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Business Sustainability News — International

Canada switches on world's first carbon capture power plant

Boundary Dam held up as first commercial-scale CCS plant and proof that coal-burning is compatible with cutting emissions

By Suzanne Goldenberg, *theguardian.com*

Canada has switched on the first large-scale coal-fired power plant fitted with a technology that proponents say enables the burning of fossil fuels without tipping the world into a climate catastrophe.

Boundary Dam CCS power plant in Canada. Photograph: SaskPowerCCS

The project, the first commercial-scale plant equipped with carbon capture and storage technology, was held up by the coal industry as a real life example that it is possible to go on burning the dirtiest of fossil fuels while avoiding dangerous global warming.

Saskatchewan's state-owned electricity provider is due to cut the ribbon on the $1.3 billion Canadian project on Thursday. But officials from SaskPower International Inc told guests invited to the ceremony the 110 megawatt plant went live on Tuesday night.

The Boundary Dam power plant promises to cut carbon dioxide emissions by 90% by trapping C02 underground before the gas reaches the atmosphere – making its opening a milestone in the coal industry's efforts to remain viable in a low-carbon economy.

The company said the project would reduce greenhouse gas emissions by about 1 million tons a year, or the equivalent of taking 250,000 cars off the road, in one of the more fossil fuel-dependent regions of Canada.

Captured CO2 from the Boundary Dam project will be pumped underground and sold to the Cenovus oil company for use in priming nearby oil fields, or buried in geological formations.

"Saskatchewan is number one in the world," said Brad Page, the chief executive of the Global CCS Institute, said. "This is an incredibly important event from our perspective."

Scientists from the United Nations climate panel said last year that without broad deployment of CCS technology most of the world's fossil fuel will have to stay in the ground to avoid dangerous climate change.

Page was cautious however in predicting CCS technology deployed at Boundary Dam would soon be replicated on a large-scale.

He noted the Saskatchewan plant relies on a local source of coal – and on selling on the CO2 to the oil industry – to keep it in the black. Coal also faces intense competition from historically low prices for natural gas, which makes it prohibitively expensive to build new coal plants with CCS.

Even so, the opening of Boundary Dam represents a rare success story for the CCS industry.

The technology has not been fully embraced by the big US coal companies – which are still focused on opposing incoming power plant rules from the Environmental Protection Agency.

CCS is also viewed with deep suspicion by environmental campaigners because its economic viability - so far - depends on using the CO2 to increase oil production, and because it is more expensive than renewable sources of energs.

The technology of carbon capture and storage has been around for years. "This is not a moonshot," Ian Yeates, the SaskPower executive in charge of CCS, told the Guardian earlier this year.

But projects combining power generation and CCS have faced long delays and cost overruns, and run into criticism for receiving government subsidies. A number have been scuttled altogether because of competition from historically low prices for natural gas.

In Mississippi, Southern Company has spent more than $5.5 bn over the last six years trying to bring a new-built CCS project, the Kemper County Energy Facility, into operation. The opening is now delayed until mid-2015.

Only one other CCS project involving power generation is currently on the boards in the US, in Texas.

Boundary Dam claimed its cost over-runs had nothing to do with the CCS technology, but in other construction issues involved in overhauling a 50-year-old power plant. Officials also said they were confident they could bring in the next such CCS project 25% cheaper.

The plant received some CAD$240m in subsidies.

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Fish failing to adapt to rising carbon dioxide levels in ocean

Spiny damselfish study suggests it would take at least several generations for fish to start coping with climate change

By Oliver Milman, *theguardian.com*

Rising carbon dioxide levels in oceans adversely change the behaviour of fish through generations, raising the possibility that marine species may never fully adapt to their changed environment, research has found.

Spiny damselfish Acanthochromis polyacanthus. Photograph: Flickr/creative commons

The study, published in Nature Climate Change, found that elevated CO2 levels affected fish regardless of whether their parents had also experienced the same environment.

Spiny damselfish were kept in water with different CO2 levels for several months. One level was consistent with the world taking rapid action to cut carbon emissions, while the other was a "business as usual" scenario, in which the current trend in rising emissions would equate to a 3C warming of the oceans by the end of the century.

The offspring of the damselfish were then also kept in these differing conditions, with researchers finding that juveniles of fish from the high CO2 water were no better than their parents in adapting to the conditions.

This suggests that fish will take at least several generations to cope with the changed environment, with no guarantee they will ever do so, meaning several species could be at risk of collapsing due to climate change.

The research was conducted by the ARC centre of excellence for coral reef studies, based at James Cook University in Queensland.

Previous studies by the centre have found that rising CO2 levels in the oceans directly alters neuron transmitters in fish brains, modifying their behaviour. Their sense of smell is hindered, as well as their wariness, meaning more are picked off by predators.

More than 90% of the excess CO2 in the atmosphere, primarily caused by the burning of fossil fuels, is soaked up by the oceans.

When CO2 is dissolved in water it causes ocean acidification, which slightly lowers the pH of the water and changes its chemistry. Crustaceans can find it hard to form shells in highly acidic water, while corals are more prone to bleaching.

Professor Philip Munday, a co-author of the study, told Guardian Australia the research suggested fish would not be able to adapt to climate change in the short term.

"How quickly that adaptation will take, we don't quite know," he said. "But we do know that projected future CO2 levels will seriously affect the behaviour of fish in ways that won't be good for populations. It will take longer than a few generations for fish to genetically adapt and we don't know if they can keep pace with the change.

"If they can't keep pace, it will have a significant effect on the population sustainability in some species of fish. We worked on reef fish, but there's nothing to say that whole ranges of other species won't be affected.

"This is certainly a warning that there is no quick fix for fish. We need to reduce carbon dioxide emissions and we need to do more to understand whether genetic adaptation can kick in over time."

<Source>

Australia Crushes Its Renewable Energy Industry

SustainableBusiness.com News

By Rona Fried

Who would have predicted that Central America would become a renewable energy leader, while Australia lags way behind?

Starting from practically zero renewable energy, Central America will install over 2.3 gigawatts (GW) over the next five years, a huge advance from the mere 100 megawatts in 2013.
Mexico is by far the leader, with $1.3 billion invested in the first half of 2014, almost double that of 2013. But last year, the other Central American countries combined also saw $1 billion in solar and wind investments. While financing for renewables still isn't easy, most of the countries are amending policies to encourage greater investment, says Michel Di Capua of Bloomberg New Energy Finance.

Australia's Government Squashes Renewable Energy

In contrast, Australia is in the midst of killing its renewable energy industry because of its new Prime Minister's archaic policies.

After repealing the country's carbon tax, investments dived 70% this year as the government decides whether to also eliminate or scale back the Renewable Energy Target (RET). Year-to-date, just $238 million has been invested in seven projects, the lowest level since 2002, says Bloomberg New Energy Finance.

Over the past year, Australia has dropped from #11 to #31 for investments in large-scale clean energy projects, even lagging Algeria and Myanmar, New Energy points out.

Right-winger Prime Minister Abbott

Last week, rallies across Australia called for the federal government to uphold the country's commitment to 20% renewable energy by 2020.

Meanwhile, South Australia is moving in the opposite direction. Already running on 32% clean energy - years ahead of its 2020 target - the local government says it will raise its Renewable Energy Target to 50% by 2025.

"This new target will create jobs and drive capital investment and advanced manufacturing industries," Premier Jay Weatherill told ABC News Australia. "Modelling shows the RET has underpinned $5.5 billion of expenditure to date and is forecast to support a further $4.5 billion by 2025."

For the month of July, 43% of the state's electricity came from the 1.5 GW of wind installed. Combined with the 550 MW of solar, renewable energy came close to providing half of electricity.

While Prime Minister Abbott says his concern is that power prices will rise with more renewable energy, South Australia's experience proves otherwise. The wholesale cost of power has remained the same (and even dropped) as more solar and wind enters the grid, Andrew Bray from the Australian Wind Alliance, told *ABC News Australia.*

It's sad that Australia's largest solar plant - which came online last week - is just 20 MW. After the 370 MW in New South Wales and 170 MW in Victoria that are under construction, "there's very little in the pipeline," Hugh Sadler from Pitt & Sherry, told *Sydney Morning Herald*.

Companies On the Way Out

"We are talking about the destruction of an industry, with no apparent good reason," Miles George, President of Infigen Energy, Australia's largest public renewable energy company, told*RenewEconomy.* His company could go under within months to be followed by many others, he says.

US-based Recurrent Energy has already closed its Australian office. It's got 1.5 GW of large scale solar projects in the pipeline - worth around $3 billion - which won't be developed without the Renewable Energy Target. With markets in other countries booming, many other companies including Acciona, First Solar, Yingli and Goldwind are also threatening leaving.

Solar Systems Pty tabled plans for a 100 MW concentrating PV plant and Suzlon is reconsidering its A$1.5 billion wind farm.

Abbott's panel that's reviewing the Renewable Energy Target consists of two climate sceptics and a fossil fuel lobbyist.

Emissions Rise

Immediately after Abbot axed carbon taxes, Australia's emissions jumped 0.8% in just two months - the most in eight years, due to more use of coal, reports *Sydney Morning Herald*.

And that's likely to "become set in place," consultancy Pitt & Sherry told the *Herald.* Australia's goal is to cut greenhouse gas emissions 5% by 2020 (below 2000 levels).

Indeed, natural gas is being diverted for export and hydro plants are scaling back because of theintense, long term drought. That leaves coal in the cat bird position.

"Every tonne rise in emissions is another wad of cash in a coal baron's pockets while driving extreme weather events that everyone else will pay the price of," Senator Christine Milne told the *Herald.* The share of coal in the electricity market rose from a historic low of 72.9% to 73.3% in two months.

That share would drop to 64% if the Renewable Energy Target stays in place. Without it, coal-fired power plants will make another $8 billion in profit and gas companies another $2 billion, according to the Climate Institute.

Last year, few coal companies made a profit because of low wholesale electric prices resulting from the profound growth of rooftop solar - now on 1.2 million homes. In the state of Queensland, the price of electricity hovered around zero for several days in July, from a typical $40-$50 per megawatt hour, reports *International Business Times.*

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Battle for Bali: campaigners fight back against unchecked development

By Johnny Langenheim, *for theguardian.com*

Snarled traffic, city hotels and rubbish-strewn beaches are not images most associate with Bali. But this is increasingly the reality on the famous resort island, as rampant over-development and failing infrastructure threaten to destroy its fabled beauty.

