms of scaling the power cell to make the project commercial," said Packirisamy.

Currently, the photosynthetic power cell exists on a small scale, and consists of an anode, cathode and proton exchange membrane. The cyanobacteria or blue green algae are placed in the anode chamber.

As they undergo photosynthesis, the cyanobacteria release electrons to the electrode surface. An external load is connected to the device to extract the electrons and harness power.

Packirisamy hopes that the micro photosynthetic power cells will soon be used in various applications, such as powering cell phones and computers.

The research was published in the journal Technology.

[<Source>](#)



(Representative image)

The first city in India where open defecation prevented in all slums

Tiruchirappalli City Corporation –the first city in India where open defecation prevented in all slums



Gramalaya's work is focused on implementation and filling critical knowledge gaps in the sector, up scaling community based pro poor approaches through our program and advocacy work. The 2001 census of India put urban sanitation coverage at 61 percent of the population having access to individual or public toilets. Low coverage of urban sanitation is due to the inability of planned urban development to provide for sanitation access to the urban poor. Gramalaya started its urban intervention in the 186 slums of Tiruchirappalli City Corporation as the operational area aiming at declaring open defecation free zone. The involvement of community based organizations in the project coupled with City Corporation support in providing Integrated Sanitary complexes (ISPs), offering vacant sites for constructing

community toilets with WaterAid, UK funding enabled the project a successfully demonstrated model.

Gramalaya played an active role in declaring India's first slum Kalmandhai as open defecation free (ODF) slum in Tiruchirappalli City Corporation in theyear 2002 followed by 168 slums as ODF announced with the support of Trichy City Corporation and donor agencies. This has resulted in conversion of dry earth latrines into modern flush out community toilets and eradication of manual scavenging in the city. In Tiruchirappalli city Corporation, 126 slum Communities are maintaining sanitary complexes under pay and use system with the support city Corporation. The Corporation handed over the toilets to women self help groups after new construction or renovation of the toilet. The Corporation gave the permission letter to the groups for running the community managed toilet under pay and use system. The Gramalaya experience proved that adequate involvement of community and training in maintenance of public toilets and earning from user charge is a revenue model for the slum communities with sustainable approach. It also generates tremendous confidence among women to partake in slum welfare and day-to-day decision making.

The review of Community managed toilets and bathing complexes in Tiruchirappalli, six years after the work began, has shown that achieving clean and healthy slums does not require huge financial investment. However, what it does require is a city authority sensitive to the problems faced by slum communities and supportive of community action, dedication of communities and their support NGOs. It has been proved that communities can manage their own toilet units and when they do this, the toilet are much cleaner than when managed by municipal authorities. There have been cases where the entire community can be declared open defecation free. Further, it has shown that managing toilets leads to empowerment of women with many positive impacts in terms of personal and community development. This experience shows that after reluctance, committees do pay for using toilets and bathing facilities and these services can be provided at affordable costs, even for the poorest.

Toilets are only a part of the sanitation solution. Sewage, wastewater and solid waste management must also be tackled by city authorities and this is the area where they must play a lead role. Tiruchirappalli shows that community managed toilets and bathing complexes provide a model that can work at city-level when supported by city authorities where declaration of 168 slums as open defecation free made possible.

<Source>

Recycled Waste Will Provide Energy to Delhi and Jaipur Railway Stations Soon

Admin, HOMEGROWN

'Energy can neither be created nor destroyed, but can only be transformed from one form to the other'—one of the golden rules of science that most students blindly memorise and recite in school examinations year after year. While many of us closed our eyes to the implications of this theory once that particular exam was cleared, we now find ourselves reminded of the important real-life applications of energy transfer, that too as a possible solution to the third world energy crisis plaguing our country, as well as others.

Recently, the North Western Railway (NWR) authorities came up with an innovative plan that could help solve two critical issues at the same time. The proposed 'Waste-to-Energy' plan envisages a complete makeover for the Jaipur and the Delhi railway stations. As part of their efforts to conserve energy while simultaneously providing a solution to urban India's increasing waste problem, the authorities have suggested that two waste plants for the disposal of solid biodegradable waste and plastic be set up at the railway stations. Then, the collected waste will be used to generate energy that will be redirected towards these stations.

Railway stations generate a substantial amount of solid waste by passengers, visitors, vendors, and staff. At present, the solid waste that is generated is transferred to the nearest municipality dumps, and any sort of delay in making this transfer could lead to extremely unhygienic circumstances that will open up a host of other problems.



Image Source: www.vvwindia.blogspot.com

"There will be two plants, first-of-its-kind in railways, for disposal of municipal solid waste (MSW) generated at stations as well as conversion of MSW into electricity and synthetic gas," a ministry official said.

The bio-degradable plant would have "a capacity of converting 500 kg biodegradable waste into 22 kg LPG equivalent of bio-gas which would be utilized in cooking at the railway station," added Tarun Jain, Chief Public Relations officer, NWR. The waste collection plant is believed to have the capacity to collect 2000 kg of plastic and will convert it into diesel, which will in turn be used to run Delhi and Jaipur's railway stations.

The project will be carried out under a CSR initiative by RITES, a railways subsidiary, who has invited Expression of Interest (EoI) to the project. "Organisations having the expertise and experience in the field are invited to express their interest in the project. Plants would be run on build, operate and maintain basis for a period of at least 10 years," the ministry official stated.



Image Source: The Hindu

Dustbins will be set up at various platforms to ensure that all the waste material has been collected and segregated. "I don't think people would see garbage spilled on the tracks or any other place except the segregated dust bins," said a senior officer.

The Jaipur railway station will also have water-recycling unit. "The unit will facilitate us to get 80 per cent of the water used for the cleaning of the wagons recycled. This is also going to save lot of water for the cleaning of the station and wagons," the officer added.

This project kills two environmentally-hazardous birds with one stone, and even still, its energy conservation efforts don't end here. Officials are also working towards setting up a solar plant at the station. "The solar plant would be able to give us power to fulfill the eight per cent needs of the electricity needed for the lights and fans at various platforms," said the officer. By the end of March, 2016, the Jaipur railway station will be enabled with Wi-Fi facilities as well as other amenities such as an executive lounge.

With about 60 million tonnes of trash being generated in our country every year, every tiny effort we make towards reducing this number will go a long way. Waste management being coupled with energy saving in urban Indian railway stations is a truly innovative environmental initiative, one that the entire country will benefit from greatly if it's further implemented on other railway lines as well.

<Source>

2016 5th International Conference on Clean and Green Energy

February 1-3, 2016

Rome, Italy

5th International Conference on Clean and Green Energy-ICCGE 2016 will be held during February 1-3, 2016 in Rome, Italy. ICCGE 2016 is to bring together innovative academics and industrial experts in the field of Clean and Green Energy to a common forum.

The primary goal of the conference is to promote research and developmental activities in Clean and Green Energy. Another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working in Amsterdam and abroad. The conference will be held every year to make it an ideal platform for people to share views and experiences in Clean and Green Energy and related areas.

Keynote speakers at the conference are Prof. Jacek Namieśnik, Head of Department of Analytical Chemistry, Faculty of Chemistry, Gdansk University of Technology, Poland, Prof. Hartmut Hinz University of Applied Sciences, Frankfurt, Germany and Prof. Marco Casini SAPIENZA University of Rome, Italy.

2016 5th International Conference on Clean and Green Energy (ICCGE 2016) is the premier forum for the presentation of new advances and research results in the fields of theoretical, experimental, and applied Clean and Green Energy. The conference will bring together leading researchers, engineers and scientists in the domain of interest from around the world. Topics of interest for submission include, but are not limited to: International Clean Energy Race, Climate & Clean Energy Bill in Congress, PACE Funding, Distributed Solar Energy, Renewable Energy Standards, Wind Power, Clean Coal Technology, Renewable energy technologies, Green energy systems, Clean energy investments and Green Energy Options.

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4th International Conference

on

Emerging Strides in Innovations and Skill Development: A Sustainable Perspective

20th - 22nd February, 2016

Varanasi, UP (India)

School of Management Sciences is organizing three day conference titled "Emerging Strides in Innovations and Skill Development: A Sustainable Perspective". The conference is being held between 20th and 22nd February 2016 in Varanasi. The associate partners to the conference are Claflin University, USA, California State University, San Bernardino, USA and PHD Chamber of Commerce and Industry etc.

The objective of the conference is:

- To explore the various Issues, Challenges and Opportunities for Innovations, Skill Development and Sustainability on the Global Scenario.
- To understand the Role of Innovations in the Skill Development in relations to the Sustainable Development.
- To analyze the Dynamics of Innovations in the Field of Management & Technology for Skill Development.
- To Explore the Integrated Role of Industry, Academia and Government in Bridging the SKILL GAP through promotion of Innovations for the sustainable model of development.
- To analyze the various advantages of Innovations, Skill Development & Sustainability in the Entrepreneurial Development Process.
- To explore all the possible avenues of Sustainable Development through Innovations and Skill Development keeping care of the Triple Bottom Line Approach.
- To find out the avenues of application of Sustainable Models of Innovations in the Public Policy & Social Sector Management

The sub themes of conference include

- Role of Industry-Academia interface for filling the Skill Gap through Innovations for its Sustainable Development.
- Public-Private Partnerships for Sustainable Innovations & Skill Development Process
- Issues, Challenges & Opportunities before the Sustainable Development through innovative models to search the solutions and Triple Bottom Line Model of Sustainability.
- Sustainable Social Entrepreneurship through Innovations.
- Corporate Social Responsibility & Sustainable Development.
- Globalization and Innovative Technology for Sustainable Development.

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Forthcoming Events

Biofuels & Bioenergy: International Conference & Exhibition

23 – 25 February 2016

Bhopal, MP (India)

The World Energy and Environment Technology (WEENTECH), UK has announced the Biofuels and Bioenergy: International conference and Exhibition, 23-25 February 2016. International conference will be organized in collaboration with Department of Chemical Engineering, MANIT Bhopal, India. The Conference will provide platform for researchers and specialists across the globe to disseminate and network on the vital research field of biofuels and bio energy.

The conference will cover following topics but shall not be limited to; World Biofuel Scenario; Plant-Based Biofuels; Fuel Ethanol: Current Status and Outlook; Bioethanol from Biomass: Production of Ethanol from Molasses; Bioethanol from Starchy Biomass; Bioethanol from Lignocellulosic Biomass; Production of Cellulases and Hemicellulases; Production of Starch Saccharifying Enzymes; Hydrolysis and Fermentation; Biodiesel: Current and Future Perspectives; Biodiesel Production Technologies and Substrates; Lipase-Catalyzed Preparation of Biodiesel; Biodiesel Production with Supercritical Fluid Technologies; Palm Oil Diesel Production and Its Experimental Test on a Diesel Engine; Biodiesel from Rice Bran Oil; Biodiesel Production Using Karanja (*Pongamia pinnata*) and Jatropha (*Jatropha curcas*) Seed Oil; Biodiesel Production from Mahua Oil and Its Evaluation in an Engine; Biodiesel Production from Rubber Seed Oil; Thermochemical Conversion of Biomass to Liquids and Gaseous Fuels.

The tentative list of speakers in the conference posted by organizers include names of Dr. R Singh, IAIRI, New Delhi, Prof. Tapas Mallick, University of Exter, UK, Prof. Appukuttan K.K, Director, MANIT Bhopal, Prof. KK Singh, India, Prof. Li Shao, University of Reading, UK, Dr. Dan Nkwetta, NBCC, Saint John, Canada, and Prof. S. Sundaramoorthy, Pondicherry Eng. College, India.

[<ReadMore>](#)

2016 2nd International Conference on Environment and Renewable Energy (ICERE 2016)

February 24-25, 2016

Ho Chi Minh, Vietnam

2016 2nd International Conference on Environment and Renewable Energy (ICERE 2016) will be held during February 24-25, 2016 in Ho Chi Minh, Vietnam. ICERE 2016 is to bring together innovative academics and industrial experts in the field of Environment and Renewable Energy to a common forum.

The primary goal of the conference is to promote research and developmental activities in Environment and Renewable Energy. Another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working in Ho Chi Minh, Vietnam and abroad. The conference will be held every year to make it an ideal platform for people to share views and experiences in Environment and Renewable Energy and related areas.

Keynote speakers are Prof. LE HUY BA, Chairman of The Science - Technology and Education council, University of Industry, Vietnam, Assoc. Prof. Ahmad Zahedi, Queensland, Assoc. Prof. Nguyen Van CHANH, Vietnam, and Assoc. Prof. Van Viet Man LE, Vietnam. Plenary speakers are Assoc. Prof. Paulo Mendonça, University of Minho, Portugal and Dr. DAM SAO MAI, Dean of the Biotechnology and Food Technology Institute, Ho Chi Minh city, Vietnam

Topics of interest for submission are put under following themes: (i) Energy Science and Technology (ii) Environmental Science and Engineering (iii) Motivation, Electrical Engineering and Automation (iv) The Development and Utilization of Resources (v) Theory and practice of Sustainable Development and other related topics.

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Second International Conference on 'Recent Advances in Bio-energy Research'

February 25-27, 2016

Kapurthala, India

Second International Conference on 'Recent Advances in Bio-energy Research' (ICRABR-2016) has been scheduled to be held during Feb 25-27, 2016 at the Sardar Swaran Singh National Institute of Bio-Energy (SSS-NIBE), Kapurthala, India. SSS-NIBE is an autonomous R&D Institution of the Ministry of New and Renewable Energy, Government of India. The objective of the conference is to disseminate the knowledge about the recent advanced in bioenergy research. Earlier, One International and three National Conferences on 'Recent Advances in Bio-energy Research' have been organized at the Institute since 2011, which had captured Government policies, field experiences and R&D efforts in the development and promotion of bio-energy in India. This year also they are planning to cover global scenario of bio-energy.

Conference is expecting speakers and delegates from different parts of world. Apart from India, speakers from India, Brazil, USA, Canada, Mexico, and Nigeria etc are expected to give their deliberations in the conference. Themes of the conference consist of most important and relevant topics. Among topics Biofuels, Bioenergy, Biomass Combustion, Climate Change, Supply Chain Management, Clean Development Mechanism, Waste Water Treatment, conversion Technologies for Municipal and Industrial Waste to value-added products and Hybrid/ Integrated and New Energy Systems are also there.

[<ReadMore>](#)

Deccan Chronicle, Hyderabad dated October 25, 2015

INDIA, CHINA WORST HIT BY CLIMATE

United Nations: India and China are among the countries most affected by weather-related disasters with the two nations accounting for more than three billion disaster-affected people between 1995 and 2015, a new UN report said on Tuesday, ahead of the crucial Paris climate conference that begins on November 30. The report, *The Human Cost of Weather Related Disasters* by the United Nations Office for Disaster Risk Reduction said the five countries hit by the highest number of disasters are the US, China, India, the Philippines, and Indonesia. Also, climate experts say the need to agree on a global carbon price to cut pollution and aid clean technologies is a no-brainer, and yet the topic will have no place at the upcoming Paris climate talks. Also, Nearly 690 million of the world's 2.3 billion children live in areas most exposed to climate change, facing higher rates of death, poverty and disease from global warming, the UN children's agency said on Tuesday. Almost 5300 lakhs children live in countries hardest-hit by high floods and tropical storms, mostly in Asia.

NGT rap for sloppy tree transplant

TIMES NEWS NETWORK

New Delhi: Disappointed with the way trees, which were felled to widen south Delhi's Rao Tula Ram Marg, were transplanted, NGT on Tuesday held officials of the public works department (PWD) and other agencies responsible and warned of deducting their salaries. "Even if a single tree is sick, you will have it from us. We will deduct salaries from your officers. You people are so unfair to the public, traffic and trees. Why don't you think before you do anything? You deal with public money and waste it," a bench headed by NGT chairperson, Justice Swatanter Kumar, told officials of PWD and other agencies concerned. Pulling them up for "not applying their minds", NGT also said one of its members would personally visit the area to ensure compliance. The bench, which was perusing photographs of transplanted trees on the road, however, allowed PWD to remove a tree located in the middle of the stretch, noting the "looming threat" of accidents due to it.

The Times of India, Delhi dated October 25, 2015

With allies, India to fend off pressure at Paris talks

TIMES NEWS NETWORK

New Delhi: India intends to work strenuously with allies such as the group of like-minded developing countries (LMDCs) and the "solar alliance" proposed by Prime Minister Narendra Modi to ensure that it is not isolated by developed countries seeking to resist pressure to step up their pre-2020 climate change commitments. The US has already fired the first shot ahead of the climate summit due in Paris later this month with secretary of state John Kerry singling out India as the "challenge" to be dealt with and environment and forest minister Prakash Javadekar responding that the developed world's attitude was the hurdle. The battle lines for Paris seem well etched. India and its ally countries, including the influential BASIC (Brazil, South Africa, India and China) bloc, will look to push the US and other western nations to step up commitments to counter climate change. Arguing that the developing world could not be denied space to grow, India has said that the estimated 1,000 gigatons of carbon emissions that would be permissible for the rest of the century if



India and its ally countries, including Brazil, South Africa, and China of the influential BASIC bloc, will look to push the US and other western nations to step up commitments to counter climate change

temperature rise is to be capped at 2 degrees Celsius should not be disproportionately consumed by the developed world. Modi's call for a solar alliance is likely to attract more than 100 nations with a meeting of the proposed partners — with plentiful solar energy to tap as a renewable and clean source — expected to be an important pressure point in the negotiations, officials hope. The fight for carbon space, and linked demands for funding and transfer of green technologies, is a major battlefield in Paris with the Indian team keen to ensure that it does not end up being tagged as a naysayer. India's ambitious 'intended nationally determined contributions' are aimed at countering this image and the delegation remains hopeful of wresting some additional commitments from the developed

countries. A minimalist approach, given the divisions and complexities of the debate, will be considered a success in Paris. India is also looking to counter the argument that it is the fourth largest emitter of carbon dioxide, saying it lags China, the US and Europe by a wide margin. Countering the "ton for ton" argument, India is keen to make the point that the west still outstrips it by a 3:1 ratio. India has 18 cars per 1,000 persons compared to 700 in the US, 800 in Japan, 550 in Europe and 300 in China. The other issue where India needs to look sharp is with regard to coal use as it is bound to come under pressure for its plans to step up extraction and power production. The Indian position is that it aims to hike the non-coal component of power production to 40% while it will upgrade technologies for cleaner use of coal.

The Times of India, Delhi dated October 26, 2015

Metro to recycle waste, earn from it

Plant Proposed At Rohini Will Recycle Construction And Demolition Waste

Ram. Banerjee
@timesgroup.com

New Delhi: Waste needn't be wasted. Ask Delhi Metro, which plans to recycle its waste and earn from it. Delhi Metro Rail Corporation (DMRC), which is adding 135 km to its existing network under phase-III, is planning a construction and demolition (C&D) waste recycling plant. DMRC will provide land to the company for setting up the plant. All other expenditure, including machinery and maintenance, will be the contractor's responsibility," said Anuj Dayal, Delhi Metro spokesman. Officials said the move will help ensure zero or minimal landfilling. DMRC is expected to earn

TREATING DEBRIS			
6 lines	185.3km network	151 stations	1,234 commissioned cars
156% avg growth in ridership in past five years			
Phase-III includes a 135.1km network			
<ul style="list-style-type: none"> DMRC will set up a construction and demolition (C&D) waste plant at Rohini Plant will have a system of crushing, screening and separating to maximize waste management 			
1.77 lakh tonne of C&D waste has been recycled in phase-III			

COMPONENTS OF C&D WASTE: cement concrete pile heads, re-bars, concrete blocks, broken bricks, cement plaster, rubble, broken stones, soil, sand, gravel, demolished building material like railing, frames, roofing, broken glass, etc

2.6 million ridership per day
3.2m max on Aug 28, 2015

Rs 57 lakh per quarter for providing the land and the waste. More importantly, the waste treatment plant will provide the company a way to crush, screen and separate waste, thereby maximizing waste management. "The 150-tonne-capacity plant provides a complete solution for managing construction and demolition waste. This includes supply, installation, commissioning, running and maintenance. IL&FS has been selected for the project and the plant is likely to be set up in Rohini," he added. Incidentally till now Delhi Metro has already recycled 1.77 lakh tonne of construction and demolition waste in phase-III. Construction and demolition waste includes cement concrete pile heads, re-bars,

concrete blocks, bricks, cement plaster, rubble, sand, gravel, railing, frames, roofing, glass, etc. Currently DMRC also disposes off waste at designated places identified by the civic authorities. It has, till now, been segregating and disposing waste at source. For instance, C&D waste is sent for recycling at Buirari while muck is disposed off at designated areas. Hazardous waste is disposed through an authorized recycler while organic waste is disposed through the municipalities. The plant proposed at Rohini will recycle a majority of DMRC's construction and demolition waste. The byproduct will be sold by the company as per its discretion, said officials of the Delhi Metro.

