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## Business Sustainability News

## International

### Adapting to a warmer climate could cost almost three times as much as thought, says UN report

By Dan Collyns, Lima, for theguardian.com



Residents look over the banks of the Padma River as they erode, in Dhaka, Bangladesh. A UN report says cost of helping countries adapt to the effects of climate change will be hundreds of billions of dollars. Photograph: Reazsumon/Corbis

Adapting to a warmer world will cost hundreds of billions of dollars and up to three times as much as previous estimates, even if global climate talks manage to keep temperature rises below dangerous levels, warns a report by the UN.

The first United Nations Environment Programme (UNEP) 'Adaptation Gap Report' shows a significant funding gap after 2020 unless more funds from rich countries are pumped in to helping developing nations adapt to the droughts, flooding and heatwaves expected to accompany climate change.

"The report provides a powerful reminder that the potential cost of inaction carries a real price tag. Debating the economics of our response to climate change must become more honest," said Achim Steiner, UNEP's executive director, as ministers from nearly 200 countries prepare to join the high level segment of UN climate talks in Lima, Peru, next week.

"We owe it to ourselves but also to the next generation, as it is they who will have to foot the bill."

Without further action on cutting greenhouse gas emissions, the report warns, the cost of adaptation will soar even further as wider and more expensive action is needed to protect communities from the extreme weather brought about by climate change.

Delegates from the Alliance of Small Islands States at the UN climate conference in Lima, which opened on Monday, are already feeling those impacts. They have appealed for adaptation funds for "loss and damage" as their homelands' very existence is threatened by rising sea levels.

"We're keen to see the implementation of the Green Climate Fund – we're still waiting," Netatua Pelesikoti, director of the climate change office at the Secretariat of the Pacific Environment Programme, referring to a fund set up to help poorer countries cope with global warming.

"The trickle down to each government in the Pacific is very slow but we can't abandon the process at this stage," said the Tongan delegate.

Rich countries have pledged \$9.7bn to the Green Climate Fund but the figure is well short of the minimum target of \$100bn each year by 2020.

The Adaptation Gap Report said adaptation costs could climb to \$150bn by 2025/2030 and \$250-500bn per year by 2050, even based on the assumption that emissions are cut to keep temperature rises below rises of 2C above pre-industrial levels, as governments have previously agreed.

However, if emissions continue rising at their current rate – which would lead to temperature rises well above 2C – adaptation costs could hit double the worst-case figures, the report warned.

"This startling report opens up a window on to a nightmarish future, where the global economy is crippled and the most vulnerable countries are even further disadvantaged," said Sandeep Chamling Rai, WWF's senior global adaptation policy advisor. "This is not a gap, it's an abyss. We can avoid falling into it, but we're running out of time."

"The report leaves no doubt, adaptation must be at the heart of a long-term agreement developed here in Lima. Communities around the world are drastically unprepared for the costly impacts of climate change, which is already destroying lives and livelihoods every day," said Jan Kowalzig, policy advisor for Oxfam, urging negotiators to scale up funding to meet the \$100bn annual commitment.

David Waskow, director of the International Climate Initiative at the World Resources Institute, said the \$9.7bn raised by the Green Climate Fund was a "key threshold" but added that developed nations' funding should extend beyond the fund, engaging "large international companies and even small and medium-sized companies."

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### Australia named worst-performing industrial country on climate change

By Graham Readfearn, in Lima, for The Guardian



Truenergy Holdings Pty's Yallourn coal-fired power station stands in the distance behind a disused coal dredger in the town centre in Morwell, Australia. Photograph: Carla Gottgens/Getty Images

Australia has been named the worst-performing industrial country in the world on climate change in a report released at international negotiations in Peru.

The climate change performance index ranked Denmark as the best-performing country in the world, followed by Sweden and Britain.

Among the world's top 10 emitters, Germany was ranked the highest at 22. Australia was second bottom overall, above

Saudi Arabia – which was not classified as industrial.

The report states: "The new conservative Australian government has apparently made good on last year's announcement and reversed the climate policies previously in effect. As a result, the country lost a further 21 positions in the policy evaluation compared to last year, thus replacing Canada as the worst-performing industrial country."

China, the world's biggest emitter, was in 45th spot – one below the US, which is the world's second largest emitter of greenhouse gases that cause climate change.

But in an indication of the challenge facing governments to increase their ambition, the report said if every country in the world performed as well as the highest-ranking countries, global temperatures would still likely rise more than 2C – a level considered to be dangerous.

For that reason the top three places in the ranking were left blank.

The CCPI report, produced by the thinktank Germanwatch and Climate Action Network Europe, covers the top 58 emitters of greenhouse gases in the world and about 90% of all energy-related emissions.

Jan Burck, report author at Germanwatch, told the Guardian: "It is interesting that the bottom six countries in the ranking – Russia, Iran, Canada, Kazakhstan, Australia and Saudi Arabia – all have a lot of fossil fuel resources. It is a curse."

[<Source>](#)

## Top Business Sustainability Trends of 2014

*Solutions to climate change would gain more success if they are driven by a political and a market agenda. The voluntary and mutual understanding between the US and China, reached this year, indicates that there is both – a political and a business case in the concept of circular economy.*

By Marc Gunther, for theguardian.com

It's been a tough year for brand USA. There was a horrific torture report, police violence against blacks, a dysfunctional Congress – and a troubled middle class. Even our fun and games are not as much fun as they used to be: just look at the NFL and its dismal record on brain damage and domestic violence.

In that context, corporate America had a good 2014. (Of course, in that context, just about everybody had a good 2014.) There was progress on the big issues that face big business, as well as the rest of us: climate change, food and forestry, labor rights in global supply chains and the circular economy.

Corporates are stepping up to do their part. Collectively, they are not moving far enough and fast enough, but they are moving in the right direction. These days, that deserves two cheers, if not three.

Among the year's highlights:

### Climate change policies drive cleantech

Here was one exception to the rule that the federal government can't get much done. Using his executive authority, President Obama imposed strong rules limiting climate pollution from coal plants, then traveled to Beijing where he and Chinese President Xi Jinping pledged to curb their nations' greenhouse gas emissions, albeit not for a while.

Their agreement led to the Lima Accord, a breakthrough in the sense that, for the first time, industrialized and emerging economies both promised to curb emissions. It's unavoidably a voluntary approach to the climate crisis, and the emissions reductions that it generates may turn out to be too little too late. But as governments act, they will surely drive low-carbon innovation in rich and poor countries alike.

That's where business comes in. As the costs of wind and solar energy continue to fall, corporate purchasing of clean energy is reaching new heights, creating a virtuous cycle where demand drives scale, which lowers prices, which then spurs more demand.

During Climate Week in September, companies including IKEA, Swiss Re, Mars and BT, organized by the Climate Group, launched RE100, an initiative to encourage big companies to use 100% renewable power. That week, too, Tim Cook, the CEO of Apple, currently the world's most valuable company, took a strong stand in favor of climate action. No longer can the US Chamber of Commerce or the fossil fuel industry claim to speak for all of American business.

One respected analyst, Shayle Kann of Greentech Media, says that by 2020, solar power will become cost competitive in more than half of the US, growing the solar market to 100 gigawatts—100 times larger than it is today. If it happens, that would be a game-changer.

### More companies pay attention to farming and forestry supply chains

It's no accident that big food companies like Unilever and Mars are sustainability leaders. Their global supply chains expose them to significant climate risks and resource constraints. Rising temperatures and falling water supplies, for example, threaten cacao growers in west Africa. So Mars is leading research to help farmers increase the quality and performance of cocoa plants, and better control pests and disease. Meanwhile, Unilever says all of its palm oil will be sustainably sourced by 2015.

Retailers and food companies, meanwhile, are pushing sustainability programs down to the farm level. Walmart is working with 15 of its biggest suppliers to optimize fertilizer use and tilling practices in corn and soy farming. Field to Market, a broad coalition of growers, brands and retailers, is defining, measuring and advancing the sustainability of commodity crops. Under pressure from Oxfam America, General Mills and Kellogg promised to measure, publish and reduce emissions across their entire supply chains.

Last fall, more than two dozen countries and as many companies also endorsed the New York Declaration on Forests, pledging to halve deforestation by 2020 and end it by 2030. A growing number of the world's largest buyers of soy, palm oil and cattle have committed to exclude deforestation from their supply chains. Among them are such powerhouses as Asia Pulp & Paper, once a target of activists, and Cargill, which sells \$135bn worth of commodities a year.

### Factories get safer

Every apparel company that did business in Bangladesh knew that factory conditions there were unsafe (and some had taken steps on their own to remedy problems), but it took the collapse of Rana Plaza, which killed approximately 1,100 workers in 2013, to spur the global garment industry to action.

Since then, brands and retailers have organized a pair of coalitions – the Accord on Fire and Building Safety in Bangladesh, backed primarily by European companies and labor unions, and the Alliance for Bangladesh Worker Safety, a North American group – to inspect and, in some cases, remedy conditions at about 6,000 factories. Everyone involved in the effort says factories today are safer; no one will say they are safe enough.

No one tragedy spurred competitors like Apple, Microsoft, Google and HP to form the Electronics Industry Citizenship Coalition, but they, too, have strengthened industry-wide efforts to audit suppliers to protect workers (and the environment) in the developing world.

### The circular economy grows

The circular economy is the most exciting idea in corporate sustainability, and it's spreading fast: companies are finding ways to take back, refurbish, reuse or recycle products that would otherwise be thrown away, creating a closed-loop, zero-waste circular system of production to replace the old-fashioned take-make-waste linear model.

At Disney World, food waste is being converted into energy. Novelis is betting its future on recycled aluminum, although beverage companies have been slow to follow. Coffee waste is being turned into flour by an ex-Starbucks exec. "Don't let fashion go to waste," says H&M, the global clothing retailer that takes backs clothes in all of its 3,100 stores.

In a truly circular economy, powered by renewable energy, economic growth could be decoupled from environmental limits. It's a safe bet that we won't get there in 2015 or 2025 or even 2035. But we will surely get closer.

<Source>



*New climate change policies will likely accelerate the growth of renewable energy initiatives, such as this solar project in Vacaville, California.*  
Photograph: Bloomberg/Bloomberg via Getty Images

## Tips:

We have entered the year 2015 and wish that good sense prevails and people do every possible thing to make this earth a better place for living. Development and sustainability should go hand in hand. The natural resources, like water, air, soil, petroleum and other minerals have to be conserved and preserved. Our Prime Minister Mr. Naredra Modi has embarked upon Swachh Bharat Abhiyan let all of us commit that we will do everything to make our country clean.

As always we are making effort to remind everybody of some very easy and small ways to promote the cause of sustainability.

- Disposal of garbage should be done appropriately. The domestic garbage should be kept in bin and when the bin is full should be thrown at appropriate place provided by municipality.
- Avoid individually wrapped items, snack packs, and single-serve containers. Buy large containers of items or from bulk bins whenever practical.
- In no case we should throw wrappers, empty sachets in drains or in the open as it will choke the drains or will degrade the soil as polythene and aluminum are not biodegradable.
- Ensure that all recyclable waste is being recycled and not destroyed by burning or going to landfill.
- Reduce garbage by purchasing larger packs of consumable items.
- If you buy milk from dairies like Mother dairy or Parag, instead of buying poly packs buy loose milk which you will take in your reusable containers.
- After you are done with items, give them to charity or friends. There are many institutions that are always in need of books, sports and game articles, toys, clothing and usable furniture.
- Often we purchase paints, pesticides etc that are toxic, ensure that these items are purchased in required quantity only. We may also reduce such wastage by sharing leftovers. In any case such items should be handled and disposed carefully.
- Use rechargeable cells/ batteries instead of disposable ones.
- Wherever possible buy used items and after using you may sell it to someone and collect cash. In case you are not able to sell then you may donate it to someone. You may also sell your used articles and generate extra cash or donate it to charity. Your donations can make a big difference for someone else.
- Nokia has started a **Take-back** campaign. It aims at encouraging handset users to dispose off their unusable or old handsets and accessories of any brand at recycle bins installed at Care Centers and Priority Dealers. For this users will be given a gift for participating in the campaign and a tree will be planted by company for every mobile dropped in the bin. We must join this campaign and drop unserviceable mobiles in the bins meant for it.



## A Coal Plant That Buries Its Greenhouse Gases

Source Name: Technology Review

Boundary dam, a power plant in Estevan, Saskatchewan, is the first commercial coal-fired plant to capture carbon dioxide from its emissions, compress the gas, and bury it underground. The plant demonstrates that so-called carbon capture and storage (CCS) can work at a large scale—a crucial achievement given that CCS could play a significant role worldwide in reducing the greenhouse-gas emissions that contribute to climate change.

Right now only two other CCS power-plant projects are under construction, both of them in the United States. That's because CCS carries a hefty price tag: SaskPower invested \$1 billion to equip one of the four generators at its Boundary Dam site for carbon capture. What's more, the process reduces the 160-megawatt plant's electricity output by about 20 percent, meaning it may cost SaskPower more per kilowatt-hour to run CCS than the 12 cents it gets for selling the electricity.

1. Coal from a nearby strip mine is pulverized for burning.
2. Ductwork (bottom left) carries flue gas to an adjacent carbon capture facility. There, it bubbles through a 52-meter-high column filled with a solution containing chemicals called amines, which absorb 90 percent of the carbon dioxide. The rest vents from the facility.
3. The carbon-rich amine solution (RAC) is piped to a heater that removes CO<sub>2</sub>; the lean solution (LAC) is piped back to repeat the process.
4. Cooling water travels through the green pipes into a chamber that helps cool carbon dioxide as part of a compression process.
5. The carbon dioxide is turned into a supercritical liquid inside this 15-megawatt compressor. Approximately 3,000 tons of carbon dioxide is captured and compressed every day.
6. A gauge at the CCS plant indicates the flow rate of carbon dioxide.
7. Most of the carbon dioxide travels 65 kilometers to an oilfield (shown here), where it's injected to help boost production. But some is injected at SaskPower's site.
8. At the SaskPower site, a wellhead delivers carbon dioxide to its resting place, a saline aquifer 3.4 kilometers underground.

SaskPower makes up for this in large part by selling much of the captured carbon dioxide to the Calgary-based oil producer Cenovus, which uses it to boost output from its maturing oil wells nearby.

CCS should get cheaper over time. The Intergovernmental Panel on Climate Change, the panel of climate scientists convened by the United Nations, projects that technology upgrades and economies of scale should reduce the price of adding CCS to coal plants to just one-third of what SaskPower spent at Boundary Dam. If so, CCS-equipped coal plants could deliver electricity more cheaply than some other low-carbon sources, including offshore wind power and large solar farms.

SaskPower says that with the lessons it's learned so far, it could now build a similar CCS project for \$200 million less, and that it may soon go forward with CCS at two other aging coal generators at Boundary Dam. It also hopes to help other power companies develop expertise in the technology.

Still, coal plants around the world generally have little incentive to follow suit. In SaskPower's case, Canadian regulations helped force the company's hand; that fact, plus the availability of a local buyer for carbon dioxide, makes SaskPower's effort somewhat unusual. What might be needed elsewhere is a way for utilities to pass along CCS costs to customers, just as many do now to pay for renewable energy sources. Another approach would be to tax carbon dioxide emissions, creating an incentive to bury the gas instead. The technology must also be proven to work over the long term. SaskPower buries some gas in a saline aquifer on its site. To make sure it stays put, the company has installed above-ground gas sensors plus a seismic sensing array to track subsurface movement.

The United Nations climate panel says similar technology must be installed at all 7,000 existing coal power plants worldwide by 2050 to keep warming below 2 °C, a widely cited threshold for avoiding severe climate change. Meanwhile, new coal plants are still being built, especially in China and India. With coal plants expected to provide one-quarter of the world's energy supply in 2040, SaskPower could help test the feasibility and safety of burying billions of tons of carbon dioxide emissions.

[<Source>](#)

## Innovative Wind Turbine Designs From Australia

SustainableBusiness.com News

In the past five years, bigger, more advanced wind turbines have greatly improved performance and lowered the price of wind energy, but that's nothing compared to what scientists in Australia are working on.

A team at the University of Wollongong is in the final stages of developing offshore wind turbines that are 1000 times more efficient at one-third of today's price. They hope to see the turbines installed along Australia's wind-blown coast within the next five years.

The key seems to be the use of superconductors and elimination of the gear box. While gearless turbines have been around for years, replacing it with a superconducting coil captures wind and converts it to electricity without any power loss.

"In our design there is no gear box, which right away reduces the size and weight by 40%," explains lead researcher Shahriar Hossain. "We are developing a magnesium diboride superconducting coil to replace the gear box. This will capture the wind energy and convert it into electricity without any power loss, and will reduce manufacturing and maintenance costs by two thirds."

That cuts the cost of turbines to \$3-5 million each, down from \$15 million today, and they would be much easier to transport without the heavy gear box, they say.

Researchers are making superconducting coil from magnesium and boron, which is inexpensive, durable and easy to make. Since the materials don't generate electrical resistance, they can store electricity without losing any energy, and they can circulate the current indefinitely.

"With industry support, we could install superconducting offshore wind turbines off the coast of Australia in five years, no problem," says Hossain.

### Power WINDows

Another innovative wind design from the same university is Power WINDows, invented by Professor Farzad Safaei. You can see it placed between two city buildings:

"My primary aim was to overcome some of the key shortcomings of current wind turbine technology, in particular, enable modular manufacturing, transportation and installation, reduce noise, land usage footprint, and better integration with living environments."

To do that, he developed a modular design that looks like a large window and can be deployed in metropolitan areas as well as wind farms. Panels inside the window rotate slowly with the wind, replacing spinning blades. This quiets the turbine and creates less turbulence around it, greatly decreasing its overall footprint. It also makes it cheaper and easier to manufacture, install and operate. Need more energy? Just add more panels.

A prototype is under development.

[<Source>](#)

## Volvo's Making Trucks With Landfill Gas

SustainableBusiness.com News

While Volvo works on an emissions-free truck, its Virginia assembly plant is running on 100% renewable energy.

As of November, all the electricity used at Volvo's New River Valley assembly plant comes from methane gas captured from 13 landfills in the region. The company produces all its trucks for North America there.

"The trash of the past is the methane gas that fuels our plant today," says Franky Marchand, General Manager of the factory. And thanks to extensive recycling, the plant sends no waste to landfills. Capturing methane also improves local air quality by as much as 90%.

Early next year, Toyota's Georgetown assembly plant in Kentucky will also be running on landfill gas.

Back in 2005, Volvo Trucks' plant in Tuve, Sweden was the world's first CO<sub>2</sub>-free automotive plant, running on wind and biofuels.



Plant management and employees have been working together on efficiency initiatives that have resulted in the use of 30% less energy - and 70% less water - to assemble each truck. One innovative idea they are acting on is producing heat by capturing solar energy absorbed on exterior walls.

The plant received certification from the US Department of Energy's Superior Energy Platinum program - the top US recognition for continuous improvements in energy efficiency.

Last year, Volvo developed "I-See" software that cuts fuel consumption by 5% in long-distance travel by trucks. It allows them to basically run on auto-pilot.

For cars, Volvo is developing electric cars that don't need batteries because the body panels provide the power source.

[<Source>](#)

## Eight unbelievable solutions to future water shortages

From growing glaciers to making rain with lasers, what are the innovative technologies that could help us tackle the global water crisis?



Could shooting laser beams into the sky make rain in the future? Photograph: Gary Hershorn/EPA

By Peter Moore

It's estimated that we use 9tn cubic metres of water every year. As the global population grows, it is becoming an increasingly precious resource, with millions forced to walk for more than a mile to collect their daily supply. We investigate the innovative technologies that will help tackle our water crisis in future.

### 1. Growing glaciers

More than half of the world's fresh water is stored in glaciers, 15 times more than all of the world's lakes, rivers and wetlands combined. As a result of climate change, almost every glacier studied by the World Glacier Monitoring Service has been found to be shrinking and meltwater is simply lost to the rivers and sea.

In her book *Adventures in the Anthropocene*, Gaia Vince tells the story of Indian geo-engineer Chewang Norphel, who lives in Ladakh on the edge of the Himalayas and who has sought to counter the problem by growing glaciers. Norphel diverts meltwater onto little plateaux where it freezes. He has created 10 artificial glaciers this way, which can be used for water in the dry summer months.

### 2. A bath without water

At the age of 17, Ludwick Marishane was sunbathing in Limpopo, South Africa's northernmost province. His friend said idly to him: "Man, why doesn't somebody invent something that you can just put on your skin and you don't have to bath." Marishane did exactly that. He researched on his Nokia 6234 mobile phone, eventually formulating a lotion called DryBath. Marishane says that DryBath – a blend of essential oils, bioflavonoids, and odour-eliminating chemical tawas – saves four litres of water ever session, a total of a million litres in total.

### 3. Ultra water efficient shower

We are all familiar with the moment. You get into the shower, turn the tap, then avoid the water until the temperature equalises. For Peter Cullin, from Adelaide, this is a problem. "Every minute of every day, in millions of homes around the world quality fresh drinking water is lost to the drain from inefficient showers." To solve the dilemma, Cullin has created his "Collector Ultra Efficient Shower", a screw-in device that captures water at the beginning of a shower and feeds it back into the system. If installed in 1,000 showers, Cullin says the device would save 200m litres of water a year. A similar system has been invented by Richard Ogodeon from Brighton.

### 4. The lifesaver bottle

"Water, water, everywhere, nor any drop to drink", wrote Samuel Taylor Coleridge famously in *The Rime of the Ancient Mariner*. This paradox struck Michael Pritchard while watching news reports of the Boxing Day tsunami a decade ago. Clean water was being brought in on trucks as the floodwater was too dirty. To solve this problem, he invented his "lifesaver" bottle, which uses a pump to force water through a 15-nanometre filter, cleansing it of all bacteria and viruses. Since its launch, the Lifesaver Bottle has been used by hikers, aid companies and the British army in Afghanistan.

### 5. Rainmaking with lasers

In the 1840s, James P Espy thought burning large fires in the American west would bring rain to the east. In the 1950s, there were attempts at cloud seeding. Now, the idea of rainmaking has returned to the scientific agenda. The idea this time is to fire lasers into the atmosphere. Properly-directed pulses of light have been shown to help ice sublime and vapour condense. The World Meteorological Organisation recently debated the future use of this new technology. One of the possibilities is to use lasers to induce rain at times of drought.

### 6. The fold up toilet

Along with the shower, the toilet is one of the home's greatest source of water waste. As much as seven litres can vanish in a single flush and, wanting to improve matters, two students from the University of Huddersfield have invented Iota, the folding toilet. Iota's

design is markedly different to the traditional toilet and, as such, makes more efficient use of water. Gareth Humphreys and Elliott Whiteley, Iota's inventors, claim that if installed it could save 10,000 litres per person every year.

### 7. Leak monitoring

Despite all the water wasted inside the home – dripping taps, inefficient toilets and showers – utility companies acknowledge that as much as a third is lost to leaks before it even arrives. Tackling this problem is Zonescan Alpha, a software that pinpoints leaks and relays data back to a control centre. It works by embedding sensors throughout a network and has been successfully trialled by Albstadtwerke, a German utility company, which says it helped reduce waste by 2m litres.

### 8. Solar powered water purification

Hot climates suffer the most from a lack of water, making the invention of 16-year-old American, Deepika Kurup, all the more intriguing. Hailed as one of the USA's brightest young scientists, this year Kurup was awarded the US Stockholm Junior Water Prize for her ingenious solar-chemical purification process. This involves exposing titanium dioxide and zinc oxide to ultra violet radiation from the sun to produce a photo catalytic composite that cleans water. "This technology is green, safe, cost effective and easily deployable," said Kurup.

[<Source>](#)

## Paris mayor announces plans to ban diesel cars from French capital by 2020

By Anne Penketh in Paris, for *The Guardian*



Paris mayor Anne Hidalgo wants the French capital city's historic centre to become 'semi-pedestrianised' as part of her plan to tackle pollution. Photograph: Getty Images

The mayor of Paris on Sunday announced radical plans to ban diesel cars from the French capital by 2020 as part of an anti-pollution drive.

Anne Hidalgo also said parts of central Paris would severely curtail private car use by creating semi-pedestrianised zones, beginning with an experiment on weekends which could be "rapidly" extended to include weekdays. Vehicle use inside these zones would be limited to the cars of residents, and emergency and delivery vehicles. Buses, taxis and bicycles would not be affected.

The mayors of all major European cities, including London, are grappling with how to tackle pollution emitted by diesel fumes, whose tiny particles and nitrogen oxides are harmful to health. But France has the highest number of diesel cars on the road in Europe – 65% of new cars sold in the first six months of this year were diesel.

"The measure is clear: I want an end to diesel in Paris in 2020, if possible beyond the périphérique," the traffic-clogged ringroad, Hidalgo told the *Journal du Dimanche* on Sunday. She also plans to ban lorries from crossing Paris unless they have business in the city.

City opposition leader Nathalie Kosciusko-Morizet tweeted that "Parisians have been waiting for years" for such measures.

The mayor recognised the change could mean hardship for some drivers, who have turned to diesel as it's cheaper than petrol. She said financial incentives would be available for the purchase of more environmentally friendly cars.

Paris and other French cities brought in alternate driving days to tackle a pollution spikes earlier this year, but Hidalgo said she wants a complete ban on the dirtiest vehicles at such times.

French Prime Minister Manuel Valls said on Friday that the government is committed to gradually phasing out diesel cars. A sticker scheme to be introduced from February would identify the vehicles emitting the most pollution, with red stickers for diesel cars more than 13 years old. Hidalgo said traffic pollution "canyons" such as the Champs Elysées would be reserved for clean cars.

[<Source>](#)



## Are our cities about to get a lot smarter (and greener)?

By James Murray

This article first appeared at Business Green.



Tower Bridge, London

The world's cities could be on the brink of an infrastructure revolution to match the development of urban power grids and the emergence of the car. That is the central conclusion of a series of reports and initiatives this week that suggest the market for so-called "smart city" technologies could be about to explode, solving a raft of environmental challenges and slashing greenhouse gas emissions in the process. Environmentalists will be hoping these optimistic predictions

prove well founded, because the alternative does not bear thinking about.

The smart-city or green-city vision is almost utopian in its breadth and ambition. It envisages ultra-efficient urban centres that are optimized through the real-time analysis of billions of separate pieces of data, ensuring that buildings automatically change to deliver perfect comfort levels, public transport networks integrate to slash commuting times and road networks are automatically managed in real time to bring an end to congestion, with business deliveries completed in the early hours.

Grafted onto this IT-enabled strategy are a host of clean technologies: electric cars and buses bring an end to air pollution, microgeneration and energy storage slashes building emissions, and from public transport to office blocks energy and water efficiency is automatically optimized.

This idealized vision is as essential as it is attractive. As a new report from consultancy WSP on the potential for electrifying London notes, 4,300 Londoners die every year from breathing bad air — out of 29,000 across the UK. Numerous cities in industrialized nations are still blighted by dangerous levels of air pollution, while the situation in the industrialising superpowers of Asia, South America and Africa is worse still, with China's cities now the poster child for toxic air.

Meanwhile, rapid urbanization has resulted in 54 percent of the world's population now living in cities, and the UN expects this figure to grow to 66 per cent by 2050. As Mark Watts, chief executive of the C40 group of cities committed to climate action, observed this week at the Environmental Industries Commission (EIC) Annual Conference, if we can't tackle greenhouse gas emissions from cities, we will not be able to tackle climate change. Unless we make our cities smarter and greener we will not be able to solve the environmental challenges they still face. These problems will only get worse as urban populations grow, and runaway climate change will become unavoidable.

Thankfully, there is growing evidence that emerging smart city technologies can address challenges such as air pollution and carbon emissions, while also improving quality of life for urban populations.

This week's report from WSP concludes it is possible to turn London into an "all-electric" city by 2035, switching to electric forms of transport and heating in a way that would cut the capital's carbon emissions by 80 percent, reduce air pollution by over one-third and push it up the global quality of life league table, which recently concluded London was only the 38th most liveable city in the world. "The all-electric city will reduce carbon emissions and noise pollution while improving air quality significantly," said WSP associate Barry Evans. "It will be an attractive place to live and work but we need to commit to this future now."

The report argues delivering an all-electric city would require the deployment of technologies that have already shown to be cost effective and notes that a number of initiatives are already under way to electrify the city's infrastructure. However, Evans warns London is moving away from electric heating in some instances and lacks "an overall vision and clarity of purpose" when it comes to electrification. "If London and other cities committed to becoming all-electric by 2035, that would provide the direction to significantly improve our quality of life," he said. "We've got 20 years to make this a reality."



London could be an "all-electric" city by 2035, according to a recent report.

The report recommends the introduction of specific policies to drive the rollout of electric clean technologies, including standards to ensure all new houses and offices are built to use electric heating from 2018, a city-wide program to replace old boilers with heat pumps, and the introduction of a London-wide electric vehicle hire scheme and a London-wide ultra-low-emission zone.

The vision put forward by WSP does not focus specifically on smart city technologies, but

electric vehicles and buildings have the potential to be integrated with the apps and data management systems that characterise smart cities.

The potential for this kind of integration has been highlighted on both sides of the Atlantic in the past week, as a number of flagship smart city projects took significant steps forward.

The Ontario government in Canada announced late last month that 17 new energy projects were to share CA\$24m (£13.5m) from its Smart Grid Fund, enabling projects to integrate electric vehicle charging with the grid, establish automated localized microgrids, better analyze smart meter data to help buildings optimise their performance and deploy cutting-edge energy storage technologies. The result, according to the government, is expected to be lower greenhouse gas emissions, reduced air pollution and improved building performance.

Meanwhile, the EU's GrowSmarter project announced that it expects to see 1,500 jobs created through plans to make Stockholm, Cologne and Barcelona "lighthouse cities" that will demonstrate a wide range of smart-city technologies. The five-year project will kick off next month with €25m (£20m) of EU funding and a goal of demonstrating 12 smart-city solutions, including systems to optimise transport management and integrate renewables with urban power grids.

"This is a hugely exciting project, with an immense potential to shape urban environments which citizens can enjoy, where the air quality is good and quality of life enhanced," said project co-ordinator Gustaf Landahl, of the city of Stockholm. "By introducing intelligent and integrated solutions as part of the urban fabric, we can make sure not only that Europe grows smarter in terms of energy, housing and transport, but also push the market in this area by becoming the place where smart cities can grow and innovation can thrive."

[<ReadMore>](#)

## Liquid Light finds use for polluting CO2 gas

By David Derbyshire, for The Observer

There's just a hint of modern-day alchemy about Emily Cole and her company, [Liquid Light](#). Their goal is to take carbon dioxide — the abundant, odourless pollutant largely responsible for global warming — and turn it into the raw ingredients used to make plastic bottles, face cream and wood glue.

Converting a pollutant into "plastic gold" may sound too good to be true, but she and her colleagues have already proved the technique works in the lab and are now scaling it to commercial size.

"We are opening up the door to a low-cost feedstock," says Cole from her office in Monmouth, New Jersey.

"Carbon dioxide is low cost relative to oil and gas. We are taking a pollutant and converting it into something that people use in everyday lives."

The technique developed by Liquid Light needs a relatively pure source of CO<sub>2</sub>. The CO<sub>2</sub> gas pouring out of factory and power stations chimneys from the burning of fossil fuels is perfect.

The process uses an electrode coated with a catalyst (a substance that causes a chemical reaction without itself being affected), electricity and a source of hydrogen such as water.

The first step of Liquid Light's process combines two CO<sub>2</sub> molecules into a single negatively charged molecule called oxalate.

The second step uses different catalysts to create ethylene glycol, an organic compound used to make polyethylene terephthalate (pet) (the stuff in plastic bottles), polyester for clothing and antifreeze.

According to Cole, a tonne of CO<sub>2</sub> could create between 10,000 to 20,000 bottles.

Because Liquid Light's process takes CO<sub>2</sub> and locks it up in products, it can be a net reducer of carbon in the environment if electricity from the sun, wind, hydro or nuclear are used in the process. Cole will not say what catalyst her company uses, for commercial reasons. However, she says the process is cheaper than conventional methods.

Liquid Light is a spin out from Princeton University where Cole worked as a postgraduate from 2005. "We see ourselves as a chemical technology company that will license technology to manufacturers," she says. "Ethylene glycol is a really good product to develop because it can be produced with a really good cost advantage in a very large market."

"But we see a great future for this technology."

Using different catalysts, Liquid Light's process can make acetic acid — a chemical in vinegar which can be used to make PVA glues or glycolic acid used in skin care products.

"We have demonstrated the production of ethylene glycol at the laboratory scale, and now we are in the process of scaling up that technology. We will be commercial in the next three to five years and we will be making our first soda bottle this year in the lab."

She adds: "Maybe to the lay audience it does sound 'out there' that you take pollutants and the end product from the combustion of oil and gas and convert it back into products and chemicals. But most people are excited at the idea of taking a pollutant and converting it into something of use, rather than just burying it in the ground."

[<Source>](#)

## Restoring 50 Million Acres of Degraded Farms in Latin America

SustainableBusiness.com News

At the Climate Summit, entering its second (and last) week in Peru, Initiative 20x20 was announced - an effort to restore 50 million acres of land in Latin America and the Caribbean by 2020.

It's part of the Bonn Challenge, a global commitment to restore 370 million acres of land around the world by 2020, led by the World Resources Institute (WRI).

What's different about this conservation effort is that the focus is on active farmland and on attracting private financing rather than relying on governments.

The idea is to reduce agricultural greenhouse gas emissions by improving the soil on degraded farmland, making existing farms more productive and taking the pressure off to clear more forests and grasslands for food production.

Since 2000, some 89 million acres of forest and grasslands have been cleared for agriculture, accounting for almost half the greenhouse gas emissions in the region. Unsustainable agriculture is responsible for about 500 million acres of degraded land in Latin America, says WRI.