Growing alarm at the oversupply of hotel rooms led to a moratorium on new developments in the south of the island four years ago. But local governors responsible for issuing building permits largely ignored the decree. According to the Indonesian Restaurant & Hotel Association (PHRI), between 2011 and 2013, the number of hotel rooms on the island leaped from 22,000 to 50,100, and there is no sign of a slowdown.

For Bali protestors march on the Governor of Bali's residence in the capital, Denpasar. Photograph: Johnny Langenheim

Foreign and domestic tourist arrivals have swelled to nearly 10 million a year, buckling the island's infrastructure. Up to 1,000 hectares of Bali's iconic rice fields are disappearing annually, replaced by villas, apartment blocks and high-capacity hotels. The water table is shrinking and 65% of rivers now dry up during the dry season. In the rainy season, diggers are needed to clear the thousands of tonnes of rubbish that pile up on the beaches of this small island.

When Indonesia devolved power to its regions after the downfall of Suharto, the corruption that had formerly resided solely with the ruling elite devolved with it. In Bali, local governors or bupati have often been more concerned with lining their pockets than representing their constituents. Regulations are flimsy and rarely enforced, with developers encroaching on green belt land and violating coastal setback laws..

Some luxury hotel developments are excavating the iconic limestone cliffs at Bali's southern tip. Photograph: Johnny Langenheim

But while academics warn of an impending ecological disaster, a massive new project could soon get underway in an environmentally sensitive estuary in Bali's overcrowded south. Developer PT Tirta Wahana Bali International (TWBI) is planning an 838-hectare development on land to be reclaimed from Benoa Bay, comprising villas, apartments, luxury hotels, a Disneyland-style theme park and even a Formula One racing circuit.

The artificial islands would take up 75% of the bay's area – a move that environmentalists fear could cause massive flooding. According to Ketut Sarjana Putra, the Indonesia Director of US NGO Conservation International (CI), seawater levels could increase by as much as 1.6 metres, inundating low-lying areas, while silt from dredging activities could swamp reefs and mangroves.

Bali's provincial governor Made Pastika has been a vocal advocate for the land reclamation project in interviews, claiming it would reduce pressure on Bali's arable lands and provide jobs. He issued the original permit for the development, but critics cited a 2011 presidential decree designating Benoa Bay a conservation area and he backtracked.

In May this year, Indonesia's president, Susilo Bambang Yudhoyono revoked the bay's protected status. Presidential Decree No. 51/2014, turned Benoa into a 'revitalisation' zone, paving the way for TWBI to press ahead. Yudhoyono's outgoing administration then issued the official state permits for the project just two weeks before president elect Joko Widodo was due to be sworn in on 20 October.

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A new era of innovation for a resource-depleted world

By Nadya Zhexembayeva

Lush shampoo by misenchanted

It is green, dense and surprisingly light. Fitting perfectly in the palm of my hand, it leaves a light, oily residue on my skin. It is fragrant (just a touch of soft, alluring smell) and textured (it looks like thousands of little worms squished together). It goes against everything we are taught by conventional strategy theory. And it is an amazingly powerful symbol of the new era dawning.

Take a close look. A soap bar? A spinach hamburger? A sponge? Some sort of energy tablet? An eco-macaroon? A new-age vitamin pill? A breakthrough detergent? Before you is the equivalent of not one, not two, but three bottles of shampoo — all squished into one solid bar. Well, this is one heck of a value-driven innovation.

What do we sell when we sell shampoo? What end benefit do the customers get? What is the value? Clean hair, indeed. What ingredient need not be supplied to ensure this desired outcome, as it is always available? Water, indeed. So, why do we pump water, process water, bottle water, package water, store water, transport water, sell water, and waste plastic post-water to wash our hair, when water is the only ingredient that is not necessary to provide?

That was exactly the starting point for Lush Fresh Handmade Cosmetics, the 20-year-old U.K. brand, when it started working on its solid-shampoo line. The company worked with Stan Krysztal — one of the leading cosmetic chemists of Great Britain — to develop clever little bars that contain an effective, hardworking shampoo base, quality ingredients, beautiful fragrances and require no packaging. Handy for traveling, compact and easy to use, each bar is roughly the equivalent of three plastic bottles of shampoo.

The Lush team loves to talk about it. But what about the customers? Naturally, a number of customers would refuse such a strange-looking shampoo option. My baby brother is one of them. Whenever he visits us in Europe, I have to make a conscious effort to restock his bathroom. “I am a normal person,” he claims. “I like my soap solid and my shampoo liquid, and not the other way around!”

Yet, by any measure other than my brother’s comfort zone, Lush’s solid invention has been a great success since its launch in 2007, capturing rave reviews and a solid (pun intended!) customer following.

But the glowing reviews and growing revenues are not the only business victories for Lush solid shampoo; on the other side of the business continuum, the company is also doing well with costs. As of 2013, Lush has avoided producing, bottling and distributing 6 million plastic bottles globally by selling shampoo bars — count in 2.6 ounces (or 75 grams) of plastic saved per shampoo bar, and multiply that by all the savings in energy and labor costs that would have been incurred designing, producing, bottling and storing the bottles.

Annual water savings from producing the solid shampoos are nearly 120,000 gallons globally, while transportation savings are beyond surprising: when calculated per wash, transportation costs are 15 times less than those of liquid shampoo. Additional resource intelligence comes in a form of raw-material savings: the bar has no preservatives, as there is no liquid content requiring preservation. And with a scale of 830 stores in 51 countries carrying the product (which nearly doubled from 2007’s 438-strong chain), strengthened revenues and intelligent cost structure for the unusual product are a welcome performance outcome for the once-tiny underdog of the cosmetics industry.

In its unexpected take on resource intelligence, Lush is not alone.OMV, an integrated oil and gas company that supplies 200 million people in Central and Eastern Europe with energy, calls itresourcefulness. This term, which smells of ingenuity in the age of the Great Recession, captures the new essence of survival.

Trendwatching, the leading consumer-trend reporting company, gave the new wave of strategic resource intelligence a catchy name — Eco-Superior. It flagged this trend in 2011 as among its 11 most important consumer demands for the year, and again in 2013 as one that is here to stay.

Here is why, according to Trendwatching: “When it comes to ‘green consumption,’ expect a rise in eco-superior products: products that are not only eco-friendly, but superior to polluting incumbents in every possible way. Think a combination of eco-friendly yet superior functionality, superior design, and/or superior savings.”

Design Hotels elevated the search for innovation for a resource-deprived world to the level of core strategy. A 20-year-old company that represents and markets a carefully selected collection of 250 independent hotels in over 40 countries across the globe, Design Hotels refers to this new strategic effort as Finding Infinity. “We live in the age of sound bites, of short attention spans, of celebrity worship. First-term politicians seem to want only one thing: a second term.”

Is there a vaccine against our collective short-sightedness? For Design Hotels, there is. With a goal of replacing today’s fuels with clean and endlessly renewable alternatives, the company has initiated a “full-speed-ahead-no-time-to-lose movement ... setting a path for a future based on infinite resources.”

Bottom line? A new era of innovation for a resource-depleted world is upon us.

The story of Lush shampoo is one of hundreds of innovations featured in Nadya’s new book, “Overfished Ocean Strategy: Powering Up Innovation for a Resource-Deprived World.” You can download the first 40 pages of the book for free here. Top image of Lush shampoo via misenchanted.

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Tips:

It is quite heartening to learn that the pollution levels this Diwali were marginally lower than last Diwali according to DPCC. But this is not enough we will have to do much more. Apart from air other natural resources are continuously under pressure and steadily growing with the population increase therefore to ensure sustainability drastic measures are to be taken. This time we are providing some simple but useful tips to ensure water conservation. The learned environmentalist Padma Vibhushan Sh. Sundar Lal Bahuguna said in Himalaya Divas that if there will be third world war it will be because of water scarcity. We hope the wisdom prevails and people will do every bit to conserve water.

1. Often the taps drip because of minor problems like damaged washers, improper fitting, wear and tear of spindle. As soon as it is observed that the tap is dripping rectify yourself or call a plumber. Remember, every drop counts!
2. Ensure that there are no leakages in the water pipelines. If there is any leakage get it fixed at the earliest opportunity.
3. If your house was constructed more than 20-25 years ago and the flush tanks have never been replaced then there is great possibility that flush toilets are not water efficient. In such case get the flush toilets replaced or put some pebbles in a plastic jar and place it in the flush tank.
4. If considering purchasing a new or replacing your old washing machine, buy one with energy star label. They use about 20 percent less energy and 35 percent less water to wash your laundry than an alternative machine. Another thing to be kept in mind while making decision of purchasing washing machine is never buy machine bigger than required capacity. Most commonly used washers are 5.5 kg
5. Do not wash your bathing towels every day since it is thick and consumes more laundry space and so water and energy.
6. In urban areas mostly people attach a water pump in the pipeline to increase pressure and flow of water. If showers are used or directly tap water is used with pump running the consumption of water increases. Therefore if direct supply water, is available do not use pump or if you can fill bucket and use it.
7. Another wrong practice observed is people open tap for brushing the teeth or shaving and let the tap water run throughout. Thus gallons of water go down the drain. It is advisable to close water tap while not using water during shaving or brushing teeth.
8. Install faucet aerators, which break the flowing water into fine droplets and entrain air while maintaining wetting effectiveness. These inexpensive devices can be installed in sinks in kitchen and bathroom to reduce water use. Aerators are easy to install and can reduce the water use at a faucet by as much as 60 percent while still maintaining a strong flow.
9. Domestic wastewater composed of wash water from kitchen sinks and tubs, clothes washers, and laundry tubs can be used by for kitchen garden, lawn maintenance, and other innovative uses.
10. In cities almost every house has an overhead water tank which is mostly filled with water lifting pumps or submersible pumps. In most of cases tap to tank is closed after the tank overflows and thus lot of water is wasted. If people have fitted ball cock, generally it happens that even after filling tank the pump is kept running and that results in energy loss. Now fully automatic water level controller and alarms are available, one can chose according to his/ her needs and save water.