The Economic Times, Delhi dated October 06, 2015



ENERGY LANDSCAPE TO CHANGE SOON

Only Renewables will Power India: Goyal

Says Centre confident of wiping out discom losses by '19

ET EXCLUSIVE

Himangshu.Watts@timesgroup.com

New Delhi: India's energy landscape is poised for a dramatic change as fresh investments in wind and solar projects will overtake those in fossil fuel-based plants, and the government is confident of wiping out state distribution companies' losses by 2019, removing the power sector's most stubborn bottleneck.

Centre is finalising a new tariff policy that will give thrust to competitive bidding

FULL INTERVIEW >> 20

Minister Piyush Goyal told ET in an interview. He said market forces would work against polluting fossil fuels.

Renewables Add to Energy Security >> 22

ON GREEN POWER

We are not encouraging any fossil fuel projects... Investment thrust will be totally skewed towards renewables. That's loud and clear.

ON BAILOUT FOR COS

For years, people thought whatever we do, govt will bail us out. I think rules have changed, it's an equal-opportunity, fair and transparent govt.

ON DISCOM LOSSES

All states have agreed with us...The ₹60,000-70,000 cr loss of discoms will be zero by 2019.

PIYUSH GOYAL
POWER, COAL AND
NEW & RENEWABLE
ENERGY MINISTER



Renewables Add to Energy Security

>> From Page 1

Goyal said renewable costs are falling steeply and tariffs from such projects remain constant for quarter of a century unlike fossil fuels, which have seen dramatic increase in costs in recent decades. Further, renewables add to the country's energy security and help in keeping the environment clean.

The minister said state governments, which control distribution companies (discoms), are fully on board about the new package to improve power distribution network in the country, which provides the vital link between power plants and customers.

He said the proposal would deal with past losses on which states, Centre, the Reserve Bank of India and banks have worked out a solution. There is also a three-year plan to cut losses caused by technical and commercial issues to 15% from 27% now.

Goyal said the proposal was in the final stages. It includes measures to ensure banks don't indiscriminately lend to discoms and states are conscious that they can't allow discoms' losses to accumulate over a long period of time. "Fortunately, all states have agreed with us. Now we are fleshing that out in more detail... The ₹60,000-70,000 crore loss of discoms will be zero by 2019," he said.

NEW TARIFF POLICY

The government is also finalising a new tariff policy that will give bigger thrust to competitive bidding and make sure that discoms buy part of the power from renewable plants. Those invest-

ing in fossil fuel plants would be required to add some renewable capacity also. The policy would also encourage waste-to-power plants, which would also be useful for the Swachh Bharat programme championed by Prime Minister Narendra Modi.

"We are also providing that for renewable energy there will be no interstate transmission charges. Wherever waste-to-energy — as a part of waste-to-wealth that the prime minister has articulated — can be set up, must be set up and state will have to buy that power," Goyal said.

The government will also encourage old plants, both conventional and renewable, to upgrade to higher-capacity modern plants. This will add capacity quickly because they already have land and various clearances required, he said.

Goyal also ruled out bailout of companies that have won auctioned coal mines with high bids that seem unviable, maintaining the government's stand. "This is a big problem in India. For years, people thought whatever we do, the government will bail us out. I think rules have changed, it's an equal-opportunity, fair and transparent government. We do things in public domain," he said.

"We didn't press the button on their computer screens at the time of bidding. In the bid document, it is mentioned five or six times that whatever you bid you have to bear it; it will not be allowed to be passed on to the consumer. Out of 35, if two people have a problem, whether system is right or those two are right you can choose," the minister said.

'Use processed waste in all govt constructions'

Neha.Lalchandani @timesgroup.com

New Delhi: A multi-department committee set up to examine ways of using recycled construction and demolition waste products has recommended that all future government constructions work use at least 2-5% C&D waste products as part of building material. The municipal corporation has set up two such plants in Delhi that are processing C&D waste while PWD will be setting up two more plants.

Its report, submitted to the government, says that the provisions of the advisory issued by Delhi government to all government agencies should be followed in letter and spirit. The advisory states that all government agencies should include a clause in their tenders for "use of minimum 2% processed/recycled products from C&D waste in all their future contracts for building works and 10% of

Delhi generates more than 4,000 tonnes of C&D waste each day (tpd). Most of it is dumped along roads, in the ridge, on the Yamuna riverbed or into drains

processed/recycled products for road works. Urban local bodies should also mandate 5% use of such products for non-structural applications, while examining and approving building plans".

The report further says that in all big redevelopment projects of the government that cost more than Rs 500 crore, a provision should be made for installation of a C&D waste processing plant at the site itself.

For repaving of roads, the committee had said that the bituminous material that is recovered from an existing road should be reused which will also ensure that the level of the road does not rise. The

recycled products will include kerb stones, paver tiles for footpaths, earth for filling in embankments, toe walls etc.

Delhi generates more than 4,000 tonnes of C&D waste each day (tpd). Most of it is dumped along roads, in the ridge, on the Yamuna riverbed or into drains. "The situation had gone out of hand where one would only find construction waste lying along the roads. Other than becoming a huge headache for civic agencies that have to remove this waste and take it to landfill sites, it also poses a huge risk to environment," said an official.

The other problem is lack of facilities for treating this waste. Delhi has an installed capacity of just over 1,000 tpd while PWD will add another 300-400 odd tpd. This is not even half of what the city is producing each day. Even here, PWD still has to issue tenders for its two plants, one at Libaspur and the other at Tikhri Border.

The Times of India, Delhi dated October 26, 2015



The Times of India, Delhi dated October 26, 2015

Sweden shows way for smart Delhi

Govt Takes Cue From Stockholm For Better Transport, Waste Management

Ambika Pandit
@timesgroup.com

New Delhi: The Delhi government is all set to take some lessons from Stockholm city. It is open to the idea of inviting investors and exploring partnerships with Sweden to deliver affordable solutions to problems ranging from waste management to energy-efficient public transport.

The state is also keen on drawing from the experiences of technology-efficient Stockholm known for its robust underground network of fibre-optic cable networks for high-speed connectivity and sustainability and see if how this can be applicable to the government's plan to execute free Wi-Fi in Delhi.

Minister of health and public works department, Satyendra Jain, and transport minister, Gopal Rai, along with senior bureaucrats from various departments, have gone to Stockholm for a five-day knowledge-sharing trip. For finding ways to roll out citywide free Wi-Fi facilities to eco-friendly public transport solutions and energy efficient housing, the Indian delegation will be visiting projects on ground to see the benefits.

Jain told **TOI** that his idea of going to Sweden was clearly focused on finding ways to improve

PARTNERING INDIA'S GROWTH

DELHI Swedish Technical Consultancy, COWI, in coordination with IL&FS Environment Infrastructure & Service Limited, and then Municipal Corporation of Delhi, initiated a study in 2010-11 to explore the possibility of generating biogas from abattoirs instead of disposing of the waste on landfills. The study site was Ghazipur landfill which covers an area of 3,00,000 sq metres. The abattoir located nearby was then estimated to generate 80 tonnes of animal waste every year



NAGPUR Commercial vehicle manufacturer, Scania, is working in Nagpur to deploy a clean city bus system based on locally-produced ethanol and bio CNG from local waste like sewage, household and agricultural waste. The project is backed by Swedfund—Swedish government's venture capital firm



GUJARAT Solid waste management company, Envac, is implementing a waste collection system at GIFT City, Gujarat, enabling segregation-at-source of waste and its subsequent processing to bioenergy



MUMBAI & CHENNAI Biogas-producing equipment manufacturer, FOV Biogas, has several installations that convert household or agricultural waste into biogas. Plants are operational at We School in Mumbai and Poonamallee in Chennai

showcase how energy efficient eco-friendly new housing projects for sustainable living for the future are being created," Liberg explained.

The Delhi government's visit to Sweden comes at a time when the capital is struggling to find a solution for traffic congestion and encourage people to use public transport and cycles. Earlier this week, **TOI** had reported how Stockholm is trying to set new standards to define a "smart city". Stockholm city has a population of 9 lakh and the greater metropolitan area has a population of 2.2 million. The government there has a goal to make Stockholm city fossil fuel free by 2040.

Stockholm may be far too small in terms of the population load of an Indian city and its many urban planning challenges, but both Stockholm and Delhi have many things in common. To begin with, Stockholm, like Delhi, is grappling with problems of growing traffic and a housing shortage as people from outside the city and even other countries are making Stockholm their home. Nearly 25,000 to 30,000 people, according to official estimates, come to Stockholm every year. The city has a target of building 1,40,000 new homes by 2030. People, used to a quieter Stockholm, find their city changing to a more crowded space. Sweden is trying to make the use of cars more expensive and get people shift to biofuel-run cars and public transport.

transportation infrastructure and make it sustainable. "For me traffic management, road planning and public transportation is an area of interest. Also, I would like to study the waste management and waste-to-energy projects and how the same can be done here. For instance, we will be visiting smart city projects. Frankly, I

am looking for solutions that are possible to implement in India and am open to investors from Sweden coming in with expertise to deliver solutions that are sustainable," Jain added.

Cleantech and biofuels are long-term focus areas for the Swedish government, both for domestic use and for export or technology transfer to international markets. Several efforts by Swedish companies in the cleantech or biofuel sectors are underway in India.

Trade commissioner to India at the Swedish Embassy, Anna Liberg, said knowledge sharing is aimed at working out ways in which Sweden can help the Delhi government on various things including Wi-Fi facilities and clean city initiatives. "There is going to be a detailed presentation on the Wi-Fi experience and the technology available in Sweden. Among other things, there will be a visit to the Royal seaport project site to

The Times of India, Delhi dated October 28, 2015

Deadly heat forecast in Persian Gulf by 2100

Conditions Would Be Intolerable For Humans, Exposure Will Result In Hyperthermia: Study

John Schwartz

By the end of this century areas of the Persian Gulf could be hit by waves of heat and humidity so severe that simply being outside for several hours could threaten human life, according to a new study.

Because of humanity's contribution to climate change, the authors wrote, some population centers in West Asia "are likely to experience temperature levels that are intolerable to humans."

The dangerously muggy summer conditions predicted



MERCURY RISING: Previous research suggested such conditions might be reached within 200 years

for places near the warm waters of the gulf could overwhelm the ability of the human body to reduce its temperature through sweating and ventilation. That threatens

anyone without air-conditioning, including the poor, but also those who work outdoors in professions like agriculture and construction.

The paper, published in Nature Climate Change, was written by Jeremy S Pal of the department of civil engineering and environmental science at Loyola Marymount University and Elzatih A B Eltahir of Massachusetts Institute of Technology. Previous studies suggested that such conditions might be reached within 200 years. But the new research, which depends on climate models that focus on regional to-

pography and conditions, forecasts a shorter timeline.

The researchers resolve the old argument over whether the source of summer misery is the heat or the humidity by saying that it is both. They rely on a method of measuring atmospheric conditions known as wet-bulb temperature, which, while less well known and understood than the standard method of measuring temperatures, describes the extent to which evaporation and ventilation can reduce an object's temperature.

Since even today's heat waves cause premature deaths by

the thousands, mainly affecting very young, elderly and infirm people, the more extreme conditions envisioned "would probably be intolerable even for the fittest of humans, resulting in hyperthermia" after six hours of exposure. As climate change causes temperatures to rise, it should come as no surprise that the warm-water coasts in West Asia could be the first to experience brutal combinations of heat and humidity.

The conditions would not be constant, but spikes would become increasingly common, www.washingtonpost.com

The Times of India, Delhi dated
October 28, 2015



NGO wins UN climate award

New Delhi: Chintan, a city-based NGO that works with ragpickers on sustainable waste management, has won the UN Climate Solutions Awards, 2015. Sixteen "game-changing initiatives" from across the globe were announced on Tuesday in the competition, a run-up to the global climate change conference in Paris. Chintan won the award for its project 'E-waste: From Toxic to Green'.

Display boards on real-time air quality data soon

Jayashree Handi
@timesgroup.com

New Delhi: The Delhi government is planning to make public real-time air pollution levels in various parts of the city this winter.

While real-time data is not ready available on the Delhi Pollution Control Committee's website, it's now working on placing information boards at crowded places and areas prone to smog.

The idea is to give a visual reminder to people about Delhi's air pollution problem

POLLUTION INFO

so that they make lifestyle changes like reducing private vehicle usage and curbing waste burning. "We all know the air is bad but people should also act on it. We think they will take proactive steps when they are reminded daily of the magnitude of the problem," Ashwani Kumar, secretary, environment department told TOI.

According to senior officials in the department, the proposal is now with the government. "We wanted to launch this before winter smog begins but it seems it

will take longer. If we have the government's approval this week we can put up boards by mid-January," said an official.

Kumar said residents can appreciate the importance of lifestyle changes, like using public transport and not buying diesel vehicles when air quality falls.

Similar boards have been installed in Hong Kong and Paris. Hong Kong has them at Metro stations, markets and important public spaces. The administration also sends regular air pollution updates to schools so that children can be asked to take precautions. Paris, on the other hand, has a massive hot air balloon that tells you how good or bad the air is. The balloon's colour changes depending on the oxides of nitrogen and particulate matter in the air.

Experts said the move could be effective. "Air pollution data must be in the face. There should be a health advisory, too. The board should tell people what kind of precautions the ought to take," said Anumita Roychowdhury, head of Centre for Science and Environment's Clean Air programme.

The Times of India, Delhi dated
October 29, 2015

Needed, air quality curbs on firecrackers

Times News Network

New Delhi: Diwali is just over a fortnight away, but the Delhi government hasn't started its anti-crackers drive. With temperatures falling already, we may be heading towards days with severely polluted air. The environment department has, however, written to the customs department seeking a complete ban on Chinese crackers.

It has also called a meeting with NGOs and experts on October 29 to develop a pre-winter air strategy that will also address Diwali pollution.

Chinese crackers are unregulated as they are not required to meet Indian fireworks standards. Most products do not specify materials used which is why it's impossible to determine their toxicity. Experts are concerned about lack of standardization in firecrackers—products in the market have a very wide range of air pollution potential.

"The Supreme Court's order restricting burning of crackers after 10pm is not followed; we also don't have dedica-

FINDING THE RIGHT FORMULA

THE SUPREME COURT IN 2005 ISSUED DIRECTIONS TO RESTRICT USE OF FIREWORKS

- ▶ Two systems of evaluating firecrackers exist—on basis of noise levels and chemical composition
- ▶ The department of explosives shall undertake research to find chemical formulae for each type of firecracker
- ▶ It shall specify the maximum permissible weight of every chemical used in manufacturing firecrackers
- ▶ It also divides firecrackers

- into two categories—sound-emitting and colour/light-emitting
- ▶ There shall be a complete ban on bursting sound-emitting firecrackers between 10pm and 6am
- ▶ Every manufacturer shall on the box of firecrackers mention details of its chemical contents
- ▶ They will also mention it satisfies all requirements as laid down by the department



ELEMENTS USED FOR COLOUR-EMITTING FIRECRACKERS

- 1 Lead | 2 Cadmium | 3 Copper | 4 Potassium
5 Aluminum | 6 Barium | 7 Iron | 8 Strontium | 9 Mercury

On burning they release carbon monoxide, nitrogen dioxide and sulphur dioxide as well as particulate matter

Research studies by Indian Institute of Chemical Technology have found concentrations of metal in the city's ambient air during Diwali can be higher than levels reported at industrial sites

ted spaces for people to burn firecrackers. There are leakages in the enforcement system because of which Chinese crackers—with very high sulphur and heavy metal content—have managed to enter the market. We think there should be stan-

dards to keep air pollution under control," said Anumita Roychowdhury, head of Centre for Science and Environment's Clean Air drive. CSE is also likely to make its recommendations to the Delhi government on the matter.

While Central Pollution Control Board has notified noise standards—sale or use of firecrackers generating noise exceeding 125 dB(A) or 145 dB(C) at four metres distance from the point of bursting is prohibited—it doesn't specify air quali-

ty standards in detail. It only says that firecrackers must meet the ambient air quality standards. But this condition is flouted with impunity every year. "Air pollution is caused by chemicals—oxidising agents, metals and sulphur—and also because there is re-suspension of dust when crackers are burst. But we don't have regulations for them," said an official.

The Delhi government has asked the customs department to submit details of how many containers carrying Chinese crackers have been seized so far. But department officials said it's impossible to track the black market as well as curb entry of crackers through other Indian cities.

Environment secretary Ashwani Kumar told TOI that the government will issue appeals to traders, publish advertisements and use the 2,000-odd eco-clubs to conduct a drive. It will also put up boards at strategic locations displaying air quality data. "It's important for common people to know how poor the air is so that they take necessary steps," Kumar said.

Deccan Chronicle, Hyderabad
dated October 30, 2015

RAISING A STINK

Industries poison city air

■ TSPCB unable to check violators and has not filed any criminal cases

V. NILESH | DC
HYDERABAD, OCT. 29

Industries in Hyderabad are polluting the city without any fear of the Telangana State Pollution Control Board (TSPCB). Officials of the erstwhile Andhra Pradesh Pollution Control Board and now of the TSPCB say they are trying to keep violators in check whenever there are complaints of foul smell. However, fact is that criminal cases under the Air Act, Water Act or Environment Protection Act have never been booked against the offenders.

The Air Act has a provision for imprisonment starting from three months to one year for contravention of certain rules in the Act, and six months for some violations, which can be extended upto seven years under certain conditions.

The Greater Hyderabad Municipal Corporation and its commissioners have also been lucky till now as the PCB has never booked cases against them for dumping untreated sewage water in water bodies, which also causes foul smell. The Air Act clearly states that even government departments can be booked for violations, for which the respective head of department can be punished.

Currently, the TSPCB is in the process of acquiring five new Volatile Organic Compounds Analyzers. These devices are used to detect compounds whenever there are complaints of foul smell. They can also be used for pinpointing as to which plant in an industrial area is actually causing pollution.

A full-fledged study on the issue of foul smell is to be assigned to the EPTRI for identifying the reasons as also the affected regions, and suggesting solutions.

TSPCB officials say they are trying to put pressure on violators by cutting power connections of industries. However, some industries use generators at night to run the units if their power connection is cut. "TSPCB is also making industries pay deposits that are confiscated when a violation is not rectified soon. This way the TSPCB has earned about ₹1 crore till date," they said.

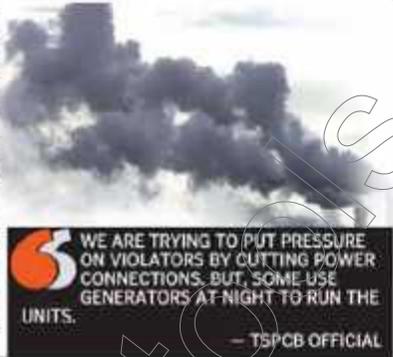
NO STAFF PRESENT

■ HOWEVER, the pollution control board faces the problem of poor manpower.

■ EVERY DAY, just two to four officers are sent on rounds of the city to keep a tab on violations of pollution control norms.

■ THEY DO this apart from their regular work. There is no separate task force for the purpose and the number of hours put in for inspection at night is also fewer.

TSPCB HAS SAID THAT THEY ARE TRYING TO KEEP VIOLATORS IN CHECK WHENEVER THEY GET A COMPLAINT.



WE ARE TRYING TO PUT PRESSURE ON VIOLATORS BY CUTTING POWER CONNECTIONS, BUT, SOME USE GENERATORS AT NIGHT TO RUN THE UNITS.
— TSPCB OFFICIAL

SULPHIDES MAIN REASON FOR SMELL

DC CORRESPONDENT
HYDERABAD, OCT. 29

Sulphur compounds in the form of sulphides and low volatile amines from ammonia are the major reason behind foul smell emanating from industrial areas.