Degraded farmland will be restored to mosaic of trees, crops, and livestock. Farms planted with trees provide shelter for animals, increase the ability for soil to hold water and nutrients, and absorb carbon. And trees greatly improve pastureland (as much as six-fold), meaning less acreage can sustain more livestock.

Over the long term, trees can be sustainably harvested, providing another income source. Agricultural expansion will be directed to degraded lands, allowing forests to return.

Here's an example from Colombia: After replacing 220 acres of open pastureland with trees, shrubs and bushy vegetation, the plants provide 90 head of cattle with vertical layers to graze on at Carlos Hernando Molina's ranch - providing twice the milk and meat production per acre on much less land.

Priorities for restoration worldwide:



The program is starting in seven countries - Mexico, Guatemala, Costa Rica, Colombia, Ecuador, Chile and Peru - with \$365 million in private investment from development banks, philanthropies and individuals.

Funds are forming to attract private capital for these purposes, such as Althelia Climate Fund and Moringa Fund. Moringa, for example, focuses on crops like coffee, cocoa and tea which are grown in the shade of trees, orchards - where fruit and nut trees are combined with crops, and Sylvopastoralism, which combines livestock with trees.

The annual net benefit to national and local economies of restoring 370 million acres is around \$85 billion a year, while reducing the current emissions gap by 11-17%, according to the International Union for Conservation of Nature.

[<Source>](#)

## Get Out There And Lay Some Compost!

SustainableBusiness.com News

By Rona Fried

We've written many articles on the ability of soil to absorb and sequester carbon dioxide - literally pulling it out of the air.

But the soil has to be healthy and that means adding compost. If it is healthy, it's the easiest and possibly only way to actually **reverse** climate change.

I didn't realize however, that **putting down compost just once** makes a difference. Research at University of California/ Berkeley shows that compost applied to 5% of the state's grazing land would store a year's worth of emissions from conventional farms and forestry operations there. If that's increased to 25% of grazing land, the soil would absorb 75% of California's total annual emissions.

"This is one thing we can do that certainly can make a difference. It's inexpensive, it's low technology, it's good land use, it solves multiple problems," bio-geochemist Whendee Silver told the *San Francisco Chronicle*. In his experiments on grazing lands, the soil was still sequestering carbon six years later and he believes it will remain that way for decades.

There's a lot of soil to build because half of the planet's topsoil has been lost in the last 150 years, according to World Wildlife Fund.

While there's plenty of cow manure to spread around, it has to be aged or combined with other kinds of organic waste, such as from crops and grass cuttings to create compost. Green manure used on its own emits methane.

It should be required in California because another major benefit is that it shields the soil from drought. Compost builds the soil so that it holds water and nutrients and much less irrigation is needed to grow crops and grass for grazing.

It's really time to get on the compost bandwagon and stop sending this "liquid gold" to landfills where it turns into methane. 30-40% of the "waste" entering landfills is compostable food scraps from homes, restaurants, schools, etc.

Where would we ever get enough compost to spread on millions of acres of land? San Francisco requires residents and businesses to put out green waste for composting, and now runs the biggest composting operation in the world, recycling 700 tons of this "waste" into compost every day. Other cities can do that too, not to mention farms and ranches. And it creates jobs.

"For a lot of people, this sounds a little fantastic," Silver told the *San Francisco Chronicle*. "There's nothing magic about it. Soil is a major source of carbon, and we've been bleeding it into the atmosphere for many, many years through plowing, overgrazing and poor agricultural practices. So anything we can do to get some of that carbon back into the soil is going to be beneficial."

Grazing is the single largest land use on the planet, and most grazing lands are degraded, which simply means they have lost too much carbon. Degraded lands tend to be taken over by invasive plants, displacing natives that store much more carbon.

[<Source>](#)

## China, First to Commercialize Electric Airplane

SustainableBusiness.com News

Yesterday, we reported that Toyota will start sales of the first mass produced fuel cell car next month, and today we learned that China is about to begin mass production of an electric airplane.

If RX1E succeeds commercially, China will be the technology leader in the field. The first manned electric flight was back in 1973, but until now these aircraft haven't made it past the demonstration phase.

The two-seater, light-duty aircraft runs on electric motors and can be powered by fuel-cells, solar, ultracapacitors, power beaming or batteries. It can fly for 90 minutes on fully charged batteries, and charging the 10 kilowatt-hour batteries takes only 40 minutes at a cost of \$0.80.



Airplanes of this size are commonly used by police, for flight training, mapping surveys, and just for fun by flying aficionados.

Liaoning General Aviation Academy, which designed and aircraft, hopes to sell 100 within three years, and plans to build a dedicated manufacturing plant that can make 100 a year in Shenyang. It will sell for \$163,000, lithium batteries included.

Electric airplanes have lots of advantages - easy maintenance, low operating costs, high safety levels and obvious environmental attributes.

In September, the first emissions reduction program in the US aviation industry took off, starting with airports.

[<Source>](#)



# All over the world, renewables are beating nuclear

**Source Name: The Ecologist**

Renewables are winning out just about everywhere. They now supply over 19% of global primary energy and 22% of global electricity. Nuclear is at 11% and falling. With many of the UK's old nuclear power plants off-line due to faults and prospects for their ultimate replacement looking decidedly shaky, it is good that the renewable energy alternatives are moving ahead rapidly.

In 2013 nuclear supplied around 18% of UK electricity but in the third quarter of 2014, nuclear output fell 16.2% due to outages, while renewable output, which had reached 16.8% of electricity in the second quarter of 2014, was up 26%, over the previous year.

Indeed, there were periods in 2014 when wind alone met up to 15% of UK power demand, over-taking nuclear, and it even briefly achieved 24%.

What next? The financial woes of French developers Areva and EDF may mean that their £24 billion 3.4 GW Hinkley nuclear project, despite being heavily subsidised by British taxpayers and consumers, will get delayed or even halted, unless China or the Saudis bail it out.

Meanwhile, wind has reached 11GW, with 4GW of it offshore, solar is at 5GW and rising, with many new projects in the pipeline. By 2020 we may have 30GW of wind generation capacity and perhaps up to 20GW of solar.

## Renewables get cheaper, nuclear gets more expensive

It's true that this will require subsidies, but the technology is getting cheaper and by the time Hinkley is built, if it ever is, the Contract for a Difference (CfD) subsidy for on-land wind, and maybe even for solar, will be lower than that offered to the Hinkley developers (£92.5/MWh).

Indeed some say solar won't need any subsidies in the 2020s. While offshore wind projects could be going ahead with CfD contracts below £100 / MWh, and without the £10 billion loan guarantee that Hinkley has been given.

The simple message is that renewables are getting cheaper and more competitive, while nuclear remains expensive, and its cost may well rise - requiring further subsidies.

The completion of the much delayed EPR at Flamanville, similar to the Hinkley design, has been put back by yet another year, to 2017, putting it even more over-budget.

The EPR being built in Finland, work on which started in 2005, and which was originally scheduled to go live in 2009, is now not likely to be completed until late 2018. It's now almost twice over budget.

It's hardly surprising then that most of the major EU power companies and utilities have backed away from nuclear, including SSE, RWE and Siemens, and most recently E.ON, in favour of renewables.

And globally it seems clear that renewables are winning out just about everywhere. They now supply over 19% of global primary energy and 22% or more of global electricity. By contrast nuclear is at around 11% and falling.

## Country by country, renewables are taking over the world

Looking to the future, there are scenarios for India, Japan, South Korea, the USA and the EU, looking to renewables to supply most of their electricity, with Germany and Denmark of course already acting on them - Germany is aiming to get at least 80% of its electricity from renewables by 2050, Denmark 100%.

For example, a WWF report says China could get 80% of its electricity from renewables by 2050, at far less cost than relying on coal, and enabling China's to cut its carbon emissions from power generation by 90% without compromising the reliability of the electric grid or slowing economic growth. And with no need for new nuclear.

Although renewables are not as developed as in China, India has been pushing them quite hard, with wind at nearly 20GW, on top of 39GW of existing large hydro. PV is at 2.6 GW grid-linked so far, but Bridge to India is pushing for 100GW by 2020.

Funding problems and policy changes have bedeviled the development of renewables in India, as have weak grids, with some saying that off-grid or mini grid community projects ought to be the focus.

The new government in India certainly faces some challenges. But WWF / TERI have produced an ambitious 'near 100%' by 2050 renewables scenario, with over 1,000GW each of wind and solar, plus major biomass use.

The US has now gets near 15% of its electricity from renewables, with wind power projects booming, and Obama's policy of cutting emissions from coal plants by 30% by 2030 should speed that up. The US National Renewable Energy Lab has developed scenarios showing that the US could potentially generate 80% of its electricity from renewables by 2050.

In Japan renewables had been given a low priority, but following Fukushima nuclear disaster in 2011, Japan is now pushing ahead with some ambitious offshore wind projects, using floating wind turbines, and a large PV programme.

Overall, Japan has given the go-ahead to over 70 GW of renewable energy projects, most of which are solar. Longer term, a '100% by 2050' ISEP renewables scenario has around 50GW of wind, much of it offshore, and 140GW of PV.

Rapid progress is being made in South America, although less so as yet in most of Africa. But the International Renewable Energy Agency says that Africa has the potential and the ability to utilise its renewable resources to fuel the majority of its future growth.

## Yet the UK remains firmly stuck in a 1950s vision of the future

Back in the UK though, we have our large nuclear programme, with EDF one of the main backers. It can't build any plants in France (which is cutting nuclear back by 25%), but the UK seems to be willing to host several - and pay heavily for them!

Similarly, Hitachi and Toshiba stand no chance of building new plants in Japan, but the UK is offering significant long-term subsidies and loan guarantees for their proposed UK projects. A far better deal than being offered to renewables.

[<ReadMore>](#)

# White House Launches Climate Literacy Initiative for Americans

## SustainableBusiness.com News

To support President Obama's efforts on climate change, the White House Office of Science & Technology Policy is taking action to make sure Americans are "climate literate."

Under its new Climate Education and Literacy Initiative, the goal is to make sure students and citizens have science-based information about climate change.

Making progress depends on "a climate-smart citizenry and a next-generation American workforce of city planners, community leaders, engineers, and entrepreneurs who understand the urgent climate-change challenge and are equipped with the knowledge, skills, and training to seek and implement solutions," they say.

Numerous schools have been moving in the opposite direction, such as in Texas, where the Truth in Texas Textbooks coalition, wants global warming to be taught as a controversial opinion rather than as fact. They pressure textbook publishers - often successfully - to remove content that gives the impression climate change is something to worry about.

Incredibly, they have plenty of help from ALEC's model bill - Environmental Literacy Improvement Act - and Heartland's anti-science curriculum. ALEC's bill has been adopted in at four states- Louisiana, Texas, South Dakota and Tennessee - and introduced in 11 states.

On the other hand, these states participated in developing science-based standards for schools:

## White House Initiative

To start, the Science Office is bringing educational leaders together to discuss how to enhance climate education in the US - learning opportunities for students; equipping educators with science-based resources; climate-related professional development and training; and engaging citizens through informal climate education.

## In the Works:

**National Park Service** is developing a National Climate Change Interpretive Plan that guides employees, volunteers, and concessionaires on engaging with the public on this issue - over 270 million visitors a year - in programs and exhibits.

"Climate Change for Senior Executive Leaders" has a goal of training 100 leaders in the federal government over the coming year. A new "Climate-LEAD" course will be piloted in 2015 that educates future climate-change leaders across federal agencies. It's a partnership between the Office of Personnel Management, EPA, National Oceanic and Atmospheric Administration (NOAA), Department of Interior (DOI), and US Army Corps of Engineers.



**Five regional climate-science workshops for educators in 2015, sponsored by NOAA:** will provide 400 educators an opportunity to visit climate science research centers and ask questions to climate experts.

It starts in Maryland this spring with a NOAA Climate Modeling and Simulation Workshop for Educators where educators will learn how to foster understanding and critical thinking on the subject in classrooms. Other workshops will take place in Seattle, St. Petersburg, Florida, Boulder, CO, and Chicago.

There will also be online forums where teachers can ask questions.

## Many nonprofits are also launching programs, such as:

**Alliance for Climate Education** will educate 150,000 high-school students next year using storytelling, animation, music, and video.

**American Meteorological Society** will prepare 30 faculty members from Minority Serving Institutions to introduce climate-science courses onto their campuses.

**Aquarium of the Pacific, National Aquarium, New England Aquarium, and Seattle Aquarium** are collaborating to use digital platforms and technologies to illustrate impacts of climate change on coasts and oceans.

[<Source>](#)

## Upstart manufacturer turns fiber waste into building materials

By Heather Clancy



The Whole Foods store in San Diego is using ECOR material in signage and ceiling design elements.

Looking for a non-structural building material that is as versatile as wood composite, aluminum or fiberboard but far less toxic?

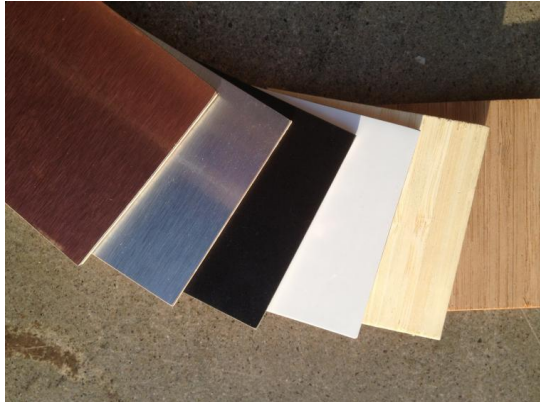
That's the promise behind ECOR, a product made from recycled cardboard,

wood scraps, even agricultural byproducts such as coffee grounds and corn-stalk fiber.

Developed by Noble Environment Technologies, ECOR already is used by Whole Foods and Google. The former incorporated it into signage and ceiling elements in its San Diego area store. The latter designed the material into panels for an employee and visitor lounge, and used it for custom columns in a headquarters lobby.

ECOR has been blessed with both Cradle-to-Cradle and USDA Bio-based certifications, which recognize its green qualities. NET describes it as "nature's composite." It doesn't contain the same volatile organic compounds typically found in paints, particleboard or gypsum, according to NET's founder and CEO Robert Noble. What's more, the production process relies on existing materials that can be recovered from community and corporate waste streams, which means its production footprint is more sustainable than for other materials options.

"It's very natural, very strong, aesthetically appealing and easy to work with," Noble said.



The material is a three-dimensional engineered, molded fiber. While it isn't suitable for structural applications, it is being used for signage, trade show and retail displays, stage and set construction, room dividers, containers and packaging.

One factor behind ECOR's growing momentum is the improving economics associated with its production process.

While it used to cost \$4 per square foot to make the material, those expenses are now "trending below 30 cents," Noble said.

NET is now preparing to ramp up production. In late October the company reached a notable milestone when institutional investor Envisage Equity stepped in with an undisclosed investment. That money will go toward an expansion of its manufacturing plant in Kraljevo, Serbia, and the construction of a research and development production facility in San Diego.

"We are thrilled to have found a partner who ... understands the unique opportunity this conversion technology provides as well as the experience and know-how to rapidly accelerate the broad global adoption of ECOR," Noble said.

Envisage and NET also have forged a strategic partnership, under which they will work with public and private organizations interested in establishing additional production lines. Up to 10 new sites could be developed under that alliance.

The Newport Beach, Calif. company mainly has been funded by Noble, an architect, since it started focusing on ECOR nine years ago in collaboration with the U.S. Department of Agriculture. "They have some 50 years of work behind them on developing everything related to wood products for structural applications," Noble said. "We entered into an exclusive research agreement to advance this field."

The former IKEA executive who established the company's North America operations, Rene Häusler, is on board as CEO of its European business unit. Former IKEA President and CEO Anders Moberg is a director, as is Don Moody, who recently retired from his position as president of the steel framing division of Nucor (the biggest North America recycler.)

Part of NET's business strategy is to forge agreements with companies looking to upcycle wood scraps, cardboard, discarded white paper or agricultural waste. For example, the company just established a relationship with a major solar technology company (Noble

won't reveal the name), which plans to process wood and packaging from panel pallets into ECOR at co-located production facility. Other relationships are in the works, he said.

[<Source>](#)

## Reflecting sunlight into space has terrifying consequences, say scientists

By Damian Carrington, for theguardian.com



Workers on Germany's highest mountain, Zugspitze, cover the glacier with oversized plastic sheets to keep it from melting during the summer months. Scientist have said geoengineering must be researched to find a possible solution of last resort to dangerous levels of global warming.

Photograph: Matthias Schrader/AP

Fighting global warming by reflecting sunlight back into space risks "terrifying" consequences including droughts and conflicts, according to three major new analyses of the promise and perils of geoengineering. But research into deliberately interfering with the climate system must continue in search of technology to use as a last resort in combating climate change, scientists have concluded.

Billions of people would suffer worse floods and droughts if technology was used to block warming sunlight, the research found. Technology that sucks carbon dioxide from the air was less risky, the analysis concluded, but will take many more decades to develop and take effect.

The carbon emissions that cause climate change are continuing to rise and, without sharp cuts, the world is set for "severe, widespread, and irreversible impacts". This has led some to propose geoengineering but others have warned that unforeseen impacts of global-scale action to try to counteract warming could make the situation worse.

Matthew Watson, at the University of Bristol, who led one of the studies in the £5m research programme, said: "We are sleepwalking to a disaster with climate change. Cutting emissions is undoubtedly the thing we should be focusing on but it seems to be failing. Although geoengineering is terrifying to many people, and I include myself in this, [its feasibility and safety] are questions that have to be answered."

Watson led the Stratospheric Particle Injection for Climate Engineering (Spice) project, which abandoned controversial attempts to test spraying droplets into the atmosphere from a balloon in 2012. But he said on Wednesday: "We will have to go outside eventually. There are just some things you cannot do in the lab."

Prof Steve Rayner at the University of Oxford, who led the Climate Geoengineering Governance project, said the research showed geoengineering was "neither a magic bullet nor a Pandora's box".

But he said global security would be threatened unless an international treaty was agreed to oversee any sun-blocking projects. "For example, if India had put sulphate particles into the stratosphere, even as a test, two years before the recent floods in Pakistan, no one would ever persuade Pakistan that that had not caused the floods."

The researchers examined two types of geoengineering, solar radiation management (SRM) and carbon dioxide removal (CDR). Prof Piers Forster, at the University of Leeds, led a project using in-computer models to assess six types of SRM. All reduced temperatures but all also worsened floods or droughts for 25%-65% of the global population, compared to the expected impact of climate change:

- mimicking a volcano by spraying sulphate particles high into the atmosphere to block sunlight adversely affected 2.8bn people
- spraying salt water above the oceans to whiten low clouds and reflect sunlight adversely affected 3bn people
- thinning high cirrus clouds to allow more heat to escape Earth adversely affected 2.4bn people
- generating microbubbles on the ocean surface to whiten it and reflect more sunlight adversely affected 2bn people
- covering all deserts in shiny material adversely affected 4.1bn people
- growing shinier crops adversely affected 1.4bn people

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## EPA Tightens Smog Rules, GOP Promises All Out Assault

SustainableBusiness.com News

The EPA has released long-awaited strengthened standards for smog (ground-level ozone), as required by the Clean Air Act.

These are important standards, because smog makes it harder for people to breathe and for plants to photosynthesize. We've all seen the photos of what China looks like these days!

Under the law, standards must be reviewed every five years to keep up with the latest science. EPA proposes reducing smog levels to 65-70 parts per billion (ppb), down from the current 75 ppb. Based on the comments received, levels could go down further to 60 ppb, says EPA.

"The scientific record clearly shows that a standard of 60 ppb would provide the most public health protection," as levels of 75 ppb put as many as 186 million Americans at risk, says Harold Wimmer, American Lung Association CEO. Other health organizations concur as does EPA's Clean Air Scientific Advisory Committee, which reviewed 1000 studies published since 2008.

At 75 ppb, smog still poses serious health threats to people, aggravating asthma and respiratory disease, and heart attacks. It also harms ecosystems by damaging plants and stunting tree growth, and it reduces farm yields.



Ground level ozone is created by chemical reactions between nitrogen oxide and volatile organic compounds (VOC) in the presence of sunlight. Sources include cars, trucks, buses, industrial facilities, power plants and chemical solvents and paints.

In terms of cost-benefit, the standards would produce \$3 in health benefits for every dollar spent. Annual costs are estimated at \$3.9 billion in 2025 to reach 70 ppb, and \$15 billion to reach 65 ppb.

From 1980-2013, average US ozone levels fell 33% says EPA, and most states will be able to meet the new standards through a combination of other regulations underway - low-sulfur gasoline and Tier 3 car standards, and those for power plants emissions. And states will have until 2020-2037 to meet the new standard, depending on the severity of an area's ozone problem.

The National Association of Manufacturers and American Petroleum Institute gave their completely predictable reaction:

"Current standards already protect public health. Tightening them could be the most expensive regulation ever imposed on the American public, with potentially enormous costs to the economy, jobs, and consumers."

But the rule is weak, showing how EPA bends over backwards to meet industry interests. The 75 ppb set in 2008 was higher than agency scientists advised, resulting in lawsuits from public health and environmental groups.

Then in 2011, President Obama interceded, delaying the rules until 2013 to appease Republicans' desire to reduce "regulatory burdens and regulatory uncertainty." After a new round of lawsuits from environmental and public health groups, a federal judge directed the EPA to produce rules by December 1, 2014 and a final rule by October 1, 2015.

### Supreme Court Takes Mercury Case

The day before EPA released the ozone standards, the Supreme Court accepted the case against regulations that would cut mercury and other toxic emissions from power plants.

Plaintiffs like Duke Energy, Southern Company and American Electric Power allege the EPA didn't adequately consider the costs of reducing these pollutants. 22 states and trade associations are also part of the suit.

"EPA's decision to ignore entirely the costs of its decision has led to one of the most far-reaching and costly rules - if not the most costly rule - ever imposed" under the Clean Air Act, argues the Utility Air Regulatory Group. Sound familiar?

The rules have been in effect since 2012 and plants are already complying (or closing). The real reason for going to the Supreme Court is to set a precedent:

"If the court strikes the rule, the precedent is very favorable for industry to challenge air rules based on how costs were taken into consideration. If the court goes the other way,

then I think EPA has a lot more latitude to promulgate stricter emissions rules," notes Brandon Barnes, an analyst at Bloomberg.

Lately, the Supreme Court has ruled in favor of the EPA, upholding its right to regulate pollutants that cross state borders and refusing to take the groundhog day case for the right to regulate greenhouse gas emissions. It will, however, hear arguments against its proposed carbon regulations on new power plants.

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## SDGs: why 17 goals and 169 targets might not be such a bad thing

By Andrew Norton and Elizabeth Stuart, for theguardian.com



*The sustainable development goals are a mixed bag, should Ban Ki-Moon keep them that way? Photograph: Alamy*

One of the great successes of the millennium development goals (MDGs) was that they were brief. They fitted on the back of a business card – one that could be slipped into a pocket of a US aid official or that of an Indian farmer.

As well as being an organising framework for donors and developing country governments, they were a new consensus for development that was easily communicated. And therein lay a large part of their effectiveness: they provided a focus for advocacy.

If we stick with the 17 sustainable development goals (SDGs) currently agreed, this is clearly not going to be the case. Even if you can remember all 17, there are still too many for civil society groups and other stakeholders to rally around all of them.

But maybe that doesn't matter. These are goals written for a different age. Although, as some have already pointed out, we still haven't clarified precisely what purpose the SDGs serve, it's clear that they cannot just be conceptualised as MDGs with extra ambition and a new timeline.

The successor goals are something quite different. They bring together two frontiers – development and climate – and they tackle global public goods problems as well as national obstacles. They also apply universally – to all countries rich and poor – which has major implications. So it's obvious that they are going to be much more complex to describe, implement, and monitor.

In short, they're going to have to function quite differently from the MDGs.

The assumptions about why the MDGs would work (their 'theory of change') were clear: a set of goals would focus action to achieve the specified targets. For advocates of development in the global north (famously UK development minister Clare Short) a big part of this was enabling the case for aid to be made in a compelling way to developed-country publics. But just as we haven't nailed precisely what the SDGs are for, nor do we yet have a fully articulated theory of change for them.

However, a forthcoming paper from research consultant May Miller-Dawkins, poses some good starting ideas. She argues that we shouldn't let concerns about practicality and achievability blunt the ambition of SDGs. The high ambition and non-binding nature of the SDGs could increase rather than diminish their overall long-term impact. Miller-Dawkins points out that in human rights and other agreements, high ambition has allowed domestic groups to use international norms and frameworks for leverage to generate change.

Extensive global consultation and negotiation for the SDGs has meant that country ownership should be far less problematic this time around, but it also means they are rather unwieldy. But if there was a process to reopen and reduce the 17 proposed goals, key wins which were only included as part of a grand bargain – issue areas such as governance – would be likely to be the first to be discarded.

Still, aside from the 17 goals, 169 targets risk being unimplementable, to put it mildly. And that is too big a risk for the international community to take, so what's the solution?

It may be possible to have a smaller set of normative statements or imperatives that would sit alongside (or above, chapeau-like) the official goals, acting as a summary of their vision and clustering issue areas. Easy to communicate and therefore inspire, the imperatives could act as a glue that brings together the sprawling narrative.

[<ReadMore>](#)

# International law stays silent on the responsibility for climate change

By Stephen Humphreys

*Climate change affects everything from public health to migration patterns. So why has the legal response to a global problem been so weak?*



*Heatwaves and fire, droughts and flooding are all increasing as a result of climate change. Why can't the law hold organisations to account? Photograph: Mark Reis/AP*

Climate change hurts innocent people. It puts ordinary people, who for the most part have not contributed in any way to global warming, at extraordinary risk.

The IPCC's Climate Change 2014 Synthesis report makes for sobering reading when they write about the consequences of climate change: "injury and death due to more intense heat waves and fires"; floods and droughts, and a rise in "foodborne and waterborne diseases".

This risk is not just a matter of extreme weather events, such as the heatwave in Russia that took an estimated 55,000 lives in 2010 or last year's typhoon Haiyan, recording the fastest wind speeds on record. It is also the intensifying effect climate change has on other intractable global problems such as war, famine, and economic migration. Repeated hot summers contributed to a spike in droughts across Syria, for example, triggering hardship and riots that culminated in the vicious civil war now underway.

In 1992 the nations of the world entered a binding agreement to stop "dangerous anthropogenic interference" with the earth's atmosphere. In the two decades since, that obligation has failed to reduce greenhouse gas emissions; quite the contrary, as levels have since soared to rates unthinkable in 1992. The United Nations Framework on Climate Change (UNFCCC), as the 1992 agreement is known, has sent a yearly caravan of politicians, activists and lawyers to some of the world's finest resorts to thrash out a binding agreement – but so far with little effect. (Hopes are still pinned on finding common ground at the UN Climate Change Conference in Paris next year).

Elsewhere, the law has had nothing to say on this important issue. The global economy is underpinned by law, but you would think it had nothing to do with climate change. Climate-related cases have been absent from international courts – even from disputes involving human rights, investment or the environment. While there have been cases heard in some national courts, particularly in the US, they do not progress far.

The weak legal response to climate change means that big polluters are getting off lightly. It is clear that 60% of proven oil reserves must be left in the ground if we are to have even a remote chance of limiting global warming to two degrees. Yet oil companies and exporters continue to drill and explore, to enjoy their assets and hedge against future losses, as though climate change were a mere financial risk rather than an existential threat to peoples' lives and livelihoods.

The world of international law is behaving as though the problem of climate change does not exist.

## Investment law

A significant case was decided recently by a panel of international arbitrators in The Hague. Yukos versus Russia involved the compensation of five named shareholders in Mikhail Khodorkovsky's former oil company, Yukos, which was driven to bankruptcy – allegedly by Russian tax policy. The case is noteworthy as it involves probably the largest arbitration award in history, at \$50bn (£31.8bn).

The case is a reminder of just how much power a three-person international panel can wield over national tax policy, allowing them to take vast quantities of money from Russian taxpayers and put it into the hands of private shareholders. It is also notable for the methods by which the panel arrived at this extraordinary sum. The number represents a portion of the money the shareholders were held to have lost through sales of oil that would have been extracted between 2004 and 2011, had Yukos not been bankrupted first.

In other words, the panel ruled that between 2004 and 2011, with greenhouse gas emissions rising at record rates worldwide, those who had played a part in environmental destruction (and profited from it) should nevertheless be compensated to the tune for not having been free to produce more greenhouse gasses.

Put like this the ruling seems bizarre, but as any lawyer will tell you the panel was only ruling on the issues as presented. Both Yukos and Russia recommended the panel follow the indexed market price for oil and gas in Russia over the period, which generally rose. The overwhelming public interest in stemming climate change was absent from the

proceedings and from the court's calculations. The human, social, environmental costs were irrelevant or, as economists like to say, "externalised".

## International trade law

Unfortunately, the same problem also afflicts other areas of international law. One obvious policy for any state serious about addressing climate change would be to impose low carbon standards on the production of ordinary everyday goods such as meat, mobile phones, and plastics. But if you impose standards on goods at home, you must also impose them on imports or domestic industry will become uncompetitive and suffer.

Does international trade law allow states to impose low-carbon standards on imported goods? The answer is yes and no. A low or zero-carbon import policy is almost certain to violate World Trade Organization (WTO) law. There may be viable policies but they will be time consuming and expensive to design, and there is no guarantee the WTO's principal court won't slap down any such policy on a technicality. No country has yet tried.

Why has the WTO not taken more proactive steps to tackle climate change? And why has the estimated \$600bn (£382bn) in annual subsidies to fossil fuels never been challenged, while paltry subsidies to support renewable energy technologies have been stopped?

## Human rights law

Given the self-evident harms inflicted by climate change on internationally protected human rights to health, food, water, shelter and to life itself, one might expect human rights law to provide a viable route to mount a challenge. But this has proved complicated. Many of the principal victims of climate change do not live in the countries where emissions are highest, a key feature of climate injustice. This makes it difficult or impossible to sue.

Where people directly affected by the changing climate already live in high-emitting countries such as the US, Canada, Australia or the European nations, human rights may yet provide some effective relief. Litigation is beginning to happen in some of these places, but there are still significant hurdles.

As regards harm to the climate, courts are faced with lengthy and complicated causal chains that appear at first sight quite unlike the existing case law. Courts need imagination in these cases, but so far they have rarely displayed it.

An International Bar Association report *Achieving Justice and Human Rights in an Era of Climate Disruption* (pdf) looked at each of these areas in some detail, and at several others: international migration law, environmental law, the law of state responsibility. In each case, the report found that progress in internalising the urgent demands of climate change remained weak or non-existent. Fortunately the report has some solid suggestions for moving us forward.

[\[Source\]](#)

# Extraordinary Children Taking Action on Climate Change

## SustainableBusiness.com News

Thousands of children are silent today, joining an 11-year-old boy who is on his 41st day of his vow not to speak until world leaders take action on climate change.

"Why should kids go to school and learn a bunch of stuff if there is not going to be a world worth living in?", asks Itzcuahtli Roske-Martinez. So-called "leaders" are failing us, he says, and we now face a crisis that threatens everyone's future.

He performs "eco-hip-hop" and is in NYC today for the Climate Justice protest on International Human Rights Day, after co-leading the People's Climate March in September.



Actor Mark Ruffalo writes, "I am also made heartsick by your despair, little one. Your silence is a symbol of the silence that will come from doing nothing."

The sixth-grader says the US-China climate agreement is not strong enough. Scientists say we must cap carbon in the next year. If we wait another 15 years, which is when China said they'd cap carbon, it's going to be too late."

His 14-year-old brother, Xiuhtezcatl, is also in NYC today. He heads the youth group Earth Guardians and is co-plaintiff in a youth lawsuit that would force action on climate change. It got all the way to the Supreme Court, which sadly decided not to take it up. Attorneys are filing legal actions in every state. [Learn more.](#)

Quite a family! The boys learned to honor the Earth from their father, a member of the Aztec tribe. They live in Boulder, Colorado.

## Watch his video, "Silent To Be Heard"

The brothers want world leaders to implement the planetary "prescription" written by climate experts, the same remedies being fought for in the lawsuits:

1. Agree on and implement a Global Climate Recovery Plan to get us back to a safe zone of 350 ppm;
2. Massively reforest the planet to help absorb our excess carbon;
3. Support renewable energy solutions to replace the dirty fossil fuel industry.

"I don't know where this road will take me, but I hope it inspires parents and adults to rise up to protect us," says Itzcuahtli, who may remain silent through the Paris Climate Summit in December 2015.

[\[Source\]](#)



## Big Food's plan to make U.S. cash crops more sustainable



Feed corn, ready to harvest on the stalks at the John N. Mills & Sons farm in Hanover and King William Counties, Va. Big food companies such as General Mills and Coca-Cola are looking to use more sustainable farming practices to produce commodity crops such as corn, soybeans, cotton and wheat.

While big food companies are against GMO labels on food, they seem to be moving forward on other issues as members of the Alliance for Sustainable Agriculture. General Mills, Kellogg's, Unilever, Procter & Gamble, Coca-Cola, PepsiCo and Cargill are among the members.

The Alliance consists of 66 grower organizations; agribusinesses; food, beverage, restaurant and retail companies; conservation groups; universities and public sector partners. The alliance's members say they're committed to "sustainable outcomes for commodity crops such as corn, soybeans, wheat, cotton, rice and potatoes."

Their "Field to Market" initiative is engaging the entire agricultural supply chain to "address the collective environmental challenges we face and responsibly manage our planet's natural resources," said Rod Snyder, the alliance's president.

The goal is to improve agricultural practices for 20 percent of U.S. commodity crop production on 50 million acres by 2020.

Williams Farm in Mississippi grows corn, soy and cotton on 40 percent of the land, and preserves habitat for bobwhites and waterfowl.