Earth has lost half of its wildlife in the past 40 years, says WWF

Species across land, rivers and seas decimated as humans kill for food in unsustainable numbers and destroy habitats

• See picture gallery of wild animals facing decline
• George Monbiot: It's time to shout stop on this war on the living world

Damian Carrington, *The Guardian*

The number of wild animals on Earth has halved in the past 40 years, according to a new analysis. Creatures across land, rivers and the seas are being decimated as humans kill them for food in unsustainable numbers, while polluting or destroying their habitats, the research by scientists at WWF and the Zoological Society of London found.

Rubbish dumped on the tundra outside Ilulissat in Greenland stand in stark contrast to icebergs behind from the Sermeq Kujullaq or Ilulissat Ice fjord – a Unesco world heritage site.
Photograph: Global Warming Images/WWF-Canon

"If half the animals died in London zoo next week it would be front page news," said Professor Ken Norris, ZSL's director of science. "But that is happening in the great outdoors. This damage is not inevitable but a consequence of the way we choose to live." He said nature, which provides food and clean water and air, was essential for human wellbeing.

"We have lost one half of the animal population and knowing this is driven by human consumption, this is clearly a call to arms and we must act now," said Mike Barratt, director of science and policy at WWF. He said more of the Earth must be protected from development and deforestation, while food and energy had to be produced sustainably.

The steep decline of animal, fish and bird numbers was calculated by analysing 10,000 different populations, covering 3,000 species in total. This data was then, for the first time, used to create a representative "Living Planet Index" (LPI), reflecting the state of all 45,000 known vertebrates.

"We have all heard of the FTSE 100 index, but we have missed the ultimate indicator, the falling trend of species and ecosystems in the world," said Professor Jonathan Baillie, ZSL's director of conservation. "If we get [our response] right, we will have a safe and sustainable way of life for the future," he said.

If not, he added, the overuse of resources would ultimately lead to conflicts. He said the LPI was an extremely robust indicator and had been adopted by UN's internationally-agreed Convention on Biological Diversity as key insight into biodiversity.

A second index in the new Living Planet report calculates humanity's "ecological footprint", ie the scale at which it is using up natural resources. Currently, the global population is cutting down trees faster than they regrow, catching fish faster than the oceans can restock, pumping water from rivers and aquifers faster than rainfall can replenish them and emitting more climate-warming carbon dioxide than oceans and forests can absorb.

The report concludes that today's average global rate of consumption would need 1.5 planet Earths to sustain it. But four planets would be required to sustain US levels of consumption, or 2.5 Earths to match UK consumption levels.

The fastest decline among the animal populations were found in freshwater ecosystems, where numbers have plummeted by 75% since 1970. "Rivers are the bottom of the system," said Dave Tickner, WWF's chief freshwater adviser. "Whatever happens on the land, it all ends up in the rivers." For example, he said, tens of billions of tonnes of effluent are dumped in the Ganges in India every year.

As well as pollution, dams and the increasing abstraction of water damage freshwater systems. There are more than 45,000 major dams – 15m or higher – around the world. "These slice rivers up into a thousand pieces," Tickner said, preventing the healthy flow of water. While population has risen fourfold in the last century, water use has gone up sevenfold. "We are living thirstier and thirstier lives," he said.

But while freshwater species such as the European eel and the hellbender salamander in the US have crashed, recoveries have also been seen. Otters were near extinct in England but thanks to conservation efforts now live in every county.

The number of animals living on the land has fallen by 40% since 1970. From forest elephants in central africa, where poaching rates now exceed birth rates, to the Hoolock gibbon in Bangladesh and European snakes like the meadow and asp vipers, destruction of habitat has seen populations tumble. But again intensive conservation effort can turn declines around, as it happened in Nepal.

Marine animal populations have also fallen by 40% overall, with turtles suffering in particular. Hunting, the destruction of nesting grounds and getting drowned in fishing nets have seen turtle numbers fall by 80%. Some birds have been heavily affected too. The number of grey partridges in the UK sank by 50% since 1970 due to the intensification of farming, while curlew sandpipers in Australia lost 80% of their number in the 20 years to 2005.

The biggest declines in animal numbers have been seen in low-income, developing nations, while conservation efforts in rich nations have seen small improvements overall. But the big declines in wildlife in rich nations had already occurred long before the new report's baseline year of 1970 – the last wolf in the UK was shot in 1680.

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Growing our way out of climate change by building with hemp and wood fibre

By Mike Lawrence, *for theguardian.com*

How can buildings help with climate change? It's all about renewables and "sequestered carbon".

The Department for Business, Innovation and Skills' 2010 report on Low Carbon Construction concluded that construction was responsible for around 300m tonnes of carbon dioxide emissions, which is almost 47% of the UK's total. Of this, around 50m tonnes is embedded in the fabric of buildings.

Houses made from hemp could mitigate climate change. Photograph: Roy Morsch/Corbis

Making one tonne of steel emits 1.46 tonnes of CO_2 and 198kg of CO_2 is emitted make one tonne of reinforced concrete. One square metre of timber framed, hemp-lime wall (weighing 120kg), after allowing for the energy cost of transporting and assembling the materials actually stores 35.5kg of CO_2.

If we can convert plants into building materials, we are in a win-win situation. Plants use the energy of the sun to convert atmospheric CO_2 and water into hydrocarbons – the material from which plants are made.

Building with hemp lime. Photograph: University of Bath

The plant acts as a carbon store, sequestering (absorbing) atmospheric CO_2 for as long as the plant continues to exist. This CO_2 is only re-released when the material is composted or burnt, and the great thing is that through replanting it you can re-absorb this CO_2 annually, in the case of straw or hemp, or every decade or so in the case of timber, rather than the 300m years that it takes to recycle coal or oil.

Secondly, plant based materials can be used to make high performing building envelopes, protecting against external weather and making a building more comfortable, healthy and energy efficient to live in.

Not only can they be used as insulation materials, displacing oil-based alternatives such as polyurethane foam, but they also interact with the internal environment in a way that inorganic materials just can't do.

This is because they are "vapour active". Insulating materials such as hemp-lime, hemp fibre and wood fibre are capable of absorbing and releasing water vapour. This is doubly effective, because not only can they act as a buffer to humidity (taking moisture out of the air), but they also stabilise a building's internal temperature much better through latent heat effects (energy consumed and released during evaporation and condensation within the pores of the material).

To build using hemp, the woody core or shiv of the industrial hemp plant is mixed with a specially developed lime-based binder. Factory-constructed panels are pre-dried and when assembled in a timber frame building, the hemp shiv traps air in the walls, providing a strong barrier to heat loss. The hemp itself is porous, meaning the walls are well insulated while the lime-based binder sticks together and protects the hemp, making the building material resistant to fire and decay. The industrial hemp plant takes in carbon dioxide as it grows and the lime render absorbs even more of the climate change gas. Hemp-lime buildings have an extremely low carbon footprint.

In this way bio-based materials can be used to construct "zero carbon" buildings, where the materials have absorbed more CO_2 than is consumed during construction. By applying PassivHaus principles (the voluntary industry standard for low-carbon design) to bio-based buildings, a building's energy use once inhabited can also be reduced to minimal levels. This is a true "fabric first" approach, where the fabric of buildings passively manages energy consumption, rather than purely relying on renewables such as solar panels and ground source heating systems, which have a more limited life-span and the potential for failure.

<Source>

Beijing residents use humour as defence against smog

By Jennifer Duggan, *for theguardian.com*

A woman wears a face mask on the street in Beijing amid heavy smog. Photograph: Fred Dufour/AFP/Getty Images

As air pollution levels soared once again in Beijing and other parts of northern China last week to lung-choking levels, some residents vented their frustration through humour.

On social media outlets, some Beijing residents made jokes about the lack of visibility as a thick layer of smog blanketed the city. “I think I am blind once I pull back the curtain,” joked a user on the Weibo microblogging website.

“Clouds” on either side, joked a Weibo user about the pollution. Photograph: Sina Weibo

Another said it was like flying an airplane instead of his electric scooter “because I have clouds on my two sides”. Some also posted pictures to illustrate their jokes.

Such posts have become very popular on Weibo and also the messaging app wechat as Beijing citizens attempt to make light of the serious pollution problem. The Chinese capital has been suffering from high levels of air pollution for a number of years. Last year Beijing suffered from 60 days of pollution above emergency levels. Other cities fared even worse, the city of Xingtai south west of Beijing had 129 days of unhealthy air or worse.

Levels of pollution in Beijing reached 379 on the Air Quality Index on Friday which is considered “hazardous”. The city’s authorities issued an orange pollution alert, the second highest, around noon. They urged people to stay indoors and to wear masks if they had to go out. Some factories in the Beijing area were closed and others ordered to cut emissions while all construction work was suspected.

I think I am blind once I pull back the curtain,” joked a user on the Weibo microblogging website. Photograph: Sina Weibo

Caixin media on Friday criticised the Beijing government for not issuing a red alert, the highest alert for the worst air quality. Web users were also critical of the high levels of pollition.

Environmental authorities in the adjacent Henan province blamed straw-burning by farmers for the pollution. Chinese netizens had a lot to say about these claims too with critical comments on the Sina news website. One said that China has a five thousand year old civilisation and has been burning straw for such a long time and asks was the smog in ancient times heavier than now.

Another said the city’s cars “should be blamed” and that industrial pollution is the “main reason”. They also criticised the Ministry of the Environment’s efforts to curb pollution “even a blow of wind is more efficient than the ministry in solving the smog problem”.

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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.

Another solution is Alan Savory's: Can Cows Stop Climate Change?

Images Republished Courtesy of the Savory Institute

Photo of Exact Location - Zimbabwe After 2 Growing Seasons

Left: Late 2006 - Low numbers of mismanaged livestock

Right: Early 2009 - Properly managed using Holistic Management

(400% increase in livestock numbers)

The people involved in these experiments are so excited by the results that they want to turn it into a global effort.

They are working on incorporating soil carbon offsets into California's cap-and-trade program, which would give ranchers credits when they spread compost.

And the Natural Resources Conservation Agency (a division of the Department of Agriculture started because of the dust bowl) is making carbon farming an integral part of voluntary protocols for soil preservation, along with no-till farming and the use of cover crops - the basics of organic agriculture practices.