The only reason that these gaseous emissions spread in the city's atmosphere is that industries do not follow green laws and fail to adhere to guidelines issued by the central and state pollution control boards.

The main culprits are the bulk drug and chemical companies. Sometimes, owners of manufacturing plants do not let the gases emitted through chemical processes in plants pass through the condenser which separates harmful pollutants. The reason is it takes a few hours to do so. They, instead, keep the condenser open and let the gases pass directly through vents, which takes less time but spreads harmful gases in the atmosphere.

Sometimes, the process takes just a few minutes. Most plants do this. No plant owner in an industrial area complains to PCB. Another reason is that many companies do not spend money to maintain or upgrade the equipment required for pollution control, like having scrubbers.

GHMC is another major city polluter. It lets out untreated sewage water into water bodies. The sulphates that get into sewage water through detergents and soaps are converted to Hydrogen Sulphide, which also releases a terrible stench.

Winter intensifies smell from industries, worries residents

DC CORRESPONDENT
HYDERABAD, OCT. 29

Winter is coming and worries are more. Residents who live near industrial areas are concerned the foul smell emanating from the industries in these areas which lasts for a few minutes to even hours, will become more intense.

Since decades, successive generations of residents are complaining of foul smell emanating from industrial units but the situation is seeing little improvement. While it's a round-the-year problem, it turns worse in winter as industrial emissions can't disperse due to a weather phenomenon called "inversion", making the stench unbearable.

Moreover, reactions of chemical compounds in the atmosphere also decrease in winter as a result of which the emis-

THE AIR NEAR Chandanagar and Miyapur is becoming heavily polluted and unbreathable.

— DEV SAHA, Facebook post

sions stay suspended in the air for longer periods. Complaint forums on the Internet are flooded with posts of residents on the foul smell. The Facebook page of the Telangana State Pollution Control Board (TSPCB), for one, is filled with such messages from resident.

One Facebook user, Ajay Gupta, complaining of foul smell near Jeedimetha bus depot, writes, "So much stinky and ammonia-like odour, emitted by some loose chemical... Companies near Jeedimetha bus depot. These companies

shutting mouth of pcb officials. Is there an officer working for us in PCB? Can he visit this area 7 to 12 pm to taste the smelly air? Worst air quality in the world, Jai ho TS PCB, sleep (sic)."

Another user, Dev Saha, writes, "The air near Chandanagar and Miyapur is becoming heavily polluted and unbreathable. Some factories nearby are emitting harmful gas and the air smells bad. Kindly check the situation before people start falling sick."

Kazipally, Bollarum, Patancheru, Pashamylaram and Uppal are industrial areas that have many big and small pharmaceutical companies, from where foul smell emanates and spreads for kilometers. In fact, many a time, when Kukatpally residents complained of foul smell, the source was traced to Kazipally IDA, some 15 km away.

Quthbullapur takes to the streets

DC CORRESPONDENT
HYDERABAD, OCT. 29

Resident welfare associations of various areas in Quthbullapur constituency like Ruchupally, Nizampet, Miyapur and Gandhi Nagar are protesting against pharma companies for polluting the environment. They are also upset with TSPCB for not taking appropriate action.

On Thursday, members of various RWAs came

together to vent their anger about regular release of untreated, polluted air by pharma companies, which lead to unbearable stench and is also a potential health hazard.

The residents were supported in their protests by Quthbullapur MLA K.P. Vivekanand. Residents alleged that TSPCB officials were colluding with pharma companies. A resident said, "Despite a directive from Union envi-

ronment ministry, TSPCB has not taken any action against the polluters."

Another resident said, "Whenever we complain to TSPCB, officials reach the spot late and by that time the stench is gone. Instead of reaching early next time, officials get angry at us for disturbing them unnecessarily."



The Times of India, Delhi dated October 31, 2015

Global pledges not enough to fight warming, says UN

Report Says More Steps Needed To Keep Temp Rise Below 2°C

Vishwa Mohan
@timesgroup.com

New Delhi: A UN report on Friday flagged inadequacy of countries' climate action plans, saying it may lead average global temperatures to rise by around 2.7 degree celsius by 2100 — a scenario which will have disastrous consequences all around the world in the form of sea-level rise and extreme weather events by the end of the century.

Though the report — aggregate effect of national climate action plans — noted that the promises made by 146 countries as part of their efforts to fight climate change can "dramatically" slow global emissions and bring down per capita emissions in next 15 years, it admitted that these commitments are not enough. Without getting into country-specific targets, the report, released in Berlin by UN climate change secretariat, pointed out the need to scale up emission cut targets.

In fact, it endorsed what different scientists and a group of 16 major global NGOs had said after analysing the climate action plan — called Intended Nationally Determined Contributions (INDCs) — and noted how these aggregated emission cut targets was not enough to stay below 2 degree celsius of global

COMBATING CLIMATE CHANGE

- Global average temperature may rise by 2.7°C by 2100 from pre-industrialisation (1850) level (target was to keep it at 2°C)
 - Countries — mainly those having high per capita emission like US, China, Russia and Japan — need to scale up emission cut targets
 - IPCC estimates that world can emit only about 2900 billion tonne (giga tonne/Gt) of carbon dioxide to stay below 2°C
- WORLD HAS ALREADY EMITTED 1,900 GT OF CARBON DIOXIDE TILL 2011**
- World will emit 748.2 Gt out of remaining 1,000 Gt of carbon dioxide by 2030
 - It means aggregate INDCs will finish 75% of carbon budget just by 2030
 - Aggregate INDCs will not leave enough carbon space for poor/developing countries to grow beyond 2030
 - Aggregate INDCs will bring down the global average per capita emission by 8% by 2025 & by 9% by 2030 from 1990 levels
 - India will, however, be far behind rich nations and China in terms of per capita emission even in 2030
 - UN body analysed the INDCs of 146 countries, including China, US, European



Union (28 nations) and India, who have submitted their plan as on October 1

➤ These 146 countries include all developed nations and three quarters of developing countries under the UNFCCC, covering 96% of global greenhouse gas emissions

PER CAPITA EMISSION IN 2030 (in tonne)



warming. TOI had reported their findings on October 25.

"The INDCs have the capability of limiting the forecast temperature rise to around 2.7 degrees celsius by 2100, by no means enough but a lot lower than the estimated four, five, or more degrees of warming projected," said Christiana Figueres, executive secretary of the United

Nations Framework Convention on Climate Change.

Though Figueres preferred not to press the panic button and noted the world can still move to a "long term destination of climate neutrality in the second half of the century," the report noted how the aggregated INDCs will finish 75% of the world's carbon budget by 2030.

It said that the global cumulative carbon dioxide emission are expected to reach 541.7 giga tonne (Gt) of carbon dioxide in 2025 and 740.2 Gt in 2030. It means the world will just have nearly 250 Gt of carbon space (scope to emit carbon dioxide for development works) beyond 2030.

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

The Times of India, Delhi dated November 01, 2015

Air quality getting worse by the year

TIMES NEWS NETWORK

New Delhi: Data released recently by System of Air Quality and Weather Forecasting Research (SAFAR) under the ministry of earth sciences shows the air quality in September has steadily worsened since 2011.

This is worrying because September is a good time to gauge the impact of vehicles,

cal emissions from various sources," said Gufran Beig, project director, SAFAR.

The monthly PM2.5 (fine, respirable pollution particles) average for September rose 63% from 54 micrograms per cubic metre in 2011 to 88 micrograms per cubic metre in 2015. The major sources of air pollution in Delhi are transport, industries, biomass burning and dust. Transport is the biggest contributor, SAFAR's research shows.

Levels of fine particulate pollution in October are always higher than in September and are highly influenced by weather, which is why there is no consistent trend in October's PM2.5 levels. For instance, this October, PM2.5 levels were the lowest compared with the last four years. The monthly average PM2.5 was 119 micrograms per cubic metre this time, as against 151 micrograms per cubic metre last year.



HAZY PICTURE

factories, etc, on overall air quality.

SAFAR's data also shows that every year air pollution levels in October climb higher than in September as the temperature starts falling. "September is sliced between a rainy period and the onset of winter. It is usually a reflection of the impact of lo-

"Pollution levels, October onwards, are mainly controlled by lowering of the boundary layer (lowest part of atmosphere) due to rapid fall in temperature and onset of winter. The boundary layer this year has not fallen too much yet," Beig added.



Save the Environment
and you will Save the
Life and Future.

The Times of India, Delhi dated
November 01, 2015

A greener way out of farm crisis

Chemical overuse is turning India's grain bowl into a basket case. But a few brave farmers have switched to bio-fertilisers and reported spectacular results

Amit Bhattacharya & Subodh Varma | New

Bathinda: On the face of it, farmers Sanjay Siyag and Balli Singh have little in common. Siyag is suave, speaks English and owns a few hundred acres of land. Three pit bulls and a Pakistani bully dog guard his sprawling house in Chautala village of Haryana's Sirsa district. Balli is the stereotypical doughty Sikh farmer, earthy and practical. When his lands got tangled in a family dispute, Singh started managing a 7.5-acre orchard on profit-sharing basis at Lilanwalli village, just across the state border in Rajasthan.

But what the two farmers share is a success story — a tale that could lead agriculture out of the expensive chemical fertiliser-pesticide dependence most cultivators here are trapped in.

Balli's kinnow trees were dying, afflicted by huanglongbing and phytophthora, diseases that have wreaked havoc on citrus cultivations across the world. After conventional pesticides failed, he took a gamble with bio-fertilisers.

He hasn't regretted that decision. "Within six months, progress of the disease was halted. The trees started recovering," he says. So did his investments. While the first year fetched a return of just Rs 60,000, the second year's yield got him five times that amount. Continued use of bio-formulations kept increasing yields. Last year, the farmer claims to have earned Rs 10 lakh from the orchard.

Siyag relates a similar experience. "Around 600 kinnow trees in my orchard were dying. I tried a bio-formulation on a few plants. The results were beyond expectations. I was able to save 450 trees, which are now healthy and bearing better fruits than ever before."

Singh and Siyag are part of a growing tribe of converts to bio-fertilisers — products containing micro-organisms which increase the ability of the plant to extract nutrients, stimulate growth and help the plant fight diseases by natural processes. These microbes also restore the soil's natural nutrient cycle and build soil organic matter.

Travelling through Faridkot and Bathinda districts in Punjab and Sirsa in Haryana, TOI met several farmers who related their happy experience with bio-fertilisers on various crops, from wheat and paddy to chillies and potatoes. Their costs had come down and their yields had increased.

Experts endorse many of the benefits. "Bio-formulations are very effective in plant growth promotion... They help in root elonga-



GROWTH SPURT: Balli Singh at his kinnow orchard that's flourishing after three years of treatment with bio-fertilisers. (Below) A healthy chilli farm

tion and root biomass increase which in turn improves the nutrient uptake of the plant," says K Annapurna, head of the microbiology division at Indian Agricultural Research Institute. The microbes also inhibit the pathogen population.

"Hence disease incidence is lowered and the plant remains healthy. Bio-fertilisers also strengthen the plant defences so that it can withstand pathogen attacks," she adds.

Punjab and Haryana, India's shining agricultural success stories, are plagued by problems due to high chemical usage. Fertilizer use is highest in Punjab (250kg per hectare) and Haryana (207kg), compared to the national average of 128kg/ha. Pesticide use also is among the highest in the two states. This, coupled with water availability problems, has led to stagnating yields in major crops, raising worries for the future.

"Most bio-fertilisers contain concentrated amounts of naturally occurring micro-organisms. These speed up nature's growth and regenerative processes," says Uday Philar, CEO of Sequoia Biosciences, a Pune-based bio-

fertiliser company.

The paddy crop of Jasbir Singh near Jhoke Sarkari village in Faridkot was visibly taller, greener and healthier than adjacent fields. He told TOI that bio-fertilisers helped his wheat crop withstand the havoc caused by unseasonal rainstorms in March-April this year because the roots of his crops were "deeper and the stalks stronger". With the just-harvested paddy too, Jasbir claims to have substantially increased his yields, getting up to 7.5 tonnes per hectare, much higher than the state's average of 4 tonnes.

Farmers using bio-fertilisers on other crops too have claimed better quality and quantity. Ruby Singh Sandhu, a big potato farmer in Mallekan village near Haryana's Ellenabad town, reported a yield of up to 25 tonnes per acre, almost double the average output in the region.

D L N Rao of the Indian Institute of Soil Sciences has been researching bio-fertilisers for over two decades and says their use undoubtedly leads to healthier plants and better yields. "At least 25% of chemical fertilisers used in India could be replaced with bio-fertilisers. Not only would this save a lot of money for the farmers, it would also rescue the soil from poisoning and regenerate its vitality," he says.

The real promise of bio-fertilisers probably lies in the big picture. In the region, south Punjab and north Haryana, where intensive chemical farming is not only ravaging the soil but also people's health, a shift towards more natural cultivation would bring much-needed healing.

As Sanjay Siyag puts it, "Moving towards green products is no longer a matter of choice for us. We are running out of other options."



The Times of India, Delhi dated November 01, 2015

Winter months have seen higher rise in temperature than summer ones

Neha.Madaan@timesgroup.com

Pune: The warmth of winter months has increased significantly over the past 100 years.

Data of the India Meteorological Department (IMD) for the past 114 years revealed that the increase in temperature had been more in the winter months than those of summer. The highest rise in maximum temperature has been in December and February, followed by November and October.

The average maximum temperature of December and February has increased by 1.5°C over these years, the data showed. November has become warmer by 1.4°C and the maximum temperature of October has increased by 1.1°C.

"Results show significant warming in all seasons, but more so in the colder months," said Arvind Kumar Srivastava, the director of National Climate Centre, IMD.



The highest rise in maximum temperature over the last 114 years has been in December and February, followed by November and October

An earlier research—"Updated analyses of temperature and precipitation extreme indices since the beginning of the 20th century: The HadEX2 dataset"—in 2012 by climate researchers from across the world including Srivastava had revealed widespread changes in temperature extremes consistent with warming over the last

110 years. Trends were stronger in more recent decades.

Referring to the latest study, Srivastava said: "The annual mean temperature of India has increased by 0.6°C."

The highest rise in maximum temperature over the last 114 years has been in December and February, followed by November and October. The exact reason for the phenomenon

in the colder months is debatable though a section of researchers from across the globe attribute the temperature rise over the years to global warming caused by anthropogenic activities.

"The atmosphere is stable in most parts of the northern hemisphere during the winter months. As a result, the impact of anthropogenic pollutants is more pronounced. This may be causing more warming in winter months," said Srivastava.

A senior scientist of Indian Institute of Tropical Meteorology (IITM) said, "A research we conducted in 2002 had revealed an increase in absorption of aerosols from emissions during the pre-monsoon months. It could be actually cutting down the solar radiation reaching the earth's surface, causing reduced warming during pre-monsoon or summer months as compared to post-monsoon and winter months."

The Times of India, Delhi dated November 02, 2015

Smog envelopes NCR, air quality falls as Punjab farmers burn paddy

Cold, Moisture Worsen Thick Haze Over Delhi

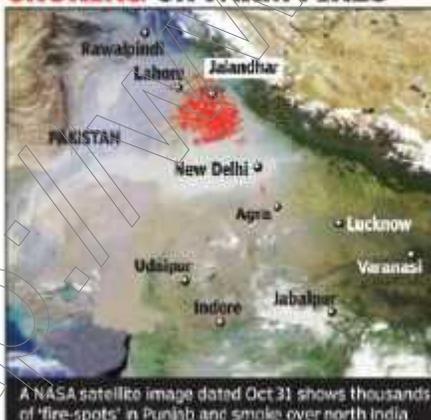
Amit.Bhattacharya @timesgroup.com

New Delhi: Uncontrolled burning of paddy stubbles by Punjab farmers appears to be again putting the health of residents in the National Capital Region at risk, with Delhi's air quality falling sharply in the past two days even as farm fires peak in Punjab.

Since Saturday, Delhi's air quality index has dropped by 60-80 points and is now inching towards the 'very poor' zone when children are advised not to spend time outdoors.

Weather conditions has played a role in the appearance of smog, Met officials said. "Such a sharp change in conditions also points to an incursion from outside," said an official.

CHOKING ON FARM FIRES

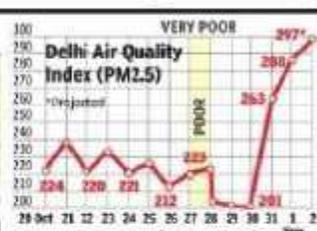


A NASA satellite image dated Oct 31 shows thousands of 'fire-spots' in Punjab and smoke over north India

A satellite image from NASA's Earth Observing System Data and Information System website on Saturday showed 'fire spots', which denote blazes on the ground, all across Punjab and parts of

northern Haryana. Haze can be seen enveloping a large region of northern India.

The NASA images offer clear proof that measures taken by the Punjab government in discouraging the



- NASA data shows farm fires in Punjab, that began to register in satellite images around Oct 10, have increased in intensity since Oct 30
- Smog in Delhi from Oct 30 night, leading to visibility dropping from 2km to 700-800m at 101
- Air quality has fallen sharply from Oct 31 onwards; now hovers close to 'very poor' range

practice of stubble-burning have failed. Biomass burning is a major cause of air pollution in north India during this season.

The Times of India, Delhi dated November 02, 2015

Solar power to electrify all UP police stations

Pervez Iqbal Siddiqui @timesgroup.com

INFUSING ENERGY

- Funds sanctioned for 250 police stations to be equipped with 5 KV and 10KV units by March 2016
- All police stations to get rooftop solar panel installations as per size, power consumption
- Idea is to ensure uninterrupted power to police stations, particularly in rural parts of state

Lucknow: In a first in the country, all 1,517 police stations in Uttar Pradesh will be made self-reliant for electricity through solar power by March 2016. In the first phase, funds have been sanctioned for 250 police stations which will be equipped with 5 KV and 10KV power generation units.

Rooftop solar panels will be installed at all police stations depending on the number of police personnel deployed at the particular police station which will also reflect the size of the building in which the police station exists and thereby give an estimate of its power consumption. Out of the total, there are more than 1,350 police stations which have strength of 50 or more policemen, hence will have to be equipped with 10KV solar power units, the government proposal says.

As per the plan, the solar power will initially be used as backup option at police stations in case of power failure from the wired supply

being provided by the local sub station. Once the teething problems of transition are taken care of, police stations will run on solar power. They will, however, maintain regular power connections too for emergency situations.

"We have already sanctioned the funds and installation of solar power units is underway at 250 police stations," said Debashish Panda, principal secretary, home. "To begin with, we have included police units situated in remote or district border areas where power supply is poor," he said.



The Times of India,
Delhi dated
November 04, 2015

Deccan Chronicle, Hyderabad dated November 03, 2015

Pollution level in city enters danger zone

Smog grew thicker on Tuesday morning, resulting in a sharp drop in air quality over several places in the city. The levels of fine-particle pollutants (PM 2.5) hovered between 200 and 500 micrograms per cubic metre from 9am to 12 noon, which is three to eight times the national safe standard, reports Jayashree Nandi.

TIMES IMPACT: States told to act against farm fires, P 2

Met officials said no respite from the smog could be expected in the next few days. Experts said the spike in pollution was due to Punjab farm fires, local emissions and meteorological conditions.

NEW THEORY ■ More ice is accumulating on Antarctica than it is losing

Antarctica is gaining more ice

Washington, Nov. 2: Antarctica is currently gaining enough ice to outweigh the increased losses from the continent's thinning glaciers, Nasa said on Monday.

The research challenges the conclusions of other studies, including the Intergovernmental Panel on Climate Change's 2013 report, which says that Antarctica is overall losing land ice. The Antarctic ice sheet showed a net gain of 112 billion tons of

ice a year from 1992 to 2001. That slowed to 82 billion tonnes of ice per year between 2003 and 2008.

Jay Zwally, a glaciologist with Nasa said: "Our main disagreement is for East Antarctica and the interior of West Antarctica — there, we see an ice gain that exceeds the losses in the other areas."