Alliance members pledge to reduce soil erosion to tolerable levels or below on all U.S. cropland, improve productivity on farms to preserve wildlife habitat and to improve regional water quality by reducing sediment, phosphorus, nitrogen and pesticide loads from farms. Members also pledge to improve regional water availability through efficient irrigation and conservation, increase energy efficiency in crop production and reduce greenhouse gas emissions from farms per unit of output.

The Alliance has a calculator that estimates farm performance on land use and conservation, carbon in the soil, water quality and consumption, energy use and greenhouse gas emissions. The next step is to work with the Sustainability Consortium on a way to measure and report on the sustainability of U.S. agriculture.

[<Source>](#)

## Here's the Lowdown on the Lima Accord

SustainableBusiness.com News

By Rona Fried

Now that the Climate Summit in Lima, Peru has ended, let's take a moment to step back before we look at the results.

In 2009, the world was ready for a climate treaty and prepared to "seal the deal" in Copenhagen. It was the "moment" everyone had been waiting for, but at the last minute, conservative Heartland Institute (and others) successfully derailed it - thanks to the media frenzy surrounding "ClimateGate."

After hackers stole emails exchanged between climate scientists, Heartland pounced, taking bits and pieces out of context and leading the world to believe their research findings were a scam, even a conspiracy.

While that same approach failed in Durban, by 2011, Democrats had lost their majority in the US Congress and our tune changed to "[let's make this voluntary](#)," even as China proposed binding commitments!

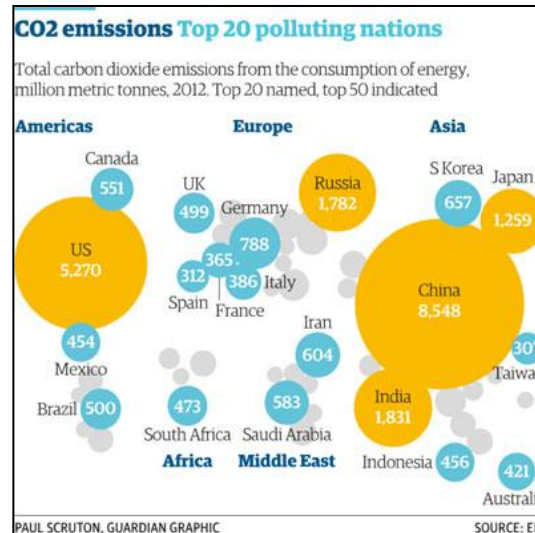
Since then, the world has been inching forward again, trying to regain the trust that existed heading into Copenhagen. That's when the Green Climate Fund first formed, settling differences among rich and poor nations.

### Lima Accord

The Climate Summit ended on Friday, but negotiators continued working and at 2AM Sunday morning a draft treaty for post-2020 was revealed and signed by 195 countries - meeting the goal of the Lima Summit. The most important elements are:

- For the first time, all countries agreed to announce climate targets - and programs to reach them - by March 31. Their commitments will be published on the UN website for the world to see and will be the basis for the 2015 Paris Treaty.
- By May, a draft of a legally binding international agreement will have been circulated and commented on - it will be based on staying below the 2°C threshold.
- By November 1, the secretariat of the UN Climate Change Convention will have assessed if country commitments are enough to meet the 2°C threshold. If not, they will announce how far they are from the target.
- In December, the dramatic final negotiation - and hopefully signing - takes places in Paris, France.

The Lima Ministerial Declaration on Education and Awareness calls on governments to put climate change into school curricula and climate awareness into national development plans.



"Here's the good news from the Lima talks: countries around the world now fully understand that early next year they must commit to ambitious reductions in climate pollution and bold measures to slow global warming," explains Jake Schmidt of Natural Resources Defense Council. "Most key countries are laying the groundwork at home for more aggressive commitments to cut their carbon pollution. There is no question about this point anymore."

### Zero Emissions by 2050

Perhaps most importantly, for the first time a "zero emissions" goal by 2050 gained traction, with over 100 countries adopting the target.

Besides the obvious significance of this, accepting the idea of ending fossil fuel use strengthens arguments for divesting and frames the industry as a risky investment. If zero emissions are the goal, the world's biggest coal mine in Australia and the Keystone pipeline in the US make no sense.

But the same divisions are still there. Developing countries insist rich countries aren't doing enough to resolve the problem they caused and are looking to developing nations too much. They still want that \$100 billion a year (by 2020), promised for the Green Climate Fund, and they want to use it for adaptation as well as mitigation. Rich countries say that countries like China, Brazil and India are industrializing so rapidly that they too must lower emissions - or the world will overheat regardless of what advanced countries do.

### Where the Lima Agreement Falls Short

- Countries agreed new targets should go further than current ones, but there is no requirement for that. Plans for implementing targets "may include" details such as target years, and how it is "fair and ambitious."
- If they don't submit their pledges by March 31, countries will have until June - but even that isn't required.
- After China and other countries refused to submit plans with standardized measurements that can be compared to that of other countries, it was omitted.
- Green Climate Fund: advanced countries are "urged," but not required to contribute to the fund, and are "invited" to include an adaptation component.
- what happens before 2020?

In other words, there are strong goals but no one is required to meet them! The entire deal relies on peer pressure, because there was no other way every country would sign onto the deal, including the US and China.

They reached agreement only because it leaves countries to develop plans and programs based on their own domestic policies and economies - a bottom-up approach rather than top-down mandates.

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## What really inspires millennials to live more sustainably?

By David Benady, for theguardian.com



*Unlike much market research, an on-site eye tracking study showed people's actual reactions in everyday life environments to messages and products, rather than just recording what they said. Photograph: BT*

The task of persuading the public to live more sustainably is getting a boost from the latest technology which is showing how we react to sustainability messages in the real world.

The rapid uptake of smartphones and tablets is helping spread the message about sustainable living with "circular economy" digital platforms such as Airbnb and car trip sharing scheme BlaBlaCar, making sustainability cool with the young. Meanwhile, social media has proved to be a powerful tool for promoting the benefits of sustainable living.

But businesses are struggling to find ways of coaxing consumers into choosing more environmentally friendly products and services and perhaps pay a little more for them. Recent research shows that the important younger audience of millennials aged 18 – 34 are eager to help save the planet, but they are unclear on how they can contribute. Millennials are often skeptical about the claims of businesses and they need to be inspired by brands to get involved with sustainable living.

Olivier Oullier, professor of behavioural and brain sciences at Aix-Marseille University who designs engagement and behaviour change strategies for public and private organisations worldwide, has run research into millennials' perceptions of sustainability.

Oullier says that the tone of voice brands adopt in their messages is vital. "Millennials don't want brands telling them what to do, they want to be inspired, they want to see leadership. "There is limited time and attention that people have. The easier we can make it for them to adopt new sustainable consumption patterns, the better. We need to make it easy for them not only to understand but also to visualise the change they are going to make and its concrete consequences."

Sustainability needs to be something millennials can take part in rather than some remote aim. Some companies such as Opower are using a combination of behavioural insights and digital services to help people cut down on energy usage and save money, by allowing consumers to compare their usage to other people's.

Oullier undertook a research project with the World Economic Forum and its partners that used a unique combination of portable eye tracking and neuroimaging technology to see how young people respond to sustainability messages from brands, first in a laboratory environment and then in a supermarket setting.

The research showed that millennials think sustainability means a product will last a long time, rather than understanding it in the sense of saving energy or ethical trade. They responded better to direct and concrete calls to action, such as saving electricity or reducing water consumption than more general messages and fancy vocabulary about the environment.

But millennials were not prepared to sacrifice product quality in the name of sustainability, the research showed. Messages which talk about millennials as "trend setters" and try to engage them with a general awareness about sustainability were found to be ineffective, as they detract from focus on the product.

However, the research did show that millennials like and respond to messages which encourage them to be socially conscious and positive about the future. A powerful message is to talk about leaving a better world for future generations.

The research was conducted globally in diverse markets including China, India and the UK. Unlike much market research, the on-site eye tracking study showed people's actual reactions in everyday life environments to messages and products, rather than just recording what they said. This allowed Oullier to measure the gap between millennials' intentions and actions.

The research found that helping people visualise the effects of sustainability and the outcomes of the actions taken is crucial, says Oullier. When asking people to give money to fight malaria, they need information to help them visualise how the money is spent, for instance, by telling them that donating £7 will help provide one mosquito net.

"You convert a monetary value into a human value, I call this 'brain currency', something that is easy to understand as it makes it easy for us to picture what the donation will help for," Oullier says.

Likewise, describing air pollution in Paris as akin to passive smoking is a powerful way of illustrating the damage that pollution does, rather than just relying on a statistical analysis that many would struggle to understand.

A huge boost for sustainability is coming from digital connectivity, with social media creating new ways of influencing people's activities, attitudes and behaviour. At BT's Better Future Forum earlier this year, participants discussed ways that social media and connectivity were helping people learn about sustainability.

[<ReadMore>](#)

## Will Lima climate talks pave way for a binding treaty in Paris in 2015?

By John Vidal, for theguardian.com



*A view of the cracked bed of Jacareí river in Piracicaba, during a drought affecting São Paulo state, Brazil. Photograph: Nelson Almedia/AFP/Getty Images*

When, on Monday morning in Peru, 4,000 diplomats from the world's 196 countries start their mammoth session to negotiate a new legally-binding global climate deal, they will know they are in the last chance saloon. COP20 in Lima is the last full meeting before Paris in a year's time, when the deal is due to be signed. If countries cannot bury most of their differences on the major issues by Friday next week, then the chances of a meaningful agreement next year are slim.

The result of failure would be that developing countries are condemned to unchecked climate change for another generation, and the UN process which relies on consensus to get results is fatally undermined.

On the surface, all is going to the plan of the rich countries and the big emitters. Presidents Barack Obama and Xi Jinping of China, who between them are responsible for 42% of the world's greenhouse gas emissions, have agreed a deal on climate change. The US will cut US emissions to 26-28% below 2005 levels by 2025, while China has pledged that emissions will fall after 2030. Europe, meanwhile, has agreed to a binding 40% cut by 2030 from 1990 levels. In addition, rich countries have pledged \$9.7bn to the new UN Green Climate Fund (GCF). And it has been agreed that, by March next year, every country in the world will have established plans for reducing or constraining emissions as well as producing detailed plans on how they intend to fund climate adaptation.

In reality, the questions start here.

### Will developed countries do more?

Lima is the last chance that developing countries have to push for more action from developed countries in the period 2015-2020. To the despair of the poorest countries, the rich have fought to do little more than the very minimum needed, and hopes are already fading that emissions can be held to a 2°C rise, considered by science the minimum to avoid dangerous climate change. The recent US-China pact requires neither superpower to do very much, and has dashed all hopes that Paris 2015 will result in the setting of ambitious targets.

Many rich countries now want to sign up to a weak agreement, one with pledges to achieve the targets but no legally-binding requirement, though the EU says it is arguing for legally-binding mitigation targets. The Umbrella Group of countries, which includes the US, Australia, New Zealand, Russia, Ukraine and Japan, are all pushing this line of minimal legal requirement.

Some of the major emerging economies like Korea, Mexico and Brazil and are now hiding behind the poorer developing countries and are not willing to take on substantial emissions reduction targets. Their emissions and economies have grown rapidly, yet they are still crying poor.

Developing countries will press strongly in Lima for solid pre-2020 commitments in accordance with scientific assessments. But if the rich and the big emitters do not move, then the result will be worldwide disappointment and cynicism about the UN process. The worry for developing countries is that the less that rich countries do, the more they themselves will have to take on commitments post-2020.

[<ReadMore>](#)



## Toyota speeds into the energy future with fuel-cell cars



Next month marks the start of a new era as Toyota begins sales of the world's first mass-produced hydrogen fuel-cell car.

Mirai goes on sale in Japan this year, and in Europe and the U.S. (East and West Coast regions) toward the end of 2015. Toyota's goal is to sell 700 cars next year, 3,000 by the end of 2017, and "tens of thousands" within 10 years. It has 200 pre-orders from government agencies and corporations.

"We are at a turning point in the automotive industry," said CEO Akio Toyoda. "When we introduced the first hybrid car in the world (the Prius), people said we couldn't break through, and now we will do it again."

Indeed, while Prius means "to go before" in Latin, Mirai means "the future" in Japanese. The Prius "paved the way by demonstrating the future of mobility would include electric motors," Toyoda said.

"After surviving millions of miles on the test track and 10 years of testing on public roads, in freezing cold and scorching heat, after passing extensive crash tests and after working with local governments and researchers around the world to help make sure it is easy and convenient to refuel, we are ready to deliver," he said. They also cut the cost 95 percent over 20 years of R&D.

Mirai, with two hydrogen tanks under the seats, has a range of 400-435 miles, and can accelerate from 0-60 miles per hour in 9 seconds. A powertrain with an electric motor and fuel cell stack replaces the gasoline engine.

In the US, it will retail at \$57,500, ending up around \$45,000 after federal and state incentives. Filling up will cost more than gas at first but will be cheaper in the long run, Toyota says, and California Mirai owners will receive free fuel.

### Where the hydrogen stations are

"It was a big challenge when we first introduced the Prius in 1997 and it's an even bigger challenge this time because there is no infrastructure," noted Yoshikazu Tanaka, deputy chief engineer for Toyota's next generation vehicle development.

Imagine launching a completely new car where there's hardly any place to fill up. There are two commercial fuel stations in Japan, and 43 under construction, according to the Ministry of Economy, Trade and Industry, with plans for 100 by the end of 2016 — subsidized partially by the government.

Germany also plans to have 100 stations by 2017, and in the U.S., hydrogen highways are being built in California (60 stations by 2016) and in the Northeast (12 stations).

Toyota says it's not the number of stations that are important, however, but where they are located. California, for example, would do just fine with 15 percent of its gas stations.

### Early review is positive

Mike Chino, writing for Inhabitat, describes the Mirai this way:

"The Toyota Mirai drove like a dream — it floats along the road and the ride is virtually silent save for the sci-fi sound of the hydrogen pump and the whirr of the electric drivetrain. The car's electric motors give it plenty of torque and a sprightly pickup, and the vehicle's touch-sensitive controls are a pleasure to use. A counter on the dashboard displays how many miles you can drive until it's time to fill up.

"The refueling process was a breeze at the Fountain Valley station [Orange County, Calif.]. It took a few seconds for the pump to pressurize, and then I attached the gas-like pump to the hydrogen valve and locked it in. The mechanics are remarkably similar to the way a standard gas pump operates, and the entire process took less than five minutes. The fact that it can be powered by human waste is testament to how versatile fuel cell vehicles can be."

The final judge of fuel-cell cars will be where the hydrogen comes from. Natural gas? Solar or wind energy? Or in this case, from biogas at a nearby wastewater treatment plant.

Last month, the U.S. Department of Energy announced a \$1 million prize for completing the fuel cell car puzzle — developing an affordable way for people to fill up their cars at home. It is also working on a standard design for commercial stations.

[<Source>](#)

## This Israeli startup makes robots that dry clean solar panels

Source Name: GigaOm

Every night, nearly a hundred robots come to life in the arid desert of southern Israel and get busy cleaning rows and rows of solar panels. The robots are designed by startup Ecoppia as an alternative to the conventional, but also labor-intensive, method of sending human workers to hose and wipe down panels manually or use a truck-mounted sprayer to do so.

Dirty panels produce less electricity, but the need to use water for cleaning those panels, especially in dry regions, makes even a clean power project less eco-friendly. And in certain remote corners, water extracted from the ground is too brackish for use without being treated, which adds to the production cost of a solar power plant.

In dusty areas such as the Middle East and India, solar panels could lose electricity production by 10 percent to 35 percent over time if they remain unwashed, Eran Meller, CEO of Ecoppia, told me in a recent interview.

Ecoppia's robots dry clean each panel and move from the top to the bottom of a row of panels. The Israeli startup found a loyal customer in Arava Power, with which Ecoppia installed the first set of its robots on a solar farms (5 MW total) earlier this year in the Negev desert. Ecoppia is installing more robots in other Arava projects.

"It doesn't pay to manually clean thousands of panels in hundreds of acres of arid desert fields," said Jon Cohen, Arava's CEO. "Now we have a process that costs less, and above that we are upping the output." Using the robots so far has led to about 2-3 percent more electricity production than employing humans, Cohen said.

The challenge of keeping solar panels dust free will grow as more solar power projects are built worldwide. In many cases, cheap labor and ample water supply will continue to make manual washing the low-cost choice for solar power plant owners.

But for companies with projects in different climates — and the need to show they run a low-carbon, sustainable operation to secure permits or dodge lawsuits from environmental groups — a less energy intensive cleaning process could be desirable.

SunPower, which builds solar power projects around the world, bought Greenbotics a year ago after trying out the California startup's technology in a solar farm it built in the state's Central Valley. The big selling point of Greenbotics is that its technology uses up to 90 percent less water than manual cleaning.

Ecoppia was founded in January 2013 but started its development work a few quarters before that. The company has raised an undisclosed amount from the Swarth Group, GlenRock and Gandy.

Each robot, which weighs about 86 kilograms (190 pounds), is essentially two large microfiber brushes on eight wheels, with the brushes rotating at a high speed to generate airflow as they move down the panel.

The airflow removes a bulk of the dust while the brushes get rid of the rest. The robot runs on two 12-volt lead-acid batteries at night. Solar electricity recharges the batteries during the day. After the robot completes its task, it returns to a docking station and uses the rotational energy to get rid of the dust captured by the microfiber.

Ecoppia has designed its robotic system to perform optimally in a row of solar panels that runs 300 meters by 6 meters (984 feet by 20 feet), Meller said. Each robot can take care of hundreds of panels each night, depending on the size and configuration of the installation. Power plant operators can control the robots remotely and receive data about the machines' performance and maintenance needs.

Ecoppia makes money by selling and installing the robots and providing maintenance and data analytics. The cost to hire Ecoppia to engineer and install its robots runs from \$0.03 to \$0.06 per watt, Meller said.

With about one year of field data of its robots' performance, the startup projects that its equipment and services could save 840 million liters of water for a 300 MW solar park over 20 years while increasing electricity sales by \$180 million, Meller said. Of course, those projected savings and revenues will vary widely in different countries or even within a country, depending on the local operational costs and how much the utilities are willing to pay for power. Arava, for example, is cleaning its solar panels nightly in Israel while in California, SunPower is cleaning its panels several times a year.

Currently, Ecoppia's robots are cleaning about 500,000 panels per month. It will be installing robots for other Arava projects, including 40 megawatts that have yet to be completed, that will bring the monthly total to 10 million by the end of 2015, Meller said. The robotics developers are working on entering the U.S. market next year.

Arava has been working closely with Ecoppia in engineering the robots to fit its projects' configurations. Arava also secured written assurances from the manufacturers of the panels it uses — Suntech Power, JA Solar and Trina Solar — that outfitting the robotic systems on their panels won't change their warranties.

Ecoppia is working on engineering its robots to work on solar panels that are held up by trackers, which tilt the solar panels to follow the sun's movement, said Cohen, who is looking at using trackers for future projects.

The close relationship with Ecoppia makes Arava a potential buyer of the robotic startup down the road. But Cohen would only allow that the his company is "closely affiliated with Ecoppia. We will be involved in Ecoppia going forward."

[<Source>](#)

## Energy conservation can help save Rs 50,000 crore: Piyush Goyal

Source Name: *Economic Times*

Pursuing energy efficient ways will help reduce electricity consumption and save as much as Rs 50,000 crore, according to Power Minister Piyush Goyal.

Emphasising the need for conserving energy, he said that within next two years government buildings throughout the country would be equipped with energy saving LED (Light Emitting Diode) bulbs.

"India produces about one lakh crore units of electricity and if a ten per cent saving (energy) is made that can save 10,000 crore units," Goyal said today.

This is equivalent to as much as "Rs 50,000 crore" savings which can be utilised for lighting up homes of five crore people who are without electricity, he said while speaking at the National Energy Conservation Day function here.

Noting that energy conservation would help in the country's economic progress, Goyal said the aim should be to save 10,000 crore units of electricity by end of 2015.

As part of the function, the Minister also interacted with students from different parts of the country through video conferencing for nearly an hour.

"If we do it (using LED) in two years, the prices would also come down as economies of scale would be there," Goyal said and suggested that companies can utilise their Corporate Social Responsibility (CSR) funds towards this effort.

He was responding to a query by a student from Hyderabad on whether LED bulbs can replace incandescent ones.

In Andhra Pradesh, the state government is distributing LED bulbs to replace incandescent ones.

Goyal also said that he would take up with Human Resource Development Ministry the idea of voluntary inclusion of energy management in the school curriculum.

There was another suggestion about having a toll-free number in each state, where complaints can be registered regarding wastage of power due to not switching off the street lighting system during day time.

Responding to it, Goyal said officials would be asked to make this toll-free number operational by January 31, 2015 in all states and Union Territories besides ensuring proper management.

When asked about the need for government vehicles to conserve energy, the Minister said he would look into the issue and do something.

Goyal, who also holds the portfolios of Coal and New and Renewable Energy, said that all islands would be made green energy islands in the next two years.

[<Source>](#)

## BMC markets, gardens may soon have biogas plants, composting pits

Source Name: *DNA*

The small-capacity bio-methanation plants which the BMC is contemplating setting up in all municipal markets in the city, will give an impetus to the civic body's zero garbage initiative, which entails reducing amount of waste going to the dumping grounds every day. It's also planning to set up mini composting systems in all its gardens.

Mumbai currently has 92 municipal markets and over 1000 BMC-owned gardens.

Additional municipal commissioner Vikas Kharge, who is in charge of BMC's solid waste management department, said the initiatives would ensure that minimum waste went to the exhausted dumping grounds.

"Municipal markets mostly generate wet waste. So we are planning to set up biogas plants in the market premises depending on the space available. The wet waste that markets generate can be converted into gas in hours," Kharge said, adding that the idea was only at a preliminary stage at the moment.

He also said setting up composting pits in gardens would help compost leaves and other materials that get accumulated there. "It will also encourage nearby housing societies to start composting in their societies or use the composting pit in these gardens," Kharge said.

"Only things that can't be composted or recycled would then go to dumping grounds," he said.

Recently Kharge had said BMC was planning to increase the number of waste collection vehicles and dry waste collection centres, which are currently managed by NGOs. The civic body currently has 46 vehicles (two allocated per ward for dry waste collection) and 36 dry waste centres.

He had also said he would bring the house in order first before penalising housing societies and commercial establishments.

The slew of steps comes after activist and corporators had alleged that the segregated waste collected by the civic body was eventually mixed at the dumping grounds.

Mumbai, as of now, generates 10,000 metric tonne of waste, of which 2,500 metric tonne is construction debris. The waste is disposed in Deonar and Mulund dumping grounds, both of which have been due for closure since more than five years.

With BARC assistance

In 2003, the civic body set up two biogas plants on a pilot basis, at Deonar Abattoir and Shatabdi hospital in Govandi, with the help of Bhabha Atomic Research Centre (BARC). However, after the 4-metric-tonne plant at Deonar Abattoir became dysfunctional, BMC had mooted replacing it with a 20-metric-tonne biogas plant by the

year end with BARC's assistance.

What's biomethanation?

Biomethanation is a process by which organic material is microbiologically converted into biogas under anaerobic conditions.

[<Source>](#)

## Hydrogen fuel can address India's energy needs: CNR Rao

Source Name: *Business Standard*

Renowned scientist and Bharat Ratna awardee Professor CNR Rao said the country should unlock hydrogen as fuel to address the growing energy needs and also tackle greenhouse gas emissions.

The process of synthesising hydrogen fuel through artificial photosynthesis process, on which Rao is currently working at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) in Bengaluru, will help India generate enough fuel from the atmospheric water vapour and sunlight to meet its transportation fuel requirements and industrial energy needs.

While plants utilise photosynthesis-generated hydrogen to prepare food for their growth, in the artificial process, scientists are using semiconductors to harness hydrogen fuel from water vapour present in the air in the presence of sunlight. The other element released during the process is oxygen gas.

Underscoring the importance of artificial photosynthesis, he said, "the US government two months ago had declared producing hydrogen through artificial photosynthesis as a national mission and the US President had granted a \$120-million research funding to the two scientists working on it." However, in India, research in hydrogen fuel is very limited, he added.

According to him, the key to taking forward the use of hydrogen fuel lies in its storage.

"The entire world is working on it. The real issue here is we need a solid material that can store hydrogen and also allow us to use it by just scratching it or by slight heating," he said.

To an extent, Rao was able to find a solid that can store 4.5 per cent hydrogen by weight, but the requirement is for a solid that can hold 6 per cent hydrogen fuel by weight, to be used in the cars as fuel. Currently, cars makers have been employing compressed cylinders technology to store hydrogen fuel in the vehicles.

Rao, who is JNCASR national research professor and Linus Pauling Research professor, today delivered the keynote address at the national conference on Advanced Materials for Defence and Aerospace Applications held at Birla Institute of Technological Sciences-Hyderabad.

In his address, he said India should aim at a higher solar energy installed capacity of 30,000-Mw. "The flood of cheap silicon photo voltaic cells from China has made solar generation much easier. In such a scenario, it would be realistic for us to target at least 30,000-Mw capacity," he said.

The head of the Scientific Advisory Council to the Prime Minister of India said universities in the country should take up extensive research in organic photo voltaic cells so that these can be used for generating solar energy in a big way.

[<Source>](#)

## Terra Motors unveils electric three-wheeler for India

Source Name: *Tech in Asia*

Japanese electric vehicle (EV) startup Terra Motors today unveiled a three-wheeler to be sold in developing Asian markets as an affordable and environmentally-minded alternative to gas-powered scooters and trikes. Dubbed the R6, Terra Motors' new three-wheeler can accommodate seven people (six passengers and a driver) and travel 100 kilometers on a single charge.

The startup claims that charging costs amount to a mere US\$328 per year. A similar gas-powered three-wheeler, on the other hand, burns through US\$4,307 of petrol annually. These estimates are based on the cost of electricity and gasoline in Delhi, as Terra Motors is targeting the Indian market, specifically, for the R6's debut. It has set a sales goal of 10,000 units in the country for 2015. According to a Terra Motors statement, at least two other e-rickshaws are in development to compliment the flagship R6.

Tuk tuk-style transportation vehicles are a common sight across South and Southeast Asia. Their compact design allows them to carry just as many (if not more) passengers as a traditional taxi while navigating narrow roads and the region's notoriously congested streets. But idling a gasoline engine during peak traffic is a big source of air pollution – something Terra Motors is passionate about curbing. The R6 has a tight 3.2-meter turning radius and a reverse function for maneuverability – all with zero carbon emissions.

Additionally, the R6 can reach 30km/h and safely climb 10-degree inclines. A lead acid battery provides the power, and it can reach an 80 percent charge in just one to two hours. It even has built-in rain flaps for inclement weather.

[<Source>](#)



## New Delhi talks tough with US, says it will bring green bills in budget session

Source Name: Times of India

With countries fine-tuning their positions for the high-level segment of the climate conference, Indian environment minister Prakash Javadekar on Sunday had a bilateral meeting with the US special envoy for climate change Todd Stern where both countries exchanged views on issues concerning adaptation, climate finance and intended nationally determined contributions (INDCs). Javadekar also indicated that the Modi government plans to invest up to \$100 billion by 2022 to boost solar power generation.

In his effort to bring clarity on India's action on climate change, the environment minister on Sunday also announced that the government was planning to bring legislations in the next Parliament session to strengthen laws to protect the environment.

Javadekar was addressing a session on 'Barriers to National Climate Action: Lessons from developing countries', organised by the Global Legislators Organisation (GLOBE India) on the sidelines of the ongoing climate conference on Sunday.

The proposed climate legislations will have provisions of keeping air clean through constant monitoring, strict anti-pollution norms for industries and transport sector and increasing forest cover.

It is learnt that the minister will list all such actions - including setting up national adaptation fund, move to bring climate legislations and decision to increase the cess on coal to fund its renewable energy goal - in his formal statement during the high-level segment.

During an hour-long discussion with Stern, Javadekar is learnt to have told the American climate negotiator that India would not announce its peaking year on the lines of China as it was not ready to do so at this stage of its economic development.

Besides, Javadekar also underlined the unease among developing countries about the reluctance shown by rich nations to fulfill their pre-2020 commitment and their poor response to the Green Climate Fund (GCF).

"The climate fund must become a reality. From 2012, we were expecting to start with \$10 billion every year to reach \$100 billion by 2020 and then continue with \$100 billion per year. So, that's why we wanted to go ahead. But today it's just \$9.95 billion. So, that will be the main point of decision in Lima", said Javadekar, a former president of GLOBE India.

He further said, "There are issues of INDCs. It is major departure from and way forward from 1992, when world decided in Kyoto of which the second commitment period began in 2012. Then, we divided the world into two, annexe and non-annexe. But now things have changed. Everybody realizes the danger of climate change and therefore now the INDC concept suggests that every country will take action and they will declare it".

Seeking to highlight one of India's key agenda, he said, "Our Prime Minister (Narendra Modi) has announced increased targets for solar power by investing up to 100 billion dollars to boost its share— from 20 GW to 100 GW by 2022".

There are other bilateral meetings lined up for Javadekar before the beginning of the high-level segment on Tuesday. It includes his meeting with ministers of other SAARC countries and BASIC nations including Brazil, South Africa and China.

[<ReadMore>](#)

## Recycled E-Waste Brightens Dark Nights

Source Name: Discovery News

Bangalore-based IBM Research India has a bright idea for keeping discarded lithium laptop batteries out of landfills: repurposing their cells as energy supplies for the powerless. The idea, presented at this weekend's fifth annual Symposium on Computing for Development (DEV 2014) in San Jose, has passed a small proof-of-principle test run with Bangalore's working poor.

Researchers at the Massachusetts Institute of Technology have figured out how to track trash. They are doing this to get a better sense of people's disposal habits, which they hope will improve recycling efforts.

The IBM researchers used disused lithium batteries to create a new device they dubbed the UrJar — a multilingual monicker pairing the Hindi word urja for "energy" with the word "jar."

Hardware R&D firm Radio Studio, India, built the units. The first phase was tear-down. Radio Studio disassembled laptop batteries to isolate those cells that could still hold several hours' worth of charge — over 60 percent of cells on average, according to their sampling.

Cells that passed quality control were repackaged in a housing with basic electronics, starting with a charging circuit to limit the rate and level of charge on the lithium cells and thus minimize fire risk. Buck converters and a boost circuit feed power jacks for a variety of DC devices including cell phones, LED lights and small fans.

Testing by one non-electrified Bangalore resident and four street vendors led to favorable feedback after use of an UrJar for between one week and three months. One street vendor, who previously relied on a battery-powered compact fluorescent light at night, reported that he could keep his shop open two hours longer by using the UrJar powering an LED light.

Mohit Jain, a member of the IBM group, told Technology Review that "the main request was for rat-resistant wires and brighter bulbs."

At a production volume of 1,000 they figure they can turn out UrJars, including a 3 W LED light and a mobile charger, for 600 rupee (\$9.70). That is one half to one-third the cost of

the rechargeable portable lighting devices marketed in Bangalore, most of which use shorter-lived lead acid batteries. Participants in the IBM study reported they would pay 1,000 rupees to own an UrJar.

That suggests there could be plenty of demand. According to the IBM paper there are more than 400 million people in India without power, including 45 percent of rural households. They envision rural residents charging UrJars at centralized solar-power stations.

There is certainly no shortage of tossed batteries to fuel this vision. The IBM paper estimates that 142,000 computers are discarded daily in the U.S. alone, while one large multinational's India operations alone discarded more than 10 metric tons of laptop batteries last year.

[<Source>](#)

## Supernova Is India's First Electric "Supercar"

Source Name: gas2

With a population of 1.25 billion people but one of the lowest vehicle ownership rates in the world, India has tremendous market potential for automakers. Just what role electric cars will play in India's growing economy is uncertain, but the country can now claim to have its first electric "supercar", the Golden Arrow Supernova.

Why the quotation marks? Because in this case, what one can consider a supercar is all about perspective. There are just a handful of electric cars for sale in India right now, and not only are they not selling well, but some of the, barely qualify as cars as we know them. The Mahindra Reva e20 has a range of just 60 miles on a full charge and a top speed of 60 MPH. I mean, really? 60 MPH? That's it? If you tried to take that out on an American highway, you wouldn't be run off the side of the road so much as stuck to the front of a semi-truck.

Thankfully for the Supernova, designer Sashi Vyas saw fit to give his electric car a mighty 78 horsepower motor, allowing for a comparatively spirited sprint from 0 to 60 MPH in about 9.9 seconds. Though slower than the Nissan LEAF, the Supernova certainly looks faster, as Vyas drew his inspiration from the slew of Bertone-designed supercar concepts from the 1990s.

Alas, the workmanship appears to be on the same level as a cobbled-together kit car, though Vyas claims in the Business Standard to have about 250 orders already. India has pledged to invest over \$4 billion in electric vehicles over 8 years, and the Supernova could yet benefit from that investment.

Right now the company needs investment and land so they can set up a manufacturing facility in Gujarat, which would give India its first native electric automaker. In addition to a claimed top speed of 150 KPH (about 100 MPH), Vyas says the Supernova will be offered with three battery types; lead acid, lithium-ion, and supercapacitors, which I have to say is a novel concept in this industry.

Only Tesla offers multiple battery sizes, but the idea of offering customers cheaper lead-acid or other battery chemistries hasn't taken hold in the industry.

[<ReadMore>](#)

## Will help India down clean energy path: World Bank chief

Source Name: My Digital FC

The World Bank will do everything it can to help India achieve the goal of clean energy to all, President of the international financial institution Jim Young Kim has said. "We're going to do everything we can to help India down a cleaner path," Kim said yesterday.

"If we could build more bus rapid transit systems in India, if we could do many more thousands of kilometres of bus rapid transit systems, that would have a huge impact. They've already gone to natural gas-run buses that are much cleaner," said Kim who visited India early this year and met Narendra Modi in Delhi.