You never know - we could end up with organic agriculture after all!

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Bushfire season 'will be more severe as a result of climate change'

By Michael Safi, *for theguardian.com*

Firefighters tackle an out of control bushfire threatening properties in Wagga Wagga, New South Wales. Photograph: Brad Newman/Newspix/REX

Climate change is already increasing the intensity and severity of bushfires in New South Wales and extending bushfire season by months, a report by the Climate Council has warned.

The economic cost of fires such as those that devastated the state's Blue Mountains one year ago will triple by mid-century and the number of professional firefighters will need to double, the commission said, urging that carbon emissions be cut "rapidly and deeply" in order to reduce the risk of conditions becoming even hotter and drier.

It noted that 2013 was Australia's hottest year on record and last summer was the driest Sydney had experienced in nearly three decades. "These conditions are driving up the likelihood of very high fire danger weather in the state," the report said.

More than 50 local councils in the state announced the beginning of bushfire season before its official start in October, some as early as August, a month in which about 90 bushfires burned simultaneously and several properties were lost.

The CEO of the Climate Council, Amanda McKenzie, said that recent years had seen the introduction of a new category of fire warning. "We saw in Black Saturday [in Victoria in 2009] a new fire weather warning, of 'catastrophic conditions', and we've seen that spread to South Australia, Tasmania and New South Wales. These are new types of fires," she said.

She said the longer fire seasons meant that crucial hazard-reduction measures sometimes couldn't be carried out. "There's a narrowing of time in which there's safe conditions to conduct hazard reduction, such as backburning and fuel clearing," she said.

The report said bushfire risk is exacerbated by a "long-term drying trend" as a result of decreasing rainfall in southeast Australia since the mid-1990s. The Bureau of Meteorology has predicted that the next three months will be "drier than normal", reducing soil moisture and leading to a buildup of logs and forest debris that can be easily ignited.

The council, which was defunded by the Abbott government last year and resurrected with crowdsourced funding, directly addressed the link between climate change and bushfires – which prime minister Tony Abbott has described as "complete hogwash".

It says climate change plays a "relatively small" role in actually igniting bushfires, which are more likely to be deliberately lit or sparked by lightning.

"Very hot, dry and windy days create very high bushfire risk. The most direct link between bushfires and climate change therefore comes from the relationship between the long-term trend towards a warmer climate due to increasing greenhouse gas emissions … and the incidence of very hot days," the report said.

"Put simply, climate change is increasing the frequency and severity of very hot days and is driving up the likelihood of very high fire danger weather."

It notes: "Asking if a weather event is 'caused' by climate change is the wrong question. All extreme weather events are now being influenced by climate change because they are occurring in a climate system that is hotter and moister than it was 50 years ago."

Guardian Australia reported in June that the environment department's official advice on extreme weather had been altered to remove mention of the link between climate change and events such as bushfires and heatwaves.

Among the changes, a passage reading, "There is a growing and robust body of evidence that climate change will increase the frequency and intensity of extreme weather events," had been removed in favour of a general explanation of what extreme weather is.

The federal environment minister, Greg Hunt, was ridiculed last October for citing a Wikipedia entry to dismiss the link between bushfires and climate change.

McKenzie said that bushfires had always been a part of Australian life, "but what's happening is that climate change is worsening bushfire conditions, so there's a clear link between them".

The latest IPCC assessment, released in March, found with "high confidence" that higher temperatures and drier conditions would lead to "increased damages to ecosystems and settlements, economic losses and risks to human life from wildfires in most of southern Australia and many parts of New Zealand".

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Can bioenergy replace coal?

Europe wants 27 percent of its energy to come from renewable sources by 2030. Bioenergy has the potential to help the continent reach that goal, but it requires an industry comeback.

By Marco Albani, *Nicolas Denis, and Anna Granskog*

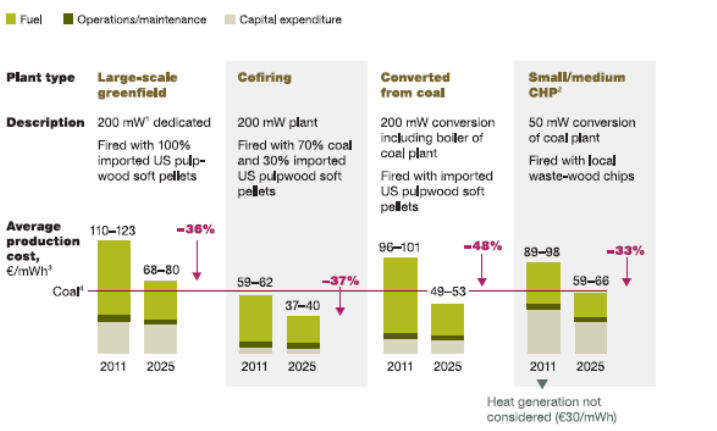
Like all renewable energy in the European Union, bioenergy has struggled against low-priced coal imports, low carbon dioxide prices in the emissions-trading system, and an economic and regulatory backlash against renewable-energy policies, including substantial cuts in government support. But don't count out biomass-based energy just yet. Although today it fails to compete on cost with other renewables such as wind and solar, we believe bioenergy not only has the potential to significantly improve but could even become cost competitive with coal.

Our recent article, "Bioenergy in Europe: A new beginning—or the end of the road?," finds that bioenergy still offers one of the most capital-efficient transitions from coal to renewables, as well as a scalable opportunity for European utilities to take part in the second wave of renewable-energy-source growth. With carbon capture and storage still far from happening, bioenergy offers a way for big utilities to comply with renewable targets while using their existing assets.

How can that happen? We believe the levelized cost of bioenergy—its cost per kilowatt-hour—has the potential to be reduced by almost half by 2025, making bio-based electricity close to competitive with coal depending on the type of plant (exhibit). While there's no denying this would require significant effort, it doesn't require technological breakthroughs but rather simply making better use of the opportunities already at hand.

Exhibit

Depending on the type of plant, biomass could make levelized-cost-of-energy improvements of up to 48 percent by 2025, making it close to competitive with coal.



[1]Megawatts.
[2]Combined heat and power.
[3]Megawatt-hour.
[4]Estimated cost of coal (€64/mWh, with carbon dioxide at €20/ton), which remains stable throughout 2025.

For instance, boiler efficiency in biomass plants today is often as low as 30 percent. Increasing steam parameters such as pressure, temperature, and energy efficiency would reduce the volume of feedstock required and lower costs. Further gains could be made by standardizing plant designs, adopting boiler and plant modularization, and applying design to value. And fuel costs could be lowered by driving greater efficiency in the biomass supply chain, whether by applying lean techniques to remove stumbling blocks, moving to long-term contracts, or improving fuel-treatment technology.

There's an opportunity to revive Europe's bioenergy industry and for the sector to step up as a fast and capital-efficient replacement for coal. But it requires a renewed sense of urgency among industry participants to deliver improvements in both cost and performance, as well as government action to create EU-wide sustainability criteria. Without these, there may be no place for bioenergy in the continent's future energy mix.

This article is an extract from "Bioenergy in Europe: A new beginning—or the end of the road?," which appears in the latest issue of McKinsey on Sustainability & Resource Productivity. *Download the full issue on McKinsey's Sustainability and Resource Productivity site.*

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Multinationals Join to Make Sustainable Living the New Normal

SustainableBusiness.com News

29 multinationals are coming together in the launch of a website that aims to "make sustainable living the new normal."

The name of the website is Collectively, "a new type of platform showcasing the people, places and cutting edge ideas that are creating the change we need."

The companies behind it include: Unilever, BT Group, Marks & Spencer, Kingfisher, Philips, Coca-Cola, PepsiCo, Microsoft, Google, Facebook, Twitter, Nike, Carlsberg, Diageo, General Mills, Johnson & Johnson, McDonalds, Nestlé and Dow Chemical.

If you wonder why we question their motives for such a move, it's because many of these corporations are the cause of the problems, whether it's factory-farmed beef from McDonald's, antipathy toward GMO labels from General Mills, or Dow's new Agent Orange GMO.

Let's talk after you are actually sustainable!

McDonald's finally pulled the plug on Styrofoam last year:

Sustainability leaders on the list deserve credit too: Unilever, BT Group, Marks & Spencer, Kingfisher, Philips, Microsoft, Google and Nike.

An "independent editorial team" will update the site daily with stories that cover everything from fashion to food and from architecture to technology. The idea is to excite visitors on the "potential to create positive change."

"The challenge is both an environmental and a social one - the world's systems are approaching capacity and there are a number of very urgent global and local issues that need to be addressed. There's been a lot of progress but little progress when it comes to engaging the majority and making them feel social living is important," Will Gardner, who heads Collectively and is Unilever's VP of global marketing projects, told Marketing Magazine.

Some of the stories currently online:

- These Inmates are Running Sustainable Businesses
- Soon, Our iPhones, Droids, And Cars Will Charge to 70% in Just Two Minutes
- Getting Rid Of Your Car Will Make You More Creative, Productive And Happier

Let's hope the effort does some good!

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Ocean acidification will cost global economy $1 trillion by 2100

Danny Bradbury

Ocean acidification image by Richard Whitcombe via Shutterstock.

Ocean acidification will cost the world economy more than $1 trillion annually by 2100, according to a U.N. report released this week. Changing the composition of the world's oceans will undermine a variety of commercial operations, it said.

Published by the United Nations Convention on Biological Diversity, the report warns that various services to the economy provided by the ocean's ecosystem will be compromised by increased acidity due to increased carbon production.

Ecosystem services break down into several groups, underpinned by a set of supporting services, such as nutrient cycling, according to the report. Provisioning services include the production of seafood. Regulating services help to maintain a stable climate. Cultural services include education and recreation.

Imbalances in the ocean's chemistry are already leading to biological impacts in areas such as the Pacific Northwest in the U.S., where oyster hatcheries are seeing higher levels of larval mortality, said the document. Worldwide, mollusc fisheries stand to lose $139 billion annually, it warned.

"The species immediately impacted are those that build a shell," explained Emily Jeffers, staff attorney at the Center for Biological Diversity, who did not work on the report. "When the water becomes more acidic, it's harder to form and maintain that shell, and must expend energy that otherwise might go towards development, acquiring food or reproducing."