But it might only take a few decades for Antarctica's growth to reverse, according to Zwally. "If the losses of the

Antarctic Peninsula and parts of West Antarctica continue to increase at the same rate they've been increasing for the last two decades, the losses will catch up with the long-term gain in East Antarctica in 26 or 30 years," Zwally said. They analysed changes in the surface height of the Antarctic ice sheet measured by radar altimeters on two ESA European Remote Sensing satellites, spanning from 1992 to 2001. PTI

COLD ENEMY

NASA'S SATELLITE DATA SAYS THAT HUGE AMOUNT OF ICE HAS BEEN ACCUMULATING IN ANTARCTICA

■ 112 billion tonnes of ice was the net increase between 1992 to 2001
■ 82 billion tons of ice per year was the net increase between 2003 and 2008.

ANY GOOD NEWS:

ANTARCTICA IS NOT CURRENTLY CONTRIBUTING TO SEA LEVEL RISE, BUT IS TAKING 0.23 MILLIMETRES PER YEAR AWAY

Delhiites don designer masks to escape bad air

Nitisha.Kashyap
@timesgroup.com

New Delhi: With Delhi being dubbed the most polluted city in the world, a growing number of people have started wearing masks to avoid getting exposed to the toxic air. And it's not just the usual green-white ones but a good variety of designer masks that seem to have caught fancy of young Delhiites who feel that health and fashion can go hand in hand.

Priced in the range of Rs 2,000-2,800 each, these fashionable masks are available in Saket, Vasant Kunj and Khan Market. From pedestrians to cyclists to those with fragile immune system, they are useful to all kinds of people, including children and adults.

Unlike the surgical masks, these masks come in unique colour prints. For bikers, there is a special mask made of leather. Priced at Rs 2,800 each, this can be an integral part of other bike accessories like gloves and kneepad. The masks for morning walkers or cyclists cost Rs 2,200 each.

While normal masks have just one valve for exhaling carbon dioxide, those meant for bikers and cyclists have two. They help people breathe easy and there is no accumulation of water vapour inside them, a drawback in clinical masks.

While the surgical masks have a rating of N95, the designer

STYLE STATEMENT

DESIGNER MASKS	SURGICAL MASKS
COST: ₹2,000-2,800 each	Cost: ₹130-150 each
FILTER: N99	FILTER: N95
HAVE UNIQUE COLOUR PRINTS	GREEN OR WHITE
Swine flu protection Yes	Swine flu protection No
Advantage Exhale valves	No exhale valves
User: Bikers, cyclists, people with fragile immune system	Surgeons use them for clinical purpose

ner masks are of superior standard—N99. "These masks filter 99.78% of PM2.5 (fine, respirable particles less than 2.5 micrometres in diameter)," said Jai Dhar Gupta, regional director, South Asia, Vogmask.

Another advantage is while the surgical masks can be used just for a day or two, N99 masks can be used for nine months at a stretch, claimed Gupta. These wearables are meant to be hand-washed with extra care to be paid to the valves.

"When we see the durability and quality of these masks as compared to the clinic masks, we realize they are cheap and it costs Rs 7 per day. It is obviously cheap than the surgical masks," Gupta said. The

masks available at the local chemist's might not give complete protection from swine flu as it can spread through small airborne particles, which can escape a simple face mask.

In just 20 days, around 70 such masks have been sold from a Saket showroom. A storekeeper said buyers are mostly foreigners and those with some health issue. But a trend could be seen among young Delhiites who are buying them to beat swine flu and rising pollution.

A buyer said that these masks don't look odd and could go with one's outfit. "I have got a printed mask. At least, it's better than the boring surgical masks," said Sachin Chaudhary, a 35-year-old engineer.

The Times of India,
Delhi dated
November 05, 2015

The Times of India, Delhi dated November 05, 2015

SC panel clears road to impose green tax

Resolves Issues Raised By Collector At Meeting With Delhi Govt & Corpn

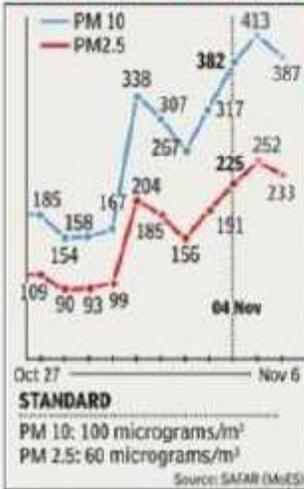
TIMES NEWS NETWORK

New Delhi: The Environment Pollution Control Authority (EPCA), a Supreme Court-appointed panel, held a meeting with the Delhi government and South Delhi Municipal Corporation on Wednesday and resolved the procedural and legal issues related to collection of the environment compensation charge (ECC). These issues had been raised by the concessionaire, SMYR Consortium, which collects toll tax on behalf of the corporation, in a legal notice.

Collection of ECC or the pollution tax, mandated by the Supreme Court for heavy diesel vehicles, has not taken off as besides other things, there is also an apprehension on the part of the concessionaire and corporation that it would lead to loss of revenue that was originally expected as the number of vehicles entering the city will be less. The matter has acquired an urgency because smog seems to be gripping the city with a vengeance.

The concessionaire had pointed out in the notice that it was neither "contractually" nor "statutorily" required to collect the pollution tax. Though the issue of less revenue could not be addressed, the EPCA addressed all the 11 issues the concessionaire had raised. Bhure Lal, chairman of EPCA, and Sunita Narain, member, chaired the meeting with senior officials from the transport department and corporation and the environment secretary.

CLEARING THE AIR



EPCA RESOLVES THE ISSUES RAISED BY THE TOLL CONCESSIONAIRE

- ▶ Delhi govt will put up boards with information about the environment compensation charge (ECC) at all 127 corporation-run toll collection points
- ▶ Police have already been deployed at all toll booths. The concessionaire can contact local police if need arises
- ▶ ECC will be collected from vehicles carrying a mixed cargo, which includes essential goods
- ▶ The toll concessionaire has the right to pursue vehicles which pass through without paying ECC, and if they are apprehended, they can claim ECC along with a penalty
- ▶ In case a driver refuses to pay ECC, the concessionaire is authorised to inform the vehicle details to the transport department
- ▶ The concessionaire will maintain records regarding registration number of vehicles, vehicle category and applicable ECC
- ▶ Details of exempt vehicles passing through toll gate will have to be maintained separately and submitted to transport department
- ▶ The ECC collection will be deposited every Friday by the concessionaire to transport department
- ▶ All vehicles irrespective of monthly pass will go through the toll lanes and pay ECC
- ▶ All vehicles irrespective of number of trips will go through toll lanes and pay ECC
- ▶ Service tax is not applicable to ECC as of now

The concessionaire's doubts ranged from whether police protection would be available if their staffers were confronted by angry drivers when there were long traffic snarls to whether the ECC would be levied on trucks carrying essential goods with non-exempted goods, whether the records of ECC collection will have to be maintained, how ECC will be imposed on vehicles with

a monthly pass, whether they can pursue vehicles that pass without paying and several others.

In a discussion of more than an hour, all issues were resolved. The document with the resolutions that is to be submitted to the concessionaire was then signed by the government representatives, MCD and Bhure Lal.

"We hope the matter is resolved and they agree to collect ECC as soon as possible," said an MCD official. Narain said other concerns about their income getting affected or about service tax will be addressed later. "We don't have any time to waste. People can't breathe. Please, let's at least begin the trial period," she said.

On being told about this, Kishore Agarwal, one of the partners in the consortium, said: "If our issues are resolved, then there is a chance things can work out. There are four partners involved in our consortium, so we will hold a meeting and the board will take a decision."

Bhure Lal said the SC order was addressed to Delhi government. "They have to ensure implementation of the order. We are only helping them provide replies."

Some participants said the reason the concessionaire is backing out could be because there will be strict monitoring of the trucks coming in and the toll collected from now on. Environment secretary Ashwani Kumar said the "biggest take-away from the SC order is implementation of a radio frequency identification (RFID) technology that makes tracking vehicles and collection transparent. In the long run, this can also be used to implement ECC within the city," he said.



The Times of India, Delhi dated November 05, 2015

Smog shoots up respiratory cases

Durgesh Nandan Jha
@timesgroup.com

New Delhi: Diwali is still a week away but people with respiratory problems are already in distress due to smoggy weather and the rising level of particulate matter in the air. Hospitals say their OPDs are flooded with patients suffering from asthma, chronic bronchitis, wheezing and chronic obstructive pulmonary disease (COPD).

Healthy individuals, too, are complaining about breathing difficulty, say doctors. Elderly and infants are the worst affected. "There is a 20-30% increase in the number of patients seeking consultation for respiratory distress. Many of them also require admission because they have breathing difficulty and lower respiratory tract infection," said Dr Arup Kumar Basu, head of the department of chest medicine at Sir Ganga Ram Hospital. He said the situation is likely to worsen further during Diwali when the burning of firecrackers will deteriorate the air quality.

Basu added that apart from open burning of crops in neighbouring states, pollution due to vehicular emission has also gone up in Delhi. "There are always heavy traffic jams in the run-up to Diwali. All main roads, bylanes in colonies and markets are crowded with vehicles. Vehicles are also a major

DOUBLE TROUBLE



ESSENTIAL PRECAUTIONS

AVOID STRENUOUS OUTDOOR WORK OR EXERCISE

Schedule your activities in the morning when pollution level is lower

ASTHMA PATIENTS SHOULD KEEP INHALERS AND MEDICINES HANDY, AVOID CROWDED PLACES

COMMON HEALTH PROBLEMS

ASTHMA: Pollutants in the air cause inflammation in lung's airways which makes it difficult for asthmatics to breathe. Wheezing and dry cough becomes common

CHRONIC OBSTRUCTIVE PULMONARY DISEASES (COPD): Those suffering from COPD, mostly the elderly, find it difficult to go for walks as the risk of chest infection increases. They may also catch fatal infections

HEART ATTACKS: Smog affects arteries directly by causing constriction and also leads to less oxygenation in

blood which can trigger angina and heart attacks

TIREDDNESS, FATIGUE: You may tire easily while doing your chores as smog can decrease lung's working capacity

MORE VIRAL INFECTIONS, FLU: Smog reduces respiratory system's capacity to fight infection and remove foreign particles, increasing your risk of getting sick

MOOD SWINGS, DEPRESSION: Lack of exposure to sun exacerbates depression and mood swings are common

DRESS IN WARM CLOTHING, ESPECIALLY ELDERLY AND CHILDREN

 <p>Elderly people should get vaccinated for pneumonia and flu</p>	<p>DRINK ENOUGH WATER TO STAY HYDRATED</p>	<p>BOOST IMMUNITY BY EATING FRUITS AND VEGETABLES THAT CONTAIN ANTIOXIDANTS</p>
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contributor to pollution in the city," he said.

According to Dr Anupam Sibal, group medical director of Apollo Hospital, Delhi witnessed a similar situation in the 1990s when people used to go on short vacation to the hills to avoid increased pollution levels during Diwali. "The situation had improved a decade later due to intensive awareness campaigns and the introduction of CNG for public transport vehicles. But all the gains made

by these efforts seem to have been lost in the past few years. "There is a need to adopt a new strategy and take up campaigns to tackle the rising air pollution in Delhi," he said.

Headaches, mood swings and depression are other health problems that are caused due to high levels of pollution and a dip in the temperature.

Roopabh Sharma, a Green Park resident who has been suffering from asthma for

many years, said he is not able to breathe properly due to smog. "The air is filled with pollutants and it causes a lot of breathing difficulty. I prefer to stay indoors mostly," he said.

Dr Sujeet Jha, an endocrinologist at Max Hospital, Saket, said the time is not far when people, particularly the children, will be forced to wear masks while going out during peak hours. "There is no other way to prevent respiratory distress caused by pollution. Many schools in the US ask children to wear masks if they are vulnerable to respiratory distress due to high levels of pollution," he said.

Cardiologist Dr Ashok Seth said the risk of heart attack due to constriction of blood vessels and less oxygenation in blood increases in winters, particularly when there is smog. "The patients are advised to take regular medications and limit outdoor activities," he said.

The Times of India, Delhi dated November 09, 2015

Green tax collections at ₹1.25cr a day

New Delhi: The toll tax contractor of South Delhi Municipal Corporation (SDMC) has been collecting around Rs 1.25 crore of Environment Compensation Charge (ECC) every day since the 'green tax' was levied on trucks and other commercial vehicles entering Delhi as per a Supreme Court order.

"As per initial reports, contractor SMYR is collecting ECC totalling around Rs 1.25 per day. Exact details of collection are yet to be received as the contractor is working on its software for it," said an SDMC official.

Collection of ECC had been started by the contractor as per the Supreme Court order, after a delay of six days, at 124 entry points of the city on the intervening night of November 6-7. **PH**

The Times of India, Delhi dated November 09, 2015

Firecrackers and traffic to worsen air quality on Diwali

Elderly, Kids And The Sick Should Stay Indoors, Say Experts

TIMES NEWS NETWORK

New Delhi: On Sunday there was a slight respite from the deadly smog that had gripped the city on Saturday. But levels at most stations continued to be in "severe" category as per Central Pollution Control Board's air quality index. Experts said the reason for levels coming down marginally is a change in the weather system.

While the minimum temperature had increased, a slight breeze helped in dissipating some of the smog. But next week around Diwali air quality will once again worsen drastically because of crackers and traffic.

Experts have advised that those vulnerable—elderly, children and ill—should minimise their exposure outdoors from now on.

"People often give colourful sparklers to children, but they usually emit heavy metals that are used to give them a colour. It's also impossible to distinguish which are the high sulphur crackers since there is no labelling on the materials used and their pollution potential. But people should check the deci-

CRACK DOWN ON THIS BOOM BUSINESS

CSE'S RECOMMENDATIONS TO DELHI GOVERNMENT

ENFORCE TIME RESTRICTION 10pm to 6am—and discourage burning of fireworks in sensitive areas such as near hospitals and schools

▶ Link cracker burning with air pollution levels. To make public more aware, issue continuous health alerts through media about changing air quality, especially when the level hits very poor and severe levels defined by Air Quality Index

▶ Tighten sound standard for crackers. Follow West Bengal's example which has a cap of 90 decibels

▶ Limit licences and areas of sale to control volume. Small sales like 100kg do not need licence but it's important to monitor them

▶ Display chemical composition and

sound level as well as statutory warning on packets. Regulate composition to eliminate hazardous chemicals and harmful metals

▶ Random checks to crack down on non-complying traders

▶ Expand scope of monitoring of environmental affects by assessing impact of fireworks on air, water and soil

▶ Create network of schools, colleges, RWAs to inform people about the negative effects of crackers

Impose high pollution cess on crackers based on polluter pays principle



bel levels on crackers they buy" said Anumita Roy Chowdhury, head of Centre for Science and Environment's (CSE) clean air campaign.

According to IMD, a western disturbance is forming due to which wind speed may pick up over Delhi on November 8 and

9. "Rain is unlikely but pollutants may get lifted up. On Diwali or after that conditions may become calm again," said an IMD official.

CSE has written to environment secretary, Delhi government on measures to curb cracker-led air and noise pollution. Delhi can follow the West

Bengal government's petition to National Green Tribunal (NGT) to enforce 90Db limit as against the national standard of 125Db. If 125Db crackers are burst together, it can be similar to a jet engine. Another recommendation is to release real-time air quality data with health advisory during Diwali so that people realise the impact of crackers.



LET DELHI BREATHE

The Times of India, Delhi dated November 10, 2015

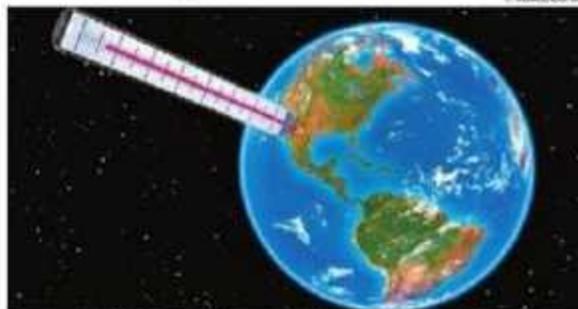
'Climate change to push 100m into poverty by 2030'

Will Disrupt Agriculture, Spread More Diseases, Says World Bank

Karl Ritter

Climate change could push more than 100 million people into extreme poverty by 2030 by disrupting agriculture and fuelling the spread of malaria and other diseases, the World Bank has said in a report.

Released just weeks ahead of a UN climate summit in Paris, the report highlighted how the impact of global warming is borne unevenly, with the world's poor woefully unprepared to deal with climate shocks such as rising seas or severe droughts. "They have fewer resources and receive less support from family, community, the financial system, and even social safety nets to prevent, cope and adapt," the Washington-based



The report highlights how the impact of global warming is borne unevenly as the world's poor are not prepared to deal with rising seas or severe droughts

World Bank said.

"The statistics in the World Bank report are suitably shocking and I hope they force world leaders

to sit up and take notice," said Mohamed Adow of Christian Aid. "The Paris deal needs to support the poor and vulnerable commu-

nities to cope with unavoidable climate crisis better, and to be more resilient to a changed climate."

Despite pledges to rein in emissions of carbon dioxide and other global warming gases, climate change isn't likely to stop anytime soon. Carbon emissions are expected to rise for many years as China, India and other developing countries expand the use of fossil fuels to power their economies. But efforts to protect the poor, such as generally improving access to health care and social safety nets, and targeted measures to upgrade flood defences and deploy more heat-tolerant crops could prevent most of the negative consequences of climate change on poverty, the Bank said.

The Times of India, Delhi dated November 10, 2015

Delhi's Air Makes Waves, For Wrong Reasons

Cos such as Google & Coca-Cola concerned over air quality, equip workplaces with purifiers

Varuni Khosla & Prachi Verma Dadhwal

New Delhi: Last week, an employee at Honeywell's Pune office visited Delhi for a project along with her six-year-old son. Within days of her visit, her son was diagnosed with pharyngitis. The paediatrician blamed it on air pollution and advised her to return to Pune immediately.

Delhi's air quality problems have become legendary, with many expats deciding to leave the city or to send their families back home, and corporates are increasingly taking note of it.

Firms such as Google, Coca-Cola, Honeywell, Whirlpool and SAP Labs have started equipping their workspaces with air purifiers and some are offering them to employees at a discount at a time when respiratory diseases are on the rise in the Capital.

Gasping for Breath

A WHO survey in 2014 found that 13 of the most polluted 20 cities in the world are in India, led by Delhi

It added that Delhi had the dirtiest atmosphere among 1,600 cities around the world for particulate matter (PM) 2.5 particles

WHO recorded an annual average concentration of PM2.5 of 153 micrograms per cubic metre in the Indian capital



PHOTO: SLOUMBLOG

Air quality likely to be worse this Diwali

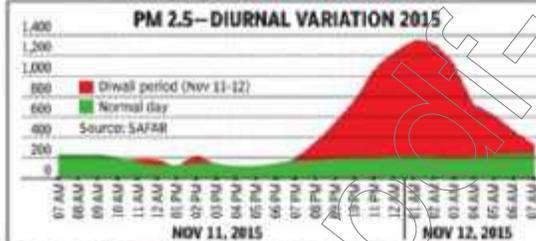
TIMES NEWS NETWORK

New Delhi: Compared to last year, air quality is likely to worsen this Diwali due to the prevailing weather conditions and may intensify due to concentration of pollutants from firecrackers. The forecast prepared by the System of Air Quality and Weather Forecasting and Research (SAFAR) under the Union ministry of earth sciences (MoES) mentions that air quality will be in the "severe" category.

Experts have advised people to take preventive measures to minimise exposure to such conditions by reducing physical activity outdoors. Those with heart or lung diseases, elderly and children should remain indoors on Diwali night, reads the health advisory.

"This Diwali is going to be colder as compared to last year. There is enough moisture in the air and the atmospheric

FESTIVE TIME, FOUL AIR



LOCATIONS: CIVIL LINES, PUNJABI BAGH, RK PURAM, MANDIR MARG, IGI AIRPORT, ANAND VIHAR*

	Safe limit	2014	2013
Carbon monoxide (CO) (ppm)	3	0.9-3	1.6-3.6
Oxides of nitrogen (NO ₂) (ppm)	80	39-194	81-110
Sulphur dioxide (SO ₂) (ppm)	80	8-87	35-106
Particulate matter 10 (PM ₁₀) (µg/m ³)	100	421-790	528-1,378
Particulate matter 2.5 (PM _{2.5}) (µg/m ³)	60	145-500	201-533

*Source: Delhi Pollution Control Committee (DPPC)

holding capacity of pollutants is quite high," said a statement issued by SAFAR.