"So there are lots of things we can do. What Prime Minister Modi is looking for - and this is our responsibility to him - he said to me specifically, if you can find cleaner ways of accomplishing what I have to accomplish, and that is creating jobs for all these young people, all these people that are, you know, exiting schools and looking for work, if you can find that, I will choose it," he said.

Kim said he remained hopeful, but the overall discussion was a very complicated one. "400 million people living on less than USD 1.25 a day that is also his (Modi) responsibility," he said. The President said he has had quite a few meetings with Modi.

"Prime Minister Modi has told me that he has worked a lot in terms of increasing solar energy. So he's a great advocate of solar energy. And he did that when he was in Gujarat," he said.

"He has an enormous problem in the sense that he has to find ways of providing energy for, still, 400 million people in India who live on less than USD 1.25 a day, while at the same time having a positive impact," he added.

He said Modi had been clear and open to having discussions. "But, of course, the first thing they will say is, you know, we need a chance to industrialise, we need a chance to create jobs, we need energy," Kim said.

"I'm hopeful in the sense that the leadership of China and the US I think was unexpected. And even at the G20 meeting, every single one of the leaders there knew that there was a reckoning coming, that they would have to state what they were going to do. And so we continue to work with them very closely," he said.

[<Source>](#)

## Using Electric Car Batteries To Power Schools In India

Source Name: Forbes

Can electric cars be used to run classrooms for low-income kids in India? An electrical engineer and self-described motor head by the name of Siva Rajendran wants to solve a problem, and it's a big one: In India, there's a little boom in so-called affordable private schools (APS), which charge students as little as \$5 per month and provide low-income populations with an education regarded to be of a much higher quality than what's offered by government schools. Only, to protect its shaky energy infrastructure, Indian utilities cut power anywhere from 5 to 12 hours a day. That means, even though those schools have many low-cost laptops and tablets, kids can't use them, because they run out of power.

Rajendran thinks he has an answer: use discarded electric car (EV) batteries to provide the power. Two years ago, he started Totus Power, to make that happen. He's now running an Indiegogo campaign to raise \$40,000 to jumpstart production. Result 1-2 Several years ago, he got to talking to a friend who had also grown up in India. His pal was trying to start a social enterprise aimed at providing poor kids with a better education, but kept coming up against the problem of electricity brownouts. So Rajendran decided to try to find a more-efficient, low-cost way to provide portable electricity to schools.

At the time, Rajendran was working for an electric car company. He'd also been on a crew that built what he says is the world's fastest electric race car. In fact, his fascination with automobiles is what attracted him to electrical engineering in the first place.

At his job, Rajendran was working on addressing the problem of recycling expensive EV batteries. After about five or six years, they degrade to only 70% of their original capacity and then they're generally thrown into landfills; over the next three years, 17 million useful EV batteries will be crushed and tossed aside worldwide, according to Rajendran. Eventually, he realized those batteries were his solution. They may lack the oomph to power an electric car, but they were just fine for charging devices in Indian schools. What's more, he wouldn't have to design the electronics from scratch.

So he left his job and embarked on an effort to design and build a portable power source the size of a water bottle, using discarded EVs, that could run a classroom with 20 tablets and a projector for 20 hours.

Not that he had a ton of money saved up. According to Rajendran, for most of that time, he has basically been homeless, living with friends, in a rental car, or a garage, for example. He's funded his work mostly through accelerators and pitch competitions. That's included \$40,000 from Startup Chile, which helped him build and test a prototype in Mumbai and Hyderabad, and \$14,000 from the Good Money Challenge at Marquette University, among others. He also was accepted into Impact Engine, a social enterprise accelerator, in Chicago, where he got a \$25,000 investment; he started there in October. (I wrote about Impact Engine here).

Now, he wants to raise \$40,000 to move into production of battery-management boards. (He's raised \$10,087 as of now). He has a two-year supply of batteries from a commercially deployed electric car. Ultimately, Rajendran wants to introduce the batteries to schools in other parts of the developing world. "The key pieces are in place," he says. All he needs is some money.

[<Source>](#)

## Avery Dennison grant fuels waste-to-wealth opportunity in India

By Avery Dennison, for theguardian.com



As consumption increases, the amount of waste generated from packaged goods also increases.

Photograph: Shutterstock/Courtesy of Avery Dennison

India is developing an appetite for paper and other consumer goods. Economic growth and rapid urbanization in this nation of 1.26 billion people is creating millions of consumers, eager to sample the modern retail shopping experience. Research from the McKinsey Global Institute suggests that if India continues to grow at its current pace, the country will become the world's fifth largest consumer economy by 2025.

With consumption comes a challenge – packaging waste; about 14.6m metric tons of it each year, according to the Indian Agro and Recycled Paper Mills Association. It also creates an opportunity for the creation of a recycling industry that could generate stable jobs for India's growing population.

With this in mind, the Avery Dennison Foundation made a grant to the India-based NGO Society for Technology and Action for Rural Advancement (TARA) to fund a viability study for the development of a waste-to-wealth recycling enterprise in Delhi, India.

Creating a sustainable recycling industry in India is not a simple task. The nation lacks the basic infrastructure to collect, segregate and sort waste. Furthermore, Indian consumers have had little incentive or opportunity to develop recycling habits or embrace goods manufactured using recycled material. Only about one-fourth of India's paper waste is recycled.

But things are changing. Government, private industry and consumers are all recognizing the need to address the waste generated by India's economic success. And the recycling micro-enterprises that TARA has established and the opportunities that this holds out for communities in Delhi – based on solid market research and practical business realities – are a key step in that direction. TARA's work creates jobs, establishes a solid community presence and is part of a larger concept gaining recognition and support from companies such as Avery Dennison, and consumers.

"An important contribution we can make in the emerging market communities in which we operate is the transfer of knowledge and the nurture of

its successful use," says Avery Dennison Foundation president Alicia Maddox. "TARA's track record of success in creating viable recycling micro-enterprises is a great example, and we're delighted to support its good work."

"As a manufacturer, we are committed to the reduction and recycling of waste throughout our operations. As global citizens, we are eager to support the development of thriving and effective recycling programs throughout our industry."

Learn more about the Avery Dennison Foundation and its efforts on sustainable packaging. Join the conversation and see what employees and partners have to say about sustainability.

[<ReadMore>](#)

## Rag-pickers to be trained in managing waste

Source Name: Hindustan Times

The East Delhi Municipal Corporation along with its South Delhi counterpart is going to start a zero waste management scheme on a pilot basis in East Vinod Nagar and Dwarka areas. The aim of the project is to segregate garbage at source for further utilization and minimise the amount of garbage which is dumped at sanitary landfill sites.

The East Delhi civic body announced the project on Friday, during the presentation of its budget for 2015-16. The corporation claims this will strengthen Swachh Bharat Mission and will also ease pressure on sanitary landfill sites, which have exhausted capacity.

The project will be launched in Dwarka and will be implemented simultaneously at East Vinod Nagar. Both the projects are estimated to start by early next year.

A team of the South Delhi Municipal Corporation studied and proposed to adopt this model successfully undertaken in Pune, for segregation, disposal and composting on ward and housing society-level.

The two corporations had called for a joint expression of interest from private companies and claim they have received encouraging response from over 15 firms willing to participate in the project.

If the results of the project are satisfactory, the civic bodies will implement it in Vasant Kunj.

The East body has demarcated the land in East Vinod Nagar and DDA has allotted 5 acres of land for the project in Dwarka.

"Under zero waste management, rag-pickers will be trained in segregating different kinds of waste. Garbage collectors will have two bins for dry and wet waste which will enable segregation of waste at source through door-to-door collection method," said Manish Gupta, commissioner EDMC.

Dry waste, including paper and plastic, will be sent to a centralised recycling plant. Wet waste like peels of fruits and vegetables will be dumped in compost pits at the local level, while other organic material will be sent to biogas plants. The remaining waste will then be sent to the landfill. So far corporation claims that households will give a minimum of Rs. 30 a month to the NGO for door-step collection while residents of slums will pay Rs. 10.

Corporation claims that rag pickers trained by the company would be able to sell recyclable waste which will help them earn an extra buck.

"The project is very cost effective and will help us in cutting short expense on transportation of waste to the landfill sites. We will save drastically on fuel and vehicles deployed for collecting and dumping waste. Moreover, it will decongest the road as huge trucks involved in dumping garbage will be off roads," explained Gupta.

[<Source>](#)



### The International Conference

on

### Renewable Energy Sources and Sustainability (RESUS-2015)

3rd to 5th March 2015

Rose Hill, Mauritius

The International Conference on Renewable Energy Sources and Sustainability (RESUS-2015) will take place March 3-5, 2015 in Mauritius and held in the premises of the Faculty of Sustainable Development and Engineering of the University of Mascareignes. This event will address how climate change and energy security issues have been affecting various communities worldwide, particularly the small island developing states. It will focus on the following renewable energy sources: Bioenergy, direct solar energy, geothermal energy, marine energy, and wind energy. Moreover, the conference will also address:

- How local climate change effects are interrelated and the contributing factors to the vulnerability of certain locations.
- The vulnerability and possible means to strengthen resilience of energy systems to environmental impacts.

Apart from Mauritius delegates from various countries including that from Sweden, USA, Portugal, Brazil, France are expected to give their deliberations in the conference.

The conference will focus on the following renewable energy sources:

- Bioenergy: produced from a variety of biomass feedstocks, including forest, agricultural and livestock residues; short-rotation forest plantations; energy crops; the organic component of municipal solid waste; and other organic waste streams.
- Direct solar energy: technologies for harnessing the energy of solar irradiance to produce electricity using photovoltaics (PV) and concentrating solar power (CSP), to produce thermal energy (heating or cooling, either through passive or active means), to meet direct lighting needs and, potentially, to produce fuels that might be used for transport and other purposes.
- Geothermal energy: utilization of the accessible thermal energy from the Earth's interior. Heat is extracted from geothermal reservoirs using wells or other means.
- Marine energy: derived from the potential, kinetic, thermal and chemical energy of seawater, which can be transformed to provide electricity, thermal energy, or potable water.
- Wind energy: harnessing the kinetic energy of moving air

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The aim objective of the 2015 5th International Conference on Environment and Industrial Innovation (ICEII 2015) is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Environment and Industrial Innovation. 2015 5th International Conference on Environment and Industrial Innovation (ICEII 2015) will be held in Seoul, South Korea during March 10-11, 2015.

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

Topics of interest for submission include, Environmental Biotechnology, Environment management, Environmental Chemistry, Environmental engineering, Environmental Planning of Mines, Environmental Pollution Control, Industrial pollution, Renewable Energy, Wastewater Quality Modeling and Wind engineering.

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### International Conference

on

### Sustainable Energy and Built Environment

12 - 13 March, 2015

VIT University, Vellore

The International conference on Sustainable Energy and Built Environment is being organized at Vellore, Tamil Nadu, India on 12th and 13th March 2015. The conference shall provide a knowledge sharing platform and an opportunity to meet international experts and exchange views. It is expected to provide a platform for students/scholars to present their research and ideas to the industry and academicians. The conference shall prove beneficial for Civil Engineering Students and faculty, Research scholars, Architects, Builders, consultants and practicing engineers.

Major themes of the conference are: Transportation Engineering, Environmental Engineering, Building Materials and Structural Engineering, Water Resources Engineering, Geotechnical Engineering and Advances in Civil Engineering.

[<Conference Brochure>](#)

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The 6th annual conference 'The GRIHA Summit 2015' is being organized by ADaRSH (Association for Development and Research on Sustainable Habitat), The Ministry of New and Renewable Energy (MNRE) and The Energy and Resources Institute, TERI. The conference shall be held during March 12-14, 2015 at India Habitat Center, New Delhi. This event is expected to be attended by over 600 professionals from the building and construction industry.

The 3-day Summit would serve as a platform for knowledge sharing in different domains of green building industry. It shall facilitate multi-stakeholder partnerships and networking among governments, academia, civil society organizations and professionals from different disciplines like architecture, engineering and construction management.

Going green is both a corporate advantage and an opportunity for humanity to enable change. Be green, be heard and be noticed at The GRIHA Summit 2015, completely focused on what going green can do for you and your organization. The summit will bring together the industry, the financiers, the policy makers, the decision makers, the buyers and sellers in a bid to develop and drive new initiatives, provide insights, showcase sustainable product development, and green business opportunity, and facilitate interaction between entities from all over the world and India, in order to elicit practical applications that are most relevant for India at this juncture.

The Summit shall also provide an opportunity to hear from speakers from multinational background, implementable strategies while designing for sustainability globally. The conference is especially of importance for strategist of energy companies, project developers, low carbon technology companies, architects, engineers, consultants, investment bankers, policy makers and regulatory bodies, NGOs etc.

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### The Second Asian Conference on the Millennium Development Goals

March 22-24, 2015

Hiroshima, Japan

The second Asian Conference on the Millennium Development Goals is being organized in Hiroshima, Japan from 22nd to 24th March 2015. The MDGs emphasize shared accountability and reciprocal obligations among developed and developing countries for key development outcomes. In addition, the global MDG effort rests on the premise that participation of every member of society is essential to the attainment of these goals. The wider themes of the goals and sustainable development, apart from special MDG topics the conference topics include Climate Change, Corporate Social Responsibility, Sustainable Business, Sustainable Development and Sustainable Energy. Participation of most of most of Asian and other countries is expected.

[<ReadMore>](#)

Deccan Chronicle, Hyderabad  
dated November 26, 2014

## India tightens green power norms

New Delhi, Nov. 25: The power ministry will soon approach the Cabinet with a proposal to introduce stringent rules for buyers and sellers of renewable energy, besides making amendments to the provisions in the overall tariff policy. Union minister Piyush Goyal said on Tuesday.

"We have a particular focus on renewable energy and are looking at renewable power purchase obligation (RPO) for both the purchaser and generator...will be enforcing this more strictly," he said.



We have a particular focus on renewable energy and are looking at renewable power purchase obligation (RPO). For both the purchaser and generator we will be enforcing this renewable purchase obligation in a more stricter sense.

— PIYUSH GOYAL,  
Power minister

At present, under the RPO mechanism, the state power distribution companies have to mandatorily purchase electricity generated through renewable energy sources during the

year. On similar lines, the government is contemplating the RGO (Renewable Generation Obligation), which will make it compulsory for thermal power producers

to also generate electricity through renewables.

"Every policy over a period of time you learn something new, those learnings we are trying to bring out what improvements are required," Mr Goyal said when asked the need to make the amendments.

The changes in the tariff policy are also being looked at in order to provide for long term power purchase agreements (PPAs), trying to provide intermediary companies to make such PPAs more bankable considering the poor health of several discoms.

— PTI

The Times of India, Delhi dated November 27, 2014

# Burning of leaves: Agencies pass buck

## Civic Bodies And DPCC Plead Lack of Manpower Despite Stringent Law To Check Menace

TIMES NEWS NETWORK

New Delhi: Dry leaves, which are a precious resource for making compost, are more often being burnt in the city. Smoke from such biomass burning is adding to Delhi's severe smog crisis and very high particulate pollution but agencies seem to be oblivious to this threat. Despite a ban on burning biomass waste, no FIR has been registered against the offence by any civic agency since the ban was imposed in July 1998. Delhi government's departments are busy passing the buck, claiming that none of them has the manpower or competence to crack down on offenders. But with National Green Tribunal ordering action against such burning on Wednesday, the agencies may be roused from their stupor.

Every evening, small bonfires of dry leaves are a common sight in the heart of the city. People are often seen soaking in the warmth, not realising how this will impact the already poor air quality in the city.

Bhure Lal, head of Environment Pollution Control Authority (EPCA), a body constituted by the union government to monitor environmental issues in Delhi, says burning of dry leaves is very common in Lutyens' Delhi. "It's supposed to be cleanest area of the city but I have seen so many instances here, especially in front of the Iraq embassy. This cannot be resolved until government agencies

### A BURNING ISSUE

Why dry leaves shouldn't be burnt

Burning of dry leaves releases high levels of PM10 (coarse pollution particles) and carbon monoxide (CO). While CO is highly poisonous, PM10 particles cause smog. PM10 also causes health issues ranging from coughing and wheezing to asthma attacks, bronchitis, high blood pressure, heart attack, stroke and premature death

#### GOVERNMENT ORDER

Delhi government banned burning of dry leaves and other biomass on July 29, 1998 as "it pollutes the whole atmosphere"

#### MAKE FERTILIZER FROM LEAVES

It is an inexpensive way to dispose of plant matter. Lay dry leaves in layers, cover them with a wire mesh so that they don't fly around, and sprinkle them with water to speed up decomposition. This is already done at the Neeti Bagh community centre. If there is other organic waste, bury it in a pit and it will decompose naturally in a few weeks

#### GREEN WASTE IN DELHI (in tonnes)

Daily generation across city	In NDMC area
80-100	20-25

#### HOW IT IS DISPOSED OF

- Dry leaves are transported to landfill sites and composted
- NDMC has four bio waste-to-fuel plants in Lodhi Gardens, Nehru Park, Sunder Nursery and Talkatora Stadium. Each plant can process two tonnes of green waste every day and, NDMC claims, 1.5 tonnes of waste is actually composted
- Compost is turned into pellets, which can be used as fuel. It is compressed into a dough-like mass and then passed through pellet dies of different sizes



#### ON THE ANVIL

More plants coming up

NDMC plans to set up 13 more bio waste-to-fuel plants in its jurisdiction

South Corporation plans to set up a green waste management unit that will also have a crematorium for small animals in Dwarka

take action. There are nodal officers from New Delhi Municipal Council (NDMC) and Delhi Pollution Control Committee (DPCC) who are to be contacted when there is such burning," he adds.

According to DPCC's legal team, biomass waste burning is banned under the environment protection act and has provisions for up to five years of imprisonment

and a Rs 1 lakh fine.

Civic agencies claim they can't do much as they don't have the power to take action on private property. Also, identifying the person responsible for it is difficult, say municipal officials. Though a law is in place, there is confusion over its implementation. The civic agencies claim that action has to be taken by DPCC, but the latter says it doesn't

### TOI AGAINST POLLUTION

have the manpower to carry out routine checks and that the responsibility has now been given to Delhi Parks and Gardens Society (DPGS).

"We don't have the power to take action against private

properties or people. We can only complain to DPCC. We can take action against our own staff if they are caught burning leaves," says Yogender Chandolia, mayor of North Delhi Municipal Corporation. DPGS, on the other hand, claims that its role is limited to creating awareness and that it doesn't have the manpower to keep a watch on such activities.

NDMC too claims helplessness in taking action. "There is a provision to file an FIR against a person for burning dry leaves as it adds to air pollution. But most of the time, we don't know who the culprit is," said an official in NDMC's horticulture department.

NDMC is, however, planning projects for effective utilization of green waste. It has set up four green waste management plants at Lodhi Road, Nehru Park, Talkatora and Sunder Nursery. Each plant can process two tonnes of green waste and convert it into pellets which can be used as bio-fuel. "We are planning to set up 13 more such plants so that we can process the entire waste within our area. At present, the green waste collected from streets and markets is sent to the composting site at Okhla," reveals a senior NDMC official.

An emissions inventory prepared by System of Air Quality Weather Forecasting and Research (SAFAR), under the ministry of earth sciences, shows burning of biomass within 50km of Delhi increases emissions by at least 15%. In the city's surroundings, even tyres, plastics and tubes are burnt and these release cancer-causing chemicals like dioxin. "Burning dry leaves mainly releases PM10 (coarse pollution particles) and carbon monoxide, but burning tyres releases dioxin, black carbon and PM 2.5 (fine respirable particles)," said Gufran Beig, chief scientist at SAFAR.



The Times of India, Delhi dated  
November 27, 2014

## Enforcement needed now for results, say activists

TIMES NEWS NETWORK

New Delhi: Environmental activists and experts have welcomed National Green Tribunal's directions to deal with air pollution in the city but said the efforts of the government should be more focused on "visibly polluting" private vehicles and also upgrading of public transport infrastructure in the city so that people are discouraged from using private polluting vehicles.

They said some of the directions issued on Wednesday are already legally binding, like punishing open burning of plastic and waste or phasing out vehicles that are more than 15 years old. But they hoped that the court's order would ensure strict enforcement of the rules. "The average age of personal vehicles is much less and, hence, in numbers we don't

have many. I think the focus should have been on visibly polluting vehicles," says Anumita Roychowdhury, head of Centre for Science and Environment's clean air programme. "Also, I hope banning parking on tarred roads doesn't push parking to footpaths or public spaces where walking and cycling usually happens. In fact, private transport should also have been discouraged. I hope there is a way to monitor the implementation of vehicles bypassing Delhi. So I would say some directions will help while others could have been more focused." She also said that parking should be curbed in public spaces.

Ravi Agarwal, another environmentalist and head of NGOTOXICS Link, has a similar view. "Many of the directions are already legally binding, but now since it's a court order, they will have to be implemented. It's a welcome move. I hope there is pressure to cap the number of cars," he said.



**The focus should have been on visibly polluting vehicles. Also, I hope banning parking on tar roads doesn't push parking to footpaths**

ANUMITA ROYCHOWDHURY  
Centre for Science and Environment

# Taking Note Of TOI Report On Pollution, NGT Cracks Down Green court bans vehicles older than 15 years in Delhi

## Orders A Stop To Burning Of Waste In Open

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New Delhi: On the day TOI highlighted the worsening state of Delhi's air, the National Green Tribunal cited the report and issued a slew of directions to immediately address the problem.

Among the 14 measures ordered by the green court on Wednesday was a ban on petrol and diesel vehicles older than 15 years — a move that's likely to take an estimated 10 lakh vehicles off the road. It also barred burning of waste in the open besides placing restrictions on parking and ordering stricter vigil on overloaded trucks entering the city.

### KEY RECOMMENDATIONS

- No petrol/diesel vehicle older than 15 years will be allowed to run in Delhi. RTOs not to renew registration
- These vehicles will be towed away from public areas and owners fined
- Legal action against anyone burning leaves, plastic, garbage etc. instances can

- be reported to NGT, police or pollution board
- No parking on tarred roads. Markets to have parking restrictions
- Authorities asked to stop overloaded goods vehicles from running in city
- Routes to be identified for vehicles from outside to bypass Delhi

possibility of installing air purifiers at marketplaces.

The order was issued by a bench headed by NGT chairperson Swatanter Kumar, with expert members D K Agarwal and A R Yousuf, in response to a petition filed early this year on Delhi's air pollution by Vardhaman Kaushik.

"An article published in the Times of India today has been brought to the notice of

➤ **Pollution up to 8 times higher: US researcher, P 4**

the tribunal. It not only projects a very dismal state of affairs...with clear indication that worst is likely to follow," the bench said.

➤ **'Stop burning waste', P 4**

## Crack down on burning: Bench

➤ Continued from P1

The National Green Tribunal said petrol and diesel vehicles more than 15 years old shall not be permitted on Delhi roads. These vehicles are to be seized by authorities as per the Motor Vehicle (MV) Act.

It also ordered that the RTO shall not renew or issue registration for such vehicles or provide fitness certificates. If any such old vehicle is parked in a public area, it would be towed away and challaned, the tribunal said. "It is undisputed...that the air pollution of NCT, Delhi is getting worse with each passing day," it stated.

Referring to air pollution peaking in the morning hours, as reported by TOI, the order said, "This article declares that it may not be safe for residents of Delhi to go out for morning walks due to heavy pollutants present in the air."

TOI's report on Wednesday had displayed data from the System of Air Quality Weather Forecasting and Research (SAFAR), Indian Institute of Tropical Meteorology and Delhi Pollution Control Committee, which showed PM2.5 (fine pollution particles) peaking early in the morning, creating a health risk for those who exercise outdoors. Those exposed to air in the evenings are equally at risk of developing respiratory illnesses and complications, the data suggests.

The NGT bench went a

### WHAT THE ORDER MEANS FOR DELHI



#### OLD VEHICLES

- Any vehicle older than 15 years cannot be run in Delhi. If caught, it will be seized
- RTOs will not renew registration or provide fitness certificates
- Such vehicles, if parked in a public area, will be towed away and their owners challaned

#### GOODS VEHICLES

- All authorities told to stop plying of overloaded vehicles in Delhi
- Automatic or sensor-based weighbridges to be installed immediately at all entry and exit points of city. Trucks will not be detained for unduly long periods at these points

#### TRAFFIC

- Parking will not be allowed on any tar road to reduce congestion
- In markets, parking will be allowed only on one side
- Immediate steps to provide cycle tracks and encourage cycling
- MoEF, ministry of transport, DPCC and CPCB to identify routes for vehicles from outside to bypass Delhi

#### AIR QUALITY

- Anyone burning plastic, leaves, garbage etc in the open will face legal action. People can report violations to NGT, police or DPCC
- Delhi government and DPCC will create a web portal for people to upload pictures of open burning
- All DTC buses will undergo emission tests, and those found polluting will not be allowed to run. DTC managing director will be personally responsible for ensuring compliance
- Ministries and DPCC to explore possibility of installing air purifiers in all markets and crowded areas along busy roads

step ahead and ordered that any person will have the right to approach the tribunal, police or DPCC to complain about open burning of plastics, leaves and other materials which can result in air pollution. It directed DPCC and Delhi government to create a web portal where the public can upload pictures of any such violations.

A "special force" constituted by the government will enforce the direction

and ensure compliance.

The bench said no parking shall be allowed on tarred roads meant for regular traffic movement. "The chairperson was concerned about how Delhiites are going to cope in the high air pollution season that will last for the next six months. He was stern about immediate action on air pollution and gave the example of Lajpat Nagar, where it can take up to 40 minutes for motorists to reach the market from

the main road due to congestion. He directed that parking be allowed only on one side of such roads near market areas," said Narender Pal Singh, advocate representing Delhi government.

"We make it clear that in the event of any officer or person found violating these directions or not complying with them, we will be compelled to take coercive steps and pass such orders as may be required in accordance with law," the order stated.



The Times of India, Delhi dated November 27, 2014

## It could be end of road for 10 lakh vehicles

### Jittery owners say they maintain vehicles well

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New Delhi: The National Green Tribunal order issued on Wednesday has come as bad news for owners of over 10 lakh vehicles – including cars and two-wheelers – registered in Delhi. Of the 81 lakh registered in the city, around 60 lakh are private vehicles. Of these, around 25 lakh are four-wheelers while the rest are two-wheelers. According to a rough estimate by sources in Delhi government's transport department, a total of about 10 lakh vehicles are over 15 years old. When the NGT order is implemented, these will have to go.

At present, Delhi government allows private vehicles that are over 15 years old to ply in the city, subject to a fitness test by the transport department.

Commercial vehicles which are over 15 years old are officially not allowed to ply in Delhi and are not issued a fitness certificate by the transport department. This has been in effect since 1998, following a Supreme Court order.

Private vehicles, however, can get a fitness certificate issued, if these are found to be in good condition in the tests conducted by the department. These fitness certificates are valid for five years, after which the vehicle is required to be checked again.



**TOI AGAINST POLLUTION**

As part of the fitness test, the vehicle's tyres, engine, suspension, steering, body and electrical parts are checked besides pollution. Finally, a road test is performed.

In 2008, the Delhi government had attempted a clean-up by making fitness certificates mandatory for private vehicles older than 15 years. The owners had been asked to get their vehicles checked for fitness and then get them re-registered. Those not able to pass the fitness test were taken off the road.

Though an environment-friendly step by NGT, the order

has given a rude shock to many owners. Pradip Bhattacharya, a doctor practising in Delhi, said the NGT order didn't take into account the fact that many owners take good care of their old vehicles.

"The age of the vehicle doesn't matter as long as it is maintained well. I get regular servicing done of my Cielo car, including a pollution check every three months. Just because it's old doesn't mean it pollutes, in fact, it gives better mileage than most new cars," said Bhattacharya.

Arvind Muwwaker, who rides a scooter, agreed. "I can't afford a new scooter, which is why I am still using the scooter given in my marriage. Does the government expect us to start buying new vehicles now," asked a miffed Muwwaker.

The order, however, is good news for the auto industry. In Delhi, around 1,200 vehicles get registered every day. The vehicular population of the city is more than that of Mumbai, Chennai and Kolkata combined.

Over the past few years, the pollution caused by vehicles has gone up dramatically in the city. According to reports, in the past five years, transport emissions – especially from diesel cars and vehicles that use adulterated fuel – have risen by 30 per cent.

## Traffic cops to help pumps enforce PUC-for-fuel rule

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New Delhi: Days before the order making PUC certificates mandatory for buying fuel comes into force, traffic police have assured pump owners that they will position personnel at pumps through the day from December 1. Pump owners have been resisting the order apprehending trouble from vehicle owners denied a fill. They have also threatened to go on strike. A pump staffer was recently shot at in Ghaziabad for insisting on the UP government's helmet-for-petrol rule.

A senior traffic official said they will challan all vehicles coming to fuel up without a PUC certificate. "Drives will be conducted at different crossings and pumps across the city to check PUC certificates. Our teams will coordinate with pump officials," said special commissioner, traffic, Muktesh Chander.

Mobile teams with handheld devices will check trucks entering the city without a valid PUC certificate. Police plan to involve the transport department in these checks and have requested it to inspect all pollution check-centres.

A traffic official admitted that PUC checking is done on a very small scale in the city. "We can only prosecute vehicles passing through a checkpoint."

New vehicles don't require a PUC certificate for the first year. Thereafter, Bharat Stage IV-compliant vehicles need to get a PUC certificate once a year.

### WHAT LAW SAYS

#### PROSECUTION FOR NOT HAVING VALID PUC

- Owner has to apply for a re-check of vehicular pollution
- PUC certificate to be issued only if vehicle passes the emission standard
- Penalty of ₹1,000 for first offence and ₹2,000 for every subsequent violation

while all others need it every three months.

Pump owners are not convinced by police's assurances. "Even if they challan, the onus for denying fuel still lies on the petrol pump owner. We will be the first one facing the customer's ire after refusing fuel," said Ajay Bansal, president of All India Petrol Dealers' Association.

## New method found to turn sawdust into petrol

London: Your car may soon run on sawdust. Researchers have successfully converted sawdust into building blocks for petrol. Scientists at Katholieke Universiteit Leuven (KU Leuven) in Belgium used a new chemical process to convert the cellulose in sawdust into hydrocarbon chains.

These hydrocarbons can be used as an additive in gasoline, or as a component in plastics, researchers said.

Cellulose is the main substance in plant matter and is present in all non-edible plant parts of wood, straw, grass, cotton and old paper. "At the molecular level, cellulose contains strong carbon chains. We sought to conserve these chains, but drop the oxygen bonded to them, which is undesirable in high-grade gasoline," said Professor Bert Sels.

The new method to derive these hydrocarbon chains from cellulose was developed by researcher Beau Op de Beeck. The research was published in the journal *Energy & Environmental Science*.



*The Economic Times,  
Delhi dated  
November 28, 2014*

# National Green Tribunal Steps in to Address Delhi's Worsening Air Quality

*Chairperson Justice Swatanter Kumar rolls out 14-point action plan to ensure that the capital of India is better managed*

## It's Time to Act Now

**RIISING AIR POLLUTION  
IN DELHI HAS BEEN  
MAKING HEADLINES  
SINCE EARLY THIS YEAR**

IN MAY, the WHO assessed Delhi to have the most polluted air among

**1600 cities**

The Tribunal has banned vehicles over 15-years old from plying on Delhi roads, and the burning of leaves and other material in the open



ENVIRONMENTALISTS see the NCT's intervention as a way to ensure effective compliance and enforcement of existing rules and regulations

HOWEVER, for effective impact, the scope of the NCT's tribunal plan should be implemented at least in the entire National Capital Region



Environmentalists suggest upgrading of public transport infrastructure in the city so that people are discouraged from using private polluting vehicles



The NGT is saying enough is enough. The city is unmanaged and unliveable, and the authorities now need to implement the laws effectively. It isn't that all of this hasn't been said before, but the authorities now need to act, to implement the laws strictly, and that has not been happening.

**RAVI AGARWAL**  
TOXIC LINKS

While this is a step forward in right direction, a periodic assessment of the effectiveness of the action plan is needed to ensure peak pollution levels during winter are brought down and the clean air target is met.

**ANUMITA ROYCHOWDHURY**  
HEAD OF CENTRE FOR SCIENCE AND ENVIRONMENT'S CLEAN AIR PROGRAMME

authorities on notice and asks them to step up to their task of ensuring that the Capital is better managed and more livable for its residents. The comprehensive order, which reiterates issues that have been raised separately, is the judiciary's attempt to jolt the administration into taking action.

"The NGT is saying enough is enough. The city is unmanaged and unliveable and the authorities now need to implement the laws effectively. It isn't that all of this hasn't been said before, but the authorities now need to act, to implement the laws strictly," said Ravi Agarwal, founder-director of Toxics Link, an environmental NGO.

The tribunal has banned vehicles over 15 years old from plying on Delhi's roads and the burning of leaves and other material in the open. A ban on 15-year-old commercial vehicles is already part of the Delhi government's regulations. Environmentalists see the NGT's intervention as a way of ensuring compliance and enforcement of existing rules and regulations.

Environmentalists are also of the view that for effective impact, the scope of the order should be widened to include the entire National Capital Region. "A periodic assessment of the effectiveness of the action plan is needed to ensure peak pollution levels during winter are brought down and the clean air target is met. That may require additional and more stringent measures. The ambit of the action plan should also be expanded to the entire national capital region (NCR) of Delhi

for effective impact," says Anumita Roychowdhury, who heads the Delhi-based Centre for Science and Environment's clean air programme.

There is concern that the tribunal's intervention could end up having a negative impact. The proposed ban on parking on motorised carriageways to cut congestion without additional safeguards and conditions can increase parking pressure on footpaths and cycle tracks, undermining efforts to encourage walking and cycling and compromising usage of public transport.

"NGT may give direction to remove all parking from footpaths and cycle tracks and make this non-negotiable. It may be complemented with strict enforcement to remove illegal parking along with effective parking charges for legal parking in public spaces -both commercial and residential areas," CSE suggested.