Jeffers argued that larger fish already are under threat. Tiny marine species called pteropods that form the base of the food chain are heavily affected by ocean acidification and provide a food source for commercially caught fish, she explained.

"So if pteropods decline, there is a good chance we could see a collapse in salmon fisheries," Jeffers warned.

The most significant losses come from the erosion of coral reefs, which will cost the world economy $1.09 trillion per year at the end of the century, the report said.

It added that this figure may be higher in reality, because the third-party research that it cites focuses mostly on the loss of recreational income. It focuses less on the financial cost of weaker coastal protection from waves. Coral reefs significantly dissipate the energy in waves reaching the coast, helping to mitigate coastal erosion, the report pointed out.

President Obama took action on ocean protection in June, announcing a plan to create the world's largest marine sanctuary. The Pacific Remote Islands Marine National Monument already covers hundreds of thousands of miles in the Pacific Ocean.

Ken Hinman, president of Wild Oceans, a nonprofit focused on conserving fish stocks, said he was "ambivalent" about the protection zone.

"It's a large area where there wasn't really a lot of fishing going on in the first place," he said. "There's this trend of looking around and protecting areas that were fairly pristine already and making them sanctuaries."

One of the most significant economic threats is to small coastal fishing communities, he warned, adding that they employ more than large deep ocean fishing operations.

"They are the ones that will be hit the most. And they are the heartbeat of the world's fisheries," he said. "If they disappear, there will be quite an economic impact."

The full extent of acidification on the ocean's ecosystems is not yet known, experts concluded. Margaret Leinen, director of the Scripps Institution of Oceanography and vice chancellor at the University Of California-San Diego, who was not an author of the report, warned that coral reefs were at least a known quantity.

"The situation is that we know that many (not necessarily all) coral reefs will be affected by acidification and can imagine the loss of fisheries habitat, the loss of protection for waves and severe storms," she said. "But we do not yet know much about the impact on other parts of the ocean ecosystem."

This article originally appeared at Business Green. Ocean acidification image by Richard Whitcombe viaShutterstock.

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Solar Arrays Along Highways, A Good Idea

SustainableBusiness.com News

Germany has been doing it for years, but the only state in the US that's been leasing roadsides for solar arrays is Oregon, and now Minnesota is considering it.

Why not generate clean energy and make some money while you're at it on all that empty space? In Minnesota alone, there's more than 250,000 acres along highways.

Minnesota's Department of Transportation has asked solar companies for proposals to rent highway rights of way by November 3.

"We've already been approached by several companies expressing interest, so we thought we should be fair and put it out there and give everyone a chance," Rick Morey, project manager, told the Duluth News Tribune. "We think it has big potential."

The RFP sets the minimum size at 1 megawatt (MW) which covers about an acre of land. They expect to choose up to five sites for a pilot project.

"We've got a lot of retaining walls, and noise walls, too. Maybe they could hang solar panels on those? We don't know yet," he says.

Oregon started with a 104 kilowatt project near Portland at the interchange of Interstates 5 and 205. Then, in 2012, a much larger 1.75 MW project went up on 7 acres at a nearby rest stop. It supplies 11% of the electricity for the Department of Transportation's local offices, and is interplanted with corn and cabbage. Another large roadside project is planned.

For some reason, Oregon leases the 7-acre site for just $100 a year in addition to sharing the Renewable Energy Credits the project generates. "I get calls and e-mails from people who see these projects and are interested in solar. It's good for people to see that their electricity really can come from something other than coal," Allison Hamilton, solar highway program manager for Oregon Department of Transportation, told *Duluth News Tribune*.

It solves another problem for state agencies, which more often these days, are directed to use clean energy and cut their emissions.

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How DuPont and P&G plan to make detergent from agricultural waste

By Stephen Kennett

Image of Tide bottles by Mize Mozart via Flickr

According to the companies, Tide Coldwater will be the first brand in the world to blend cellulosic ethanol in a scalable and commercial way.

Ethanol is a key ingredient in the detergent's formulation, allowing for stability of the detergent formula and better washing performance. The cellulosic ethanol, which is made from harvest by-products, emits less greenhouse gas compared to petroleum or the currently used corn-based ethanol it will replace. Over 7,000 tons of agricultural waste will be re-purposed a year to meet the needs of the Tide Coldwater brand.

DuPont will produce the renewable, cellulosic ethanol at the company's new U.S. biorefinery, currently under construction in Nevada, Iowa. Once completed, the plant will be the world's largest bioethanol refinery, producing 30 million gallons of cellulosic ethanol per year — a process with zero net carbon emissions.

Gianni Ciserani, Procter & Gamble group president of global fabric and home care, said, "We believe that actions speak louder than words in the area of sustainability and this partnership with DuPont demonstrates we are doing just that. As one of the world's largest laundry manufacturers, we have a responsibility to lead renewable sourcing in products. We do this by ensuring consumers still get the great Tide laundry performance they want, while further reducing the impact on the environment. In January, we committed to removing phosphates in our laundry products."

DuPont Senior Vice President James Collins added, "With this collaboration, DuPont is also taking the first step to diversify its markets for cellulosic ethanol beyond fuels. As we build on our integrated science capabilities, we will continue to seek out new opportunities and new collaborations to transform value chains with more sustainable solutions."

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The footwear industry is taking steps towards sustainability

From shoes inspired by Japanese Shinto temples to grinding old trainers into pellets for running tracks

A 5,500-year-old leather shoe was discovered in a cave in Armenia in 2010. Recycling experts can't say exactly how long it should normally take a shoe to decompose but their estimate is around 50 years.

Resistance to composting is just one of many challenges facing designers hoping to reduce the negative environmental impact of shoes, but it is a challenge that designers and footwear companies are taking on.

Professor Shahin Rahimifard leads the Centre for Smart (Sustainable Manufacturing & Reuse/Recycling Technologies) at Loughborough University. He has spent the past 10 years studying the footwear industry. "The assumption is that if there are 330m pairs [of shoes] sold in the UK per year, most will eventually go to landfill, even if some of them are stockpiled in wardrobes for years." He believes the footwear sector is in its infancy compared with the car and electronics industries.

Rahimifard's work focuses on what happens to shoes at the end of their useful lives. Leather poses a problem to landfill sites because of the harmful chemicals used in the tanning process. Some of the glues used in production are also hazardous, containing volatile organic compounds like toluene and benzene. Biodegradable materials such as leather and wood also produce methane, a greenhouse gas, if they are allowed to compost in landfill.

Trainers can contain leather, rubber, foam, textile, metal and other materials, which are hard to separate. Rahimifard's team have designed machines that break shoes into small pieces and separate different materials so they can be reused as building materials, but he accepts this is not a perfect solution. "The footwear materials are downcycled rather than recycled. It's better than sending it to landfill but the quality is poorer than when we started."

Designers are central to solving this problem. Leila Sheldrick, also of the Centre for Smart explains: "The initial conceptual stages of design have been shown to account for up to three quarters of the environmental impact of the final products. As well as technical innovation they also need to make eco-friendly shoes look good and appeal to customers."

One designer determined to tackle these challenges is Aly Khalifa. His LYF (Love your Footprint) shoe can be taken apart and remade without losing quality. Inspired by Japanese Shinto temples that can be taken apart and moved, the LYF shoe is made of pieces that slot together a bit like Lego, without the need for glue. "To be truly sustainable you have to design for disassembly. If you put glue into the mix you cause problems in the reuse," he says.

Inspired by Japanese Shinto temples, Love your Footprint shoes can be taken apart and remade a bit like Lego. Photograph: Alamy

The company is about to launch a funding bid to produce LYF shoes commercially with a goal to set up local assembly points that produce modular custom-fit shoes. Customers will design or choose a fabric upper while the foot bed will be made from recycled cork from wine bottles. The sole and heel are clipped together and held in place until the customer wants a different fabric or needs a new heel.

Galahad Clark, descendent of the famous Clarks shoe family and founder of Vivo Barefoot agrees that shoe producers need to focus more on end of life. "It's the elephant in the room. The shoe industry has failed to deal with shoes going to landfill." Clark continues, "If the shoes look good and are good for your feet people will wear them for longer, rather than just getting rid of them and buying new ones."

The growing scarcity of virgin materials, in addition to European directives on what can be thrown away, and landfill charges, have all made big manufacturers wake up to the need for a more sustainable approach. Recognised as leaders in the field, Nike developed an open source app to help designers assess their environmental impact and has been running a reuse–a-shoe scheme since the 1990s, grinding old trainers into pellets that are used to surface running tracks.

Nike's chief sustainability officer, Hannah Jones, says: "We know there is no finish line when it comes to sustainable innovation. As part of this journey, we are aiming to revolutionise how we design, how products are made and what they're made from."

Gucci sold a collection of shoes made from bio-plastic – a biodegradable material used as an alternative to petrochemical plastic, while Puma last year developed the biodegradable and recyclable shoe, bag and clothing range, InCycle, in collaboration with the Cradle to Cradle institute. Puma, however, has confirmed InCycle is no longer for sale in the UK.

Innovations will need to be reproduced on a mass scale if they are to have a significant impact on footwear's negative impact on the environment. There is much work to do in reducing the use of harmful chemicals in the production process and while we may not be far away from seeing take-back boxes in more high street shoe shops, we are still 10 to 20 years away from seeing the collected shoes made back into new shoes.

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Susan Shaheen: How car sharing accelerates sustainability

By Matthias Krause

If you've attempted to dive deep into the topic of car sharing, chances are you've come across Susan Shaheen, or at least some of her studies. About 18 years ago she fell in love with the concept, even though she'd probably never put it that way.

The idea of car sharing "resonated" with her, she said, as a Ph.D. student at the University of California at Davis looking for a dissertation topic. She saw a lecture by Michael Glotz-Richter, a German Marshall Fund Fellow from Bremen. She was fascinated by behavioral effects of people joining car sharing, and the resulting benefits for the environment, she recalled from her office at the University of California at Berkeley, home of the Institute of Transportation Studies, where she serves as a co-director of the Transportation Sustainability Research Center.