Colder conditions would

mean the boundary layer, or the lowest part of the atmosphere, will come down trapping pollutants very close to the sur-

face. Scientists said there could also be "secondary particle formation" where fragments from fireworks cling to water droplets and result in more suspended pollution particles in the air.

The pollution peak is likely to be around midnight of November 11 when levels go up to 1200 micrograms per cubic metre, as per SAFAR's forecast. However, if there are thunderstorms and showers on November 11 air quality may improve marginally.

An analysis of levels of various pollutants in the last five years shows no definite trend. In fact, levels of PM2.5 (fine, respirable pollution particles) at Civil Lines, Punjabi Bagh, RK Puram, Mandir Marg, IGI Airport and Anand Vihar between 2010 and 2013 were in the "severe" category or on an average higher than 250 micrograms per cubic metre during most of the years. However, 2010 had the worst levels in most areas.

Despite Delhi government's anti-cracker campaign, no considerable difference is being felt in the air quality. Heavy metals, which are not monitored, may be also playing havoc. These toxic emissions are released from colourful crackers, with red ones discharging strontium, green barium and purple copper and strontium.

"There are various factors at play. Delhi government has to be very aggressive in its campaigns to make a measurable difference," said Anumita Roychowdhury, head of Centre for Science and Environment's (CSE) clean air campaign.

Environment secretary Ashwani Kumar said his teams, which are inspecting markets, found a few consignments of illegal crackers. These were without the mandatory labelling. "Going by the Supreme Court's advice to involve students in campaigning, we are trying to take the aid of schools and eco-clubs," he said.

CITY'S LATEST GREEN CORRIDOR

The six-lane elevated Azadpur-Prembhai Pul Road (on Ring Road) to be opened to public at 10am on Tuesday

Originally sanctioned in 2012, the foundation stone laid on June 7, 2013

Rs 247cr approved initially, finally completed at a cost of Rs 145cr (approx)

Corridor length | 2.1km (Byway) | 1.6km

- Rainwater harvesting system installed
- 3 congested crossings and small intersections mark the route, which has Wazirpur Industrial Area on one end and Azadpur Maindli on the other
- New corridor to reduce traffic load on the stretch stands at 1.75 lakh passenger car units (PCUs)
- travel time by 12 minutes
- Annual saving in terms of man-days is estimated to be Rs 122 crore if one presumes that a person earns an average of Rs 500 per day for 280 work-days every year
- It will help save 7,665 kilolitres of fuel (worth Rs 46 crore at today's price) annually
- Carbon dioxide emissions estimated to be down by 42 tonnes per day annually
- Sound barriers to be installed along the corridor; noise pollution likely to be down by 16 decibel

The Times of India, Delhi dated
November 10, 2015

Smog cover over China 50 times above danger level

Beijing: A swathe of China was blanketed with acrid smog on Monday after levels of dangerous particulates reached around 50 times World Health Organization maximums, in what environmental campaigners said were the highest figures ever recorded in the country.



TOXIC AIR

Pictures showed smog so thick that buildings in Changchun, the capital of Jilin province in the northeast, were rendered invisible. One image showed a restaurant's neon sign seemingly floating in mid-air above traffic, proclaiming in yellow: "Eastern Dumpling King".

Levels of PM2.5, the tiny airborne particles considered most harmful to health, reached 880 micrograms per cubic metre in the city of around eight million. The WHO's recommended maximum is a 24-hour average of 25 micrograms.

China's chronic pollution is generally worse in winter, when power consumption — much of it fuelled by coal — rises along with demand for heating to combat the bitter cold. The scourge has been linked to hundreds of thousands of premature deaths,

and has become a major source of popular discontent with the government. PM2.5 particulates can play a role in heart disease, stroke, and lung ailments such as emphysema and cancer.

Their overall levels reached 1,157 micrograms per cubic metre on Sunday in Shenyang, the capital of the neighbouring province of Liaoning, data from the city's own environmental protection bureau showed.

They peaked as high as 1,400 in parts of Shenyang according to state broadcaster CCTV, with visibility less than 100 metres.

"As far as we are aware from the data we have been observing over the past few years, this is the highest ever PM2.5 level recording in the country," Greenpeace campaigner Dong Liansai said.

Global tourism body pledges to improve carbon efficiency

Vishwa Mohan
& Himanshi Dhawan

New Delhi: Apprehending adverse impact of climate change on global tourism due to sea level rise and other unusual extreme weather events, a global tourism council — representing many of the world's biggest tourism companies — on Tuesday reiterated its commitment to move on a low carbon path and claimed that the sector has improved its carbon efficiency by 20% in the last 10 years and are on course to cut CO2 emissions by 50% by 2025 from 2005 level.

It also outlined the preparedness of the sector for climate change alleviation measures and demonstrated the progress that has been made by the world's leading air-



India's tourism industry has been working to reduce carbon footprint of the sector

lines, airports, hotels, cruise lines, car rental companies and technology companies in the last decade.

The claims and promises are part of the "Travel & Tourism 2015: Connecting Global Climate Action," published by the World Travel & Tourism Council (WTTC) on Tuesday.

The goal set by the council

is also important for India's tourism industry which has been working to reduce carbon footprint of the sector: India's tourism sector had contributed \$125 billion in 2014 and it is estimated to grow by 3.7% over the next ten years. The entire travel & tourism sector supported 36.7 million direct, indirect and induced jobs in India in 2014, representing 6.7% of total employment in the country.

Asked how climate change would impact the global tourism industry in general and Indian tourism industry in particular, the WTTC president & CEO, David Scowson, said, "Climate change and extreme events have caused business interruption and disruption for travelers in recent years. A change in the frequency and

magnitude of extreme events has direct and indirect relevance for tourism businesses."

Referring to the size of the sector in terms of its contribution to the GDP and employment generation both in India and worldwide, Scowson said it was of extreme importance that Travel & Tourism businesses and governments take the responsibility to ensure the sector grows sustainably.

"The WTTC works on a vision for tourism that responds to the demands of increasing numbers of consumers in the face of shrinking natural resources and therefore encourages tourism businesses and governments to adopt practices that look to tackle these challenges, as is showcased in the report", said Scowson.

The Times of India, Delhi dated
November 11, 2015

The Times of India, Delhi dated November 11, 2015

Capital sees 30% dip in sale of crackers

Green Concerns And Rise in Firecracker Prices Main Factors

Times News Network

New Delhi: Unlike the past few years, Nitish Bhatnagar, a wholesale crackers shop owner in Old Delhi, was sitting idle on the eve of Diwali talking to others about sagging sales volume. Unable to comprehend where the long queues of customers had gone, he finally blamed it on schools for "brainwashing" kids to have an eco-friendly Diwali.

The lull in the market is not just being faced by him but all the others who said that sales were down 30% as compared to Diwali eve last year. Some shopkeepers claimed that the dip was as high as 40-50%.

While being environment-conscious is said to be one of the reasons for the fall in sales, the increased prices of the firecrackers have also added to the sluggish demand.

"The market has not been so low in the past 30 years. Everything has contributed to the low purchases — from the environment-conscious Delhiite to the increased price of crackers," said Bhatnagar, owner of Mama-Bhanja Patakha shop near Jama Masjid, also a member of the traders' association. He added that this year they had orde-



BATTLE READY: Many in the city were seen using masks on Tuesday

red more than usual amount of crackers.

A trade association member in Sadar Bazar said that Diwali eve generally sees crackers sales of Rs 4-5 lakh for an individual shopkeeper, but this time it hasn't even touched Rs 2 lakh.

Though the shops are not deserted, the quantity of firecrackers being purchased has decreased. "It's not that people are not buying, they have decreased or set a limit to their purchases. Those who used to buy crackers worth Rs 10,000-15,000 have cut short their

purchases to Rs 5,000-7,000," said Pulkit, a wholesale shop owner in Sadar Bazar.

Even decreasing the prices hasn't helped much. A packet of Amar (Flower Pot crackers), which otherwise would be available for Rs 300 now costs Rs 200. Some shopkeepers are even ready to sell it at Rs 100 on bargaining.

"Even after reducing the price to almost half, the customers are not attracted this time. They want us to reduce the prices further. We have been facing huge losses," said a

shopkeeper in Chandni Chowk.

Another shopkeeper, Siddhant, said that it didn't even seem like Chhoti Diwali. "We have never been this free on Diwali eve," he said.

Interestingly, Chinese crackers were not seen anywhere in the market. Even if one asked for them, shopkeepers would gently remind, "It's illegal." A shopkeeper in Jama Masjid had also put up a plaque asking customers not to buy nor to ask about Chinese crackers.

In many shops, crackers with 1,000 shells, priced between Rs 10,000-11,000, have been lying abandoned in a corner. Earlier, these would get sold by Dhanteras, but no one has been asking for them this year. I had brought 30 such packets, but just one has been sold," said Vikas Agrawal, wholesaler of Cock Crackers in Old Delhi.

Meanwhile, hope has not dulled many shopkeepers and they are optimistic that sales will pick up on Wednesday. "We still have the Diwali day to look forward to. After all no one can ever predict the mood of Delhiites. There have been times when we sold 40% of our stock on Diwali evening itself," said Ajay Kumar of Murga Chhaap cracker shop in Sadar Bazar.



LET THEM SPEAK

TRACK IT YOURSELF

Where can you track air quality on Diwali night?

CPCB's National Air Quality Index (AQI): <http://164.100.160.224/900/>

DPOC's real-time air quality monitoring: www.dpccaindata.com

SAFAR, ministry of earth sciences: safar.tropmet.res.in

Air quality index	with lung and heart ailments, and to children and elderly	respiratory illness to people on prolonged exposure. Effect may be more visible in people with lung and heart ailments.
GOOD (0-50) Minimal impact		
SATISFACTORY (51-100) May cause minor breathing discomfort to sensitive people		
MODERATE (101-200) May cause breathing discomfort to people		
	POOR (201-300) May cause breathing discomfort to people on prolonged exposure and those with heart disease with even short exposure	SEVERE (401-500) May cause respiratory problems even in healthy people and those with lung/heart diseases. Impacts may be felt even during light physical activity
	VERY POOR (301-400) May cause	

AIR POLLUTION TRENDS ON DIWALI NIGHT

- Maximum average of PM2.5 (60µg/m3) seven-eight times more than safe standard
- Levels of sulphur dioxide (SO2) is generally low in Delhi, but crosses safe standard (80µg/m3)
- Maximum average of nitrogen dioxide (NO2) is about twice the safe standard (80µg/m3)
- Rapid build-up of pollution after 5pm and very high peak levels at night. Calm weather with nearly no wind ensures pollutants are trapped near the surface
- Pollution levels in residential areas—RK Puram, Punjabi Bagh, Mandir Marg and Civil Lines—have recorded higher levels than IGI Airport and Anand Vihar, which are usual pollution hotspots

How crackers pollute

- Carbon and sulphur burn during fireworks, producing a range of harmful gases
- Chemicals regularly used: Arsenic, manganese, sodium oxalate, aluminium, iron dust, potassium perchlorate, strontium, barium nitrate
- A large number of chemicals are added to crackers as stabiliser, oxidiser and binder
- Lead, titanium and antimony used in crackles and sparklers
- Potassium and toxic organic compounds used as rocket propellants

TRACKING REAL-TIME NOISE LEVELS

- CPCB: www.cpcbnoise.com (Username: CPCB, password: CPCB)
- Ambient noise standard: 70dB(A)Leq
- Noise standard for crackers: Manufacture, sale or use of crackers generating noise level exceeding 125dB(A) at 4-metre distance from the point of bursting is prohibited
- 125dB(A) is equal to sound of a jet engine
- Health impacts: Anxiety, stress, headaches, irritability, fatigue, fear, hypertension, change in heart rate, hearing loss or injury to eardrum

The Times of India, Lucknow dated November 12, 2015

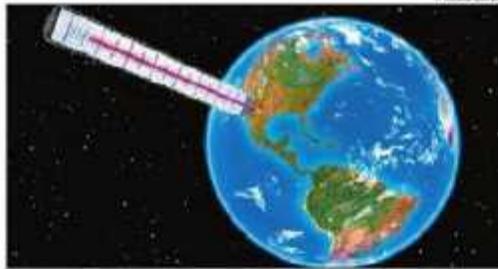
'Climate change to push 100m into poverty by 2030'

Will Disrupt Agriculture, Spread More Diseases, Says World Bank

CO₂ levels hit record high for 30th year in a row

Karl Ritter
Climate change could push more than 100 million people into extreme poverty by 2030 by disrupting agriculture and fuelling the spread of malaria and other diseases, the World Bank has said in a report.

Released just weeks ahead of a UN climate summit in Paris, the report highlighted how the impact of global warming is borne unevenly, with the world's poor woefully unprepared to deal with climate shocks such as rising seas or severe droughts. "They have fewer resources and receive less support from family, community, the financial system, and even social safety nets to prevent, cope and adapt," the Washington-based



The report highlights how the impact of global warming is borne unevenly as the world's poor are not prepared to deal with rising seas or severe droughts

said World Bank said.

"The statistics in the World Bank report are suitably shocking and I hope they force world leaders

to sit up and take notice," said Mohamed Adow of Christian Aid. "The Paris deal needs to support the poor and vulnerable commu-

nities to cope with unavoidable climate crisis better, and to be more resilient to a changed climate."

Despite pledges to rein in emissions of carbon dioxide and other global warming gases, climate change isn't likely to stop any time soon. Carbon emissions are expected to rise for many years as China, India and other developing countries expand the use of fossil fuels to power their economies. But efforts to protect the poor, such as generally improving access to health care and social safety nets, and targeted measures to upgrade flood defences and deploy more heat-tolerant crops could prevent most of the negative consequences of climate change on poverty, the Bank said.

Geneva: Greenhouse gas levels in the atmosphere reached a record high in 2015 and the relentless buildup of climate change is endangering the planet for future generations, the World Meteorological Organisation said on Monday.

"Every year we see that time is running out. We have to act NOW to slash greenhouse gas emissions if we are to have a chance to keep the increase in temperatures to manageable levels," WMO secretary-general Michel Jarraud said in a statement.

Graphs issued by WMO, a

UN agency, showed levels of carbon dioxide, the main greenhouse gas, climbing steadily towards the 400 parts-per-million (ppm) level, having hit a new record every year since reliable records began in 1958. Carbon dioxide levels averaged 397.7 ppm in 2014 but briefly breached the 400-ppm threshold in the northern hemisphere in early 2014, and again globally in early 2015. "Next year we will be reporting much higher concentrations because of El Niño," WMO atmospheric research chief Oksana Tarasova said.

The Times of India, Delhi dated November 13, 2015

A week after Centre's order, farm fires rage unabated

Punjab And Haryana Farmers Continue To Burn Crop Residue

Amit Bhattacharya
@timesgroup.com

New Delhi: Farm fires continue to rage unabated across Punjab and northern Haryana, more than a week after the Centre had asked state governments to urgently check the practice of crop residue burning, latest satellite images reveal.

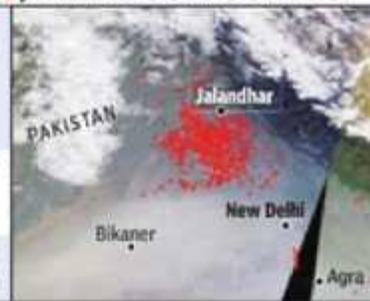
A satellite image from NASA's Earth Observing System Data and Information System (EOSDIS) website on Diwali day showed hundreds of 'fire spots' across Punjab and parts of northern Haryana, and haze enveloping north India and beyond.

Each 'fire spot' on the image denotes fires on a 1sq km area on the ground.

A similar image published in TOI on November 2 had prompted the Union environment ministry to issue a stern letter to four states — Punjab, Haryana, Rajasthan and UP — asking them to take "stringent measures including punitive action to prevent and control burning of crop residue and biomass in

PUNJAB BURNS, DELHI SUFFOCATES

- ▶ NASA satellite picture taken on Diwali day shows fire spots across Punjab and some parts of Haryana
- ▶ Each spot represents fires in a 1sq km area on the ground
- ▶ Thick haze seen over north India and beyond



agricultural fields and apprise the ministry of the action taken in this regard".

"I request you to launch an intense monitoring in your state including through satellite based remote sensing technologies to monitor crop residue management," environment secretary Ashok Lavasa had said in his letter to chief secretaries of the states.

But as the satellite image reveals, the letter does not seem to have had much effect on the ground. NASA pictures over the past 10 days show crop burning has continued unhindered and may have been a contributor to the thick

smog that enveloped national capital region during this period.

Experts say smoke from these farm fires worsen the already critical air pollution levels in the capital.

Most paddy farmers in Punjab-Haryana burn their crop residues in October-November as it's the cheapest way to prepare the field for the rabi season sowing. The practice grew in scale more than a decade ago as farmers made the transition to combine harvesting machines, which leave behind a long crop stubble.

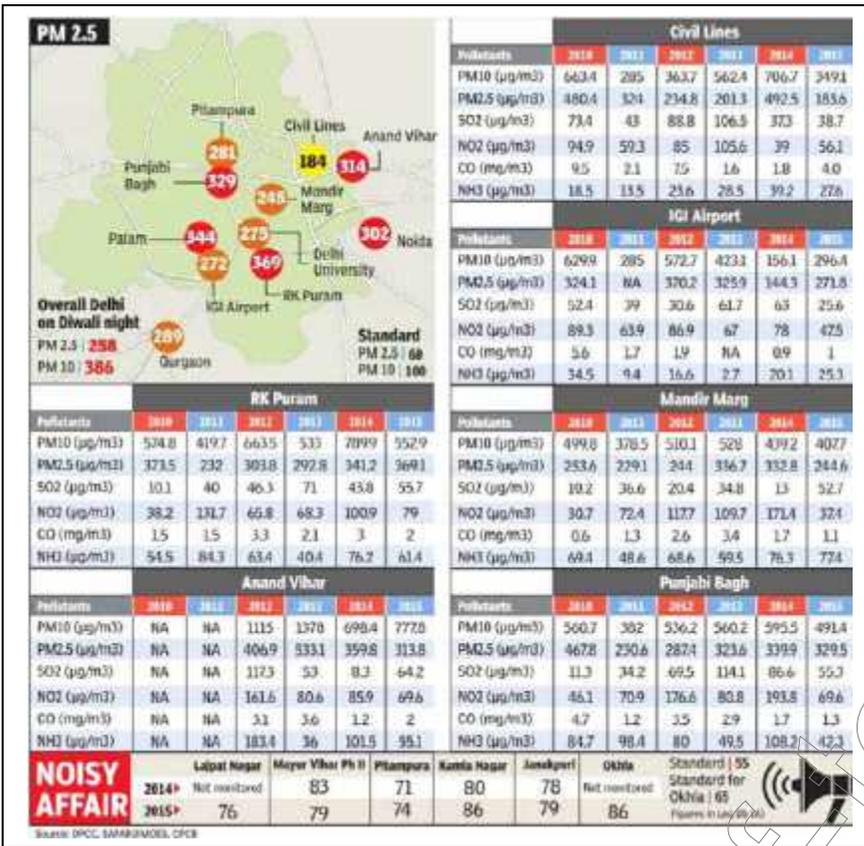
TOI had also reported

A satellite image from EOSDIS website on Diwali day showed hundreds of 'fire spots' across Punjab and parts of north Haryana, and haze enveloping north India and beyond

that the Punjab government was wary of taking action against farmers burning their paddy residues because of recent unrest in the state over the desecration of Guru Granth Sahib and the failure of the cotton crop due to whitefly infestation.

Officially, the practice of burning agriculture waste in open fields is banned in Punjab under the Air (Prevention & Control of Pollution) Act, 1981.

The state government's incentives to wean farmers away from the unhealthy practice — such as subsidy for machines like the happy-seeder and shredder, which collect the stubbles — haven't found many takers because of high capital costs.



The Times of India, Delhi dated November 13, 2015

Anti-cracker drives fail, city chokes on Diwali air again

Better Than 2014, Says Govt; Experts Differ

New Delhi: Anti-cracker campaigns by the central and Delhi governments appeared to have made no significant impact as the capital celebrated another dirty Diwali.