Environmentalists suggest upgrading public transport in the city to discourage people from using private vehicles. A day after the NGT's order, the government told Parliament that it was concerned about poor air quality and was taking measures to address increased air pollution in the country, especially in urban areas. Environment Minister Prakash Javadekar told the Rajya Sabha the government was working on industry-specific emission standards and the promotion of cleaner technologies.

Referring to studies indicating several pulmonary and systemic changes that are associated with cumulative exposure to high levels of particulate matter, the minister said, "Air pollution mainly results in morbidity, which in turn may lead to mortality."

Prime Minister Narendra Modi may not have had this in mind when he launched the Swachh Bharat Abhiyan or cleanliness drive, but the National Green Tribunal has stepped in to address the Capital's worsening air quality.

In May, the World Health Organisation declared that Delhi had

the most polluted air among the 1,600 cities across 91 countries that it assessed. Despite this, there has been little tangible action by the authorities to curb the city's worsening air quality.

On Wednesday, an NGT bench headed by Chairperson Justice Swatanter Kumar put out a 14-point action plan that essentially puts the



Deccan Chronicle, Hyderabad  
dated November 28, 2014

## Graphene linked to green energy

London, Nov. 27: Recently discovered form of carbon graphite, the material in pencil lead, has turned out to have a completely unexpected property which could revolutionise the development of green energy and electric cars, the Independent said.

Researchers have discovered that graphene allows positively charged hydrogen atoms or protons to pass through it despite being completely impermeable to all other gases, including hydrogen itself.

The implications of the discovery are immense as it could dramatically increase the efficiency of fuel cells, which generate electricity directly from hydrogen, scientists said. Professor Sir Andrei Geim received the Nobel Prize in Physics in 2010.

The breakthrough raises the prospect of extracting hydrogen fuel from air and burning it as a carbon-free source of energy in a fuel cell to produce electricity and water with no damage.

ing waste products.

"In the atmosphere there is a certain amount of hydrogen and this hydrogen will end up on the other side [of graphene] in a reservoir. Then you can use this hydrogen-collected reservoir to burn it in the same fuel cell and make electricity," said Professor Sir Andrei Geim of Manchester University.

Graphene is the thinnest known material, a million times thinner than human hair, yet more than 200 times stronger than steel, as well as being the world's best conductor of electricity. A computer generated illustration of graphene cells. A computer generated illustration of graphene cells (Corbis).

"There have been three or four scientific papers before about the theoretical predictions for how easy or how hard it would be for a proton to go through graphene. These calculations give numbers that take billions and billions of years, for a proton to go through this same membrane," Sir Andrei said. —Agencies

## ₹4k cr push for 25 solar parks

To Help Add 20,000MW Of Green Generation Capacity In 5 Yrs

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New Delhi: The renewable energy ministry has proposed a gross budgetary support of Rs 4,050 crore for setting up 25 solar parks of 500 mw each and ultra-mega solar power projects to add 20,000 mw green generation capacity in the next five years.

The money is expected to be spent in phases, starting with Rs 500 crore in 2014-15 and rising to Rs 1,400 crore in 2018-19. Solar Energy Corporation of India under the ministry would be the nodal agency and manage the funding for a fee, equivalent to 1% of the grant disbursed.

The parks would be developed in collaboration with state governments. Altogether 12 states have given their consent for setting up solar plants, renewable energy minister Piyush Goyal told Lok Sabha in a written reply on Thursday. He said the project developers would be selected through a bidding process as per norms set by the central tariff regulator.

Broad contours of the scheme indicate measures to

### HARNESSING SUN POWER



Ministry of new and renewable energy has planned to set up 25 solar parks in the next five years

Gujarat	750MW	Banaskantha
MP	750MW + 750MW	Rewa
Telangana	100MW	Mehboob Nagar
Andhra Pradesh	2500MW	Anantpur, Kadapa and Kurnool
Karnataka	1000MW	Mulwar, Bijapur
UP	600MW	Jalaun, Sonbhadra, Allahabad
Meghalaya	50MW	University of Science & Technology, 9th Mile, near Guwahati
J&K	7500MW	Leh and Kargil
Punjab	1000MW + 1000MW	District-wise land identified
Rajasthan	700MW+1000MW+, 1000MW+1000MW	Bhadla and Jaisalmer
Tamil Nadu	500MW	Location yet to be identified
Odisha	1000MW	Location yet to be identified

Source: Parliament reply

make the parks attractive for investors with readymade locations. Promoters usually have to spend a lot of time for getting approval for changing land use and other clearances from various state bodies, in-

cluding consent from state transmission utilities.

Under the scheme, developers would be invited after all approvals are in place. Besides, the land would also be levelled and the parks would

come with additional infrastructure like access to roads water and communication facilities required for operating the plants.

For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)

## 'Leapfrog to cleaner norms'

TIMES NEWS NETWORK

New Delhi: A day after National Green Tribunal gave a detailed order for tackling air pollution in Delhi, the agencies tasked to do so seemed to be in a haze. In fact, some officials claimed they were yet to read the order which has asked for a complete ban on more than 15-year-old vehicles. Delhi Pollution Control Committee (DPCC) and the environment department of Delhi government—which have been entrusted with implementation of several directions, including creating a web portal where citizens can upload pictures or complaints of open burning or other pollution-related issues, and exploring the possibility of installing air purifiers in markets—said they need time to study the order.

"Let the officials read the order first. We will try to implement whatever the Tribunal has directed us to do," said Sanjiv Kumar, secretary, environment. Other officials, however, seemed less enthusiastic. "We are already busy with other orders of NGT. I am not sure how such elaborate directions can be implemented in Delhi," said another official.

Activists are more hopeful. Centre for Science and Environment (CSE) has appealed to NGT to broaden the scope of its order. "We appeal for more stringent measures to bring down the severe peak pollution

### MORE ACTION NEEDED



CSE SAYS NGT SHOULD NOW PRESS FOR

- Enforcement of ban on open burning of waste and removal of vehicles older than 15 years
- Roadside inspection to catch, fine and weed out visibly polluting vehicles and those that are more than 15 years old
- Safeguards to ensure parking ban in carriageways does not increase parking pressure on footpaths and

- cycle tracks
- Removal of all parking from footpaths and cycle tracks, and imposition of rational parking charges in both commercial and residential areas
- Increase in reach and reliability of bus services by DTC and DIMTS. Bus services should be monitored
- Bringing entire NCR under action plan

levels in Delhi. The city needs stronger action to reduce vehicle numbers, scale up walking, cycling and public transport, and leapfrog to clean emission standards," said a CSE statement on Thursday.

Arguing that implementation of the order is not difficult, Anumita Roychowdhury, head of CSE's clean air programme, said Delhi can learn from Hong Kong. "Hong Kong

has a special squad for enforcing pollution laws. The squad that also has citizen volunteers spots polluting vehicles and sends them for maintenance or takes action against them. Delhi can also use technology like remote sensing to track defaulters. It's expensive but we can have such pilot projects in Delhi," she said.

Anumita feels private vehicles should be restrained even

as Delhi works on upgrading its public transport system. "It can't be a chicken-or-egg situation. You cannot wait for the public transport system to be better before there are curbs on using private vehicles. I think they have to be in tandem. For instance, Nehru Place has both Metro and a bus stand. The parking charges can be hiked and there should be a cap on parking so that people can use public transport instead," she said.

Experts at The Energy and Resources Institute (TERI) however feel the city is not yet ready to cap the number of cars. "Our bus service is unreliable and often unsafe. Metros are overcrowded. We need good infrastructure first before there is a cap on new cars," says Sumit Sharma, fellow and area convenor, TERI. He is upbeat about the 15-year limit. "Very few 15-year-old vehicles register which only means that they must be plying without registering. They have high emissions. NGT's order will ensure vehicles with new and efficient technology ply on roads. Other important interventions required are that all new cars registered in Delhi follow BS 5 or BS 6 norms, PUC certification is made tighter and inspections regular. Finally, all actions should be applicable to NCR as satellite cities also contribute to Delhi's pollution considerably," Sumit explains.

The Times of India, Delhi dated  
November 28, 2014



The Times of India, Delhi dated  
November 29, 2014

# NGT slams govt, calls 13 bodies for meet on foul air

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**New Delhi:** Two days after the National Green Tribunal (NGT) ordered a slew of measures to tackle air pollution in the capital — taking note of a TOI campaign — it indicated its dissatisfaction with the response of government agencies by slamming both the Centre and Delhi administration. “Despite orders from the highest court of the land,

### TIMES IMPACT

there is hardly any improvement in the ambient air quality of NCT of Delhi. In fact, it has already been noticed in our previous order that it has gone from bad to worse. The present state of affairs cannot be permitted to persist any longer,” the bench headed by NGT chairman Justice Swatanter Kumar said in a stern warning on Friday. The bench has summoned about 13 government

### FULL COVERAGE: P 2

agencies, including the ministry of environment, forests and climate change, and various departments of the Delhi government on December 2 for a “consultative and deliberated approach” with stakeholders to “resolve an issue of...greatest public welfare affecting the environment.”

► NGT lists new steps. P 2

# NGT lists new steps to clean air

► Continued from P1

The bench had in its previous hearing of the same petition—Vardhaman Kaushik Vs Union of India—issued a 14-point order. The one that could have the most far-reaching effect was that all vehicles—petrol or diesel—that are more than 15 years old shall not be allowed to ply on the roads, and wherever such vehicles are noticed, they will be seized under the provisions of the Motor Vehicle (MV) Act.

TOI had on Friday reported that the officials made responsible for implementing the NGT order seemed to be in no hurry to do so. In fact, some of them had said off the record that such elaborate directions would be difficult to be implemented.

On Friday, NGT added more directions to its previous order. It asked the agencies to come up with a viable plan for car pooling in Delhi, work out a plan for obstruction-free traffic flow in the city, shut down illegal PUC centres and upgrade the entire public transportation system in a way that people feel encouraged to use it.

### FRESH DIRECTIONS

#### WHAT NGT WANTS CIVIC AGENCIES TO DO TO COUNTER AIR POLLUTION

- Plan for carpooling in Delhi and incentives to make it viable
- Plan for obstruction-free traffic flow
- Upgrade public transport so that people feel encouraged to use it
- No bus owned, controlled or operated under contract by DTC will ply if it is more than 15 years old. The same rule applies to buses in Haryana, Punjab, Rajasthan and Uttar Pradesh
- Shut down illegal PUC centres; inform tribunal about penalties that can be imposed on

#### THE TRIBUNAL HAS SUMMONED THESE OFFICIALS FOR A MEETING ON IMPLEMENTATION OF ITS ORDER

- Additional secretaries of MoEF, ministry of petroleum, ministry of urban development and ministry of road and surface transport
- Chairmen of CPCB and

- Planning Board
- Secretaries of transport, environment, health and finance
- Commissioners of Delhi Police and municipal

- corporations
- CEOs of Noida and Huda
- MD of DTC; regional transport officer, and additional commissioner of traffic, Delhi Police



centres issuing doctored PUC certificates

- Install air filters in gardens and public spaces like markets
- Implement NGT's Nov 26 orders immediately

The bench recounted the ‘MC Mehta Vs Union of India 1998 case’ in which Supreme Court had passed directions imposing restrictions on plying of commercial vehicles, including taxis that are more than 15 years old. It also quoted the Bhure Lal committee re-

port of 1999 which had said that more than 90% of particulate matter pollution was due to diesel. It recalled that Supreme Court in various cases, including ‘Bharat Petroleum Corporation Vs Sunil Bansal case’ had again and again mandated that pollution from

diesel be curtailed.

The Delhi agencies haven't yet decided on how the major policy-related directions can be implemented. State agencies like the environment department claimed they will wait for a direction from the union ministry.

*The Times of India, Delhi dated  
November 29, 2014*

## Sunita & Salve alert SC to foul air in court

### Dramatic Move Only To Underline Grim Pollution Situation

Abhinav Garg &  
Jayashree Nandi | TNN

New Delhi: Supreme Court was on Friday informed that pollution levels even within the courtrooms were extremely high. Senior lawyer Harish Salve and environmentalist Sunita Narain told a bench of Chief Justice of India H.L. Datu and Justices Arun Mishra and Adarsh Goel that the ambient air quality within the CJT's courtroom had been found to be about four times the safe standard.

Portable air quality monitoring equipment that can measure a person's real-time exposure to air pollution showed PM2.5 (fine, respirable pollution particles) readings hovering at 250 microgram per cubic metre, they said.

SC was hearing a batch of applications relating to increasing pollution caused by influx of diesel vehicles and the demand by Salve to levy a surcharge on these vehicles.

Salve relied on the equipment provided by Centre for Science and Environment to check his personal exposure to air pollution levels. He found PM2.5 levels to be as high as 800 micrograms per cubic metre at Lodhi Garden, about 13 times

#### EPCA'S RECOMMENDATIONS TO SC

HOW DELHI SHOULD REACT ON VERY POLLUTED DAYS

Level	Protective measure	Control measure
<b>VERY POOR</b>	Alert in newspaper/TV advising people with heart or respiratory conditions to stay indoors	No tolerance for visibly polluting vehicles
<b>SEVERE</b> (for 2 days)	Schools closed/ masks mandatory	Parking charges doubled/diesel vehicles banned
<b>VERY SEVERE</b> (8 times the standard)	Schools closed/ masks mandatory	No private vehicles, only public transport; entry of commercial vehicles be banned in Delhi
Standard level of PM2.5: 60PPM		

the safe standard and similarly high readings in the CJT's court. He submitted these readings and various recommendations on tackling air pollution prepared by the Environment Pollution Control Authority (EPCA) to the court.

The bench expressed shock and said it expects the government agencies won't wait for court orders to put their house in order. With no one appearing for the Centre, it asked additional solicitor general Maninder Singh to take instructions and respond to the documents filed by Salve.

The former solicitor gener-

al, who is amicus curiae in the matter, has asked for Euro IV-VII standards to be achieved much earlier during 2015-2020 rather than the government's current 2017-2025 timeline. He

#### TOI AGAINST POLLUTION

has also demanded a surcharge on diesel vehicles and suggested that the government fix a critical level of pollution.

According to the EPCA recommendations filed in court,

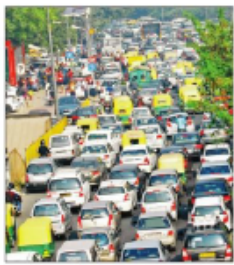
only 38 cities and towns, including the ones in the NCR, get Euro IV fuel vehicles. The rest are Euro III. "First of all, this practice of limiting improved emission standards to a few cities violates the fundamental right to a healthy life for all," the EPCA submission said. It quoted recent recommendations by the auto fuel committee that Euro IV will be implemented countrywide by 2017, Euro V by 2020 and Euro VI by 2024.

EPCA said "this roadmap is simply not good enough in terms of combating the high levels of pollution in the country. India will be behind Europe by 10 years this way". It suggested that we need Euro IV countrywide by 2015, Euro V by 2017 and Euro VI by 2020.

CSE and EPCA also pleaded before Supreme Court for a robust alert system for high pollution days. Along with a detailed overview of what Beijing and US cities and Paris are doing on such days, it submitted an analysis of average pollution levels in the city from October 1 to November 26. During half of the period monitored, PM 2.5 (fine, pollution particles) level was in the "severe" category; and on certain days, the PM2.5 level was eight times the standard.

*The Economic Times, Delhi  
dated December 01, 2014*

## World Health Body Says Delhi's Air is the Most Polluted. Or, is it?



Rajshelkar@timesgroup.com report real-time numbers on air quality. In contrast, Mumbai has just one - that too at Airoli in Navi Mumbai. What about other cities with such high end stations? Bangalore and Chennai have three stations each while Ahmedabad, Patna, Agra, Varanasi, Kanpur and Hyderabad have one each.

Continuous monitoring stations are present in only nine states in the country, as per the website of the Central Pollution Control Board (CPCB). Except Uttar Pradesh, Haryana and Gujarat (where the station is in Ahmedabad), the rest six states have such stations only in their capital.

In May this year, the World Health Organisation (WHO) announced that Delhi's air quality is the worst in the world. In the months that followed this perception about Delhi's air has strengthened further as winter smog set in the capital. This perception, however, could be incorrect. Air quality of other Indian cities and towns could be worse than Delhi's. That is because the air quality information being generated by the state and central pollution control boards is badly flawed, and we don't have credible information about air quality in any place other than the capital. See it like this. Delhi has 23 high-end ambient air quality monitoring stations that can M.

In the rest of the country, state pollution control boards (SPCBs) collect data on their own, using older, manual techniques.

There are two problems here.

One, data is collected for 12 pollutants in a few big cities and for far fewer particles elsewhere. Two, data from states is not always accurate.

"In most cases, these stations are manned by a daily wagger, who might have studied

only till the 8th or 10th grade. It is not clear if they followed the stipulated process," a former member-secretary of CPCB told ET.

As it is, in recent years, the market for manual monitoring of air quality instruments which measure particulate matter or environmental labs which conduct these tests - has seen rising competition and rampant undercutting.

A case in point is instruments to measure PM 2.5 - a known carcinogen and a particulate matter so small that it can penetrate tissue - which used to cost ₹ 1.5-2.5 lakh in 2009. Today, companies are selling these units for ₹ 50,000. However, in the inexplicable absence of certification, there is no way of knowing whether these machines measure what they claim to.

It gets worse. The continuous monitoring units are not foolproof either. Several of these stations are struggling due to lack of spares. Others give incorrect readings due to miscalibration. For instance, the unit at Patna has been reporting ozone concentration as minus 46 for

months now - but the lowest reading can be zero, not lower.

An incentive to fudge numbers is also at work.

A Delhi Pollution Control Committee (DPCC) official said every time it reports high numbers, it receives Parliament questions. "This is why states don't share their data or use their instruments," the person said.

In fact, when Delhi's monitoring system was being set up, officials even debated whether to cap the emission numbers being put out, the person said.

Elsewhere, SPCBs underreport their numbers in a variety of ways. Some only report averages (of the last 24 hours, say) to cancel out peaks. Other present outdated data. The website of the Gujarat Pollution Control Board is showing annual averages for 2009-10. The Maharashtra SPCB gives daily readings - but only for four pollutants - and its site is updated only till September.

The CPCB said it will add 66 more stations to improve data quality. But they will come up in state capitals and one million population plus towns. Also, one unit cannot capture a city's air quality. And setting up units in cities cannot capture the national picture.

Take sulphur dioxide. A January 2012 CPCB report announced a "decline in SO2 levels" between 2001 and 2010. However, using data captured by a NASA satellite, a paper in 'Environmental Science and Technology' journal, reported SO2 emissions from Indian power plants rose 71% between 2005 and 2012. And the country overtook the US to become the second biggest SO2 emitter in 2010.

The reason for this contradiction was location. The emissions were in central India's mineral belt. And the stations were far away in the big cities.

In all, we do not know what the air quality is like in most of India. You do not know what you are breathing. And with India planning to double her coal consumption, the air is set to get worse.



The Economic Times, Delhi dated December 01, 2014

# India to Showcase Solar Energy Project at Lima Climate Talks

Ministry of Renewable Energy plans to increase the share of solar energy from 6% to 15% of the energy basket

Urmi.Goswami@timesgroup.com

**Lima:** India is looking to make a splash at the United Nations-backed climate negotiations in Lima that begin on Monday with its plans to ramp up solar power capacity five-fold to 100 GW by 2030. While this is a clear indication by the Narendra Modi-led government that India is serious about tackling climate change and reducing its relatively small carbon footprint, the country will not make any announcements about its plans to limit emissions.

A boost for solar energy is among the measures that the government is planning to address the climate change issue at home.

It doesn't, however, plan to depart from India's long-held negotiating position calling for the preservation of the 1992 basis for classifying countries as industrialised and developing, better known in climate negotiations as CBDR — common but differentiated responsibilities. New Delhi has made it clear that the onus of reducing the amount of carbon that is emitted rests with the industrialised countries, and it will oppose any move to shift the burden to developing nations.

"There is no change in India's position. Equity and CBDR are important and must be adhered to. India is taking actions to address climate change on its own and will continue to do so. We plan to do much more," Environment Minister Prakash Javadekar told ET. The Cabinet is expected to discuss India's climate change stance soon and could fine-tune some of its positions, though no major change is expected at this point.

## WORK IN FULL SWING FOR INDIA

Since the US-China climate agreement in Beijing, there has been a great deal of interest in India's plans to tackle carbon emissions. India has been working on its Intended Nationally Determined Contributions (INDCs), which it plans to submit to the United Nations Framework Convention on Climate Change (UNFCCC) as part of its efforts to address the global challenge.

Sources indicated that while work on the "contributions" are on in full swing and are likely to be completed over the next few months, a formal declaration can be expected only after March. "The decision of when to submit our INDCs, in March or later in June, will be taken after consultations at the highest level," a senior government official said. "Our population is more than the collective population of Africa. More than 30% of our people have no access to electricity. We are increasing our renewable energy sources by five times," Javadekar said, stressing that India's development needs will guide the country's efforts on climate change.

To this end, Javadekar has had a round of informal discussions with members of the Prime Minister's Council on Climate Change. Sources said that an evaluation was underway on India's progress in meeting

the Copenhagen Cancun pledge of reducing its emissions intensity by 20-25% by 2020. The government is also evaluating the report by the Planning Commission-appointed Expert Group on Low Carbon Economy. The focus is on three missions of the National Action Plan on Climate Change — the Green India Mission, Enhanced Energy Efficiency and the solar mission — which aim at reducing or limiting carbon emissions.

## LENDING TO SOLAR POWER

The ministry of renewable energy is working on ramping up the share of solar energy from 6% to 15% of the energy basket. In view of this planned expansion, renewable energy minister Piyush Goyal told bankers last week that they needed to reorganise their lending norms and advocated the use of escalating tariffs for solar power to achieve grid parity over a five-year period. "A more realistic interest rate with staggered repayment could perhaps be the answer to solar energy expansion," Goyal said. Work is underway for several energy-efficient measures, such as widening the scope of trading in energy efficiency by including new sectors.

The trading in energy efficiency scheme, which is a unique programme launched by India, is entering its second phase. Expansion of the trading programme will be another key component of New Delhi's bid to showcase its efforts to address climate change.

As part of this, the government is also looking at reworking the National Action Plan on Climate Change to ensure that it is more focused on addressing impacts of climate change, rather than just "greening" programmes and schemes. "The effort is to bring the national plan in line with the findings of the IPCC's most recent assessment report," an official said. The re-constituted Prime Minister's Council on Climate Change is yet to meet formally but informal consultations have been on. The IPCC is the Inter-governmental Panel on Climate Change, a UN body.

The executive committee of the council has already held meetings and is focused on determining key goals, and identifying the resources required to achieve them. "There is a clarity that was not there earlier," a person close to the discussions said. The environment ministry has requested that the Prime Minister call a meeting of the council ahead of the high-level segment of the Lima meet, which will be attended by the environment minister.

India will also stress on the hike in the coal cess, which was doubled from ₹50 per tonne to ₹100 in the Budget in July this year. Proceeds from the cess are collected in the National Clean Energy Fund, which the government plans to use for, among other things, improving research and development in the area of clean energy. It will also highlight the setting up of a domestic Adaptation Fund. India has been emphasising at global forums the need to make adapting to climate change an integral part of the new agreement that is to be inked in Paris next year. How India succeeds in showcasing its efforts will be crucial to determining whether New Delhi has to shoulder the blame if Lima fails to show any tangible progress towards a new global compact to address the challenge of climate change.

## Climate Talks Kick Off in Lima

### CLIMATE CHANGE IMPACT

As climate change impacts become more and more visible across the globe, the move to take some urgent collective action is increasingly gaining momentum. Government representatives are meeting in Lima to lay the foundation for an effective, new and universal climate change agreement due to be finalised in Paris next year. Urmi Goswami explains what is climate change is all about...

### WHAT IS CLIMATE CHANGE?

Climate change refers to sustained and perceptible variations in temperature, precipitation, which have been taking place over a period of time. And there is strong evidence that climate change is taking place. While the rise in temperature has been sustained, many places have recorded changes in rainfall patterns as well.

### IS HUMAN ACTIVITY REASON FOR THIS CHANGE?

Science is more sure than ever that human activities have led to a large increase in carbon dioxide and other greenhouse gas emissions. The major contributor to warming is burning of fossil fuel — coal and hydrocarbons. Deforestation has also contributed to the increasing amounts of carbon present in the atmosphere.

### WHAT DO GREENHOUSE GASES DO?

Greenhouse gases act like a blanket around the earth, trapping energy in the atmosphere, and causing it to warm.

### WHAT ARE GREENHOUSE GASES?

Greenhouse gases refers to those gases which can trap heat in the atmosphere. Carbon dioxide is the most well-known.

### EMISSIONS (BILLION TONNES OF CO<sub>2</sub> EQUIVALENT) IN 2012



### CURRENT DOMESTIC EFFORTS

- \$15 million for National Adaptation Fund
- \$80 million for setting up of Ultra Mega Solar Projects
- \$100 million for "Ultra-Modern Super Critical Coal-Based Thermal Power Technology"
- \$6 million for the development of 1 MW Solar Parks on canal banks
- COAL CESS doubled to Rs 100 per tonne

### EXPECTED DOMESTIC EFFORTS

- A HIKE in the renewable portfolio — particularly solar (ramping up the Solar Mission under the National Action Plan on Climate Change)
- GREATER FOCUS on energy efficiency

GTN



The Times of India, Delhi dated December 01, 2014

# Stuck road plans up pollution load

## Govts Fail To Take Over 60k Vehicles Off City Roads, Complete Bypasses

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**New Delhi:** The acute vehicular pollution in Delhi, which forced National Green Tribunal to come out with a series of measures, also lies in the failure of the central and Haryana governments in taking off at least 60,000-70,000 vehicles from city roads. The inordinate delay in constructing two bypass roads—Eastern Peripheral Expressway (EPE) and western Peripheral Expressway (WPE)—has resulted in

### MEETING TODAY

polluting heavy vehicles entering Delhi every day, causing congestion and also killing people on the roads.

Both the projects were initiated after a Supreme Court order in 2005 to decongest Delhi roads and these were to be completed by 2010.

While EPE, connecting Palwal in Haryana, Ghaziabad in Uttar Pradesh and Kundli in Haryana, has not yet been awarded, WPE, which will work as a link from Kundli, Manesar and Palwal (all in Haryana), has come to a halt. EPE will be awarded by National Highways Authority of India (NHAI) and WPE is being exe-

### 2 PROJECTS THAT HIT HURDLES

#### Eastern Peripheral Expressway 135 km

**Link** | Kundli (NH-1)-Ghaziabad (NH-24)-Palwal (NH-2)

**Cost** | Over ₹5,500cr

**Construction** | 3 yrs.

**Toll period** | 20 yrs

**Original Deadline** | June 2012

**New Deadline** | Not fixed

**Status** | Not yet awarded

**Mode** | Government funding/ BOT (toll)

**Link** | Kundli (NH-1)-Manesar (NH-8)-Palwal (NH-2)

**Cost** | Yet to be worked out

**Original Deadline** | June 2009

**New Deadline** | Yet to be fixed

**Status** | 68.85% completed and stalled, developer to be replaced

**Mode** | BOT-Toll



cuted by Haryana's industrial infrastructure development agency, HSIDC.

Road transport and highways minister Nitin Gadkari has called Haryana chief minister Manohar Lal Khattar on Monday to discuss the KMP ex-

pressway, which was originally scheduled to be completed by July 2009. Sources said Gadkari may offer to take over the project if Haryana is unable to find a solution to the stalled expressway since the present concessionaire is all set to exit

from the project.

The delay has been on account of several reasons including litigation, claims raised by the concessionaire KMP Expressway Ltd and pending approvals for railway over-bridge construction besides getting required land. All this has happened despite the SC appointing a committee under EPCA chairman Bhure Lal.

Recently, Lal told TOI, "We are close to finding a substitute to the present concessionaire. Now there is a new government in Haryana. Why don't you ask them?" No official from Haryana came forward with details while sources said Khattar will share the state's stand when he meets Gadkari.

Meanwhile, the road ministry claims that EPE will be awarded this month, over four years after its original deadline for completion. "This is a clear case of scam and the new government must find out who all delayed the project and their intention. A project which could have been bid out in 2008-09 is still struggling to get a bidder. While several other highway projects were awarded when there was 30-30% land available, this project had over 90% land in NHAI's possession," a senior govern-

ment official said on condition of anonymity.

He added that had this project been awarded, it would have been over by now. "For the fault of the government and interested parties, the green tribunal had to direct withdrawal of all over 15-year-old private vehicles. This is going to pinch the common man the most," the official added.

NHAI had first invited bids for EPE in 2008 and received only one bid with "zero grant" from the government. After getting no response from private players despite several extensions of the bid date, the road ministry had sought permission from Cabinet Committee on Economic Affairs to open the single bid. But as the general election was approaching, UPA-I deferred the decision. But after returning to power, the UPA-2 government cancelled the bid. Since then, the project has not taken off due to several reasons.

Now the government is weighing two options—full government funding or 40% financial assistance to private players. "The government will now end up paying at least Rs 2,000 crore as viability gap funding to award this project," said an NHAI official.

Deccan Chronicle, Hyderabad dated December 02, 2014

The Times of India, Delhi dated December 02, 2014

## This drone cleans air of pollution

**Beijing:** A group of designers aim to develop 'parasitic' drones that perch on neon billboards in Hong Kong and suck up pollution to produce fuel and grow plants.

During the day, the drones, which the designers call "parasitic robots" would perch on neon billboards that line Hong Kong streets with their wings spread. They would collect pollution through a carbon-absorbant polymer paint, currently undergoing lab tests at the University of California, Los Angeles. At night, when the billboards light up, the robots would attach to them, using the heat from the neon in the next step of the process, 'fastcoexist.com' reported.

Heating up the polymer to a certain temperature would release the CO<sub>2</sub>, which could be collected and used in energy production. The CO<sub>2</sub> would also help boost the growth of plants on the robots' wings, so the robots can double as miniature farms. The system would collect organic waste from the plants to create biogas, while the extra CO<sub>2</sub> would be used to create methane. Some of the power from these fuels can run the robots themselves, making the system self-sufficient. *PTI*

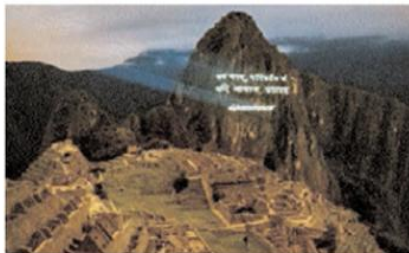
## Climate talks to seal global pact

**Lima, Dec 1:** The world's nations gathered in the Peruvian capital Lima on Monday in a renewed push for a deal to roll back carbon emissions threatening future generations.

The 12-day talks under the UN Framework Convention on Climate Change take place amid grim scientific warnings and a surge in interest in sealing a pact in Paris in December 2015.

"Never before have the risks of climate change been so obvious and the impacts so visible," said UNFCCC chief Christiana Figueres. "Never before have we seen such a desire at all levels of society to take climate action."

Since September, top-level interest has hauled the climate issue out of the doldrums, where it had lingered after a near-fiasco at a summit in Copenhagen in 2009. In September, UN Secretary-General Ban Ki-moon coaxed world leaders into renewing their vows to fight the scourge.



Even as climate talks began in Lima, Peru, Greenpeace activists from seven countries projected a pro-solar energy message on the Machu Picchu Temple of the Sun. The message in Hindi reads: "Jai, Vayu Parivartan Ke Liye Awaz Uthaye," asking people to take changes in water and air quality seriously. *—PTI*

### Carbon cleaning agenda

- Since September, top-level interest has hauled the climate issue out of the doldrums, where it had lingered after a near-fiasco at a summit in Copenhagen in 2009.
- In September, UN Secretary-General Ban Ki-moon coaxed world leaders into renewing their vows to fight the scourge.
- Three biggest emitters — China, US and Europe — sketched their plans for contributing to the carbon cleanup.

### Australia has hottest spring on record

**Melbourne, Dec. 1:** The soaring temperatures could make 2014 Australia's hottest year on record. Maximum temperatures were warmer than average across nearly the entire continent, Australia's Met officials said.

### Spain protests against oil drilling

**Corralejo, Spain, Dec 1:** Activists formed a giant "SOS" on Canary beach Sunday to protest against drilling for oil off the archipelago. Spain's Industry Ministry in August authorised Repsol to search for oil in the region.



*The Economic Times, Delhi  
dated December 03, 2014*

# Four Indian Projects to Get UN Award for Green Initiatives

Every year UN recognises innovative efforts taken by nations at the grassroots level to reduce emission

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**Lima:** Four grassroots projects from India will be awarded by an initiative spearheaded by the United Nations Framework Convention that recognises innovative and transformative solutions to address climate change as well as wider economic, social and environmental challenges.

**Resolve:** Trash2Cash, a Kolkata-based initiative that has found a way to convert trash into cash providing a solution for solid waste problems in urban areas, is one of the projects that made it to the final 12 selected for the Momentum for Change awards.

More than 5,000 tonnes of solid waste is generated each day in Kolkata. Given the manner in which solid waste is currently being dumped, Kolkata's solid waste has ended up polluting the ground water and emitting large amounts of methane, a gas that is 25 times more potent than carbon dioxide in trapping heat.

The **Resolve:** Trash2Cash initiative of the South Asian Forum for Environment is an independent community enterprise led by people who live in the slums and are trained and paid to collect and recycle corporate and household waste.

Organic waste is diverted from landfills to make compost, while paper waste is recycled and used for making handicrafts in a workshop run by women.

In this manner, by collecting an average

of 1,000 kg of waste paper and 2,000 kg of organic or food waste each month, slum dwellers involved in this initiative are helping reduce carbon dioxide emissions by 520 metric tonnes a year.

**Bhungroo,** an initiative in Gujarat to deal with drought, is another project being awarded at Lima. Bhungroo is a water management system that injects and stores excess rainwater underground and uses it in dry spells.