"He essentially showed that 44 percent or 45 percent of vehicle kilometers traveled were declining due to the use of car sharing, and people were selling their cars or not buying cars, somewhere around 7 to 15 I think the numbers were," Shaheen said. The reductions in energy use and CO2 emissions were notable, achieved by people changing their behavior.

"I had been working on this idea of the station car that goes to and from the transit station. Is there a way that those vehicles could be shared and we could bring the concept of car sharing to the U.S.? And I was really deeply interested, and studying this by actually demonstrating it, putting a real project on the ground and seeing if we could get people to behave differently, and that's where my work began."

By the numbers

Now Shaheen can prove that the numbers in North America are actually very similar to what Glotz-Richter witnessed in Germany. In a recent study with close to 7,000 participants, a stunning 50 percent either sold a car or didn't buy one because car sharing was available.

And while the general concept has been around for a while now, Shaheen still sees a lot of potential for growth. The classic model of sharing is a round-trip, station-based model. But recently, point-to-point car sharing services have been making inroads, a concept that allows participants to actually use the service to commute to work instead of relying on it more typically just on evenings or weekends.

Shaheen added, "We see college market applications of it in the university environment. We also see employer-based applications of it, and then there's peer-to-peer, so you put your own personal vehicle in. There's a lot of room for expanding this or scaling it into new market segments, both physical and socio-demographic — so older individuals, younger individuals, say in the college setting, but maybe also in retirement communities."

She sees opportunities to move into a suburban setting with peer-to-peer sharing concepts as well. Which does require a significant behavioral change, though — people having to get into the mindset of sharing their personal asset: their car. And there are risks that need to be addressed, such as the questions of what the insurance is willing to cover. Shaheen feels that the context of the greater sharing economy, a hot topic among Silicon Valley investors, furthers the evolvement of making one's car available for others to use instead of having it sit for 90 percent of its lifetime as well.

"People sharing rooms in their houses through services like Airbnb use TaskRabbit, where people are offering up individualized services to other individuals in their communities," said Shaheen. "We are also seeing bike sharing, which has grown really rapidly. We're seeing scooter networks here in San Francisco, and there's a similar type of program in Barcelona. We're seeing ride sourcing or these types of services that allow people to be community drivers of their own private vehicle and take people from point to point, like Uber, Lyft, Sidecar."

New players are coming into the mobility space and providing options, bringing a new perspective to an old problem.

At the same time, players in the traditional auto environment are starting to toy with the idea that they have to think differently about transportation. Maybe the aim is no longer to have as many people as possible own cars, but to provide transportation services — including real-time traffic information and parking information — and allow people to use cars when they need to without having to own them. Often, Shaheen conceded, the environment turns out to be an afterthought, no more than a welcomed side effect.

All gain, no pain

Which brings Shaheen back to her high school years in upstate New York. As a young student, she started thinking about why protecting the environment is considered a sacrifice.

<ReadMore>

Cancel developing countries' debt in exchange for climate change action

By Helena Wright and Adrian Fenton, *for theguardian.com*

Jute harvesters in the floodwaters of the Brahmaputra river in Bangladesh. Photograph: Jonas Bendiksen/Magnum

One of the main objectives of this week's New York climate summit was to mobilise finance to tackle climate change. Slow progress in scaling up finance has been a key bottleneck in negotiating a global climate treaty.

The World Bank estimates that adapting to a warmer climate could cost $70bn to $100bn per year by 2050, assuming warming is kept to the target of 2C. However, the real costs could be far higher, as recent analysis shows the world is currently on course for 4C of warming, a level unprecedented for humanity. Current levels of CO2 in the atmosphere have not been this high for about 3m years.

The New Climate Economy Report, released last week, concluded that the economic cost of inaction is greater than the cost of action, and that investing in reducing emissions has economic benefits, including health benefits.

However, many countries have failed to make new pledges of public finance to tackle climate change. Could debt relief be a way to generate finance for climate change?

Mobilising money for the Green Climate Fund

The UN secretary-general Ban Ki-moon encouraged countries at the summit to capitalise the Green Climate Fund. The UN fund, established in 2010, is charged with mobilising $100bn of finance annually by 2020 for climate action in developing countries.

Several countries made pledges to the fund, including most substantially, a pledge of $1bn from France. There is now $2.3bn in the fund, but this still falls short of the $10bn that was requested to get it started.

The summit was more successful in scaling up private finance, with an announcement that a new coalition of governments, investors and financial institutions will mobilise $200bn by the end of next year to support climate action. However, pledges on public finance were more limited.

Debt relief as an alternative solution

One innovative way to generate finance might be through debt for climate swaps. National debt owed by developing countries could be cancelled in exchange for financing actions on climate change.

Many developing countries are highly indebted and also vulnerable to the impacts of climate change. Debt also restricts the capacity of developing countries to respond, for instance by building cyclone shelters.

The idea could build on the Jubilee 2000 campaign, which attempted to get large amounts of debt forgiven by the millennium.

Tim Jones, policy officer at the Jubilee Debt Campaign, says, "It is the rich world who are indebted to impoverished countries because of their excessive greenhouse gas emissions. Unjust financial debts of developing countries should be cancelled, and the rich world should pay reparations to help countries deal with the damage they have caused."

Debt relief could also make it easier to scale-up public finance for climate change at a time when developed countries are implementing austerity cuts.

Increasing climate vulnerability and debt

Many developing countries that are highly vulnerable to climate change have already been taking out loans in order to adapt. In Bangladesh, the government has used loans from the World Bank to build cyclone shelters to cope with increasing cyclones. However, civil society groups have raised concerns about the ethics of providing 'climate loans' which increase the country's debt burden.

The government of Bangladesh is already indebted. In fact, for every $1 that Bangladesh received in climate finance over the period 2010-12, it paid back over $3 to service long-term bilateral debt.

Climate impacts are projected to get much worse, particularly in developing countries that did not create the problem. The victims of climate change, including future generations, risk being saddled with huge debts as a result.

<Source>

Rival corporate giants join forces to get millennials acting on climate change

Arch rivals such as Coca-Cola and PepsiCo set aside differences to encourage young people to become sustainability activists

'Inspiration, not just grim reality, needed to engage millennials on sustainability'

PepsiCo and Coca-Cola have set aside a long standing rivalry and joined forces along with 24 other corporate giants to engage young people on climate change issues. Photograph: David Levene/the Guardian

A coalition of otherwise rival global corporations announced on Tuesday they have jointly created a digital platform for young people to take action against climate change.

Many of the 29 partners behind Collectively.org are fierce competitors – such as drinks giants Coca-Cola and PepsiCo, consumer goods companies Unilever and Nestle, and global advertising groups WPP and Omnicom – but they have set aside their differences in a bid to engage and activate so-called millennials between the ages of 18 and 30.

In order to have maximum impact on social media, Facebook, Google and Twitter are partners on the project, which will focus on "passion points" such as innovations in fashion, food, design and technology and avoid the depressing consequences of inaction such as animal extinction, pollution and deforestation.

The approach is based on the idea that doom and gloom stories fail to inspire change. "Every single day, the most creative minds in the world are thinking, designing, testing, building and launching awe-inspiring new solutions to help us thrive," according to Collectively.

"Collectively will connect millennials to the innovations that are shaping the future, making it easy for them to act, buy, invest and promote the ideas that they believe in. To be part of the solution."

Finding common ground

The initiative breaks the corporate mould in several ways that would have been unthinkable even a few years ago.

It sends a strong signal that large numbers of multinational companies are increasingly frustrated at the fossil fuel lobby's stranglehold on the political process, and are prepared to become more involved in pressing for change.

"The corporations are keeping their branding off the website; young people are cynical about the motives of big business"

While arch competitors have for many years been collaborating in pre-competitive areas such as the management of their supply chains, the website also represents an increasing willingness to join forces in the public arena.

The companies said that "the pace and scale of what's required now demands new business models, based on radical collaboration with each other, with NGOs and with consumers".

Corporations are obsessive about maintaining absolute control over all aspects of their brands, but in this case they have ceded some influence by setting up Collectively as a nonprofit venture. They have also agreed to keep their branding off the website in order not to damage its integrity in the eyes of those young people who may be cynical about the motives of big business.

While the pilot phase of the project will focus on the US and the UK, there are already plans to expand it into a global organisation, with negotiations taking place with businesses in India, China and Brazil by the end of the year, another 20 multinationals around the world are expected to come on board as well as NGOs which focus on engaging with young people.

Young media for a young audience

Another innovation is that rather than creating partnerships with traditional media organisations, Collectively is collaboration with Vice Media as well as Purpose, the creator of movements for social change, and sustainabilityNGO Forum For the Future.

Jonathon Porritt, founder director of Forum, said the digital platform would be a welcome antidote to the failure of politicians to act. "Back they come, election after election, with the same old growth-at-all-costs prospectus, with a few green sops thrown in, essentially to keep their own green-ish activists off their backs," Porritt writes in Guardian Sustainable Business.

"That's how it's always been, and pretty much how it is today, which is why so many environmentalists hold the whole damn lot of them in contempt.

"Happily, beyond the grim reality and beyond the limitations of science, lies a very different impulse: unconstrained excitement at the rising surge of brilliant organisations and people already crafting the solutions to today's converging crises."

Keith Weed, the chief marketing officer and global head of sustainability at Unilever, which is the second largest advertiser in the world, says it is important to create a global movement of change.

"The fact companies involved are not natural bedfellows shows we are on the edge of something." Keith Weed, Unilever

"Maybe mother nature has invented a solution by creating the internet so that we can create movements at scale," he told Guardian Sustainable Business.

"As individuals we are powerless, but collectively we are powerful. People are moving away from thinking about my world, my family and my next door neighbour to our world.

"There are a number of companies involved that normally compete but if we don't collaborate to build awareness, engagement and action, all our efforts on the supply side such as ending deforestation will not succeed.

"The fact companies involved are not natural bedfellows shows we are on the edge of something. There is a growing momentum among individuals, governments and companies that this is an agenda to address. We are coming together collectively to inspire a generation to think differently."

Weed said that if the project were to achieve only more awareness without increased activism, it would be deemed to have failed.

Niall Dunne, chief sustainability officer at BT, which is also a founding member, said the initiative highlighted that the world was nearing a tipping point on creating a global movement to address issues such as climate change.