PAGE 3

with fireworks well into the night, leaving the city's air choked with alarmingly high levels of pollution.

Real time data showed levels of coarse pollution particles (PM 10) peak up to 19 times the national safe standard for 24 hours and levels of fine, respirable particles (PM 2.5) peak to over 10 times the safe standard at some spots.



- PM 10 levels on Diwali peak to 19 times the national 24-hr safe standard. PM 2.5 up 10 times safe standard at places
- Pollution higher than last

- Diwali, according to SAFAR's initial estimates, Delhi govt says it's less this year
- Breeze helps clear pollutants faster than usual

Even sulphur dioxide levels were high, at least twice the standard, during the peak hours (9pm to midnight) in many parts of the city, indicating the use of crackers with very high sulphur content. This, despite traders claiming a serious slowdown in cracker sales this year.

Delhi government's statement, however, masked these

peaks as it gave a wide range and 24-hour average for all the pollutants. Even those were severely high. Delhi government said its efforts had led to a drop in air pollution as compared to last year's Diwali. Appeals of the chief minister, deputy chief minister and environment minister along with MLAs' initiatives bore desired re-

sults," the statement said. Monitoring agency SAFAR's initial analysis, in fact, showed a rise in pollution over last year. What remained untested was that favourable weather — a breeze on Wednesday and Thursday morning — helped clear out pollutants to an extent.

► RK Puram worst hit, P 3

The Times of India, Delhi dated
November 13, 2015

RK Puram records highest PM2.5, Civil Lines the lowest

► Continued from P1

According to the Met department at IGI, "there were winds of 5 to 15 kmph persisting overnight with support from high vertical mixing of air that helped in dispersing smog," resulting in a clear morning.

A statement issued by the Central Pollution Control Board (CPCB) also concluded "that there was a significant shift in wind direction on the festival day which resulted in less humidity profile besides increase in wind speed from 1.9 m/sec to 3.4 m/sec." This, it said, "increased atmospheric mixing height to the level of 855 metres and resulted in easy dispersion of air pollutants".

Said Gufran Beig, project director, SAFAR: "As expected, levels were severe on Diwali day and on Thursday. This time Thursday has borne the brunt of Diwali pollution despite the congenial weather. According to our estimates air pollution has gone up this year. We will release a conclusive report on Friday."

SAFAR's data showed Delhi's 24 hour average for November 11 to be 258 micrograms per cubic metres, about

4.3 times the standard.

Centre for Science and Environment (CSE's) "exposure" monitoring using portable air quality devices indicated severe levels of pollution. "The levels of tiny particles had already increased seven times since October 1 this year. This left no room for additional pollution in the city, especially from crackers that not only push up pollution but also lace the air with deadly cancer-causing substances," said Anumita Roy Chowdhury, head of CSE's clean air campaign.

Delhi government's release showed a marginal improvement in air quality: The average concentration of oxides of nitrogen (NO₂) for the last 24 hours ranged from 37 to 79 micrograms per cubic metres while the range in 2014 was 32 to 194 micrograms per cubic metres. The average concentration of SO₂ on Wednesday was 26 to 64 µg/m³ as against 8 to 87 µg/m³ last year.

The highest PM 2.5 levels were recorded at R K Puram, where the average of 369 micrograms per cubic metres was about 6 times the national stan-

dard and 14 times the WHO standard. The lowest level was at Civil Lines — 184 micrograms per cubic metres. The situation was no different in other locations like Mandir Marg and Anand Vihar. At Anand Vihar, PM 10 levels had reached a whopping 2,000 mi-

crograms per cubic metre, 20 times the safe standard.

But Delhi Pollution Control Committee

(DPCC)'s real time data that TC

tracked on Wednesday night and Thursday early morning showed a very rapid and severe build-up of pollutants between 8pm and midnight. At R K Puram, for instance, which pretty much represents the entire south Delhi, PM 10 levels started rising rapidly from 8pm to reach 1,320 µg/m³ by midnight and levels of fine, respirable pollution particles that have serious health impacts peaking to 734 micrograms per cubic metres, which is about 12 times the national safe standard for 24 hours.

While these were the peak levels and they are usually not compared with ambient air standards, experts said the pe-

aks reflect the dramatic drop in air quality due to firecrackers.

The CSE team moved with their portable air pollution monitoring devices in different parts of the city — Paharganj, Rajendra Nagar and Karol Bagh in the west; Lajpat Nagar in the south; Mayur Vihar, Patparganj and Laxmi Nagar in the east; around Dhaula Kuan in southwest Delhi and Sita Ram Bazar in old Delhi.

Overall, people breathed an hourly average that was at least three to four times higher than the ambient monitoring recorded at the DPCC stations, according to CSE researchers. After 8.30pm, for instance, Mayur Vihar Phase I recorded one-hourly average level of PM 2.5 as high as 1,763 microgram per cubic metre. In Patparganj, PM 2.5 had peaked to 2,114.

CSE's analysis of DPCC's data revealed SO₂ build up at certain locations was dramatic. "SO₂ levels are not a problem in Delhi any more. During pre-Diwali days on November 6 and 7, the SO₂ level was as low as 23 but on Diwali, the higher range in 24 hours reached 64 microgram per cubic metre — an increase of 2.6 times," it said.

SO₂ levels peaked to 250 micrograms per cubic metres. Depending on the exposure, SO₂ inhalation can lead to bronchoconstriction (inflammation, constriction of air ways) and aggravated asthma symptoms, while PM 2.5 pollutants are so tiny that they can enter the blood stream. The combination of these two becomes deadly and many people complained of burning eyes and respiratory discomfort through Wednesday night.

Noise pollution at three of five locations monitored were higher than last year's levels.

Ashwani Kumar, environment secretary, Delhi said, "There has been definitely a positive impact from awareness and campaigns. We have to go by 24-hour average and not peaks. Let's not overlook the improvement."



LET DELHI BREATHE



THAT CHOKING FEELING: The city was wrapped in a smog blanket on Diwali night

The Times of India, Delhi dated
November 13, 2015

After the fireworks, the cleaning nightmare

Corpsns Struggle To Clear The Mess Left Behind By Diwali

TIMES NEWS NETWORK

New Delhi: Usually, at 2.30pm, sanitation workers troop in after their eight-hour shift to mark attendance at East of Kailash's Malaria Prevention Centre, where a biometric machine has been installed. But on Thursday afternoon, it wore a deserted look. The explanation came from sanitary inspector Salekh Singh at the municipal corporation's office a few yards away in Kalka Garhi village. He explained that the workers had been exempted from the afternoon exercise as they had toiled hard the morning after Diwali.

Eight auto tippers had been employed to clean up Garhi Bazaar when normally just four would have done. "The waste around is unbelievable. The *gallis* too are inexplicably dirty and our staff is tirelessly working to clear the remains of firecrackers, flowers, puja samagri, etc.," said assistant sanitary inspector Vijay Kumar.

The duo are looking at a taxing Friday. "Tomorrow being Bhai Dooj, the women workers want to leave early, but that will leave our staff of 25 further stretched," said Singh. The Ward 94 workforce is just a fraction of the army which cleaned up the mess created by a citizenry that paid little heed to the appeal for a cracker-free Diwali. In addition to Garhi's 25, on the streets were 22,000 safai karamcharis in the South Delhi Municipal Corporation, 28,000 in the North Corporation and 15,000 in the East Corporation.

With crackers being burst into the early hours of Thursday, not only was it a nightmare for safai karamcharis, but it was a hygienic nightmare for the city's major markets too. At midnight, Lajpat Nagar's Central Market had mounds of flower



Photos: Sarveer Rastogi, Sanjay Seehri



ROADS AS DUSTBINS: Streets and lanes were strewn with burst crackers and puja items

and mango-leaf garlands rotting on the street corners. Unsold perishables were also dumped by roadside hawkers and pushcarts.

In East Delhi, the roads were strewn with trash, from plastic bags to empty fireworks cartons. "A day after Diwali, every place is a mess. Residents simply dump all the Diwali waste on the roads," said Manoj Singh, a safai karamchhari in Laxmi Nagar. "On a regular day,

we start working after 7am, but on days like this we have no other option but to start early."

Clearing the mess in Laxmi Nagar, which has been the scene of stinking ugliness due to the strike by sanitation workers, took at least 10 rounds of auto-tippers, five times what it normally involves on a normal day. "It almost seems that sanitation workers don't have festivals. People celebrate the festivals

and the next morning we forego our holidays to clear their mess, and yet we are ill-treated by everyone," he said, justifying the on-going strike of the sanitation unions.

The strike did affect the cleaning operations to an extent, leaving those who have been reporting for duty overburdened. "If all the karamcharis had been working then the workload would have been bearable, but this year things are a bit out of control. In east Delhi, many safai karamcharis are on strike and as a result we had to do their share of work too," said Manoj Singh.

Meanwhile, the striking safai karamcharis are in no mood to return to work. "We will not resume work unless our demands for payment of salary arrears and regularisation of employment for contractual workers are fulfilled," said Sanjay Gehlot, president of the Swatantra Majdoor Vikas Sanyukt Morcha, a grouping of 27 sanitation workers unions.

The Times of India, Delhi dated November 14, 2015

The Times of India, Delhi dated November 17, 2015

Worm that 'eats up' plastic discovered by scientists

Beijing: Chinese scientists have discovered a method to decompose stubborn plastic waste with the help of a worm that can fully digest and degrade it into carbon dioxide and nutrition.

The finding was jointly published in the peer-reviewed scientific journal *Environmental Science & Technology* by professor Yang Jun, from Beihang University, and Dr Zhao Jiao, from the Shenzhen-based genomics organisation BGI.

Their research proved that the larvae of *Tenebrio molitor*, also known as yellow mealworms, can be fed with polystyrene, one of the



POLLUTION CONTROL MECHANISM

most stubborn in the plastic family, state-run China News Service reported on Friday.

The plastic can be fully digested by the worm and degraded into CO2 or nutrition for the worm. #1

The Times of India, Delhi dated November 15, 2015

Apps to warn against capital's deadly air

Health Advisories Also Part Of The Package

TIMES NEWS NETWORK

New Delhi: If you want to plan your day according to the city's air quality, there are now apps to give you this data instantly. Greenpeace India, an environmental NGO, recently launched an app that not just gives you real time air pollution levels from a monitoring station near you, but also issues a health advisory tailored for different age groups.

The Clean Air Nation app by Greenpeace can be downloaded from the Google Play store at: <https://play.google.com/store/apps/details?id=io.gonative.android.robz>

Shivanandam L, technology manager at Greenpeace, who developed the app said, "As a father, I wanted to do something to highlight the dangers school children face. The obvious answer would be to reduce emissions. But in India that's not going to happen so quickly. Do people need to continue suffering from hazardous particulate pollution or can we introduce preventive measures now?"



SMOGGING TIMES AHEAD

Once users download the app, they can go through the air quality data for different cities as provided by NAQI (National Air Quality Index), released by the Central Pollution Control Board. Depending on the levels, the app will also list precautionary measures for children, elders and pregnant women.

For instance, at 6pm on November 14, the AQI at Mandir Marg was 383 with PM2.5 as the lead pollutant. The precautions were—children, pregnant women and elders should avoid going outdoors and the health warning read: enti-

re population is more likely to experience acute health effects. Long-term health effects associated with this level of exposure are very severe.

"We developed this advisory based on those issued in cities like Beijing or Singapore. Singapore, for instance, issued a detailed advisory during the smog episode," said Nandikesh Sivalingam of Greenpeace. The ministry of earth sciences had also launched an app called 'SAFAR-Air' which provides a forecast for the next two days and a health advisory along with a colour-coded grading of air quality for cities.

Foul Air Making Diseases Tougher to Treat : Doctors

Durgesh Nandan Jha @timesgroup.com

DELHI: Is your cough and cold persisting for more than two weeks? Blame the air. Doctors say the high pollution in Delhi is aggravating



inflammation of the nose and the lower respiratory tracts, making viral infections and related disorders persistent and difficult to treat. "Cough and respiratory distress due to viral infection

antibiotics and steroids," said Dr Arun Basu, chest specialist at Sir Ganes Ram hospital.

Doctors report a spurt in such cases over the past three weeks, coinciding with the drop in the city's air quality.

Dr Vivek Nanda, head of pulmonology at Fortis hospital, said he was getting 20-25% more patients with persisting symptoms. "Young adults suffer more because they are more exposed to pollutants. I get many patients who find it difficult to do their job or concentrate on studies in spite of taking medicines," he added.

Air filters now tools to fight pollution at home

Continued from P1

Rhinitis, pharyngitis and sinusitis are some of the common conditions affecting the upper respiratory tract during this season. Lower respiratory tract is afflicted in pneumonia, bronchitis, asthma and chronic obstructive pulmonary disease (COPD). Pollutants such as particulate matter (PM 10 and PM 2.5) affect the functioning of both airways.

"Normally these infections subside on their own in a week or two. Antibiotics are prescribed to control secondary infection in persistent cases. Steroids are given in rare cases to relieve symptoms. However, both have known side-effects. While the use of antibiotics for common illnesses like cold and flu predisposes a person to increased resistance to the drug, the steroids can cause side-effects such as weight gain, increase in sugar levels and lower immunity," Dr Basu added.

Dr Suranjit Chatterjee, senior consultant, internal medicine at Apollo hospital, said viral infection and pollutants together cause bronchial hyper-reactivity, characterised by easily triggered spasms, or contraction of the airways.

Dr Nangia said the emergency wing of this hospital had received more than a dozen patients with severe breathing difficulty on Diwali, when pollution levels had peaked. "The number has since decreased but we continue to get such patients. There are many elderly and those with pre-existing illnesses who have to be admitted to tide over complications caused by lack of oxygen and breathing difficulty," the doctor said.

The geriatric division of AIIMS has also witnessed an increase in admissions over the past few weeks. "The risk of heart attacks and strokes also increases during winter. Pollutants indeed play a role

in winter, toxins get trapped closer to the ground and enter the respiratory tract, causing inflammation. Doctors at AIIMS said the risk of heart attacks and strokes increases during winter and pollutants also play a role in it

in it," said a doctor.

In summer, pollutants tend to rise and disperse due to heat but in winter months, toxins get trapped closer to the ground. These pollutants enter the respiratory tract causing inflammation, the doctor said.

An increasing number of residents are getting air filters installed in their houses to save themselves from the impact of pollution. "My three-year-old son has asthma. He cannot sleep or study due to breathing difficulty de-

spite medications. What option do I have (but to install air-filters)?" said Rajat Saxena, who lives in Greater Kailash-I.

Dr Nevin Kishore, who heads the pulmonology division at Max hospital Saket, advised other preventive measures. "Installing air purifiers is not necessary. Simple things like avoiding crowded areas during peak traffic hours, eating a healthy diet to boost immunity and taking rest if you catch the infection can help you stay healthy," he said.

TAKE CARE, IT'S BAD AIR

COMMON WINTER AILMENTS

- Respiratory problems such as aggravation of asthma and chronic obstructive pulmonary disease (COPD)
- Pneumonia
- Flu

THOSE AT HIGH RISK

- Children, elderly, diabetics, COPD and heart patients, immune-compromised patients

WHAT DOCTORS FEAR?

Many patients are taking multiple antibiotics and steroids for faster relief. While that can help, there is a risk of reduced immunity and other side-effects

PREVENTIVE MEASURES

CHILDREN | Should avoid playing in dust; wear mask when 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 who are dependent on public transport; wearing mask is advisable but not necessary for everyone; one should drink plenty of water

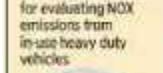
ELDERLY | Avoid early morning walks, get vaccinated for seasonal influenza, contact doctor for unusual cough or breathing difficulty



The Times of India, Delhi dated
November 17, 2015

Experts highlight gaps in emission norms

NOT ENOUGH CHECKS TO CURB POLLUTION

<p>Current smoke opacity tests for PUC are too lenient</p>	<p>VISUAL CHECKS</p>		<p>SMOKE OPACITY TESTS IN INDIA</p>
<p>INDIA: 50 HSU for BS-IV vehicles and 65 HSU for pre-Euro IV diesels vehicles</p>	<p>Hong Kong: Spotter programme— More than 5,000 trained (citizen volunteer) spotters resulted in thousands of vehicles being repaired each year</p>	<p>Many other countries have hotlines where consumers may call to report smoky vehicles. But these programmes can only reduce visible smoke, not health-damaging fine particles and NOx.</p>	<ul style="list-style-type: none"> ▶ No accurate correlation found between smoke readings and particulate matter mass ▶ PM and NOx emissions cannot be tested
<p>SINGAPORE: 40 HSU</p>	<p>HONG KONG: Soap-idle test on chassis, smoky vehicle programme</p>	<p>Indonesia, Thailand, Hong Kong, Malaysia: 50 HSU for all vehicles</p>	<ul style="list-style-type: none"> ▶ Hong Kong and China have introduced smoke tests on chassis dynamometer for diesel vehicles. Smoke readings get affected by other pollutants ▶ There is need for improvement in recognition, stability and noise to allow opacity measurements in advanced diesel engines
<p>PAKISTAN: 40 HSU</p>	<p>China is developing a nationwide inspection/maintenance system for evaluating NOx emissions from in-use heavy duty vehicles</p>	<p>WHY INDIA IS VERY VULNERABLE TO A VOLKSWAGEN-TYPE FRAUD?</p>	<p>WHY INDIA IS VERY VULNERABLE TO A VOLKSWAGEN-TYPE FRAUD?</p>
<p>INDONESIA, THAILAND, HONG KONG, MALAYSIA: 50 HSU for all vehicles</p>	<p>Very poor PUC regime to test emissions from on-road vehicles</p>	<p>PUC cannot prevent emission frauds or poor emissions performance of diesel vehicles</p>	<p>India has already introduced more sophisticated onboard diagnostic systems in post-2013 vehicles, which can be implemented to check if the vehicle is meeting various parameters</p>
<p>It is not even designed to test tiny particles and NOx, a key concern</p>	<p>India has already introduced more sophisticated onboard diagnostic systems in post-2013 vehicles, which can be implemented to check if the vehicle is meeting various parameters</p>	<p>VW case shows that diesel vehicles are finding it harder to meet the ever-tightening emissions standards across the world. It is an engineering challenge for diesel vehicle makers to reduce both toxic particulate matter and nitrogen oxide significantly while achieving improved fuel efficiency</p>	<p>Allow testing or certification agencies (like ARAI) to select any vehicle, anywhere, and at any time, without prior notice to the manufacturer. Ensure a truly random sample</p>
	<p>Volkswagen was caught cheating on NOx emissions</p>		

Claim India Is Also Vulnerable To Volkswagen-Like Fraud

TIMES NEWS NETWORK

New Delhi: Taking a serious note of the recent Volkswagen emissions scandal, experts on Monday said India is also vulnerable to such fraud due to its weak emission regulations. In a workshop titled, "Urban air quality challenges and strategies to reduce emissions from in-use and new vehicles" organized by the Centre for Science and Environment (CSE), they highlighted how oxides of nitrogen (NOx) and particulate matter (PM) emissions from diesel vehicles are not being monitored at all in India.

Volkswagen had fitted "defeat devices" which allowed diesel cars to pass the certification test but reduced the severity of the emissions control system once the vehicles were out on the road.

"The technical ingenuity of the Volkswagen corporate fraud has exposed weakness and gaps in the emissions regulations in India, like many other regions that allow industry to compromise on emissions performance of vehicles. This makes India extremely vulnerable as it is motorizing

and dieselizing rapidly without the right regulations and compliance framework for manufacturers," said Arunima Roy Chowdhury, executive director, CSE.

Experts said that improving fuel standards alone may not help address toxic pollution from diesel and that India should adopt a strict inspection and monitoring (I&M) programme as is the practice in the US. Automotive Research Association of India (ARAI) has tested some Volkswagen models sold in India recently for the emission lapses but that report is awaited. "It is very confidential. We will submit it to the transport ministry soon," said Amita Baikerikar, deputy director at ARAI.