This initiative of artificially recharging the aquifers also helps reduce salt deposits on soil, besides increasing supply of fresh water. Some 18,000 marginal farmers have benefited from this initiative.

The Gujarat Ecology Commission has replicated this initiative in other parts of the state. Bhungroo's success lies in the fact that it has helped women become free of debt. The project is being replicated in parts of Africa as well.

The other two projects which will be awarded in Lima are an effort to reduce energy consumption in real time by using technology, thereby helping industrial and commercial users to reduce carbon emissions, and a community-based early flood warning system in the Himalayan region to help improve the resilience of 45 vulnerable communities.

Every year, the United Nations Framework Convention on Climate Change identifies grassroots efforts which contribute to the effort to move countries on to a high-resilience low-carbon path.

These projects, known as Lighthouse Activities, are meant to focus on efforts, which are already under way to address climate change and can be replicated and scaled up.

**Projects based on solid waste management, water management system have earned UN's appreciation**

*Deccan Chronicle, Hyderabad  
dated December 03, 2014*

**NATURE'S POWER**

■ **Expert says resources could create hydrogen**

## Water, sunlight to make fuel

**Melbourne, Dec. 3:** Researchers, including one of Indian-origin, have moved one step closer to turning water and sunlight into sustainable fuel by successfully replicating a crucial step in photosynthesis.

"Water is abundant and so is sunlight. It is an exciting prospect to use them to create hydrogen, and do it cheaply and safely," said Dr Kastoori Hingorani, from the ARC Centre of Excellence for Translational Photosynthesis in the

Australian National University Research School of Biology.

Hydrogen offers potential as a zero-carbon replacement for petroleum products, and is already used for launching space craft.

However, until this work, the way that plants produce hydrogen by splitting water has been poorly understood. The team created a protein which, when exposed to light, displays the electrical heartbeat that is the key to photosynthesis.

The system uses a natural-

ly-occurring protein and does not need batteries or expensive metals, meaning it could be affordable in developing countries, Hingorani said.

Co-researcher Professor Ron Pace said the research opened up new possibilities for manufacturing hydrogen as a cheap and clean source of fuel.

"This is the first time we have replicated the primary capture of energy from sunlight," Pace said.

"It's the beginning of a whole suite of possibilities,

such as creating a highly efficient fuel, or to trapping atmospheric carbon," said Pace, adding that large amounts of hydrogen fuel produced by artificial photosynthesis could transform the economy.

"That carbon-free cycle is essentially indefinitely sustainable. Sunlight is extraordinarily abundant, water is everywhere the raw materials we need to make the fuel. And at the end of the usage cycle it goes back to water," he said.

—PTI



The Times of India, Delhi dated December 03, 2014

# NGT won't take 'no' on phasing out old vehicles

## Cracks Down On Officials, Show-Cause Notice To Follow If Order Not Executed

Rumu Banerjee &  
Jayashree Nandi | TNN

New Delhi: It was a punishing two hours for officials from Delhi government as well as ministries from the Centre on Tuesday as National Green Tribunal (NGT) reviewed a co-ordination meeting after its November 26 order. Upbraiding the departments for being unwilling to implement the court's order, NGT chairman Swatanter Kumar reportedly told officials that he will not hold another co-ordination meeting and, instead, send a show-cause notice if his order is not implemented.

Officials said the meeting, held with secretaries and senior officers of 13 departments, ended with Kumar reiterating that his order stands. After two-and-a-half hours, where transport, environment, traffic police, pollution control boards, ministry of urban development, and many others submitted their concerns for ban on more than 15-year-old vehicles, Kumar pointed out that it's up to them

### KEY POINTS

#### WHAT NGT SAID ON WEDNESDAY

- Any vehicle older than 15 years cannot be run in Delhi. If caught, it will be seized
- Anyone burning plastic, leaves, garbage etc in the open will face legal action. People can report violations to NGT, police or DPCC
- All DTC buses will undergo emission tests, and those found polluting will not be allowed to run
- Parking will not be allowed



on any tar road to reduce congestion

- Immediate steps to provide cycle tracks and encourage cycling
- All authorities told to stop plying of overloaded vehicles in Delhi

now to implement the order.

An official present at the meeting said, "It was made clear that the order needs to be implemented immediately, especially the ban on vehicles that are 15 years and older." Sources said that the NGT chairman even said that within a week departments should send a message to the public that the order is being implemented in to-to.

The next date of hearing is

January 12 and all departments have been asked to submit an action taken report before that, added the official.

When told by the transport department that identifying vehicles older than 15 years would be difficult by sight, it was advised to make regional transport offices (RTO) responsible for their zones. To an official's remark that enforcement of parking rules is nearly impossible as violators con-

tinue to park illegally despite a crackdown, Swatanter Kumar suggested that vehicles standing in unauthorized areas be towed away and dumped in Bawana or other border areas. This will teach the violators a lesson.

The NGT judges and expert members said there is no need for any amendment as Supreme Court in 1997 had already ordered a ban on more than 15-year-old vehicles. NGT judges said the SC order is the "law of the land" and has to be implemented. Kumar also took stock of the progress on Eastern Peripheral Expressway. "The meeting was like a wake up call to all departments. He was particularly concerned about non destined traffic entering Delhi and asked authorities why they haven't addressed it yet," said a lawyer representing a government department at the meeting.

The Delhi environment department also submitted that NGT's 14-point order should be applicable to the NCR as air pollution is a cross-boundary

issue. Kumar agreed with it.

Incidentally, transport officials admit that phasing out of old vehicles will help rein in pollution to some extent. Anil Chikkara, a transport department official, said, "There are around 2.5 lakh two-wheelers running in Delhi which still have two-stroke engines. These are the polluting vehicles." He added that two-stroke engines were phased out in

### TOI AGAINST POLLUTION

1999 but are still in use.

Meanwhile, government officials said that out of the 22-24 lakh vehicles affected by the NGT order, around 2.5 lakh have already applied for an NOC from the transport department. These NOC are required to sell the vehicle in another state. The rest will now have to apply for an NOC before disposing off their vehicles. Around 15 lakh are two-wheelers, added the official.

The Economic Times, Delhi  
dated December 04, 2014

# India Sends 32-member Team of Experts for Climate Change Talks

## Veteran negotiators, including a PMO official, roped in to make Lima talks fruitful

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**Lima:** With air pollution levels reaching alarming levels in Indian cities, the government has raised the stakes at global climate negotiations and sent a much bigger team than before to Lima, which includes an official from the Prime Minister's Office (PMO) for talks, signaling the Narendra Modi government's concern about the issue.

In a departure from the last two years, when the Indian team of negotiators comprised about 15 people, this time it includes 32 members, who bring a wide spectrum of expertise with members from the PMO, a member of the PM's Council on Climate Change, an executive from NTPC, a former finance ministry adviser, as well as officials dealing with renewable energy, coal, forests and funding.

ET had reported that the environment ministry had suggested a delegation comprising 36 members, including the environment minister.

The Indian delegation to Lima sees the return of Jayant Mauskar, member of the Prime Minister's Council on Climate Change and former co-chair of the Durban Platform, which is discussing the new climate agreement.

Mauskar is a veteran negotiator, and his presence in the team adds heft to the Indi-

an contingent. Another senior negotiator who marks a return to the team is Dipak Dasgupta, member of the board of the Green Climate Fund and former principal economic adviser in the ministry of finance. The inclusion of both Mauskar and Dasgupta signals the level of importance that the government is attaching to the Lima round of talks.



India has stressed that without adequate funds developing countries cannot contribute to tackling climate change

At Lima, countries propose to decide the elements that will comprise each one's contribution to tackling climate change. In climate negotiation parlance, this is referred to as intended nationally determined contributions or INDC. India has argued that these contributions cannot be just about emission reduction but need to include efforts to adapt to climate change, and providing finance, technology, and capacity building to developing countries. In this context, Dasgupta's inclusion into the team is important.

As a member of the board of the Green Climate Fund, he will be able to provide New Delhi with an accurate assessment of the actual flow of climate funds. India has repeatedly stressed that without ade-

quate funds it would be difficult for developing countries to contribute meaningfully to tackling climate change.

The team also includes another long-time negotiator, Jagdish Kishwan, former additional director general of forests. The negotiating team also includes scientists from the Indian Agriculture Research Institute and the ministry of renewable energy. India's biggest utility NTPC, an official from the power ministry who is part of the project monitoring group, and an official from the trade policy division of the department of commerce. These choices indicate India's focus on renewables as well as the understanding that coal will be the country's mainstay for energy.

The Modi administration's focus on economic growth and trade is also evident in the team. The new look Indian negotiating team doesn't however signal a change in approach. On Tuesday, the Cabinet approved India's negotiating playbook.

In a brief statement, the government said the approach seeks to protect the interests of the country in climate change negotiations based on the principles of the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol.

It would also enhance the solidarity among the developing countries on these issues.



*The Times of India, Delhi dated  
December 04, 2014*

# India sticks to its guns in Peru climate talks

## Insists On Retaining Its 'Right To Grow'

**Lima:** The buzz around the recent US-China bilateral climate agreement had brought India into sharp focus during ongoing negotiations in Lima, Peru. New Delhi stuck to its guns during the talks in the past three days and insisted that the new regime under the global climate deal must respect the rights of poor nations to develop.

The Indian stand was reflected in its formal "negotiating position" for the Lima climate talks that made it clear that the country would not compromise on the basic principles of the Kyoto Protocol. It insisted that equity and "common but differentiated responsibilities and respective capability (CBDR-RC)" must be the basis for the global climate deal in Paris next year.

The CBDR is based on the premise that rich nations including US, Canada, Australia, Japan, UK, France, Germany and other developed EU countries are historical polluters as these

countries had been industrialized much before the developing countries. Therefore, it is their responsibility to share the major burden of mitigation and adaptation efforts to face challenges of climate change.

Approving its "negotiating position", the government highest decision-making body — the Union Cabinet — on Tuesday said that the approach of New Delhi "seeks to protect the interests of the country in climate change negotiations based on the principles of the United Nations Framework Convention on Climate Change (UNFCCC), and the Kyoto Protocol (KP)".

An official statement after the Cabinet meeting, chaired by PM Narendra Modi, said, "It (negotiating position) would also enhance solidarity among developing countries on these issues".

India's position was articulated by the country's chief negotiator Ravi Shankar Prasad here in Lima

while he was speaking during a side event — "Perspectives on the 2015 Paris deal: Options on the road from Lima to Paris" — on the first day of the COP20 on Monday.

He pointed out that the countries have not had any meaningful discussions in the UNFCCC on the issue of intellectual property rights (IPRs) and technology transfer — a signal that India would take up the issue during ongoing negotiations.

India has long taken a stand that the rich nations should transfer technology to their poor counterparts free of cost by using money from the Green Climate Fund (GCF). Prasad noted that the developing countries need assurance from the rich nations on technology transfer and financial support before providing their Intended Nationally Determined Contributions (INDCs).

Under the INDCs, countries are expected to announce their intended goals of adaptation and mitigation efforts by March.

*For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)*

**TOI at Lima**  
By Vishwa Mohan

*The Times of India, Delhi dated  
December 05, 2014*

# Saarc joins hands in climate fight

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**Lima:** India and its seven neighbours on Wednesday moved to make Saarc a separate pressure group to represent them at the climate talks here.

Saarc countries are part of one or more negotiating groups under UNFCCC. This move will allow them join hands afresh when China is no longer the country which will forcefully represent common interests following its bilateral deal with US.

"Saarc, as a group to represent eight countries, will be formalized once ministers of these nations arrive for talks



TIME MAY BE RUNNING OUT

at the high-level segment of the negotiations next week," delegation member of one of the countries said.

The group's first informal meeting was held on Wednesday at the office of Indian delegates at the COP 20 venue (20th

edition of the Conference of the Parties). Officials of all eight countries agreed to formalize it next week. The move will help the Saarc group put across its views collectively ahead of the final climate deal in Paris next December. These

countries initially agreed to formalize Saarc as a climate talks group during the formation's November conference in Kathmandu.

Narendra Modi and Nawaz Sharif, who attended the Saarc meet, agreed to the Maldives proposal to make the group a separate entity to represent all eight South Asia nations at Lima. Although Saarc as a climate negotiations group existed and represented these countries at three Conferences of the Parties (COP 2010-12) it went into hibernation after India became more active in another group — BASIC — with Brazil, South Africa and China.



The Times of India, Delhi dated December 05, 2014

# NGT seeks congestion tax, higher parking fee

Says City Must Move To Stricter Emission Norms

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New Delhi: Calling for "harsh" measures to tackle the growing problem of air pollution in and around the capital, the National Green

**CHOKING CITY: P 6**  
**TIMES VIEW: P 6**

Tribunal on Thursday asked the government to consider hiking parking fee, imposing a congestion charge on vehicles and increasing the registration fee for two and four-wheelers in Delhi. It also suggested that anyone caught burning leaves or waste could be asked to pay a fine of

## 'TIME FOR HARSH MEASURES'

### NGT wants

Authorities to monitor air pollution round-the-clock in entire NCR to analyse peak & troughs

Construction sites to cover material with tarpaulin sheets. Trucks carrying construction material to do the same

Increase in NCR

### forest cover to 33%

Ban on waste burning at landfill sites

Eastern & western bypass projects to be expedited

### Asks govt to consider

Hiking parking rates

Imposing a congestion charge on vehicles

Increasing vehicle registration fee

most two hours.

The bench said its measures to tackle pollution would apply to NCR. A step in that direction would be to introduce Bharat Stage V norms in Delhi and upgrade the rest of NCR to BS IV.

► 'Monitor air quality', P 6

Rs 20,000 to 1 lakh, based on the 'polluter pays' principle.

The bench headed by NGT chairperson Justice Swatanter Kumar directed government agencies to come up with proposals on these points before the next date of hearing. Thursday's hearing continued for al-

## TOUGH MEASURES

CPCB, DPCC and state pollution boards in NCR to record ambient air quality for one month, including peaks and troughs. The monitoring has to be round-the-clock, including early morning readings, so that least polluted hours can be also identified

The western peripheral expressway and eastern peripheral expressway projects to be expedited

Ban on waste burning at landfill sites

Air purifiers to be fixed at schools, court complexes, markets and other crowded places

Inland container depots in Delhi to be moved away as soon as possible



Trucks carrying construction material into Delhi will have to cover them so that dust doesn't fly around when its being transported



Increase forest cover in NCR



Construction sites need to find a way to keep materials covered with tarpaulin sheets; no such materials will be allowed to spill over to the road

## ILLEGAL BURNING OF WASTE

Delhi Pollution Control Committee has created a Facebook page where people can post complaints, along with photographs, regarding illegal burning of plastic or general waste; a WhatsApp number will be released soon

# Lima hunt for balanced clean-air solution

Delhi's New Demand Will Add To Burden: Rich Nations

Lima: With countries here negotiating crucial points in the run up to next year's global climate agreement, India has made a strong pitch for weightage to "adaptation" measures in the new deal and sought a "goal for adaptation" like the "goal for mitigation" (emission cuts) in the new agreement.

India's demand came even as rich nations remain obsessed with "mitigation" efforts and goals. They believe setting "adaptation" targets would increase their burden of helping poorer nations with finance and technology transfer.

Amid indications that the country wouldn't announce its peaking year like China and would come out with its target only by June 2015, India declared: "Adaptation is critical to the country's development" model in view of climate change — a narrative which gained prominence after the NDA took office.

Without denying the importance of "mitigation" in facing climate-change challenges, India sought to include "adaptation" in the new agreement in a "balanced" manner.

In a submission to a 'contact group' on adaptation here, Indian delegation head Susheel Kumar said: "When we say balance, it's not only political parity with mitiga-

## HEAT IS ON

### CARBON EMISSIONS 2013

2013 Global Carbon Emission **9.9bn tonnes** (61% More Than 1990)

CONTRIBUTED BY



Per capita per year Global: 1.4 tonnes  
US 4.5  
China 2.0  
EU 1.9  
India 0.5 (in tonnes)

Source: Global Carbon Project

### INDIA'S PITCH

► Unlike China, India will not announce its peaking year. On an US-China deal, Beijing has set 2030 as its peaking year: in essence China's emissions will start declining only after 2030

► India will announce its 'Intended Nationally Determined Contributions' (INDCs) in June, 2015. Under INDCs, all nations to declare goals of adaptation & emission-cut measures by August 2015. INDCs

deadline for developed countries March, 2015

► India to include clean energy goal target in its INDCs

► India's INDCs will have commitment period of 15 years beyond 2020

► INDCs of all countries will reflect in new climate deal in Paris December next year

► Developing countries including India want all rich nations to also move on their pre-2020 emission targets

tion. It is total parity — financial flow or allocations, legally binding status, technology transfer or sense of urgency and commitments". He emphasized: "We'd like a long-term global goal for adaptation... in qualitative and quantitative terms".

This is significant given India's position that the new treaty focuses more on "adaptation", not "mitigation" because poorer countries need to grow, which would lead to

unavoidable emissions.

India wants rich countries to play a major role in mitigation, whereas adaptation efforts may compulsorily be made by every country with mandatory financial and technological support from developed nations.

Referring to a para in the draft text which talks of enhancing support to developing countries, Kumar said: "India would suggest amending this para to show that

## EARLY MOVES ON CUTS

1979 | First World Climate Conference takes place

1988 | Intergovernmental Panel on Climate Change set up

1990 | IPCC's first assessment report released. Calls for global treaty on climate change

1992 | Countries come together on UN Framework Convention on Climate Change (UNFCCC) to strategize on limiting 'average global temperature increases', and climate change

1997 | Kyoto Protocol legally binds developed countries to emission-cut targets

2005 | Entry into force of the Kyoto Protocol

## THE CLIMATE PARTY

There are 195 Parties to the Convention and 192 to Kyoto Protocol. Developing countries made smaller groupings keeping own interests in mind, like the Like-Minded Developing Countries (India, China, Pak, Arab nations) and the AOSIS: coalition of 40 low-lying islands & the AILAC: Alliance of Latin America and Caribbean

adaptation is a global commitment to be met by each country."

He referred to India's recent initiative of establishing a National Adaptation Fund for financial, technical and capacity-building support at national and state level for adaptation activities.

India is likely to present its points on adaptation more forcefully at the high-level segment of the climate talks next week after Union environment and climate change minister Prakash Javadekar reaches here.

# NGT: Monitor air quality in NCR

► Continued from P1

The green court ordered DPCC and transport department to introduce catalytic converters, an emission control device, in diesel vehicles.

In addition to its 14-point order on November 26 which included an immediate ban on vehicles older than 15 years in the city, the bench directed the Central Pollution Control Board, DPCC, environment ministry scientists and state pollution boards to monitor ambient air quality in NCR for one month. The monitoring should include peak pollution levels as well as troughs through the day, it said.

"Air pollution is increasing day by day, causing various health problems. Even morning walkers are not safe," Kumar said. The bench said city's air pollution came from three sources—vehicles, dust and burning of biomass and waste. Thursday's hearing touched upon all three.

"The bench directed DTC to come up with uniform time-

tables so buses maintain a steady frequency but don't cause congestion at the same time. The buses will also be subjected to mechanical inspection tests and PUC twice a month," said N P Singh, a lawyer representing one of the government departments.

The tribunal refused to take a lenient view on parking and said corporations should start a pilot project in Lajpat Nagar and Karol Bagh market to see how parking-led congestion can be avoided. "He also reiterated that no parking will be allowed on tarred roads," Singh added.

The bench directed that hot-mix coal-tar plants not be allowed in the open or on the roads, as it leads to toxic emissions. Even construction sites need to be equipped with technology to ensure there are no emissions and dust from the material is not blown away.

Vardhaman Kaushik, the petitioner, said he was confident that the bench will make sure that the air pollution problem is addressed in Delhi. "I am very hopeful," he said.



The Times of India, Delhi dated December 05, 2014

# Air pollution affecting even foetal growth

## Studies Show It's Causing Host Of Diseases, Including Lung Cancer, And Premature Deaths

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New Delhi: India may be heading towards an epidemic of babies born small, premature and with poor mental growth if urgent steps are not taken to curb air pollution, doctors have warned. This is in addition to lung ailments like asthma and heart diseases. Of all cities, Delhi is the most vulnerable as it has the highest pollution level.


According to the experts, anything that affects the growth of organs tends to impact the foetus and newborns most. "The high incidence of neural tube defect in newborns, where the spinal cord is not formed well even among well-nourished mothers, is a clear example. Other birth defects are also common," said Dr Neelam Kler, chairperson of the neonatology department at Sir Ganga Ram Hospital (SGRH). She said the link between air pollution and birth defects was discussed at a World Health Organisation (WHO) meeting recently.

According to the 2010 global burden of disease report, outdoor air pollution caused more than 6,20,000 premature deaths in India.

Nearly 18 million healthy years of life were lost that year. In Delhi, experts fear, the health impact of air pollution could be higher due to heavy density of particulate matter. The Capital has been held as

**AIR POLLUTION KILLS NEARLY 8M PEOPLE EVERY YEAR GLOBALLY**

DANGER IN THE AIR		MAJOR THREATS
<b>GREENHOUSE GASES:</b> Carbon dioxide (CO <sub>2</sub> ), methane, black carbon, nitrous oxide (N <sub>2</sub> O), hydro-fluorocarbons (HFC)	<b>PARTICLES (PM10/PM2.5):</b> Nitrogen oxides, sulphur oxides, volatile organic compounds (VOC), ammonia, carbon monoxide (CO), ozone	<b>TOXICS:</b> Vehicular exhaust, road dust, construction waste, burning of dry leaves, benzene, heavy metals
<b>COMMON ILLNESSES CAUSED DUE TO POLLUTANTS</b>		
<b>Children:</b> Poorly developed lungs, pneumonia, bronchitis, asthma	disease (COPD), lung cancer	
<b>Adults:</b> Asthma, chronic obstructive pulmonary	<b>Elderly:</b> Asthma, COPD, recurrent respiratory tract infection, heart disease, increased risk of stroke	
<b>PREVENTIVE MEASURES</b>	<b>LONG-TERM SOLUTIONS</b>	
<ul style="list-style-type: none"> <li>➤ Avoid crowded vehicular areas</li> <li>➤ Drink plenty of water</li> <li>➤ Contact doctor for unusual cough or breathing difficulty</li> <li>➤ Get vaccinated if you have respiratory problems</li> </ul>	<ul style="list-style-type: none"> <li>➤ Making people aware of harmful effects of various pollutants such as diesel</li> <li>➤ Improving public transport and encouraging people to use it to curb vehicular emissions</li> <li>➤ Penalizing heavy vehicles that release high amounts of toxics</li> <li>➤ Preserving and promoting greenery</li> </ul>	



### Times View

The unacceptably high level of pollution in Delhi is threatening our children as well as the elderly. The health risks arising from foul urban air is well documented. The government has been pathetically lethargic in addressing this serious issue even when it was staring in the eye. Keeping air pollution in check is by no means an impossible task. Many cities around the world have shown how it can be done. It requires advance planning for building an effective public transport system, thus reducing the need for private vehicles. In Delhi, the Metro—a non-polluting mode of travel—is growing, but it wasn't planned sufficiently in advance to meet the growing city's transport needs. Lessons must be learnt from this and other cities must build their public transport system in advance before high emission levels choke them too.

The government has no option but to take some drastic steps to speed up the public transport system and curb the number of cars on Delhi roads. For the former, the last-mile connectivity for the Metro must be built on a war footing. If the latter means higher parking charges, registration fee, banning smoke-spewing trucks from entering the city, setting up vehicle-free zones, so be it. Future generations can't be allowed to suffer for our squeamishness or selfishness. And in the meantime, the government must own up its responsibility for past omissions that have led to medical problems for people. It should subsidize, if not fully pay for the treatment of those suffering respiratory, heart ailments or skin problems caused by such high levels of pollution.

the world's most polluted cities by global bodies, including WHO.

SGRH, in collaboration with Public Health Foundation of India (PHFI), is undertaking a retrospective study in which the air quality near the house of mothers who gave birth to babies between 2007 and 2012 will be assessed to find a link between pollution and the neonate's birth weight.

The government formed a committee to look into the dis-

ease burden associated with air pollution and ways to reduce its impact last year. Dr K Srinath Reddy, who is heading the committee, told TOI: "Air pollution is playing havoc with people's health. The review of available medical literature and clinical findings by top researchers reveals it is affecting people of all ages and has a role to play even in heart diseases that are generally associated with lifestyle factors."

Dr Sandeep Salvi, director

of Chest Research Foundation (CRF), said globally about eight million deaths are caused due to air pollution. "In India, we have no such da-

### TOI AGAINST POLLUTION

ta at present. But clinical experience shows pollutants, particularly the particulate matter, are behind poor lung

growth in children. It causes asthma, bronchitis and pneumonia which is a major killer in the age-group. Even in grown-ups, we are seeing high incidence of asthma and COPD," he said.

The CRF recently did a study in which it found that Indians have 30% lower lung function as compared to Europeans. Things could get worse if immediate steps are not taken to curb vehicular emission, doctors warned.

But the risk of air pollu-

tion does not end here. The most frightening impact of this preventable disaster could come in the form of lung cancer, warns Dr P K Julka, professor of oncology, at AIIMS. "Several pollutants contain chemical carcinogens, such as benzene, form-aldehyde and polycyclic hydrocarbon, among others. It is slow poison and may certainly add to the burden of cancer in the country in the coming years if urgent steps to curb vehicular emission are not taken."

The Economic Times,  
Delhi dated  
December 06, 2014

## India to Submit Climate Plans by June

Urmi.Goswami@timesgroup.com

**Lima:** India has said that it will submit its plans for tackling climate change to the United Nations by June next year.

"India will not make any INDC (intended nationally determined contributions) related announcements in Lima. India will finalise and submit INDC only by June," said Susheel Kumar, the interim head of Indian delegation at the Lima climate conference.

With the US, China, and European Union, each having made announcements — though sometimes only indicative — on their emission reduction plans, there has been speculation that India would make an announcement of its plans for addressing climate change in Lima.

The plans or efforts to tackle climate change, known in UN negotiations parlance as INDC, will have to be formulated by each country by taking in their domestic circumstances and goals.

"These contributions will be comprehensive climate action that India will say it will undertake. It can't be worked out in a hurry," Kumar said. All countries were supposed to submit their INDCs by March next year, well ahead of the Paris summit in December.

India argues that a March deadline would

not be easy to meet, especially as there is no clarity on what constitutes an INDC.

"Without a template and a decision on what comprises INDCs it is difficult to finalise these. But we have begun the exercise based on a rudimentary template we have created and will include all the pillars. I suspect many countries, developing and even developed, will not be able to meet the March target for INDCs," Kumar said.

Environment minister Prakash Javadekar, in a pre-departure interaction in New Delhi, told reporters, "INDCs would be addressed in the context of enhanced actions and would include all the issues. It would cover not just the missions but also other initiatives under the national action plan, and the state action plans."

An indication that New Delhi is likely to go beyond the initiatives that have already been identified. "The national action plan, for example, only deals with solar energy. But renewal is not just solar; there is wind, biomass, so there is scope for greater action," Kumar said, stressing that India will take "comprehensive action".

New Delhi has already kicked off the exer-

cise of working out its plan, even though it said there is no agreement among countries on whether the contributions should focus only on emission reductions or would include efforts to adapt to climate change, finance, technology transfer and capacity building. India has stressed that the contributions, which form the core of the new global compact to be finalised in Paris next year, should be balanced and include all the five aspects or pillars of addressing climate change. As part of its preparations, New Delhi has commissioned The Energy and Resources Institute (TERI), Indian Renewable Energy Development Agency (IREDA) and the Institute of Economic Growth to chart out India's growth path, the emission intensity trajectory and emissions projection.

"Instead of restricting the study to 2020 we have asked that the experts take a view up to 2050," Kumar said.

The first instalment of the report is due in January. The low carbon report prepared by Kirit Parekh as the head of a Planning Commission-appointed expert group is also being analysed. The environment ministry, which is the nodal point for dealing with climate change, has asked other ministries and organisations to assess the climate-related and relevant action, and identify initiatives that will be undertaken.



The Times of India, Delhi dated December 06, 2014

# 'Five pillars of strength key to climate deal'

## ROADMAP TO PARIS

### India's points at ongoing climate negotiations

#### THE GLOBAL CLIMATE DEAL MUST HAVE FIVE KEY ELEMENTS (FIVE PILLARS)

- Adaptation
  - Mitigation
  - Finance
  - Technology Transfer
  - Capacity Building
- Climate deal mustn't be mitigation centric
- India emphasizes on adaptation to reduce the vulnerability and risk due to impact of climate change



➤ Principles of the UNFCCC and its Kyoto Protocol (equity and Common But Differentiated Responsibilities) should be the basis of the deal

### WHAT INDIA HAS BEEN DOING

- India has been working on its intended nationally determined contributions (INDCs) which is to be announced in June next year
- Under the INDCs, all countries are expected to announce their intended goals for mitigation
- Govt asks Indian Renewable Energy Development Agency (IREDA), The Energy & Resources Institute (TERI) & Institute of Economic Growth (IEG) to help out in preparing INDCs
- These institutions will submit first set of reports in Jan 2015
- Different ministries will use reports as inputs to prepare its INDCs

**Lima:** India-driven by domestic obligation of poverty eradication and food security has sought to bring out in the open its expectations from the global climate agreement and insisted that the country would like to have a deal that has five pillars of strength which would help it and other developing countries meet basic needs of their population.

"We don't want a mitigation centric deal that is being pushed by developed countries as we want to grow to end poverty", said head of the Indian delegation Sushel Kumar while seeking to end any confusion over India's stand in run up to the Paris summit where a global climate deal is expected to be sealed in December next year. The remarks came at a time when countries are preparing themselves for the crucial negotiation phase during the high-level segment, beginning next week when ministers of many countries would be here for the talks.

The main issues that are dividing countries here during the negotiations are centred on the excessive focus on mitigation (emission cut) by rich nations, which is opposed by the developing countries as they want focus on adaptation (preparing themselves to reduce the vulnerability and risk due to impact of climate change).

**TOI at Lima**  
By Vishwa Mohan

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

In 2008, despite stiff resistance from authorities, people and businesses, London implemented the "low emission zone" policy where cars, buses, lorries and others that do not conform to emission standards are fined heavily.

Transport for London, the body that manages the transport system in Greater London, implements the scheme by tracking images captured by automatic number plate recognition cameras that help identify polluting vehicles.

Kumar, an environment and climate change ministry officer, also heads India's pollution watchdog. "We want all five key elements - Adaptation, Mitigation, Finance, Technology Transfer and Capacity Building must be there in the global climate deal," he said. Kumar emphasized that India was quite sensitive to the problem of climate change and therefore would do its best to reduce its emissions. Asked about the announcement of the country's Intended Nationally Determined Contributions (INDCs), he said, "We have been working on it. We will come out with our comprehensive and well worked out plan at an appropriate time."

For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)

The Times of India, Delhi dated  
December 07, 2014

## GOVTS SET HIGH STANDARDS AND IMPLEMENT THEM SERIOUSLY

# How the world keeps air clean

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

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

In 2008, despite stiff resistance from authorities, people and businesses, London implemented the "low emission zone" policy where cars, buses, lorries and others that do not conform to emission standards are fined heavily.

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**TRAFFIC CURBS:** China and Singapore have adopted tough measures

Germany has a similar emissions zone where entry is banned for polluting vehicles.

Singapore is the first city in the world to implement electronic road pricing (ERP). The measure that came into effect from September 1998 involves a

method whereby a smart card is installed in every vehicle and congestion charges are automatically deducted. So at ERP zones when any vehicle slows

down due to congestion, an amount is deducted for contributing to the jam. Besides, owning a car in Singapore is very expensive due to higher taxes—the certificate on entitlement costs one almost equal the car's original price.

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

A section of experts though feels such drastic measures like a "low emission zone" may be impossible to implement in Delhi where people end up fighting over paying a small toll tax. But, at least a start has to be made, they say. "People will resist but there is no silver bullet for the air pollution crisis. While a low emission zone or congestion tax may be difficult to implement without a robust public transport system, why not charge higher fee for parking?" said Sarath Guttikunda, director, UrbanEmission.info.

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

Manfred Breithaupt, director of sustainable urban transport project at GIZ, said Colombian cities have a 20% surcharge on petrol sales. In fact, half of Bogotá's revenue from this surcharge funds the city's public transport system.

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



The Times of India, Delhi dated  
December 07, 2014

# UN report: Climate adaptation cost for developing world ballooning

**Lima:** At a time when developing countries including India are pitching for a climate deal with "adaptation" as its key component, a UN body on Friday dropped a bombshell on rich nations claiming that adjusting to a warmer climate is likely to cost up to \$210-300 billion per year by 2050 even if the global greenhouse gas emissions are cut to keep the temperature rise below 2 degrees Celsius this century.

The new estimate has come from the United Nations Environment Programme's (UNEP) first 'Adaptation Gap Report' which clearly indicates that rich countries need to give more to plug the huge funding disparity so that poor countries can adapt to the expected drought, floods and heat waves caused by climate change.

The report also referred to one additional recent study that said the annual average adaptation costs for south Asia alone would be \$40 billion per year by 2050.

It also clearly indicated that only mitigation is not enough to save the world. The emission cut should be backed by adaptation measures which need a substantial amount of money.

The UNEP report said, "The cost of adapting to climate change in developing countries is likely to reach two to three times the previous estimates of \$70-100 billion per year by 2050".