He said: "We've seen the Rockefeller Foundation divesting from fossil fuels, long term investors wanting to put their money towards creating a low carbon economy and 400,000 people marching in New York on the largest ever climate rally. There is a real sense that the planets are aligning and by acting together, we have a real potential to reach a tipping point."

While those aged 18-30 are socially aware and have a strong sense of purpose, Dunne says they feel there is no common platform on which they can build a movement. Research showed that young people were not opposed to corporate engagement but they do not want to be marketed at and Dunne says the project will "just die if it is brand heavy".

He said: "This platform is the next beachhead for the sustainability movement and should be looking to engage hundreds of millions of people and change conspicuous consumption to mindful consumption."

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Too Good! NYC Homes Heated by Biogas

SustainableBusiness.com News

By Rona Fried

New York City is embarking on an innovative project that we want to see a lot more of - supplying customers with renewable natural gas, not the fracked kind.

The demonstration project will show how every city can turn their wastewater treatment plant into a revenue-generator by bringing heat to homes and businesses made from locally-made natural gas, with local organic waste as the feedstock.

Here's how it works:

Waste Management collects food scraps from NYC school breakfast and lunch programs - 1.5 tons a week - and instead of sending it to landfills, it delivers it to a Brooklyn processing plant. There, magnets remove any non-food items and macerators grind it into a slurry.

Then trucks haul it to the city's largest wastewater treatment plant - Newtown Creek in Brooklyn. The slurry is combined with sludge produced by the treatment process, resulting in biogas.

To form biogas, the combined sludge is put into a biodigester, where it's heated to 95 degrees F in an oxygen-free environment for 15-20 days.

National Grid buys the biogas and after using a refrigeration process that removes carbon dioxide, it sends the remaining high-quality natural gas to customers via a pipeline that's already connected to the wastewater plant.

Biogas is delivered as fuel to 5200 city homes!

"By deploying a robust organics program, the Department of Sanitation is creating an opportunity to convert organic waste, that NYC used to spend millions of dollars to send to out of state landfills, into clean renewable energy right here in New York City," says John Doherty, Commissioner of Sanitation.

No longer do polluting trucks have to carry that cargo to landfills. And the city begins supplying natural gas sans greenhouse gas emissions.

And the benefits don't stop there! 40% of the biogas heats and cools the wastewater treatment plant, eliminating yet another source of costs and emissions. Like all such plants, until now, Newtown Creek has been flaring the methane into the air. Now, it will sell it as biogas instead.

National Grid is investing $7 billion to design, build and operate the biogas system, and once it recoups those costs, it will split the natural gas revenue with the Department of Environmental Protection (which runs the wastewater plant). Construction begins this year and natural gas starts flowing in 2015.

There are 14 wastewater treatment plants in NYC where 1 billion gallons of wastewater are treated every day. Almost all of them are now powered by the biogas they generate.

National Grid says biogas can supply 25% of natural gas for its customers in Massachusetts, New York and Rhode Island, while creating 9000 jobs.

"With the right policies renewable gas could meet the natural gas demands of half of all American homes," according to a study commissioned by the American Gas Foundation.

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From vegan beef to fishless filets: meat substitutes are on the rise

Meat alternatives put significantly fewer demands on the planet and are increasingly popular, but globally, meat consumption is still set to grow

Sir Paul McCartney recently called on politicians and the British public to commit to a weekly meat-free day. Photograph: MPL Communications/PA

I am yet to see Jamie Oliver smacking his lips together as he whips some up into a hearty bolognese, but the meat substitutes market has grown exponentially in recent years, driven by growing concerns over health, food safety and sustainability.

Unlike the centuries-old diets of tofu and tempeh in Asia, the introduction of meat alternatives in western markets began in the early 1960s with soy protein and wheat gluten as the predominant raw materials. Today, protein products are derived from numerous additional sources, including peas, amaranth, rice, canola and fungi. As a result, the range of alternative meat - and fish - options is growing significantly, from Beyond Meat's vegan 'beef' crumble and 'chicken' strips, toGardein's fishless filets to Yves' meat-free burgers and hot dogs.

Vegetarian since the age of 15 and vegan for about half that time, in the past I felt if you'd already made the choice to ditch meat, you might as well ditch food products that resembled meat too. Why turn vegetarian only to purchase foods that require more processing, packaging and in some cases, more transportation than the likes of nuts, grains, pulses and eggs.

I'd missed the point. Meat substitute companies aren't just aiming their products at vegetarians and vegans - who make up less than 3% (pdf) of the UK population - but also at meat consumers, a much bigger potential market.

It appears they are succeeding. In a study carried out by global market research company Mintel, of the 36% of Americans purchasing meat alternatives only 7% identified as vegetarians. Likewise, according to Quorn's latest sales figures, more omnivores than vegetarians are buying and eating Quorn products for the first time in the company's history. The potential environmental impacts are significant because of the lower demands Quorn places on land and resources than meat or soya. The company has calculated that if a million people consumed Quorn mince instead of beef just once a week over a year, 12,500 fewer acres of land would be required to feed the population (pdf).

Advocates for a reduced meat diet go beyond meat-free brands, academics, human and animal rights campaigners, and environmentalists. Famed French chef Alain Ducasse, has recently moved towards an almost entirely meat-free menu at his three-star Parisian restaurant, Plaza Athénée, in a desire to increase the sustainability and 'naturalness' of his menus. Likewise, the goal of Dutch company The Vegetarian Butcher is "to show real meat lovers that they don't miss a thing when they reduce their meat consumption". Then there is the likes of Bill Gates, whose support for substitute meat and egg products brings a new level of engagement and investment to the table.

So where does this leave us? Sales of meat alternatives reached $553m in 2013, representing an 8% growth from 2010. However, it's important to keep this growth in perspective, as global demand for meat and associated greenhouse gas emissions (pdf) continue to rise. According to Dr Annet Hoek, senior consultant and researcher in nutrition and sustainability, "despite the exponential growth in the meat substitutes market, the replacement of meat by meat substitutes is still only a fraction of the total meat market in Western-European countries such as The Netherlands and Belgium."

In America – a key market for meat substitute products – Mintel calculated that the majority of the population does not buy any meat alternatives and 67% of those who choose not to buy any meat substitutes said they did so because they prefer 'real meat'. The ongoing work of food technologists to create products that replicate the experience of eating meat, and of marketing teams to promote such products, is therefore key. Professor Patrick Brown's development of 'plant blood' may well help contribute to both.

Globally, the picture is equally sobering. Economic growth in developing countries is leading to rapidly growing per capita and total meat consumption(pdf). As a result, the annual per capita consumption of meat in developing countries has doubled since the 1980s and is projected to double again by 2050. Meanwhile, the rise in popularity of meat alternatives in many developed countries goes hand in hand with a rise in obesity, the promotion of low carb, protein-rich diets, an expansion in the ready meals market and growth in meat-heavy fast food chains both north and south of the equator.

While a shift to local, organic, non-processed, low-to-no-meat diets is welcome, so too is the move towards replacing a significant proportion of meat consumption with nutritious meat substitute products, alongside a more general trend towards reduced overall meat intake in developed countries.

The current demands we place on our food system are only set to deepen as our global meat requirements grow. These demands are resulting in the extensive use of factory farms, antibiotic overuse and significant proportions of crops grown for feed not food. Faced with meat pumped with chemicals from animals bred to live a short life in unpleasant conditions or an organic meat substitute that places significantly fewer demands on the planet – and in many cases, health - I know which one I'd go for.

<Source>

The US, South Africa and Australia are turning wastewater into drinking water

Water stressed cities are importing water and investing in desalination plants. Could treating sewage plant wastewater offer a local, energy-efficient way of securing water supply?

Of all the clean water that our cities consume, roughly half of it flows down our sewers to sewage treatment plants where it is treated and released back to the environment.

Water flows through the Southern California desert from the Colorado River to the Los Angeles area. Photograph: Hopd/AP

Conventional sewage treatment plants are designed to clean this water to a degree that can be discharged to rivers or the ocean without major environmental or public health impacts.

In many parts of the word, sufficient fresh water supplies are increasingly difficult to source. Water stressed cities now import water, pumped over large distances at a considerable energy cost. Los Angeles, for example, imports 8.9bn litres of water a day to meet the city's needs.

Other cities, such as Ashkelon in Israel, are investing in seawater desalination to produce drinkable water. But this process is also highly energy intensive and its application limited to coastal locations. An alternative opportunity is to reclaim the water that we discharge from sewage treatment plants and treat that to a quality suitable for safe human consumption.

Reusing highly treated municipal sewage effluent is not a new idea. It has traditionally been achieved by a process known as indirect potable reuse (IPR). Examples of unplanned IPR exist throughout the world, such as in Adelaide. In such cases, conventional sewage treatment plants discharge effluents to rivers (in Adelaide's case into the Murray-Darling Rivers), which are then used as drinking water sources for cities downstream. Alternatively, planned IPR usually involves treating the sewage effluents to a very high degree by advanced water treatment processes before releasing the purified water to a lake or groundwater system used for drinking water supply.

While planned IPR has been an important water supply strategy for a number of decades, an alternative approach, known as direct potable reuse (DPR) is now rapidly gaining favour in countries including the US, South Africa and Australia. This process refers to taking treated municipal wastewater from a sewage treatment plant and, after further treating it to a level suitable for drinking, re-depositing it directly back into a drinking water distribution system. It differs from IPR by not discharging the water back to an environmental system, such as a river, lake or aquifer, prior to re-extracting and reusing it for drinking water supply.

Until very recently, we used to point to the only one DPR scheme in the world, which has been operating in Namibia since 1968. But since 2011, new schemes have come online in the US at Cloudcroft (New Mexico), Big Spring (Texas) and Wichita Falls (Texas).

More significantly, a number of very large Californian cities such as San Diego, Los Angeles and Sacramento are now all actively considering the development of DPR schemes as a major contributor to future water supplies. Major changes to regulation (such as the California Water Code) have been implemented to facilitate these potential projects. This has been accompanied by significant research efforts on the part of the US water industry to address a number of key issues including enhanced treatment process reliability, regulatory requirements and issues related to public perception and acceptance.