The current pollution under control (PUC) system, the only test to check emissions from on-road vehicles, is too weak to address the issue. While petrol cars are tested for carbon monoxide and hydrocarbons, along with lambda (that indicates the optimum condi-

tion needed for proper functioning of catalytic converters), diesel vehicles are tested only for smoke density. There is no system yet to assess NOx and PM emissions for four-wheelers. This obviously means even grossly emitting vehicles can get away. On the other hand, all vehicles manufactured post 2013 have an on-board diagnostic system (OBD), a technology that can detect any

malfunction but this is not being leveraged to the improve vehicle inspection programme.

Bhure Lal, chairman of the Environment Pollution Control Authority (EPCA), stressed the need for a stringent I&M regime in India. "Delhi was supposed to have three-four I&M centres, now even the only one at Burari isn't functioning. We need flying squads to check for visibly polluting vehicles. Old vehicles should be taxed more. The rule that those with PUC certificate cannot be challaned should be revisited," he said describing how the PUC system itself is a fraud where the

certificate can even be obtained without sending the vehicle to the PUC centre.

CSE's analysis shows that currently vehicle certification agencies do not select vehicle samples randomly. In fact, they give prior notice to manufacturers about the approximate time during which samples will be collected from a given lot. "Consistent with the global best practice, India needs independent authority to check emissions against standards to be set for half-life and full life of the vehicles; companies should recall vehicles if they are found non-compliant..." CSE said.

Balraj Bhanot, former ARAI director and chairman of transport engineering division of Bureau of Indian Standards (BIS), cited the example of an automated inspection and certification (I&C) centre in Nashik where only about 7-8% vehicles pass the test.

Experts stress the need to increase the number of I&C centres, revamp the PUC system, use findings from the OBD technology available for vehicles and crackdown on smoky vehicles.



LET DELHI BREATHE

The Times of India, Delhi dated
November 17, 2015

Fighting Climate Change Together

As Paris UNFCCC meet looms, US and India must join forces to save the planet

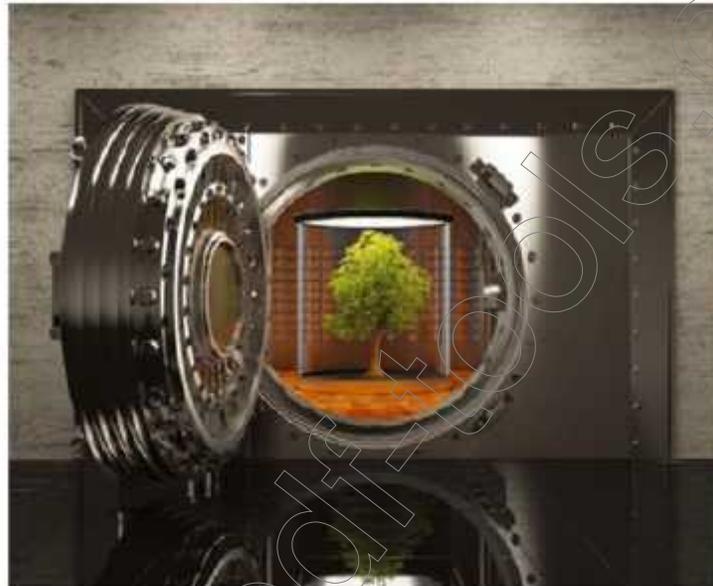
Richard Verma



"Sanjha Prayas, Sabha Vikas; Shared Effort, Progress For All. Each step we take to strengthen the relationship is a step towards shaping international security, regional and global peace, prosperity and stability for years to come." In the Delhi Declaration of Friendship, President Barack Obama and Prime Minister Narendra Modi affirmed the natural affinity between the US and India and challenged our nations to turn our relationship into one of the defining partnerships of the 21st century. This commitment to work together for the benefit of humanity can be a great force for good when put into practice.

President Obama and PM Modi recognise that climate change presents a profound threat to humanity and to the imperatives of sustainable development, growth and the eradication of poverty. Meeting this challenge will require ambition, creativity and innovation by everyone: national and local governments, private enterprise, civil society, responsible citizens and especially the world's major emitters. Our actions on the road to Paris—the 21st Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC)—will shape global security and can help deliver peace, prosperity and stability for generations to come.

At present, more than 150 countries—representing over 85% of global emissions—have submitted official climate action pledges to reduce greenhouse gas emissions. These pledges, called Intended Nationally Determined Contributions, or INDCs, represent a crucial first step in what we hope will be an iterative process for countries to ramp up their efforts to reduce emissions and help limit global temperature rise to below 2°C. The US recognises the part we have played in contributing to climate change, and we are taking significant steps to reduce our own greenhouse gas emissions. Carbon pollution in the US is near its lowest level in almost two decades, while the economy has grown by over 77% in the same



period. The US is working to further reduce carbon pollution by 50-55% below 2005 levels over the next 10 years, doubling our current rate of decarbonisation.

India's INDC includes targets to significantly increase non-fossil fuel electricity generation capacity and expand India's forest carbon sink, both highly praised efforts that build on the already ambitious policies initiated by the Modi government.

It is truly impressive that India will undertake these efforts during a period when its economy is expected to grow by more than 3.7 times from current levels. It means that even as India's economy leaps forward, it will be taking action to ensure that emissions growth slows. This is a worthy and ambitious goal, and in future years I hope that the US and India can stand side by side and deepen our ambition.

The US strongly supports India's efforts, and our countries are working together to tackle the challenge of reducing emissions and countering climate

change. I believe that our countries can do even more together. As PM Modi has stated, the promise of the US-India relationship is what both countries "can do together for the world". Together, we are tackling many challenges that extend beyond our own borders: we are working with farmers in Africa to improve food security; our scientists are sharing findings from Mars-orbiting satellites; and we have joined forces to advance the multi-stakeholder model of Internet governance.

We know that when we work together and rely on the strengths of our populations, we are better positioned to solve the challenges of today and tomorrow. Our nations are made up of citizens with brilliant minds, a thirst for innovation and a drive to make a positive impact on the world. We are capable of developing technologies, policies and products that can reduce emissions and combat climate change.

PM Modi has called upon India to take a leading role in the fight against climate change, and the US welcomes India's leadership. As we set our sights on multilateral climate deliberations in Paris next month, our two nations have the opportunity to cooperate for the benefit of humankind.

US applauds the launch of India's Solar Alliance, an innovative effort to collectively leverage the benefits of solar energy

An agreement in Paris will inevitably be imperfect. This first step in Paris—a collective step of all nations—will not be easy and will not satisfy every party. But it is important that we take that first step towards avoiding catastrophe by holding our planet's warming below 2°C—an objective agreed upon by the community of nations.

Beyond the horizon of time, our children and our children's children are watching us. We must create a legacy and protect the planet for future generations by working together, leaning on clear direction from our leaders, and drawing upon the collective strengths and expertise of our people. As our nations and our people look to tackle challenges beyond the confines of our borders, nothing should demand our attention more than the threat of climate change. *Chalein saath saath!*

The writer is the US Ambassador to India.

The Times of India, Delhi dated November 18, 2015

Yamuna choking on drug overdose

Researchers Say Antibiotics Harm Flora & Fauna; May Be Behind Spike In Diabetes, Cancer

Durgesh Nandan Jha
@timesgroup.com

New Delhi: Think before you pour leftover antibiotics down the drain. They wash into the Yamuna and harm the plant and animal life dependent on it. And now, doctors suspect, they may also be a reason for the increase in cases of diabetes and cancer.

Researchers from AIIMS have found that the river is awash with antibiotics and chemicals used in household floor cleaners. Most of the antibiotics detected in the water samples are prescribed for cold and flu, respiratory tract infections, pneumonia and tuberculosis.

Dr T Volpandian, lead researcher of the study, said the concentration of drugs in water may be causing many serious diseases. "My patients are not diabetic. Still, I have got the disease. Lifestyle alone cannot be the cause of it. There is emerging evidence for the role of environmental factors in it. Antibiotics that enter our food chain through water sources could be one," he said.

DANGER ELEMENTS IN RIVER

PLACES FROM WHERE THE WATER SAMPLES WERE TAKEN
Yamuna Vihar, Jasola, Kailodi Kunj, Indraprastha station, Noida bridge and Wazirpur border

THE COMPOUNDS THEY WERE TESTED FOR

- ▶ Antibiotics such as norfloxacin, ofloxacin, gentamicin, amoxicillin and azithromycin, among others
- ▶ High-volume chemicals: Paraquat (weed killer used in farming), Tetraethylammonium (industrial waste) and Benzalkonium chloride (chemicals found in floor cleaners)
- ▶ Pralidoxime, a rare drug used as antidote in poisoning cases

IMPACT

- ▶ The researchers grew chickpea in normal water and those contaminated with antibiotics to assess the impact. While the former grew well, the latter was found to have retarded growth



FINDINGS The presence of antibiotics was confirmed through test of the samples; significantly high levels of chemical used in floor cleaning was also found in the water

- ▶ On human beings, doctors say, further researcher is needed to assess the possible link between presence of antibiotic in the environment and increased incidence of diabetes and cancer

THE WAY OUT

- ▶ The fluid waste being drained into Yamuna must be treated
- ▶ Disposal of medical waste, particularly the antibiotics used at home, should be proper. It shouldn't be thrown into the drain
- ▶ Strong policy measures, such as ban on over-the-counter sale of high-end antibiotics must be enforced

The water samples were collected along the river at Yamuna Vihar, Jasola, Kailodi Kunj, Indraprastha Station, Noida Bridge and Wazirpur border. "We initially thought only the samples collected from spots near a health facility

would test positive for inactive compounds such as antibiotics. But we found all the samples had antibiotic residue. It could be because most people throw away their unused antibiotics and these find their way into the river through the connecting drains. Fecal contamination is another route," Dr Volpandian, who is an ocular pharmacologist at AIIMS, said, adding that household disinfectants are also adding to the river's burden of harmful chemicals.

The study also showed that water polluted with antibiotics retards plant growth. "The researchers grew a batch of chickpeas (chhole) in clean water and another in water containing antibiotics. The second batch of plants was stunted. "The impact in humans could be worse," said a researcher.

Doctors say wastewater should be treated before it flows from the drains into the river and people should be educated about safe disposal of unused drugs and industrial waste.

Dr M C Misra, director, AIIMS, said there is rampant misuse, abuse and overuse of antibiotics in India. "If urgent action is not taken to check this, we might be starting at a health crisis. In the last decade no new antibiotics have come up while the existing ones are proving ineffective in treating many patients," he said.

To highlight the issue of widespread misunderstanding about antibiotic resistance, World Health Organisation recently conducted a survey. About 75% of the respondents in India, the survey revealed, believed cold and flu can be treated with antibiotics, which is incorrect.

The survey conducted in 12 countries and released in Geneva on Monday said in India, only 58% of the respondents know that they should stop taking antibiotics only when they finish the prescribed course. Dr Misra said antibiotic resistance is a global health crisis but countries like India are more at risk due to the higher burden of infection necessitating antibiotic usage.

The Times of India, Delhi dated November 19, 2015

Vehicles bane of Delhi's air: US scientist

Says India Should Set Up Regulator On The Lines Of US EPA

Jayashree Nandini
@timesgroup.com

New Delhi: On July 26, 1943 residents of Los Angeles woke up wondering whether they had been chemical-bombed. The city was in the grip of its first serious smog. The main culprits were LA's vehicle boom and factories. Srikanth S Nadadur, US Embassy science fellow who has just completed his three-month assignments in India on air pollution research, says vehicles are Delhi's bane as well.

It is a position the automobile lobby will fiercely contest, but Nadadur said, "My understanding is that most of the emissions are from transport. Hence the (research) focus is on taking about moving the trucks out of (Delhi). However, India needs a regulatory agency. The US Environment Protection Agency".

Nadadur said on Wednesday that a community of scientists from India and the US is being formed to plan for integrated air pollution and health research in India. He was sent to India following an agreement for bilateral cooperation on air pollution



LA'S SMOG FIGHT
DANGER IN THE AIR Children living near highways show long-term loss in lung function

Living within 75m of a major road increases risk of asthma

Proximity and high density of traffic and industries linked with wheezing, asthma, and allergies (due to higher IgE levels) in children

1933 | Los Angeles in California, USA, experiences first severe smog
1947 | California state gets air pollution control Act; gov't cracks down on backyard burning, open burning at garbage dumps and factory emissions.
1959 | California Motor Vehicle Pollution Control

Board set up; vehicle exhaust emissions regulated
1967 | California Air Resources Board formed
Ozone levels in LA touched 800 parts per billion (US standard is 75ppb) and PM10 exceeded 600µg/m3 (four times the standards) before regulations improved the situation

research during US President Barack Obama's January visit. The objective of his assignment was to make a collaborative effort with Government of India to see "if scientists can drive policy". Nadadur, who is also the programme director of National Institute of Environmental Health Sciences in the US, met scientists from Council of Scientific and Industrial Research (CSIR) institutions like the In-

stitute of Genomics and Integrative Biology, Indian Institute of Toxicology Research, Chest Research Foundation in Pune, Indian Institute of Tropical Meteorology, Institute of Technology, etc. Need scientists and doctors like AIIMS pulmonologist Randeep Gulati and IIT professor Manju Mohan will be part of the scientists' consortium. The project will cover public health, exposure assessment and training.

Indian institutions have researched the health impacts of air pollution in a piecemeal way without looking into its link with diseases, Nadadur said.

"There is some basic research with animal model studies but population studies are needed. There are lots of studies on mortality (death rate) due to air pollution but not morbidity (disease). We need to know how air pollution is exacerbating existing health conditions," he said.

Experts brainstorm over pollution

Times News Network

New Delhi: Public health experts on Wednesday cited numerous scientific studies to show the devastating impacts of air pollution on health and said that Delhi and the rest of India should not delay action to check this trend. Their presentations were part of a panel discussion organized by the US embassy called "Your breath is your health".

Srikanth S Nadadur, US Embassy science fellow, for instance, gave examples of long term studies where people have been tracked for years to see what health impacts they had developed over 15-16 years of follow-up due to exposure to poor air.

A landmark study carried out by Harvard's School of Public Health on six US cities in 1994 revealed a strong link

between air pollution and mortality. Researchers had found a difference of two to three years in life expectancy depending on how polluted each subject's city was. EPA had to put new air quality standards in place following the revelations.

Nadadur's presentation also quoted a number of studies, which point at a very strong correlation between air pollution and mortality. Researchers had found a difference of two to three years in life expectancy depending on how polluted each subject's city was. EPA had to put new air quality standards in place following the revelations.

"There is evidence to show that exposure to diesel particles can increase systolic blood pressure, which could be dangerous for those with heart conditions," Nadadur said adding other health impacts like oxidative stress in the lungs and "chronic inflammation". But India hardly has any such epidemiological studies yet.



Deccan Chronicle, Hyderabad
dated November 19, 2015

Solar power from TS buildings

DC CORRESPONDENT
HYDERABAD, NOV. 18

The TS energy department has identified 46 lakh square feet of roof-top space on government buildings in the city for solar power generation. It will soon invite tenders from private firms for this and hopes to generate around 80 MW of power.

Discoms will buy solar power from private companies.

Power producers will be asked to submit bids to

take up the project. The project would be divided into four to five bids. Later, Discoms will enter into power purchase agreements (PPAs) with private producers.

Energy secretary Arvind Kumar told *Deccan Chronicle* that they are working on the proposal and will soon finalise guidelines.

Depending on its success private buildings would also be identified (if owners are willing) and solar projects would be taken

up on roof tops in a big way. "Rents will be paid to owners. We will decide tariffs," he said.

Roof-top solar power projects have been successfully executed on government buildings in Madhya Pradesh and around two MW is being generated.

The Telangana project would be the biggest roof top solar energy project in India, he said.

However, the Telangana energy department does not have data about the

capacity of existing roof top solar plants in the city and is planning an audit.

Several private buildings in the city have solar roof-top projects,

Telangana State Southern Power Distribution Company Limited Chairman and Managing Director Raghuma Reddy said they would pay lease fee to all government departments whose buildings are used for generating solar power.

'Coal plants cheaper option in climate war'

Suit India Better Than Renewables: Coal Body

Sanjay.Dutta@timesgroup.com

New Delhi: It would be cheaper for India to reduce global carbon emissions by investing in hi-tech and more efficient coal-fired power plants than pumping an equivalent amount into European renewables, according to the London-based World Coal Association (WCA).

The cost of saving a tonne of carbon dioxide (CO2) — the main agent of global warming — through 2035 would work out to nearly \$10 per tonne by replacing sub-critical (old) plants with 'super-critical' and 'ultra-super-critical' coal technology the London-based body says in a yet-to-be published report.

"In comparison, abating a tonne of CO2 through deployment of large-scale solar plants can cost up to \$40/tonne, even accounting for the cost declines expected through 2035 (\$16/tonne under a low weighted average cost of capital and low capital cost scenario)," the report says.

India is the world's third-largest coal producer and has set a production target of 1.5 billion tonne by 2020.

POWER OF BLACK GOLD

Total installed capacity | 280 GW (170 GW coal-fired)

Population without power | over 500 million

Expected annual growth in power demand | 4%

Proven coal reserves | 123 billion tonnes (good for 100 years)

Estimated reserves | 299 billion tonnes

Projected installed coal-based capacity | 500 GW by 2040

Coal-fired capacity in planning stages | 292 GW

Coal-based capacity added since 2010 | 87 GW (61 GW sub-critical)



Additional coal-based capacity expected to come online by 2018 | 88 GW (32 GW sub-critical)

Target for renewables by 2022 | 175 GW (100 GW solar, 40 GW rooftop solar)
Investment required through 2040 | \$1.2 trillion

Simultaneously the government has also set a target of 175 giga-watt of renewables capacity by 2022 as part of its climate mitigation plan.

Based on independent research commissioned by the WCA, the report said renewable technologies in India could result in high rate of reduction in emissions but would not provide the scale of generation growth required to meet electrification targets.

Coming ahead of the Paris talks, the report could be seen as putting the onus on the West to provide finance and technology, and bolster the broad position taken by the developing economies.

"India has highlighted a role for high-efficiency low-emission technology (HELE) in its INDC (Intended Nation-

ally Determined Contributions). It's clear that given the climate benefits of focusing on HELE technology, there is a role for the international community — including through development banks and climate finance — to support the deployment of HELE technology in India," the WCA chief executive Benjamin Sporton said in an email reply to a TOI query.

The report expects coal to remain the mainstay for power generation through 2035 owing to abundance of reserves, low domestic prices and limited gas availability; even though competitiveness of renewables and gas-fired technology is likely to improve over time.

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

The Times of India, Delhi dated
November 19, 2015

The Times of India, Delhi dated
November 23, 2015

'Make Car-Free Day regular for clean air'

Less Traffic Volume Made A Difference: CSE

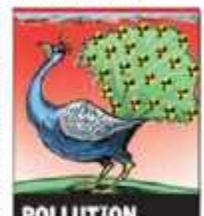
Times News Network

New Delhi: The effectiveness of car-free day in reducing Delhi's air pollution levels is massive, provided it's not just a monthly affair. This was opined by Centre for Science and Environment, which had taken up the task to monitor the effect of the event on pollution.

On Sunday CSE compared the particulate pollution levels on the car-free road in Dwarka and a heavy traffic stretch from Dhaula Kuan to Patel Chowk using their portable air pollution monitoring device. The PM2.5 (fine, respirable pollution particles) levels on the car-free road were found to be half in the heavy traffic stretch.

This reduction in PM2.5 levels was also seen in the monitoring done by Delhi Pollution Control Committee (DPCC). Due to lower traffic on Sunday the average ambient PM2.5 levels dropped by 21% in the city. "The car-free initiative as well as the low traffic load on a Sunday has helped lower pollution levels and toxic exposure in the city. Even though the overall winter pollution is high, the reduction in traffic volume has made a difference," said a statement by CSE.

CSE compared the particulate pollution levels on the car-free road in Dwarka and a heavy traffic stretch from Dhaula Kuan to Patel Chowk on Sunday



POLLUTION FLIGHT		PM2.5	
AIR QUALITY INDEX		Microgrammes per cubic metre	
Delhi	365	Very Poor	335
Tomorrow	347	Very Poor	315
Pune	53	Good	50
Tomorrow	52	Good	49
Mumbai	138	Moderate	130
Tomorrow	129	Moderate	122
Source: SANKHYA/STATSO (2015)			
Kolkata	91	Good	85

18 Delivery 2015 calculated as per Indian Standards IS 5946:2015-09:2015
Revision 1 | October 16th Per City Air

DPCC's city-wide average PM2.5 level of four hours in the afternoon on November 21 and November 22 had a huge difference. On November 21 the average PM2.5 level was 226 microgrammes per cubic metres and on November 22 it dropped to 177 mcg/cum.