Released during a crucial round of climate talks here, the Adaptation Gap Report serves as a preliminary assessment of global adaptation

## AUSTRALIA, AUSTRIA, IRELAND YET TO PLEDGE FUNDS

Even with emission cuts, climate change adaptation costs may hit **2-3 times** of the previous estimates of \$70-100 billion per year by 2050 (It means \$210-300 billion per year by 2050)

**CURRENT STATUS**  
Public adaptation-related financing reached \$23-26 billion in 2012-13



### PRESENT STATUS OF GREEN CLIMATE FUND (GCF)

> Rich countries have, so far, pledged only \$9.95 billion to the GCF as against the target of \$100 billion in this kitty by 2020

> There is a goal of having \$100 billion per year in this fund beyond 2020

> Australia, Austria, Belgium, Iceland, Portugal and Ireland (all rich and historical polluters) have, so far, not pledged a single penny to this fund

### HOW THIS GAP CAN BE FILLED (SOURCE OF FUNDING) (between 2015-2050)

#### UNEP suggests

International auctioning of emissions allowances	Auctioning of allowances in domestic emissions trading schemes	Revenues from international transportation	
		Carbon levy	Financial transaction taxes

gaps in finance, technology and knowledge, and lays out a framework for future work on better defining and bridging these gaps. The report finds that despite funding by public sources reaching \$23-26 billion in 2012-2013, there will be a significant funding gap after 2020 unless new and additional finance for adaptation is made available.

The remarks assume significance at a time when many rich countries like Australia, Austria, Belgium, Iceland, Portugal and Ireland have shown reluctance to spare any money for the Green Climate Fund (GCF) — a financial mechanism which is meant to help out developing and poor coun-

tries to adapt to the adverse impact of climate change.

Instead of a target of \$100 billion in the GCF by 2020, the rich nations have, so far, pledged only \$9.95 billion by Friday with Norway announcing to provide additional \$258 million to the GCF over the next four years.

"As world leaders meet in Lima to take the critical next step in realizing a global agreement on climate change, this report underlines the importance of including comprehensive adaptation plans in the agreement," said Achim Steiner, executive director of UNEP and under-secretary-general of the United Nations.

"National authorities and

the international community should take the necessary steps to ensure the funding, technology and knowledge gaps are addressed in future planning and budgeting," he said. He emphasized that the report provides a powerful reminder that the potential cost of inaction carries a real price tag.

"Debating the economics of our response to climate change must become more honest," he added.

The findings of the report come at an inconvenient time for the developed world, which has been historical polluters. They have opposed any kind of binding agreement for an adaptation-driven narrative since it imposes significant cost burden on them.

# India to Enact New Climate Legislation

In next budget session we are going to have a comprehensive legislation: Javadekar

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**Lima:** India is set to put in place a comprehensive climate legislation. Environment minister Prakash Javadekar announced the government's plans to introduce this in the budget session of Parliament on Sunday.

"I am happy to announce that in next budget session we are going to have comprehensive climate legislation, which will ensure a better environment," the minister said.

In his address to a session at the GLOBE COP20 Legislators' Summit in Lima, Javadekar referred to the work done by organization on climate legislation, "especially the comparison on what countries are doing on climate change and their performance." Javadekar, who headed GLOBE India before becoming minister, was speaking at a session on Barriers to National Climate Action: Lessons from developing countries.

Details about the proposed climate legislation are sketchy but could focus on performance targets. A similar proposal had been

made in 2009 by then environment minister Jairam Ramesh. That was criticized domestically on the grounds that it would limit India's development space. "I am glad that an idea I had first proposed in 2009 and had actually drafted legislation (on), which was criticized and opposed widely including the BJP, is now being taken forward by the very same BJP," Ramesh told ET.

"The confidence level of the global community in the seriousness, credibility and continuity of India's actions will also increase if a domestic law is passed incorporating systems of monitoring as well. Executive actions must be backed by legislative pledges," the former minister said.

It is clear however that the proposed climate legislation will not have any reference to a peaking year for India. Javadekar, who held several rounds of bilateral meetings on Sunday, is understood to have told US envoy for climate change Todd Stern during their hour-long meeting that unlike China, India would not announce a peaking year for its emissions as it was not ready to do so at its current stage of economic development.

India has been implementing its national action plan on climate change which is a portfolio of efforts to both reduce emissions and adapt to climate change. However, despite actions taken domestically, there is an impression in the international community that "India is not willing to and is not taking req-

uisite measures to address climate change," Ramesh suggests that "to counter this impression, and to deepen domestic efforts to address climate change, we must pass comprehensive legislation in which initiatives, such as a trading system for meeting energy efficiency targets, mandatory fuel efficiency standards, improving quality of forest cover, establishment of concentration standards where they do not exist for emissions from power plants like for sulphur dioxide and oxides of nitrogen, etc., are embedded."

The 2009 version of the climate legislation put forward the idea of a specific time-bound performance targets for efforts in sectors such as power, transport, industry, agriculture, buildings, and forestry. The targets were meant for the 2010-2020 period. These targets were not meant as explicit emission reduction targets but would be implicit ones that would lead to emission reduction as one of its impacts. In intent, the law was meant to be a climate change version of the Fiscal Responsibility and Budget Management Act.

Many developing countries have over the past five years enacted domestic climate legislation. The Philippines has a domestic climate law, which sets out benchmarks for climate action to both reduce emissions and adapt to climate change. The Philippines law also lays out an administrative structure to address climate change, making it mandatory for all local govern-



Prakash Javadekar

ments to have a climate change plan, budget and separate administrative structure. India's BASIC partner Brazil also has a domestic law, which sets out its international commitment to reduce emissions intensity made at Copenhagen and Cancun, and it also includes sectoral measures and targets like forestry as part of the law.

The Economic Times, Delhi  
dated December 09, 2014



*The Economic Times, Delhi dated December 09, 2014*

## Focus on Coal-based Power Generation to Worsen Air Quality

A new report warns that premature deaths due to emissions from thermal plants will rise two-three times

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**New Delhi:** A new report has warned that premature deaths due to emissions from thermal power projects (TPPs) will rise two-three times as India's reliance on thermal power increases.

The report by UrbanEmissionsInfo, an independent research group working on India's air quality, and Mumbai-based NGO Conservation Action Trust, expects India's thermal power generation to rise from 159 gigawatts in 2014 to 450 GW in 2030.

Coal consumption is expected to rise proportionately, trebling from the current 660 million tons/year to 1800 million tonnes.

The impact of all this on India's air quality will be predictable. Today, TPPs contribute about 50% of India's annual sulphur dioxide emissions and 15% of the country's PM 2.5 emissions. Health impacts, arising from already high concentrations of these gases, are already visible in India.

Research indicates strong links between smaller particulate matter — like PM 2.5, which is small enough to enter tissue — and cancer. Sulphur dioxide affects the respiratory system. Nitrogen oxides, on the other hand, affect lungs and the heart.

According to the report, "Coal Kills: Health Impacts of Air Pollution from India's coal power expansion", levels of particulate matter,

sulphur dioxide and nitrogen oxides will at least double in this period. The outcome? Premature deaths due to these projects will grow two-three times by 2030 — claiming 3 lakh people every year. Asthma cases will grow to 42.7 million in the same period. The effects will be felt across India. While the greatest number of TPPs come up in the coal-bearing states, the report expects them to be established in 20 states across India. The exceptions are the hill states.

The perception in policy circles is that India cannot do without coal, in which case the country needs to dramatically strengthen environmental standards. Even now, unlike countries such as the US, China, Australia or the EU, India doesn't have emission standards for sulphur dioxide, nitrogen oxides and mercury.

"Only four coal-fired TPPs in India operate flue gas desulphurization (FGD, a sulphur emission control system) and among those to be commissioned through 2030, only seven TPPs are listed to have FGD," the report said.

As for the standard that does exist, on particulate matter, India pegs the safety threshold at 50 micrograms — China has pegged this at 30. TPPs have to install and operate emission control and emission measuring systems — mostly for particulate matter. But these norms are poorly enforced.

"Companies are installing these machines only to meet statutory requirements," said a senior manager in the Delhi office of a company that makes continuous monitoring units. "Ninety percent of them are fabricating data." Finally, the environment ministry evaluates the environmental impact of a TPP only in a 10 km radius. However, the impact of emissions is usually felt in a 300 km radius around the plants, the report said.

*The Times of India, Delhi dated December 10, 2014*

## We need a fair deal on climate change

By Sunita Narain

At the Lima climate talks the game plan of the rich countries is crystal clear. Their aim is to rewrite the climate agreement — the agreement that had created two categories of countries (also called Annex 1): one, those responsible for the bulk of the carbon dioxide emissions already in the atmosphere and, two, the rest who would get funds and technology to reduce emissions and space to grow.

What's worse is that they are getting away with it. Developing countries, including India, are floundering to recover ground and to keep the principle of differentiation and, therefore, equity intact.

So, at Peru, the first agenda is to change the annex in the 1992 climate convention saying that the world has changed and now every country must take emission reduction targets. It is also a fact that the negotiations for a new post-2020 agreement require all countries to act and while it is hoped that this action will be based on differentiation, there is no way to ensure this.

The second agenda is to strip away the condition to provide technology and funds to developing countries so that they can reduce emissions. The third agenda is for the rich not to discuss their responsibility to cut emissions and how they have reneged on commitments for funds or technology transfer.

Last week, in Lima, industrialized countries have flatly refused to set up a contact group to discuss how to raise their emission reduction target till 2020 — to keep the world below a 2°C increase. EU, the self-proclaimed climate evangelist, will only cut 20%

**Last week in Lima, industrialized countries refused to set up a contact group to discuss how to raise their emission reduction target till 2020**

### EXPERT TALK

below 1990 levels by 2020. The US is even worse — it is flaunting its small 3% reduction over 1990 levels as sufficient and even ambitious.

The final nail in the coffin — rubbing salt in wounds — is the discussion on adaptation funds. At COP20, rich countries do not want discussion on how they will fund adaptation needs in developing countries. They say it is the developing countries (other than the most vulnerable), which should learn to 'cope' with the devastating impacts of climate change.

This changes the narrative completely. The fact is climate change is happening today — seen in terms of changing trends in weather and increasing frequency and intensity of extreme events — because of the stock of emissions in the atmosphere. The countries least responsible for creating the problem are today bearing the brunt of these impacts. But if rich countries have their way, they will obliterate their role and liability in making the world so climate-risked.

Peru is clearly the staging point for the endgame in Paris. It is time our negotiators devised proactive strategies to fight back. They need to put the principle of differentiation and equity firmly on the table. It must be clear that all countries will act, but based on their past and present contribution to the problem. The world needs an ambitious and fair deal on climate change. Nothing less.



The Times of India, Delhi dated December 11, 2014

# Air at public places badly polluted

## TOI Ties Up With CSE For Reality Check At School, Hospital & Mall With Shocking Results

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New Delhi: The air you are breathing through the day may be far worse than what the government's pollution monitoring tells you. Because we often spend long hours near emission sources—on footpaths, along heavily congested roads, in an autorickshaw in peak traffic and even in parks during morning walks.

To assess what our real exposure may be like, TOI, in association with Centre for Science and Environment (CSE), spent a day monitoring hourly PM2.5 (fine, respirable particles) on CSE's portable air quality monitoring device in front of schools, hospitals, shopping areas and traffic cop booths.

The idea was to understand what kind of air pollution levels children on their way to schools or patients outside hospitals may be exposed to. The hourly PM2.5 averages logged at these locations were compared with the ambient air quality monitored by Delhi Pollution Control Committee (DPCC)'s monitoring stations near the locations.

The results were very disturbing — outside Mother's International School on Aurebindo Marg, for instance, the average for 8 am to 9 am was 718 micrograms per cubic metre! While there is no official safe standard for an hourly average, the 24-hour average for PM2.5 in India is about 60 micrograms per cubic metre. The machine—TSI DustTrak DRX Aerosol Monitor 8533—showed peaks up to 800 micrograms per cubic metre, about 13 times the daily standard. During the same period, DPCC's RK Puram monitoring station recorded an hourly average of just 325 micrograms per cubic metre.

Inside All India Institute of Medical Science (AIIMS)

### CHECKING IT OUT

#### Morning at The Mother's International School



MIS: The Mother's International School



#### Morning at AIIMS

campus, between 9.10 am and 10.10 am, the hourly average was 493 micrograms per cubic metre. Considering that patients with low immunity go to the hospital, they may be exposing themselves to more complications in such conditions. Curious patients looked at the device and wanted to know what it does. Krishna Vishwas, an IGNOU student who came for her mother's treatment, was one of them. "We are from Nainital. My immunity has gone down dramatically over the years. I have acute sinus problems and get tired easily in Delhi. Even if I go for a couple of days to Nainital, I get better. It has to be the air," she said.

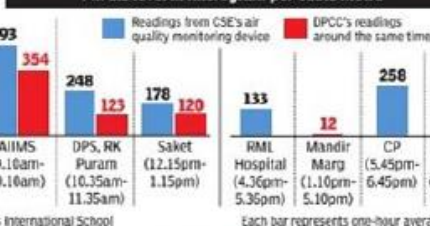
Suresh Chandra Gupta (74) from Uttarakhand also moved to Delhi to live with his son but has been suffering from severe respiratory issues. "I can't breathe often.

My lungs seem to blow up, especially in winter. Only patients like us know how polluted Delhi is," he said.

At the traffic post outside AIIMS, a traffic cop had a handkerchief tied around his nose. He has kidney stones and respiratory problems. "I am only 25. After I joined this job last year, I started failing terribly sick. I am using the handkerchief as a mask. My family is worried for me," he said declining to be named. Traffic staff most often work outdoors from 8 am to 8 pm. Other cops complained of a burning sensation in eyes and episodes of severe cough.

As it got warmer and sunnier, PM 2.5 concentrations started plunging. At RK Puram, in front of Delhi Public School, the hourly average was 248 micrograms per cubic metre and later at Saket, in front of a shopping mall, the

### PM 2.5 level in microgram per cubic metre



Each bar represents one-hour average value

### Evening at CP



PM2.5 SAFE LEVEL 60 micrograms per cubic metre per day

### REAL-TIME MONITORING

► Sensitivity of the air pollution monitoring device: .001 to 150 mg per cubic metre

► The objective of the study was to assess the real-time pollution situation in sensitive areas of Delhi—near schools and hospitals

► The city was visibly smoggy early morning when children usually go to school and the inversion condition was at maximum

► The PM 2.5 levels near The Mother's International School on Aurebindo Marg on Outer Ring

Road were the highest recorded for the day

► The overall levels started to reduce as the day became warmer and smog lifted. But even then the real-time pollution levels in each location were much higher than official readings

► The pollution monitoring laboratory of CSE has used TSI DustTrak DRX Aerosol Monitor 8533 for monitoring

► Though government agencies have expressed reservations about this type of monitoring, such

studies are carried out globally. California Air Resources Board (CARB) has carried out several studies of PM 2.5 monitoring at and away from freeways

► A study published in 2004 edition of American Journal Respiratory and Critical Care Medicine has reported findings of real time PM 2.5 exposure monitoring of North Carolina Highway Patrol Troopers

► The pollution monitoring laboratory of CSE has used TSI DustTrak DRX Aerosol Monitor 8533 for monitoring

### TOI AGAINST POLLUTION

quality started declining once again after 4.30 pm. This exercise also revealed that areas with a smooth but less vehicular traffic can have relatively much better air quality. In front of Dr Ram Manohar Lohia Hospital, for instance, traffic flowed smoothly. Here, the PM 2.5 concentrations ranged between 100 and 180

micrograms per cubic metre, far lower than other locations.

Government pollution monitoring agencies have claimed that such exposure monitoring may be "unscientific" as such devices are mainly meant for "industrial" projects and that there is no official standard for hourly readings. "Both pieces of information are valuable. The legal standard is indeed based on daily average concentrations measured at a fixed location. As our research demonstrates, air pollution levels in Delhi vary substantially with time and place, depending on where one is. In many locales, like in traffic, particulate matter levels are much higher than what official monitors indicate," said Joshua Aptec of Lawrence Berkeley National Laboratory, who has done similar research in Delhi.

"Delhi and other cities

will need to look at new emerging low-cost but advanced sensor-based monitoring equipments. These are expected to become the gamechanger in air quality monitoring globally to bridge the gap in data available to citizens and assess personal exposure to pollutants that enhance health risk," said Anunita Roy Chowdhury, head of CSE's clean air campaign who advised TOI on the day-long exposure monitoring. Ramakant Sahu, research scientist, Pollution Monitoring Laboratory, and research associate Shirin Bithal at CSE carried out the monitoring. DPCC's data analysis was conducted by Vivek Chattopadhyay, Programme Manager, CSE's clean air programme.

(The choice of sites was random and intended only to create awareness)

The Times of India, Delhi  
dated December 12, 2014

# Dolphins will be first to take a hit, say greens

TNN & Agencies

The tanker crash that caused the oil spill in the protected Sunderbans, the first disaster on this scale in the area, was an accident 'waiting to happen', say environmentalists. Both tankers were in a no-go zone that was declared a sanctuary for endangered dolphins in 2011. Despite that, ever since it choked the standard shipping route, ships and trawlers have navigated their way through the forest.

While neither vessel should have been in the sanctuary, the empty tanker that caused the crash broke even the minimum rule of not plying at night, reports said. The Chandpur area where the accident occurred is strictly out of bounds for ships, especially larger vessels, the Dhaka



OIL ON THE SURFACE

Tribune quoted environmentalists. "Sunderbans is in big trouble. Our priority should be to limit damage immediately," the paper quoted a water resources expert.

The rammed ship, Southern Star VII, began sinking fast and discharging its load of 357,664 litres of furnace oil into the river. Reports said the cargo was being

shipped to a power station in Gopalganj. The ship sailed the illegal route as the recommended Mongla-Morelganj channel is clogged and has no draft for big vessels.

As Bangladesh struggled to address the slick—its navy ill-equipped to do so—local officials and residents said the spill oil quickly spread into smaller channels, covering waterways and mudflats. Villagers complained of stench and ducks trapped and dying in the floating oil. The slick, some unconfirmed reports said, spread 50 to 70 square km.

Environmentalists said the Irrawaddy and Gangetic Dolphins would be the first to take a hit. The thick layer of oil on the river surface will drastically reduce the dissolved oxygen, suffocating aquatic life. The coastal mangrove goes under water

twice a day in high tide. Once water recedes, a thick layer of oil will cover the vegetation and rinse into the soil. Deer survive on this vegetation and tigers feed on them. In the long run, both animals would suffer, environmentalists said.

The mangrove ecosystem, they said, consists of salt-water trees like the Sundari, Kewra, Goran, Poshur and Gol. Windfall seeds from these trees fall to the ground and germinate. But once they fall on oil-covered soil, they'll die.

On Thursday, a ship with "dis-percent", a chemical arrived at the accident site. The chemical will be used to increase density of the oil, and later swiped through the surface, Md Shamsuddoha Khandaker, chairman of Bangladesh Inland Water Transport Authority said.



The Times of India, Delhi dated December 12, 2014

# Study: Air quality worst at night, early morning

## CSE'S AIR POLLUTION ACTION PLAN

- Implement air quality index (AQI) with health advisories and pollution emergency measures
- Leapfrog emission standards to Euro V in 2017, and Euro VI in 2020; Euro IV should be in place by 2015 across the country
- Make PUC certificate requirement mandatory for obtaining annual insurance for vehicles



- Tighten PUC testing method
- Divert non-destined trucks and check overloading
- Stringent action on visibly polluting vehicles
- Cleaner emission standards for new vehicles that will replace more than 15 year old vehicles
- Scrappage policy—at least
- 95% of the scrapped material should be recycled
- Regulations for vehicle manufacturers to make recyclable vehicles
- Implement colour coding for pre Euro I and Euro II vehicles, restrict their plying on heavy smog days
- Scale up public transport and last-mile connectivity



- Implement non-motorized transport network plan
- High and variable parking charges
- Seamless public transport system in NCR
- Priority action for power plants, open burning, generator sets and construction

TIMES NEWS NETWORK

**New Delhi:** Delhiites may be exposed to the worst air pollution at night and early morning, indicates a study by the Centre for Science and Environment (CSE). CSE chose eight people and monitored their exposure to pollution for 24 hours using a portable device. It also found that situation in the Lutyens' zone, where the rich and the powerful reside, is no better despite the greenery and sparse traffic.

The study found PM 2.5 (fine, respirable particulate) levels to be the highest at night and during hours when these people go for morning walk. In some cases, even indoor air quality was extremely poor.

The study involved monitoring the personal exposure of Bhure Lal, chairperson, Environment Pollution (Prevention and Control) Authority (EPCA), a resident of Lodhi Estate, Harish Salve, senior Supreme Court advocate who lives in Vasant Vihar, Ashok B Lal, architect and resident of Civil Lines, Randeep Guleria, head of pulmonary medicine department at AIIMS, William Bissel, head of Fabindia and resident of Hauz Khas enclave. The group also had people who

suffer from asthma—Bharati Chaturvedi who lives in Ravindra Nagar in central Delhi, head of Chintan, Kaushik Das Gupta, a journalist and Avikal Somvanshi, a research professional and cyclist.

The 24-hour average exposure of each individual was compared with the readings of the nearest monitoring station of the Delhi Pollution Control Committee (DPPC) which revealed that the real exposure levels were much

## TOI AGAINST POLLUTION

higher than the official figures. Lal who lives in Lodhi Estate was monitored on November 12 to 13.

The hourly average PM 2.5 level was the highest between 5.50am and 6.50am—at 1195.83 microgram per cubic metre. It was the time when he had gone for a walk in Lodhi Garden. To be doubly sure about pollution levels in Lodhi Garden, the CSE team monitored him again on December 8-9 when levels were found to be 672 microgram per cubic metre, still alarmingly high.

But on warm and sunny days PM 2.5 levels seem to improve. On December 2 for instance, Dr Guleria's 24-hour average exposure was 188 mg per cubic metre, about three times the safe standard.

The hourly average near the President's Estate between 8 and 9 am was 1,029 mg per cubic metre. Salve who lives near the Outer Ring Road and the Ridge in Vasant Vihar was exposed to the highest PM 2.5 level between 10 and 11 pm on November 25 to 26 at 408 mg per cubic metre. The levels remained high through the night.

Asthmatics are already facing a tough winter. "I was having breathing problems. Doctors recently told me I am borderline asthmatic and may get better if I am in a city with lower pollution levels," he said. Sumita Narain, director general of CSE, said she had stopped going for morning walks.

"Our data shows that for a couple of years after introducing CNG the pollution levels had stabilized, but they started to rise steeply with the increase in the number of vehicles. Our soft options are over, we need tough measures now," Narain said.

## Check air pollution at home, WHO tells members

TIMES NEWS NETWORK

**New Delhi:** World Health Organization discussed air pollution with its member countries in the southeast Asia region on Thursday. The UN agency on public health stressed upon the need to curb household air pollution, which leads to nearly half of the deaths due to pneumonia in children aged less than five years in India.

"We must act to protect people from air pollution. The poor, living near busy roads or industrial sites, are disproportionately affected by air pollution. Women and children pay the heaviest price, as they spend more time at home breathing in smoke and soot from cooking stoves," said Poonam Khetrpal Singh, WHO regional director for southeast Asia.

## SE ASIA MEET

She added that exposure to air pollutants, especially fine particulate matter, is a leading risk factor for non-communicable disease in adults, causing ischaemic heart disease, stroke, chronic pulmonary disease and lung cancer. "Air pollution is the main avoidable environmental cause of disease and premature death globally," Singh added.

WHO has told its member states to develop a national database on household fuel use and emissions, and design programmes aimed at encouraging the use of improved cooking stoves, fuels and good cooking practices. "Over 60% of homes in WHO Southeast Asia Region still use solid fuel for cooking. In India, this amounts to some 700 million people," said a senior official from WHO.

The Centre was represented by officials from the health and environment ministries.

Dr Sandeep Salvi, director of Chest Research Foundation (CRF), said globally about eight million deaths are results of air pollution. "Household air pollution causes more deaths in India than outdoor pollution," he said.



The Times of India, Delhi dated December 12, 2014

## Over 5 trillion plastic pieces floating in world's oceans

Washington: More than five trillion pieces of plastic — collectively weighing nearly 270,000 tonnes — are floating in the world's oceans, including the Indian Ocean, a new study has found. Microplastic pollution is found in varying concentrations throughout the oceans, but estimates of the global abundance and weight of floating plastics, both micro and macroplastic, lack sufficient data to support them, researchers said.

To better estimate the total number of plastic particles and their weight floating in the

world's oceans, scientists from six countries contributed data from 24 expeditions collected over a six-year period from 2007-2013 across all five subtropical gyres, coastal Australia, Bay of Bengal, and the Med-

### WATER POLLUTION

iterranean Sea. A gyre in oceanography is any large system of rotating ocean currents, particularly those involved with large wind movements.

The data included information about microplastics collected using nets and large

plastic debris from visual surveys, which were then used to calibrate an ocean model of plastic distribution. The authors of the study estimate a minimum of 5.25 trillion plastic particles weighing nearly 269,000 tonnes in the world's oceans, researchers said.

Large plastics appear to be abundant near coastlines, degrading into microplastics in the 5 subtropical gyres, and that the smallest microplastics were present in more remote regions, such as the subtropical gyres, which the authors did not expect. **PI**

## Arsenic in groundwater impacts 7cr lives: Panel

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New Delhi: The parliamentary estimates committee headed by BJP MP Murli Manohar Joshi, in its first report tabled on Thursday, on arsenic in groundwater, has criticized the Centre for "neglecting" the serious issue that impacts at least 7 crore people across six states, according to CSIR estimates (data from different ministries and departments on the subject varies widely, the committee found). The panel has recommended that the Centre take up the issue on war footing through a national task force that can work on mission-mode from collating data to taking remedial measures to providing for health care to affected people.

The committee has suggested that the issue be dealt with at the central level, instead of asking states alone to tackle the problem. Joshi said, "To say water is a state is-

### POISON IN WATER



Number of arsenic affected habitations which are yet to be provided safe drinking water

\*As on 1st April 2014

S.No.	State	Arsenic-affected habitations
	Bihar	357
	Karnataka	12
	Punjab	1
	Uttar Pradesh*	73
	West Bengal	1124
	Assam	424

\*(Data under reconciliation)

sue is no logic, given the scale of the problem, the Centre cannot escape its responsibility to provide safe drinking water for 7 crore people, which is their fundamental right." He was speaking at a press conference after the report was tabled.

The report has recommended that a national task force be set up on a time-bound basis that will work on mission mode on the

issue that affects people, plants, animals and all else around it. The committee has also recommended for a central fund allocation for the purpose. At a press conference, Joshi said, the Centre cannot escape its responsibility to provide safe, potable water to 7 crore Indians which is their fundamental right.

For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)

The Times of India, Delhi dated  
December 13, 2014

## Green tech is good for business, India must lead the world

Kofi Annan



With the two largest economies and polluters of the world — USA and China — agreeing on key climate targets, and German energy giant E.ON shifting away from fossil fuels to renewable power, the world is now looking to India to give a lead. The country is the world's third-largest emitter of greenhouse gas emissions. The decisions it makes and the example it sets matter.

India's businesses and industries are central to this challenge. Their actions are critical not just to avert a looming climate crisis, but also to overcome the enormous challenges of poverty and malnutrition.

While for the majority of the world's population there has never been a better time to be alive, far too many people have been left behind. Hundreds of millions continue to exist on less than \$1.25 a day without access to food, shelter and healthcare. Too many people suffer from violent conflict and instability.

There are also other grave global challenges which, in threatening the future of our planet and generations to come, risk making these problems far worse. Across the world, we are exploiting finite resources at an alarming rate and causing huge damage to the environment. Above all, the impacts of climate change are reducing harvests and water supplies, increasing air pollution



**The impacts of climate change are reducing harvests and water supplies, increasing air pollution and competition for resources and land**

and competition for resources and land, and heightening tensions.

The role of governments — here in India and across the world — is vital in catalysing action on these challenges, but it is not their responsibility alone. It is the private sector which is the main motor of the economy and which accounts for two-thirds of the use of natural resources.

By embedding sustainable development in their marketing strategies, production processes and value chains, businesses and entrepreneurs in India and around the world can accelerate the transition to a green economy. They can also drive investment in low carbon technologies and energy efficiency and press their governments to set ambitious and binding targets on carbon emissions.

As we get closer to a global climate agreement to be adopted in Paris next year, it is important to understand that it is not a choice between poverty reduction — the central priority of the Millennium Development Goals — and a low carbon economy. The opposite is true. It is the poorest people in the world who will suffer most from climate change because they cannot escape its consequences as easily as the rich.

It is why we at the Kofi Annan Foundation hope Indian business will take up strongly the cause of climate change and poverty reduction and show the world that these two vital objectives are not in competition. They are, in fact, the twin pillars of sustainable development.

The world is looking to India to set a lead. I hope that India responds to national and global challenges by demonstrating the ambition to move decisively away from fossil fuels and to become a powerful advocate on climate change and sustainable development. Doing good is also good for business.

The writer is a Nobel Peace Prize laureate and Chair of the Kofi Annan Foundation.



The Times of India, Delhi dated  
December 13, 2014

# Cars idle for 24% of time

Negligible Speed Causes Not Just Snarls But Also Massive Pollution: IIT-D Study

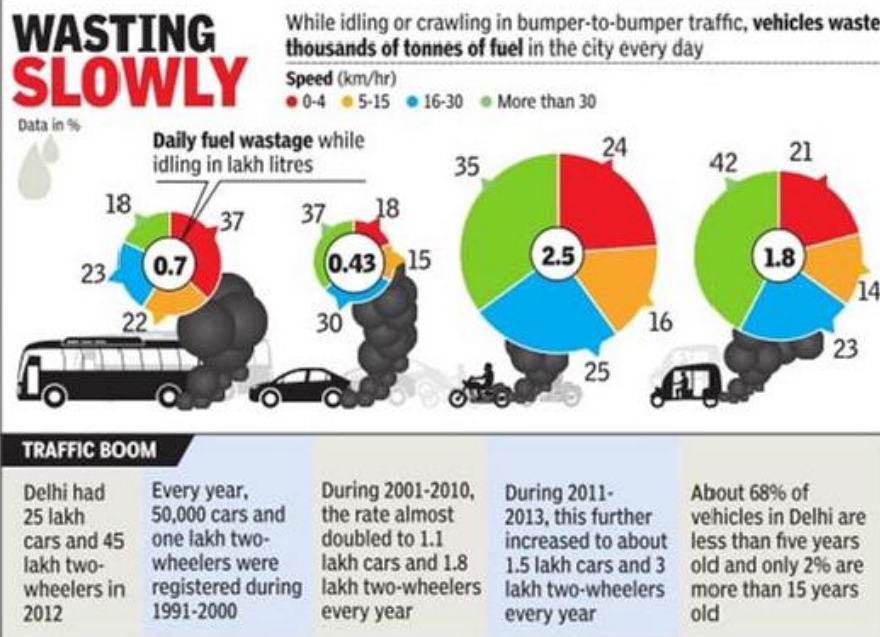
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New Delhi: An IIT-Delhi study has revealed that vehicles in the capital don't run but crawl for a considerable part of their travel time.

The research jointly carried out by Transportation Research and Injury Prevention Program at IIT and Des-

POLLUTION WATCH		
AIR QUALITY INDEX PM2.5		
Delhi	259	Poor
Tomorrow	285	Poor
Pune	174	Moderate
Tomorrow	169	Moderate
Source: SAFAR@MoES-IITM-IMD Based on 10 Station Data Per City and Forecast model		
Hyderabad	162	Unhealthy
Chennai	85	Moderate
Kolkata	218	V Unhealthy
Mumbai	174	Unhealthy
Source: US Embassy website Based on 1 Station Data Per City at 7pm US Embassy uses a different AQI rating than India   Figures in micrograms/cubic metre		

ert Research Institute, Reno, has used GPS logs of buses as well as speed and fuel consumption readings of two-wheelers, three wheelers and cars to arrive at some shocking findings. Cars were found to be running at less than 4 kmph for 24% of the travel time. While travelling at this



speed certainly defeats the purpose of using a motorized mode of transport, it also pollutes the city's air immensely.

If one considers more than a million cars running at similar speed, they may be wasting about 2.5 lakh litres of fuel every day while idling at traffic snarls. The emissions from such long idling time are obviously massive.

The research published recently in the Elsevier journal, Travel Behavior and Society, used pollution under control (PUC) data maintained by the transport de-

partment, surveys of vehicle owners at fuel stations and GPS logs to assess a number of trends in commuting behavior in Delhi. It found that

## TOI AGAINST POLLUTION

the average age of two-wheelers and cars is about 4.4 and 4.7 years. About 68% of the vehicles are less than five years old and only 2% are more than 15 years old. Interestingly, 17% of trucks and 15% of

tempos were in the 10-15 year bracket which means they may soon add to more than 15-year-old vehicle group. About 14.2% of the petrol or CNG vehicles were also found to be more than 10 years old. This analysis was done using a database of for 700,000 vehicles maintained by 300 PUC centres in 2010.

For buses, the research team used GPS logs for two days (November 1-2, 2012) from 941 state buses covering most of Delhi's road network. The GPS data for buses is archived by DIMTS. A similar

centralized system is not available for other transport modes, so the team collected data using a "floating car method". A mix of 10 professional car drivers, 20 professional three-wheeler drivers and three researchers using two-wheelers drove around the city with a GPS device on the dashboard between 6am and midnight. The total distance covered during the exercise was 2160 km for cars, 1,210 km for three-wheelers and 650 km for two-wheelers. Of the total travel time of vehicles, idling time for cars was found to be 24%, three-wheelers 18%, buses 37% and for two-wheelers it was 20%. The team defines idling to be the time spent by the vehicle running at less than 4 kmph speed.

When asked how to deal with such congestion, Sarath Guttikunda of Division of Atmospheric Sciences at Desert Research Institute and one of authors of the study, said: "It can be dealt with by not having so many cars or motorcycles on the road. We hope, one day there will be lesser number of cars and motorcycles on the roads and more people. If you ask me is that possible? Yes, if and only if, the public transportation system is multiplied. For example, by introducing at least 4 times the current number of the buses and promote safer walking and cycling conditions in the city."