CSE's monitoring is different from DPCC's as the portable monitor mainly measures a person's exposure to PM2.5 particles in real time. Exposure monitoring captures the pollution on road and the roadside that is influenced by direct emissions from vehicles within the breathing zone, say CSE researchers. This is normally higher than the ambient level.

During the car-free event, the PM2.5 level was 335 mcg/cum in Dwarka. This was much lower than the levels observed in the heavy traffic stretch between Dhaula Kuan and Patel Chowk when PM2.5 levels were 645 mcg/cum.

Delhi observed its first 'car-free day' on October 22, when the Kejriwal government kept a seven-km-long stretch between the Red Fort and India Gate free of vehicles. A World Health Organisation study last year said Delhi had the worst air quality out of the 100 cities surveyed worldwide.

The Times of India, Delhi dated November 23, 2015

Kumbh over, no one cares for Godavari

Two months since the Godavari was cleaned, the river is back to being a murky nullah choked with household waste, plastic and puja material dumped into it
Sumita Sarkar

Two months since the Godavari was cleaned for the Kumbh Mela in Nashik, the river is back to being a murky nullah choked with garbage of all sorts - household waste, plastic and puja material dumped into it during the recent festive period.

Residents have resumed washing clothes on the banks of the river, which has lost its usual placid flow after the Kumbh Mela, Navaratri, Diwali and the most-recent Chhath Puja. The new ghats, which were constructed for the 12-yearly religious congregation, have become dirty, a striking contrast to what it was a few months ago.

During the Kumbh Mela, water was released from the upstream dam to ensure that the river was periodically washed. But with scanty rainfall this monsoon and no water to release for maintaining the river's flow, it is unlikely that the Godavari will assume its pristine look before the onset of the next rainy season.

The Nashik Municipal Corporation (NMC) had put in months of hard work and planning to prepare the river ghats for the biggest religious congregation of the world hosted in the city every 12 years. After the event, the civic body seems to have lost its diligence and vigour, with one major consequence: the Godavari has become a murky nullah with foam, filth, plastic, used puja material and other garbage swirling in it.

"Washing vehicles has reduced but solid waste disposal and washing of clothes continue to pollute the river. The tributaries, particularly Nasardi, Kaplis and Waldevi, are the worst polluted," said green activist Rajesh Pandit.

This is not to say that littering and pollution had completely ceased during the Mela. Even during the event, foam formation was seen on one side of the Sangam bridge, and filthy water from the Nasardi met the Godavari on the other side of the ghats.

The NMC had installed a net on the view from the bridge to conceal the murky water from the view of the



RESIDENTS RUE

During our childhood, visiting the Godavari banks and having peanuts and bhel used to be a ritual every Sunday. But since the past decade, we stay away from the banks. Even a few months before the Kumbh Mela, the river and its banks were in a pathetic condition. Just before the Kumbh, the ghats got a facelift. Now, the condition of the ghats is the same as six months ago.

— Priyanka Patilkar | teacher

Months before the Kumbh, the river had a lot of waste floating on it. Sights of floating garbage and human faeces were common. People washed clothes and vehicles in the river. During the Kumbh, the situation improved. Now, it is back to square one.

— Piyush Joshi | private

ORGANIZATION EMPLOYEE

pilgrims. The net has been removed ever since.

During a hearing on the Godavari pollution, the Bombay high court last month observed that the river had become dirty after the Mela. The HC observed this in response to a September 5 letter addressed by the executive engineer, irrigation division to the district collector, requesting him to release water from the Gangapur dam for cleaning and washing away the filth accumulated in the river during the Kumbh Mela.

But this year's scanty rainfall induced the government to redirect a major share of the dam waters to the parched Maharashtra. And the river now has no means to wash away the garbage and rejuvenate its natural chemical and oxygen levels.

Pandit had filed a PIL against some government officials for being responsible for river pollution. Based on the HC's directions and National Environmental Engineering Research Institute's (NEERI) recommendations, the NMC made some permanent and temporary arrangements to arrest the pollution during the Kumbh.

NEERI is now working on the problem in collaboration with IIT-Powai to bring down the bio-

WATER QUALITY

► MPCB collected water samples from Ramkund, Tapovan, Tekdi, Sangam and Dasat in Nashik & Kushawari, Ahilya Sangam and Boda Udasin-Akhada in Tainbakeshwar during Kumbh.

► BOD was found between 3 and 9 mg-per litre on an average.

► Dissolved oxygen was found to be between 3 and 6 mg/litre on an average, recommended level is 5 mg/litre.

► NEERI director Rakesh Kumar said the BOD should be below 3 mg/litre for bathing.

► If there has been 10-time dilution of water, then it is fine.

COURT CONCERN

From December 6, 2012 till October 29, 2015, the Bombay HC issued several directions to curb river pollution. In its latest order after the Kumbh, the HC observed that the river has once again become dirty and appointed NEERI again to study and suggest long-term and immediate solutions to check the pollution of the river.



chemical oxygen demand (BOD) of the outlet of the sewage treatment plants (STPs). "The BOD of the STPs is in accordance with the specifications of the centre. But since the sewage water is not treated completely, NEERI suggested that it be brought down and they are working on it," said UB Pawar, the supervising engineer of the NMC's sewage department.

"The foam formation is our original problem but it is just an aesthetic issue. The increase in the foam formation is due to season change," he added. "The NMC put up boards all over the banks and bridges to prevent river pollution, has done phytotid treatment for water purification at Someshwar nullah, diverted the sewage released in the nullahs to the STP plants permanently and in two places - Anandwadi and Lendi nullahs. STPs is in accordance with the specifications of the centre. But since the sewage water is not treated completely, NEERI suggested that it be brought down and they are working on it," said UB Pawar, the supervising engineer of the NMC's sewage department. "The foam formation is our original problem but it is just an aesthetic issue. The increase in the foam formation is due to season change," he added. "The NMC put up boards all over the banks and bridges to prevent river pollution, has done phytotid treatment for water purification at Someshwar nullah, diverted the sewage released in the nullahs to the STP plants permanently and in two places - Anandwadi and Lendi nullahs. STPs is in accordance with the specifications of the centre. But since the sewage water is not treated completely, NEERI suggested that it be brought down and they are working on it," said UB Pawar, the supervising engineer of the NMC's sewage department. "The foam formation is our original problem but it is just an aesthetic issue. The increase in the foam formation is due to season change," he added. "The NMC put up boards all over the banks and bridges to prevent river pollution, has done phytotid treatment for water purification at Someshwar nullah, diverted the sewage released in the nullahs to the STP plants permanently and in two places - Anandwadi and Lendi nullahs. STPs is in accordance with the specifications of the centre. But since the sewage water is not treated completely, NEERI suggested that it be brought down and they are working on it," said UB Pawar, the supervising engineer of the NMC's sewage department.

The Times of India, Delhi dated November 24, 2015

City air nears Diwali level of pollution

TIMES NEWS NETWORK

New Delhi: For the past three days, Delhiites have been breathing air that's almost as noxious as the air during this year's Diwali, indicating a rapid deterioration in pollution levels caused by local emissions and weather conditions.

The air quality index is in 'very poor' category, close to the 'severe' zone seen during Diwali — a level that triggers emergency measures, such as shutting down schools, in many countries. And unlike during Diwali, the contribution from farm fire in neighbouring states is very low. Pollution has been rising since November 17, peaking to almost Diwali levels on November 21, 22 and 23, an analysis by SAFAR shows. These levels are worse than those in the same period last year.

► Vehicles key polluter, P 7

MAKING A DIFFERENCE

AMBIENT AIR QUALITY TWO DAYS BEFORE AND ON CAR-FREE DAY ALONG THE CORRIDOR

	Pancsheel Apartment, Sec 10, Dwarka		Pollution reduction (in %)	Ayushman Hospital & Dwarka Dheesh Apt, Sec 12, Dwarka		Pollution reduction (in %)	Near Police Chowki, Sec 3, Dwarka		Pollution reduction (in %)
	Nov 20	Nov 22		Nov 20	Nov 22		Nov 20	Nov 22	
SO ₂	5	4	20	7	5	28.6	9	8	11.1
NO ₂	57	44	22.8	123	85	30.9	318	140	56.0
PM ₁₀	511	375	26.6	454	421	7.3	544	497	8.6
PM _{2.5}	315	276	12.4	280	254	9.3	311	282	9.3

STANDARD AS PER CPCB NORMS | SO₂: 80, NO₂: 80, PM₁₀: 100, PM_{2.5}: 60 (All figures in µg/m³)
Monitored from 8am to 4pm on both days

Vehicles major source of pollution in winters

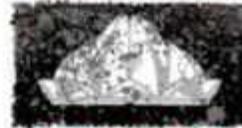
► Continued from P1

While the PM 2.5 (fine, respirable pollution particles) levels were about 260 micrograms per cubic metre on Diwali day, pollution subsided because of moderate winds.

Now, relatively calm weather and dropping temperatures have brought down the boundary layer (lowest part of atmosphere, trapping pollutants near the surface). On November 21, the average PM 2.5 level was as high as 240 micrograms per cubic metre and on Monday it was about 220 micrograms per cubic metre, which is 3.6 times the national standard. Monday also saw a grey smog hanging over the capital.

"There was no moisture in the air on November 21 and 22 which is why fog didn't form. But now, some cold winds have brought in moisture, which helps accumulate particulate

pollutants, which is making it very smoggy," said Gufran Bhat, project director, SAFAR. A study commissioned to IIT Kanpur to identify local sources of pollution in Delhi, is yet to be made public. Ashwani Kumar, environment secretary told TOI that the department is likely to have a



LET DELHI BREATHE

meeting with IIT scientists in December.

Kumar, however, acknowledged that vehicles are likely to be the major source of air pollution in winter followed by industry, thermal plants and others.

Delhi Pollution Control Committee's real time data showed PM 2.5 levels to be

more than 300 micrograms per cubic metres at most monitoring stations such as Punjabi Bagh, Anand Vihar and R K Puram between 8am and 12.30pm on Monday.

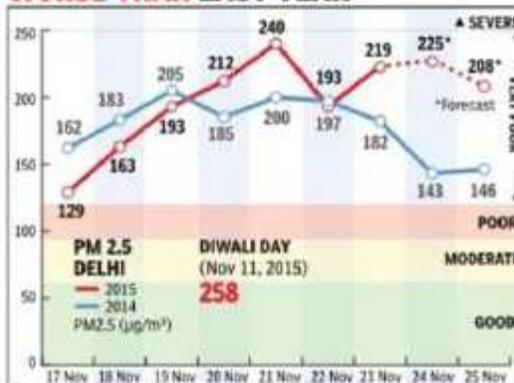
Nitrogen dioxide (NO₂) levels were also more than 100 micrograms per cubic metres in most areas when the standard is only 80 micrograms, indicating the role of vehicles and traffic in the city.

Central Pollution Control Board's national air quality index bulletin showed "severe" air quality in Delhi for three consecutive days. In such cases an emergency is declared in Beijing, kindergartens and schools are closed. Industries are also directed to shut down temporarily.

Experts are calling for emergency measures in Delhi too. "We have noticed a very rapid build-up of air pollution in winter months because of inversion effect. We found between October 1 and November, PM 2.5 levels were not just several times the standard but also increased by seven times. We have to be very careful and this is the time to take preventive steps from the public health point of view," said Anunita Roychowdhury, head of CSE's clean air campaign.

Meanwhile, DPCC's monitoring of various pollutants in Dwarka during the car-free day on November 22 has shown it can have a huge impact on air quality. Nitrogen dioxide (NO₂) levels, which can trigger immediate health impacts in people with asthma and other conditions, saw a reduction ranging from 20% to 55% in various parts of Dwarka.

WORSE THAN LAST YEAR



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dated November 24, 2015

Cut Carbon, not growth



B.K. Chandrashekar

The INDCs are ambitious and require strong policy support for successful implementation. It is in the states' own interest to participate in framing effective policies to help reach these targets.

Are countries which have not been responsible over decades, perhaps even over centuries, for huge greenhouse gas emissions, promoting global warming now obliged to cut on their CO₂ emissions in global interest? Even if they were, aren't Western industrialised countries morally and politically obliged to provide technology and funds to enable India and other industrialising countries to meet their goals — self-imposed or otherwise — of emission cuts? India's recent promise, for example, to lower its emissions intensity of GDP by 33-35 per cent by 2030 from 2005 levels is expected to cost around \$2.5 trillion. India about just cannot afford it.

In 2009, the United Progressive Alliance government made a bold policy statement, on cutting India's CO₂ emissions in response to continuing worldwide concern on global warming. Historically India was not responsible for carbon emissions and its per capita emissions was one of the lowest, not warranting any mitigation action.

Yet, the government declared its intention to reduce CO₂ to GDP intensi-

ty by 15-20 per cent in 2020, with reference to 2005 levels. A "National Action Plan for Climate Change" was also brought into being along with eight major missions, including missions for energy efficiency, solar, agriculture, and sustainable habitat.

The present government's equally bold, recent declaration of its "intended nationally determined contributions" towards climate change mitigation are both ambitious and realistic. It has now agreed to CO₂ emission cuts by 33 per cent to 35 per cent in 2030, from 2005 levels, and aspires to achieve 40 per cent power generation from non-fossil fuel sources. The Intended Nationally Determined Contribution (INDC) also recognises the need for adaptation in agriculture, water resources, health and disaster management. It makes it clear that emission cuts will not affect government's commitment to "sustainable development".

India is at a crucial stage in its developmental trajectory. Its the world's third-largest CO₂ emitter after China and the US, although its per capita emissions (two tonnes per capita) are well below those of the US (20) and China (9).

For example, India's per capita electricity consumption is a measly 800 kilo-

watt per hour as against that of China (2,500 kWh), the US (13,900 kWh) and Brazil (2,500 kWh). Nearly 50 per cent of our rural households lack access to electricity. Clearly we will take a long time catching up with Brazil, let alone the US and Europe.

So how does India achieve its twin objectives of sustainable development and lifting millions out of poverty, while at the same time not significantly adding to global carbon emissions?

Does development necessarily imply an energy infrastructure that is totally dependent on coal and oil? China paid a heavy price for such a growth model as several cities in China have disturbingly poor air quality escalating mortality and morbidity rates.

This is in addition to the thousands of deaths from coal mining disasters. We are already witnessing the rapid deterioration in air quality standards in Delhi and other metros here in India.

Can we explore an alternate development paradigm which decouples growth from carbon emissions? In a recent study, for

the first time we explored such a paradigm in Karnataka by collaborating with leading national and international research institutions, including Global Green Growth Institute, South Korea.

It examined how the state could plan a "green growth" trajectory which maximises the uptake of energy efficiency, clean technologies and also develops climate resilience in agriculture, water and forestry sectors, particularly crucial to Karnataka's equitable economic and social development. It concluded that such a growth trajectory is in the long-term interest of the state and should also be scaled up to national level.

The present INDCs provide an opportunity for India to demonstrate such an alternate development paradigm based on the principles of energy access, energy security, efficiency and environmental standards.

Energy efficiency needs to be adopted across all sectors, considering that nearly 50 per cent of India's infrastructure is yet to be built. There is a business case for energy efficiency, since most interventions are cost effective and recover investments within a short duration. The ambitious push for solar and wind will help alleviate the energy crisis in Karnataka. In addition, it will also generate a large number of jobs in the country. Solar energy has the great advantage that it can be generated close to the loads, thereby minimising transmission and distribution losses. It can electrify thousands of villages, which, as of now, receive intermit-

tent power supply — a fact that has been a major trigger for farmers' agitation.

Karnataka's agriculture consumes about one-third of all grid-supplied electricity carrying a subsidy of ₹48 billion in 2012. Yet, the quality of power as well as regularity of supply continues to create restlessness amongst farmers. Our study has identified a list of green growth opportunities for this and other sectors so as to minimise carbon emission.

The INDCs are ambitious and require strong policy support for successful implementation. It is in the states' own interest to actively participate in framing effective policies, which to help reach these targets. If a country of India's scale and size were to demonstrate an alternate development model, it would be an example for other developing countries as well. And it would be India's great contribution to the world in solving a complex problem.

The government has recognised the firm opinion of those who have advocated that the INDC cannot, however, compromise on India's aspirations for right to development and a fair share of the global carbon budget. In aggregate terms, it announces commitment to eradication of poverty which, in any event, is a political compulsion on the government whatever be its colour. The INDCs also send a clear message that India is a responsible nation and conscious of its important role in reducing global carbon emissions.

The writer is chairman, Bangalore Climate Change Initiative

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CALAMITY DESTRUCTION

Climate change kills over 6L

■ Floods, storms, other extreme weather events killed lakhs since 1995

Geneva, Nov. 23: Weather-related disasters have grown more frequent over the last 20 years, claiming more than 6,00,000 lives, the UN said on Monday, issuing a further call for nations to strike a landmark deal on climate change.

The report from the United Nations agency for disaster risk reduction (UNISDR) said floods, storms and other extreme weather events have killed 6,06,000 people since 1995, "with an additional 4.1 billion people injured, left homeless or in need of emergency assistance."

The report noted that while there was no way to establish how much of the rise in such disasters was caused by climate change, the link between the planet's changing climate and extreme weather was clear.

"The contents of this report underline why it is so important that a new climate change agreement emerges from the COP21 in Paris", said UNISDR chief Margareta

CLIMATE CARNAGE

195-nation pact will be crafted to curb greenhouse gas emissions.

The UN said on Monday that while there was no clear evidence about the exact rise in deaths, it added that the link between the changing climate and extreme weather was clear.

335 weather-linked events took place between 2005 and 2014
14% is the increase in the number of such incidents as compared between 1995 and 2004

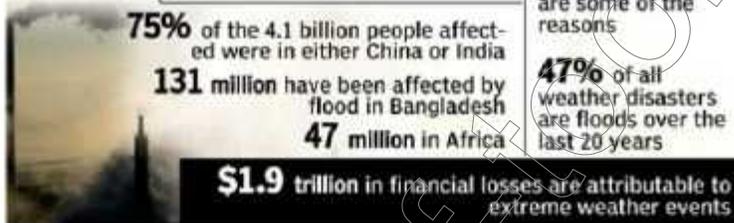
REASONS

A sustained rise in the numbers of floods and storms, drought, heatwaves and extreme cold are some of the reasons

'WAR DUE TO CLIMATE CHANGE'

London, Nov. 23: Britain's Prince Charles, who is to give a speech at the start of the UN climate summit in Paris next week, said in an interview out on Monday that the war in Syria could be linked to global warming. "There's good evidence indeed that one of the major reasons for this horror in Syria, firmly enough, was a drought that lasted for about five or six years," Charles said. He said the drought meant that "huge numbers of people in the end had to leave the land".

"Some of us were saying 20 years ago that if we didn't tackle these issues, you would see ever greater conflict over scarce resources," he said. Charles said there was "a real possibility of nature's bank going bust" — just as financial giants did in the 2008 crisis — and warned a deal on cutting emissions would be "difficult". —PTI



Wahlstrom, referring to crunch climate talks starting next week.

The talks that open in the French capital on November 30 are tasked with crafting a 195-nation pact to curb greenhouse gas emissions blamed for dangerous levels of climate change.

Between 2005 and 2014,

the leading database that tracks weather-linked disasters recorded 335 such incidents, a 14 percent increase compared to the previous decade and nearly double the number recorded from 1995 to 1994.

Overall, the report said, the planet has seen "a sustained rise in the

numbers of floods and storms", noting that drought, heatwaves and extreme cold were also growing concerns.

Flooding accounted for 47 percent of all weather disasters over the last 20 years, affecting more than 2.3 billion people, the vast majority of whom live in Asia. —PTI



Do we really have to face catastrophes and chaos before we understand that real action needs to be taken? That really ended in disaster, frankly, which is a total tragedy because we've lost all those years in between — PRINCE CHARLES, Prince of Wales

<http://www.iiim.org>

Edited by: Prof. Sushil Kumar
Centre for Business Sustainability,
IIM Lucknow