The Times of India, Delhi dated  
December 13, 2014

# The heat is on as climate talks reach final round

## LIMA MEET: LOOKING TO BRIDGE DIFFERENCES

### TUG-OF-WAR OVER INDCs

INDCs (intended nationally determined contributions) will become the basis of global climate deal in COP 21 in Paris late next year. Final draft text comprising all possible elements of the INDCs is on the table. Draft text carries options on five key elements – Mitigation, Adaptation, Finance, Technology Transfer & Capacity Building. Some of their key features are:

### OPTIONS ON MITIGATION:

- Coverage in terms of geographical boundaries; sectors; greenhouse gases; percentage of total/national emissions covered
- Assumptions and methodologies used for any emission projections, 'business as usual' or intensity target
- A quantification of expected emission reductions



➤ Long-term trajectory, including peaking year

### OPTIONS ON ADAPTATION

- Analysis of vulnerable sectors
- Technology, investment & capacity-building needs
- Types of support by rich nations such as grants or bilateral funding

### OPTIONS ON FINANCE, TECHNOLOGY TRANSFER AND CAPACITY BUILDING:

- Finance, technology and capacity-building support contribution for adaptation, including for identified adaptation options
- Finance, technology and capacity-building support contribution for mitigation
- Quantified financial contributions for capacity-building
- Future contributions to various funds & other channels available, including estimates of private resources directly mobilized by public funds

The countdown to an outcome to the Lima climate talks began on Friday with the final draft text, comprising all contention elements, now on the table before negotiators. Agreement on the draft text will help prepare a road map for the global climate-protection deal in Paris next year.

The draft text, released on late Thursday night, carried all the points in one or the other form which have been pushed by developed and developing countries separately in the past 11 days of the 20th edition of the Conference of Parties (COP 20) here in the Peruvian capital.

It includes various options on mitigation, adaptation, finance, technology transfer and capacity building which are to be decided during negotiation which may continue non-stop till Saturday morning (Peru time).

The negotiations are expected to be quite intense during the final hours as the draft includes the rich nations' demand of 'progress review' (ex-ante review) provision and the clause on peaking year of greenhouse gases. India and most of the developing coun-

tries are opposing both the clauses while China had already announced its peaking year in its deal with the US.

If this draft achieves consensus, the developing countries will also have to pledge emission cuts under nationally determined goals. Rich nations have been pushing for it, arguing that no country should have a free pass any more.

The final draft came just hours after US secretary of state John Kerry here said, "I know this is difficult for

tocol where emission cut provision is binding on developed countries.

An initial reading of the text revealed that the draft does differentiate between developed and developing countries as per the UN convention on climate change — a major bone of contention among parties. It also gives an impression that rich nations are mainly interested in mitigation exercises.

The absence of the provision on 'loss and damage' as a separate head will also be contested vehemently by poor countries. The provision is meant for compensating those nations who have already been victims of climate change and faced damage. Instead of carrying it as a separate element, the draft text carries this as part of adaptation.

It is expected that Friday night is going to be the toughest night for negotiators as they will have to junk various options before reaching the final Lima outcome. Though the parties wanted to finalize everything by Friday evening, the negotiation is expected to spill over to Saturday.

For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)



developing nations. We have to remember that today more than half of the emissions are coming from developing nations, so it is imperative that they act too."

This approach is, however, being resisted by India and other developing countries as they think it is nothing but an attempt to dilute the basic principles of the UNFCCC and its Kyoto Pro-

# New 'Lima Call for Climate Action' Addresses India's Concerns

UN delegates approve a broad blueprint for talks leading up to a deal in 2015, to take effect in 2020, in what is considered a breakthrough in fight against global warming

## Press Trust of India

Lima: Negotiators on Sunday adopted a compromise draft for national pledges to cut global carbon emissions at marathon UN climate talks that addressed all of India's concerns and paved way for a new ambitious and binding deal to be signed in Paris next year to combat climate change.

"The document is approved," announced president of the United Nations climate talks meeting Manuel Pulgar-Vidal, who is also the environment minister of Peru, after hectic negotiations by officials from 194 countries for about two weeks in the Peruvian capital. "I think this is good, and I think it moves us forward," he added.

Commenting on the draft, Environment Minister Prakash Javadekar said, "all of India's concerns have been addressed." After delegates approved a broad blueprint for talks leading up to a deal in 2015, to take effect in 2020, he said, "We have achieved targets and we got what we wanted." He also remained positive about meetings over the next year and in Paris, saying "we can build on this for consensus."



The adoption of the draft at the meeting which went into two extra days was seen as a significant first step towards reaching a global climate change deal in Paris although delegates feel much of the hard work remained ahead.

The deal — dubbed the Lima Call for Climate Action — sets out a historic agreement. It was adopted

hours after a previous draft was rejected by developing countries, which accused rich nations of shirking responsibilities to fight global warming and pay for impact.

The final draft is said to have alleviated those concerns by saying countries have "common but differentiated responsibilities".

There was a great sense of relief among delegates when the announcement came in the early hours of Sunday, as the 12-day meeting had already overrun by two days.

Indian delegation led by Javadekar worked overnight, engaging with developed as well as developing nations to reach the deal taking into account India's concerns.

"We are happy that the final negotiated statement at COP20 in Lima has addressed concerns of developing countries and mainly the efforts of some countries to re-write the convention has not fructified," Javadekar said. "It (deal) gives enough space for developing world to grow and take appropriate nationally determined steps," he said.

The developed world will have to take responsibility for action in technology and capacity building and to that end they will have to provide resources, he said.



The Economic Times, Delhi dated December 16, 2014

# Climate Accord Commits Every Country to Curbs

CORAL DAVENPORT

Shortly before 2am on Sunday, after more than 36 straight hours of negotiations, top officials from nearly 200 nations agreed to the first deal committing every country in the world to reducing the fossil fuel emissions that cause global warming.

In its structure, the deal represents a breakthrough in the two-decade effort to forge a significant global pact to fight climate change. The Lima Accord, as it is known, is the first time that all nations—rich and poor—have agreed to cut back on the burning oil, gas and coal. But the driving force behind the new deal was not the threat of sanctions or other legal consequences—it was global peer pressure. And over the

coming months, it will start to become evident whether the scrutiny of the rest of the world is enough to pressure world leaders to push through new global warming laws from New Delhi to Moscow—or if, as a political force, international reproach is impotent.

The strength of the accord—the fact that it includes pledges by every country to put forward a plan to reduce emissions at home—is also its greatest weakness. In order to get every country to agree to the deal, the Lima Accord does not include legally-binding requirements that countries cut their emissions by any particular amount.

Instead, each nation will agree to enact domestic laws to reduce carbon

emissions and put forth a plan by March 31, laying out how much it will cut after 2020, and what domestic policies it will pass to achieve the cuts.

Countries that miss the March deadline will be expected to put forth their plans by June. The plans from every country, known within the UN process as "Intended Nationally Determined Contributions," will form the basis of a sweeping new deal to be signed in Paris in 2015.

In China, the political motivations for reducing emissions are more internal. China's president, Xi Jinping, has pledged that China's emissions will peak by 2030 and decline after that. To meet that goal, the Chinese government is looking into creating a nation-

al cap-and-trade system by 2016 that would force polluters to pay for their greenhouse gas emissions.

There is much speculation how India will respond. Prime Minister Narendra Modi has declared repeatedly his top priority is economic growth and lifting people out of poverty, even if that means the construction of hundreds of new coal-fired power plants to deliver cheap electricity. "The burden of tackling climate change will decisively shift to developing countries, making their efforts toward poverty reduction and sustainable development difficult and expensive," said Sunita Narain, director, Centre of Science and Environment.

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**AFTER THE BREAKTHROUGH:** Delegates rest during a break of the plenary session at the UN Climate Change Conference in Lima.

## Green Rules Red Alert for Modi's Pet Make in India

Norms on large factories and land acquisition depressing manufacturing sentiment

Vikas Dhoot  
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New Delhi: Prime Minister Narendra Modi's showpiece Make in India project can potentially get unmade by lack of administrative clarity on two crucial environmental policy areas—green regulations on setting up large factories and land acquisition norms for green clearances.

Industry complaints on both these are building up even as potential investors in Indian manufacturing wait for the environment ministry to clarify matters. Industrialists who spoke to ET for this story did so on the condition they not be identified.

The policy hurdle in case of setting up large factories is a UPA-2 legacy—the Jayanthi Natarajan-run environment

### Industry Remains Jittery

**SEPTEMBER 11**  
Environment ministry issues draft norms to ease building of large factories

**SEPT 25**  
Prime minister launches Make in India initiative



**OCTOBER 7**  
Environment ministry memo aims to simplify land acquisition norms for seeking green clearance

**NOW**

Ministry yet to notify draft norms it issued in September; the land acquisition memo for green nods needs urgent review as it could jeopardise existing projects too, says industry



ministry had issued a rule prohibiting construction of factories larger than 20,000 square metres unless a green clearance was obtained.

The Modi government had

moved on this matter and on September 11, two weeks before the prime minister launched the Make in India initiative, the environment ministry had said it will deal

with this UPA-2 rule.

But nearly three months after the high-voltage launch, the ministry is yet to notify the change in the rule. In government, there's usually a 60-day window from the day a ministry proposes a clarification to an existing rule and the finalisation of the draft. For the large factories/green clearance rule, the 60-day period ended on November 12.

The environment ministry told ET that the draft is being finalised and will soon be put up to the minister, Prakash Javadekar. However, industry, including MNCs, are complaining.

The ministry said it has received stakeholder views in the matter.

Natarajan had introduced the large factory rule in early 2013.

## Bio-fuel focus on public transport

TIMES NEWS NETWORK

New Delhi: Responding to concerns raised by Lok Sabha members on increasing air pollution in cities, road transport minister Nitin Gadkari told the House on Thursday that the government is planning to introduce cleaner fuels for public transport in a big way.

Though Gadkari has been talking about these measures for some time and also claims credit for introducing India's first ethanol-run bus in his home town Nagpur, his statement in the LS is being seen as a move to push new technology in public transport system.

On use of alternate fuels, he said, "Several state transport corporations running diesel buses are making huge losses. We have prepared a proposal to introduce electric buses." Gadkari added that entities responsible for introducing new automotive standards and carrying out tests often resist change as they are dominated by automobile manufacturers. They have been told to use cleaner technologies.

## To clean up air in cities, govt plans biofuel, electric buses

TIMES NEWS NETWORK

New Delhi: The government is set to come out with policies to introduce clean fuels such as biodiesel, bioethanol and electricity for public transport vehicles and school buses in big cities to tackle air pollution, road transport minister Nitin Gadkari said in the Lok Sabha on Thursday.

Gadkari said his ministry has published a draft notification for allowing biofuel vehicles and it will be finalized in a month. Sources said the fi-

### LS clears the way for e-rickshaws

Paving the way for the return of e-rickshaws in Delhi, Lok Sabha on Thursday passed two amendments in the Central Motor Vehicle Act to bring battery-operated vehicles under the act, amid safety concerns raised by several members. **P 7**

nal notification will help introduce new and cleaner technologies.

While it's not clear how the increased demand for bio-fuels would be met, Gadkari had earlier spoken about using solid waste from cities to produce biodiesel and sugarcane grown in the northern states for making bioethanol.

He said the use of such alternative, non-polluting fuels could help the country save Rs 6 lakh crore annually by way of reduced crude oil imports. Introducing hybrid buses is also on the cards, he said.

► Public transport, P 19

The Times of India,  
Delhi dated  
December 19, 2014



The Economic Times, Delhi dated  
December 17, 2014

# India-US Climate Talks to Focus on Clean Energy, Tech R&D

Modi and Obama are also expected to take forward their discussion on a Clean Energy Finance Forum to promote investment and trade in clean energy projects

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**Lima (Peru) | New Delhi:** India and the United States are expected to announce a joint effort to tackle climate change with focus on clean energy and technology R&D during President Barack Obama's visit to the country in January.

Though a big ticket announcement like the US-China deal last month has been ruled out, in keeping with the leadership role that the US has sought to take on in climate negotiations over the last two months, Obama is expected to persuade Prime Minister Narendra Modi to ramp up India's efforts to fight climate change.

Obama will be in the country next month as the chief guest for Republic Day parade.

"I am expecting a useful meeting but we don't have anything in the works of the kind that we were involved with in China," US envoy for climate change Todd Stern said. "We have a substantial desire to work in a constructive and ramped up way with India on climate change and clean energy," he added.

At the US climate talks in Lima the US was proactive in its engagement in the final hours when it seemed that the talks were headed for failure.

Earlier in the week, US Secretary of State John Kerry addressed the meet, asking all countries to do their part to reduce emissions to slowdown global warming.

Globally, India is the third largest emitter (fourth largest if the 29-member European Union is counted as a single entity), though the country's share of emissions is low (roughly 6%) and its per capita



**I am expecting a useful meeting but we don't have anything in the works of the kind that we were involved with in China. We have a substantial desire to work in a constructive and ramped up way with India on climate change and clean energy**

**TODD STERN**  
US envoy for climate change

emissions are very low (approximately 1.8 metric tonnes) compared to the US, EU and China.

India has recently announced plans to increase its solar power generation capacity by five-fold to 100GW, and the Union cabinet has subsequently cleared some of the components of this plan.

At the same time, the country has also made it clear that it will increase its coal production and its coal-fuelled power production infrastructure — a move seen as problematic by many given global calls on the basis of severe scientific warnings to rapidly phase out the use of fossil fuels like coal.

The US-India engagement on climate change is expected to focus on scaling up of India's clean energy portfolio to reduce the use of coal. Energy efficiency is another area where the two countries are expected to cooperate.

With the US focused on emission reduction, President Obama is expected to raise the possibility of working with India on technology in clean energy and other climate change-related technology.

This could result in some headway towards setting up a global technology consortium.

India has said technology will play a key role in addressing impacts of climate change and to minimise emissions.

India was the key architect of the technology mechanism under the United Nations Framework Convention on Climate Change. New Delhi is keen that there be no licence fee for the use and transfer of climate change-related technology and that funds to pay for the licences could be provided through some kind of international climate finance mechanism.

Sources indicated that based on its assessments, the US government is not keen on such an arrangement for licensing technology.

Other areas where the two countries could expand their cooperation relate to unlocking and accessing private sector investment in energy efficiency.

Modi and Obama are also expected to take forward their discussion on a Clean Energy Finance Forum to promote investment and trade in clean energy projects.

## India Claims Victory at Lima Climate Meet

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**Lima | New Delhi:** India has claimed victory at the Lima climate talks, with the final agreement restoring a difference in the manner in which rich and poor countries made efforts to tackle climate change through an explicit reference to "the principle of common but differentiated responsibilities and respective capabilities".

"We are happy that the final negotiated statement at COP 20 (twentieth session of the Conference of Parties) in Lima has addressed the concerns of developing countries and mainly the efforts of some countries to re-write the Convention has not fructified," environment minister Prakash Javadekar said.

"It gives enough space for the developing world to grow and take appropriate nationally determined steps," he said, referring to explicit inclusion of the principle of common but differentiation in the text of the Lima Call for Climate Action.

An explicit reference to the principle, commonly referred to as CBDR in United Nations climate negotiations parlance, has been absent since the Durban round of talks in 2011, when countries decided to begin work on a new climate compact, which would be applicable to all countries.

Industrialised countries too claimed victory at Lima, stressing that the negotiations put to rest the watertight classification of the world into developed and developing, which had been set out by the 1992 Climate Change Convention inked at Rio.

The final decision document, Li-

ma Call for Climate Action, states that the 2015 agreement to be finalised in Paris in December next year will reflect "the principle of common but differentiated responsibilities and respective capabilities, in light of different national circumstances". This iteration of the 1992 principle is the formulation used by the US and China in their November climate agreement.

Though the United States has maintained that it respected the principle, it stressed that the world

had changed since 1992 and it could not accept a formulation that did not require the biggest emitters, even though these were developing countries, to take action to address climate change.

China has been consistent in its demand that the differentiation between rich and poor countries had to be preserved as it encapsulated a sense of fairness in assigning responsibility for global warming and climate change.

However, climate change negotiations experts and analysts were cautious of the import of the new formulation, especially as both sides claimed victory.

The industrialised countries claimed it was the end of the North-South divide and each country would be judged for itself. While the poor developing countries viewed it as the recognition of the historical responsibility of industrialised countries to take action to address climate change.



The Times of India, Delhi dated  
December 20, 2014

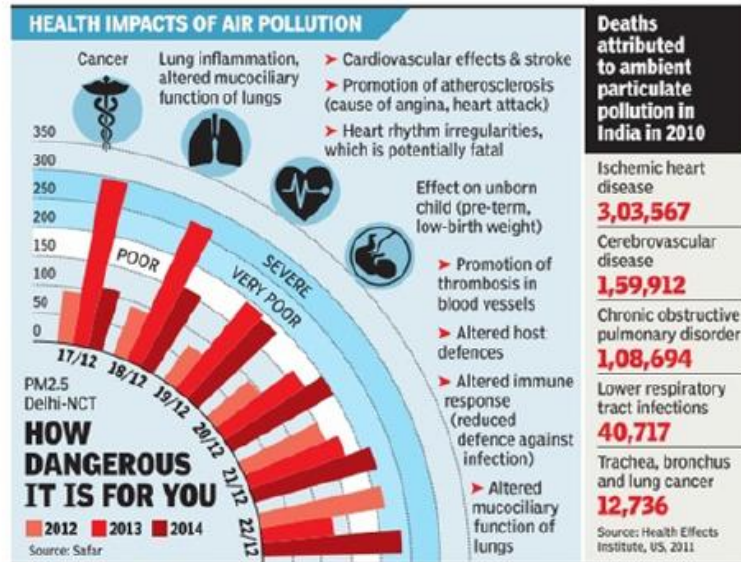
# City air 'hazardous', docs sound caution

## Respiratory Problems Main Worry

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**New Delhi:** Air quality in the city deteriorated to "hazardous" levels on Friday with the US embassy's pollution monitoring station advising people to "avoid all physical activity outdoors". Even the Delhi Pollution Control Committee (DPCC)'s real-time air quality monitoring system showed the 24-hour average count to be over 315 micrograms per cubic metre on Mandir Marg alone, which is about five times the national safe standard. Besides, a layer of smog shrouded the city the entire day.

What is worse, there are more such bleak days ahead. According to System of Air Quality Weather Forecasting and Research (SAFAR) under the ministry of earth sciences, pollution will increase at an alarming level in the next few



days with a daily average of over 200 micrograms per cubic metre. The low temperature and calm air are causing "inversion" that can lead to pollution such as smog being trapped close to the ground.

Such poor air quality may trigger respiratory problems among people with low immunity, the elderly and the very young. Doctors fear poor air quality may be doing more damage than just triggering a

few wheezing episodes. Constant exposure to bad air is making Delhiites vulnerable to arrhythmias and ischaemic heart disease. Arrhythmia is a disorder characterized by irregular heart beat or abnor-

mal heart rhythm while ischaemic heart disease is associated with reduced blood supply to the heart.

Dr S K Chhabra, head of cardiorespiratory physiology department of VB Patel Chest Institute, says continuous exposure to high air pollution levels is like being exposed to second-hand smoke. Recently, he made a detailed presentation on this before pollution control agency officials from Saarc countries. Chhabra quoted an AIIMS study which found higher number of complaints and instances of hospitalization due to chronic obstructive pulmonary disorder (COPD) and coronary issues apart from asthma and other respiratory conditions during high pollution days. He also said exposure to diesel emissions causes allergic responses.

"Fine particulate matter and gaseous pollutants are significant risk factors for acute stroke death. Women and the elderly are most susceptible," his presentation said.

Dr Ashwani Mehta, senior consultant cardiologist at Sir Ganga Ram Hospital also be-

lieves the rise in incidence of strokes and arrhythmias are linked to high air pollution levels. "The respiratory problems from bad air can affect the heart. Besides, air pollution can cause myocardial infarction or heart attacks. Unfortunately we don't have much data in India that can directly relate air pollution with the incidence of heart attacks. But increasingly we are seeing young people having heart attacks. Women who you don't expect to usually suffer heart attacks are increasingly reporting heart attacks. It's a combination of issues but I think particulate matter is also to blame."

Oncologists are seeing a 1% to 2% rise in lung cancer incidence each year but again there is no documentation of how much of lung cancer incidence is linked to air pollution. Dr Vinod Raina, director and HOD, oncology and haematology at Fortis Hospital, said there was a "slight increase in incidence of cancer among non-smokers. Otherwise, we need documentation to understand how much air pollution contributes to lung cancer."



The Times of India, Delhi dated December 21, 2014

# Paris climate talks may have to pay for Lima compromise

## Draft Prefers 'May' Instead Of 'Shall'

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**New Delhi:** Is the outcome at Lima a recipe for a weak climate deal in Paris? Compromises on many key issues in the draft negotiating text that will serve as the basis for the next round of negotiations, beginning in February in Geneva, hint at such a possibility.

Countries from both sides — developed and developing — accommodated each-other's concerns in the agreed text, but it still left many loopholes in the draft that may allow rich nations to maneuver their positions in the run up to Paris.

The concerns are articulated by NGOs across the globe who found the Lima outcome fell short of expectation as it was guided more by "political expediency" than the scientific urgency and need of vulnerable countries.

The views of NGOs' representatives, who attended the conference last week as observers, seem significant if one goes through the fine-print of the text.

The agreed text — Lima Call for Climate Action — shows that all countries will by October 1 provide the UNFCCC secretariat their INDCs (mitigation targets and adaptation measures) to achieve the goal of keeping the global temperature rise below 2 degree celsius this century. But a careful

## ROAD MAP FOR NEXT MEET

### WHAT'S THERE?

- Countries' Intended Nationally Determined Contributions (INDCs) — which will form basis of the final climate deal in Paris — will have all key elements: **Mitigation, Adaptation, Finance, Technology Transfer, Capacity Building and Transparency of Action**
- Final deal will reflect the principle of common but differentiated responsibilities & respective capabilities (CBDR-RC) — it means it will **keep differences between developed and developing countries intact** in the light of former's responsibilities as historical polluters
- Paris deal will **properly, effectively and progressively address 'loss and damage'** (concerns of the countries which have already faced damage due to climate change)

➤ Definite roadmap for **financial support from rich countries to developing countries missing**; the text "urges" rich nations to do so — leaving it

### WHAT'S NOT THERE?

to the whims & fancies of developed countries  
➤ Text does **not call for a process to ramp up pledges** if the countries' aggregate effect is found lacking

➤ All the **pledges will be self-determined** and that too without any scope of 'progress review' (ex-ante review)

### CAVEAT

- CBDR - RC principle is there but it has an accompanying phrase **"in light of different national circumstances"** — this will allow countries to take it easy while making pledges
- Over-emphasis on the 1992 convention may spare countries like S. Korea, Singapore & rich Arab nations (Kuwait, UAE & Qatar) from making ambitious pledges; **these nations were not part of the rich club 20 years ago & they will remain out of it despite making progress in the past two decades**



reading of the agreement belies the promises it sets out to make.

The text prefers to use "may" instead of "shall" while asking countries to provide their INDCs using various parameters and reference points like base year, time-frame or periods for implementation. It, at the same time, remains silent on specifics of those references. Obviously, this was glossed over to save the talks from collapsing.

The agreement "urges" developed countries to enhance their ambition in the pre-2020 period. The developing countries, in fact, gave the rich nations enough conces-

sion by allowing them to escape without making any commitments. The rich group, on the other hand, agreed to have references of adaptation, financial support, technology transfer and 'loss and damage' mentioned in the text without providing a definite roadmap.

"Developed countries have not pledged to reduce their emissions from now till 2020. They have also not given any concrete assurances to provide finance and technology to the developing countries. Every country can now decide what they want to do to reduce their emissions", said Chandra

Bhushan, deputy director general of the Delhi-based Centre for Science and Environment (CSE).

He said, "The countries will not be asked to explain how their efforts are fair and ambitious. They will also not face any rigorous assessment process ahead of the Paris summit".

The World Wide Fund for Nature (WWF) reacted the same way saying, "Political expediency won over scientific urgency...Governments at the UN climate talks in Lima opted for a half-baked plan to cut emissions."

For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)



*The Economic Times, Delhi dated December 24, 2014*

**NOW & THEN** 

# Green Power to the People



**Jaideep Mishra**

The record low temperatures across northern India seem all the chillier due to inadequate and rather deficient energy systems — including the sheer lack of central heating for most — made worse by heightened emissions that cause pollution, are hazardous to health, and pose attendant risks such as climate change and global warming. They underline the need for much improved energy efficiency and supply that is green and environmentally-friendly as well. Already, reports say that the road transport ministry has called for zero excise duty on electric vehicles, in a bid to incentivise the use of cleaner fuel.

However, stepped up usage of electric or hybrid vehicles may actually worsen pollution levels if they are powered by conventional coal-fired thermal stations. The way ahead surely is to have a more holistic policy design, so as to rev up innovation and change in the generation, supply and distribution of energy fuelled not just by fossil fuels but also by renewable sources like solar power.

Reportedly, the government plans to bring about comprehensive legislation soon to tackle climate change. The forthcoming Budget clearly needs to have a package of tax and fiscal benefits and other measures to better allocate resources to smartly raise efficiency and productivity right across the board in the domain of energy and smart grids.

Given our low per-capita energy consumption levels, and widespread rigidities in procurement and delivery, we do need to be far more proactive and methodically improve energy efficiency. We also need to raise the output intensity per unit of supply,

and systematically upgrade pollution control systems. Otherwise, higher relative energy usage and related higher prices together with worsening environmental pollution will all add up and make entire industries and regions increasingly uncompetitive and unviable.

True, earmarking more resources for research and development for energy and climate action will be capital-intensive and time-consuming. But we need to leverage the large and growing market here to purposefully innovate, update and move to the green frontier to improve productivity, bring down costs and thoroughly improve competitive advantage that would have spin-offs across sectors and industries.

Hence the pressing need for a technology policy package in the Budget that encompasses energy and climate action. Now, the income-tax code provides a 100% write-off of revenue expenditure for R&D, a 100% write-off of capital outlays for the same purpose, and 200% weighted tax deduction for both sponsored and in-house research spending. But as a department

of science and technology white paper mentioned last year, the fiscal incentives are not really attractive enough as R&D, far from including the entire value chain, is quite narrowly defined here and does not take into account field trials, pilot projects and pre-commercial production, etc.

The white paper added that availing the tax benefits is almost always tedious and long-drawn. It is a related matter that R&D spending, as per available figures, remains low and less than 1% of the GDP, which is much lower than in the comparable economies abroad.

Nevertheless, we do need to specifically encourage R&D in the domain of energy and emission control, given our huge requirement for stepped up thermal power generation, the massive potential of solar power here, and the fact that we would soon be the third-largest importer of petroleum crude. Already, India's emissions of greenhouse effect-causing gases like carbon dioxide is the third-largest globally. Coal remains our main source of commercial energy, but the thermal efficiency in power plants is generally not much higher than 30%, when the more efficient plants abroad notch 45% or higher.

The newer clean-coal technologies promise as much as 60% levels. It would amount to practically doubling power generation without much of an increase in coal usage, which would very substantially bring down emission intensity.

The point also is to genuinely incentivise corporations, including multinationals, to step up R&D for climate action in India. Mobile towers could mostly change over to solar power with battery backup. Also, solar pump sets and rooftop solar power systems should be encouraged, perhaps with a personal income-tax rebate of, say, ₹50,000 per annum for a five-year period, to step up power that is wholly green. More power to the people with improved tax design.



**Hold your breath for cleaner incentives**

[jaideep.mishra@timesgroup.com](mailto:jaideep.mishra@timesgroup.com)



The Times of India, Delhi dated December 24, 2014

# 99% city veggie sellers use plastic bags: Study

## RAMPANT USE

DELHI Respondents: 834	USE PLASTIC BAGS	CHANDIGARH Respondents: 500
Vendors 62%		Vendors 82%
Consumers 78%		Consumers 79%
80%	DUE TO THEIR EASY AVAILABILITY	75%
61%		74%
95%	AWARE OF THE PLASTIC BAG BAN	100%
86%		78%
IN DELHI, VEGETABLE & FRUIT VENDORS ARE LARGEST GROUP USING PLASTIC BAGS		
SIKKIM Respondents: 248		
34% shops use plastic bags		
97% vendors & 80% consumers are aware of the plastic bag ban		
Newspaper wrappings and paper bags are used as alternatives		



TIMES NEWS NETWORK

**New Delhi:** The blanket ban on plastic bags in the city has proved a dud. A survey by Toxics Link, an environmental NGO, has revealed massive use of plastic carry-bags. It found that the monthly use of plastic bags by about 100 vegetable and fruit vendors was over a tonne in Delhi.

The survey found that vendors were using non-woven plastic bags in bulk, thinking it was not plastic and that vegetable, fruit and meat vendors were the biggest users of plastic carry bags in Delhi. Interestingly, chemists, milk booths and stationary shops use fewer number of plastic bags.

Almost 99% of vegetable and fruit vendors, and 95% of meat and fish vendors contacted during the survey were using plastic bags. The usage was high even among small food joints and dhabas (82%). Out of 834 respondents who were interviewed, 78% of the consum-

ers said they preferred using plastic bags. Even worse, 333 users said they use and throw plastic bags, only 75 said they try to reuse.

In 2008, when the first plastic bag notification was issued, non-woven bags were introduced into the market as an alternative. Non-woven bags were tested and found to have 98.3% polypropylene, which fall under the ambit of the ban. "However, most vendors and customers remain unaware of this fact and believe that non-

## BAN INEFFECTIVE

woven bags are non-plastic," the survey says.

In Chandigarh, 82% vendors and 79% consumers were found to be using plastic bags. Only Sikkim has managed to come up with some interesting alternatives. Their meat and vegetable vendors use newspaper wrappings. But 60% of their plastic waste is burnt causing toxic pollution.

In October 2012, the Delhi government had ordered a blanket ban on the manufacturing, import, sale, storage, usage and transport of all kinds of plastic bags. The ban now includes manufacturing of plastic bags and the use of plastic sheets, films or covers for packaging books, magazines and cards as well.

The notification, which was issued under the Environment (Protection) Act, 1986, has provisions to impose penalties on the violators with a prison term of up to seven years and/or a fine of Rs 1 lakh. But All India Plastic Industries Association challenged the ban and the case is pending in the Delhi high court. Though there have been no written orders yet, the judge had made an oral observation that there would be no penalization till the case is pending.

Toxics Link recommends use of paper or plastic bags, which can be reused several times.

# Rich nations must fund stabilization of climate: IPCC chief

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**New Delhi:** At a time when the developing world is worried over the rich nations' reluctance to contribute to the Green Climate Fund, the chairman of the UN's Intergovernmental Panel on Climate Change, R K Pachauri, remains hopeful the developed world would be more forthcoming once all countries provide their 'Intended Nationally Determined Contributions' (INDCs) or a roadmap of their voluntary actions to fight the threat of climate change.

Pachauri, who is a member of PM Modi's Council on Climate Change, in an interview to TOI spoke on outcome of Lima talks, the course of action India should adopt to move to a low-carbon growth path, and the future of GCF.



GREEN POLITICS

step would be to see how you can make it happen. In the developing countries, you have to provide resources to make it happen. I hope that will convince the developed countries that we are all in it together and if we have to stabilize the earth climate, this money has to be provided.

**What would you like to suggest to the PM's climate council in view of the rising demand to cut emission at a time when the country needs to develop to fulfill its obligation to the poor?**

India has to do much more on adaptation to face the impact of climate change. We have many regulations but we are not sure whether these are being observed at local level. Efforts of the local government have to be strengthened. On the mitigation front, I would say India has a serious challenge of energy security. We need to use energy efficiently. That would require restructuring of transport, industry and building sectors.

**How can the country meet its growing energy need?**

India has abundance of renewable energy sources. We should go for it in a big way. It will also give us lower emission of greenhouse gases. It is time we start shaping our policy in a way that renewable sources of energy, at least where it is economically viable, gets utilized. Once the country moves on this path with clear policy, finance will, hopefully, not be a problem.

**How do you see the outcome of the Lima climate conference?**

Lima outcome has come up with a framework for a kind of agreement that we would get in Paris. I don't know whether this is enough or not, but now we have a concrete basis on which we will carry out our negotiations. Every country will provide their INDCs on certain basis (elements) and will see whether it would be enough to meet the goal of keeping the temperature rise below 2 degree celsius this century. Lima is a beginning but we have to build on that.

**There has been reluctance on the part of rich nations to contribute to the GCF. Do you see any future change in their stand?**

It seems to me that once you get the INDCs from all the countries and if they find that these INDCs don't add up to what is required then the next

The Times of India, Delhi dated December 24, 2014

# World's first hybrid flight takes off

Jet Can Recharge Battery, Consumes 30% Less Fuel

Andrew Griffin

The first ever hybrid aircraft to be able to recharge its batteries took off on Wednesday — potentially signalling the beginning of a new form of low-carbon, green flight.

Cambridge University researchers teamed up with Boeing to make the plane. They hope that it will be able to provide new forms of cleaner, low-carbon air travel.

Hybrid engines — which are gaining popularity in cars — com-



CLEANER, LOW-CARBON AIR TRAVEL

bine a battery and a petrol engine. Doing so uses 30% less fuel than a plane with a petrol-only engine.

The petrol engine works with

the battery-powered one at take-off and climb, when the plane needs extra power, but the electric motor can then switch into generator

mode and recharges the batteries, or help the motor in minimizing fuel consumption. The same technology is used in hybrid cars.

"Although hybrid cars have been available for more than a decade, what's been holding back the development of hybrid or fully-electric aircraft until now is battery technology," said Dr Paul Robertson of Cambridge, who led the project. "But with the advent of improved lithium-polymer batteries, hybrid aircraft — albeit at a small scale — are starting to become viable."

The technology is still far from able to be put on commercial airliners, but the move is an important step, researchers said.

Aviation is thought to be responsible for about 2% of man-made carbon emissions. THE INDEPENDENT

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