Among the key advantages of DPR is that the water tends to be available much closer to the location at which it can be used, compared to water which must be imported over long distances. This advantage is often not as effectively realised for IPR schemes since the water must often be transported large distances (and usually up-hill) to a suitable lake storage or aquifer recharge site. Pumping water long distances and up-hill is a highly energy intensive process. Depending on the mix of energy sources available, this normally implies significant production of greenhouse gasses and associated climate change impact.

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Innovations in mobile phone recycling: biomining to dissolving circuit boards

More than 1.8bn mobile phones were purchased in 2013 and only 3% will be recycled. Can emerging technologies boost these low rates?

Circuit boards that dissolve into sugars in the presence of engineered bacteria could be the future of mobile phone recycling. Photograph: Alamy

More than 1.8bn mobile phones were bought in 2013, but within just a few years, 44% of them could end up "hibernating" in drawers according to research fromHywel Jones, a materials scientist at Sheffield Hallam University. He estimates that the same share will be resold and passed on, 4% will end up in landfills and only 3% will be recycled.

The recycling challenge

Jones unsurprisingly sees major environmental and resource implications in the lack of phone recycling. Each phone contains about 300mg of silver and 30mg of gold. Between now and the end of 2020, 10m tonnes of electronic products will be purchased in the UK. This will include silver, gold and platinum group metals with an estimated total market value of £1.5bn.

Of the 20 different materials in a phone, only a small fraction are ever recuperated, even in the most sophisticated electronics recycling plants such as the huge smelting and electrolysis facility run by metals firm Umicore in Antwerp. In developing countries, where manual disassembly of electronics often takes place, the recovery rate is far lower and comes with the added risk of exposure to hazardous chemicals.

In a bid to head off this growing problem, private technology firms are developing systems to make phone recycling easier, cheaper and less hazardous. Academics meanwhile are hoping that designs for extending the useful life of phones (such as modular phones featuring replaceable components and "skins" that look better with age) can prevent them from being left in drawers in the first place.

Innovations in mobile phone waste

Closed Loop Emotionally Valuable E-waste Recovery (Clever), a UK-based project drawing on experts from several universities, is seeking to develop ground breaking science that could prevent mobile phone waste.

Clever's prototype phone is based on a "skeleton" to which components such as battery, screen, motherboard, and memory (the "organs") can be attached and readily replaced if they fail, explains Janet Scott, training director for the Centre for Sustainable Chemical Technologies at Bath University and principal investigator of the Clever project.

The Clever research team is investigating why consumers become attached to their phones. It is also experimenting with materials for the "skin" of the phone that, like leather, look better with age.

Meanwhile for the recycling phase, Scott is developing a plastic material from plant cellulose for the phone's skeleton, and circuit boards that dissolve into sugars in the presence of engineered bacteria. For the recovery of metals, Scott and her co-workers plan to evaluate the use of ionic liquids, types of salts that may be liquid at ambient temperature, to dissolve specific metals.

The Clever group isn't the only one developing a modular phone. The search giant Google plans to introduce a prototype modular phone in 2015.

In addition to the move to design a more sustainable phone, there is a flurry of activity to develop more efficient and less environmentally harmful processes for recovering materials from old phones.

The EU's Associated European Research and Technology Organisations (AERTOs) project, which features six technology firms, has developed a process for recovering materials from old phones that avoids smelting and a nitro-hydrochloric acid solution used in developing countries known as aqua regia.

In the AERTOs process, old phones are dismantled to obtain the printed circuit boards, which are crushed and sieved. Plastics and metals are then separated in water by a process known as flotation, in which bubbles carry plastic particles to the surface to be mechanically skimmed, leaving metals such as copper to be selectively recovered using chemical synthesis.

Gold is dissolved from the residual solids using a chlorine-based process and then filtered in mushroom mats. This so-called biomining approach recovers up to 80% of the gold, says Jarno Mäkinen, research scientist at the Finnish technology institute VTT and a member of the AERTOs team.

Although the approach falls short of the 95% gold recovery rate attained in some smelting plants, the technology works at ambient temperature and avoids smelting facilities' gaseous emissions. Umicore's Antwerp facility in contrast runs at more than 1,000C, Mäkinen says.

US-based Entegris, a £400m per year provider of materials to the electronics industry, claims to have developed a closed-loop, acid-based process called eVOLV that can recover 98% of precious metals in electronic waste at ambient temperature and at costs 30–40% lower than smelting. Entegris says the metals it can recover make up more than 99% of the metals in electronics by volume.

"To date, we have agreed to licence our technology to four customers, including two in Asia, which plan to begin operating the first eVOLV plants in 2015," says Michael Korzenski, the venture's vice president and general manager.

In the eVOLV process, motherboards from electronic waste are cleaned. Components such as silicon chips are separated, while lead, tin, and silver solder are removed in an acid-based solution.

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Poo power: turning human waste into clean energy in Kenya's slums

By Frederika Whitehead, *for theguardian.com*

They call them "flying toilets" – the bags of human poo that are thrown out of the windows of the thousands of small shacks that make up Nairobi's slums.

Biocentres in Kibera have collected 60,000kg of poo, turning it into biogas. Photograph: Practical Action

The largest of Nairobi's informal settlements is Kibera, just three miles from the city centre. An estimated one million people live there, and toilet facilities are scarce. The bare earth streets are carved with gullies: equal parts open sewer and rubbish dump. The nearest toilet for most people is a hole they have dug in a bare patch of ground at the back of their shack.

But Josiah Omotto, a managing trustee of the Umande trust, has high ambitions: he wants Nairobi to become an open defecation-free city. It's a big challenge to set for yourself. "If open defecation was banned in Nairobi today, every member of the informal settlements would have to queue for two days to use the existing toilet facilities," he says.

Umande and the British charity Practical Action have devised a solution that turns the mountains of odorous human waste from a problem into an asset.

They are building bio-centres – toilet facilities where human slurry is collected and put in a digester which collects the methane emitted from poo as it breaks down. The methane is sold back to the slum dwellers as biogas, used for cooking within the centres or to power hot showers.

"Every individual creates 300g of human waste each day, and 60% of Nairobi's four million inhabitants live in its informal settlements – that's 2.4 million people," says Omotto. "What we have in Nairobi is 720,000 kg of shit. We want to turn it into biogas so that we can tackle the energy crisis."

Methane is a greenhouse gas. If released into the atmosphere it ismany times worse for the environment than CO2. Steps are being taken worldwide to reduce emissions but since we humans are likely to carry on defecating for many years to come, human poo could be considered the ultimate source of renewable energy. It's much better for the environment to burn the methane from poo than from fossil fuels, after all.

Umande and its partners have built 57 biocentres in Nairobi, which have so far managed to collect at least 60,000 kg of poo, according to Omotto.

Some biocentres also have other facilities incorporated within the same block, including spaces for recreation, social activities and small businesses.

The Stara biocentre in Kibera is run by women who also manage an orphan school. At the bottom of the centre they offer hot showers powered by biogas, and the first floor is let out as a legal advice centre. The orphanage earns 45,000 Kenyan shillings a month from the biocentre, which they use to fund their work with the children.

Aidah Ebrahim, project director for Umande, says that between 350 and 1,000 people visit each of the toilet blocks every day, paying three cents each to use the loo, and a few cents more for a hot shower, if those are available.

But the project was not without its challenges. Transporting heavy building materials across dirt streets riven with gullies and piled high with detritus is not easy, and theft of building materials is commonplace in Kibera. Umande held negotiations and the community helped to transport the building materials, and keep them secure while the facility was being built.

"Most of the projects are funded by grants from donors, but since last year we have partnered with financial institutions who are providing loans to pay for future sanitation projects," says Ebrahim. "This came after we definitively proved that the projects are bankable, profitable and scalable."

Umande is working with engineers from Denmark and the Netherlands on converting the bioslurry into fertiliser, and to see how we can recycle the water. They are also working with a private company from Thailand to bag large quantities of gas for resale to small businesses in the city. In the future, Umande would like to incorporate solar panels to buildings and biodigesters to existing toilets so that they do not have to build completely new facilities to create energy.

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Waste-free, Willy Wonka packaging is coming but are consumers ready for it?

From edible water bottles to yoghurt encased in fruit flavoured skins, the packaging industry is getting creative, but psychological barriers persist

If Willy Wonka did packaging, it'd probably look something like the WikiPearl – a soft, durable and water-resistant edible membrane, made from natural food particles, designed to protect a bite-size portion of food that it's encasing. Created by David Edwards, a Harvard professor and biomedical engineer, the intention of the WikiPearl (formerly WikiCell) is to kill the packaging and make its relationship with food symbiotic.

Vanilla yoghurt encased in a strawberry skin Photograph: Earl Studios and Stonyfield

"It's important we don't only look at this as a way to reduce plastics in packaging, but also in the context of how nature creates its own biodegradable packaging, like the skins of fruits," says Eric Freedman of WikiFoods. The company, based in Cambridge, Massachusetts, has collaborated with the organic dairy business Stonyfield to apply the WikiPearl technology to yogurt. The Frozen Yogurt Pearls (think, small scoops of ice cream) come in coconut, peach and strawberry flavoured skins and are being sold at selected Whole Foods stores in the US.

According to the government's waste advisor Wrap, households in the UK threw out 4.2m tonnes of food and drink waste in 2012. Rethinking packaging is a popular topic of conversation for sustainability wonks and designers. Recently, the Swedish duo Tomorrow Machine showcased a series of utopian packaging that included a container that dissolves with its contents. They have previously designed a wrapper that transforms into a bowl when water is poured on it. Tomorrow Machine's founders admit that it will be a several years before such concepts are adopted commercially, so while we wait to be able to wash our packaging down the sink with plate scrapings, we're encouraged to masticate as well as reduce, reuse, recycle.

Loliware's edible cups made from agar. Photograph: Loliware

Loliware is a New York start up that has developed a range of colourful, edible cups made from agar, a vegetarian substitute for gelatine. Frustrated by the amount of disposable packaging that is thrown away (in the UK, around 2.5bn cups go to landfills each year) and inspired by their love for Jell-O, its founders Chelsea Briganti and Leigh Ann Tucker have taken a novel, cradle-to-cradle approach to reducing waste.

"Our solution is to eat the cup, because they're fun and they taste great [current flavour on sale is citrus], or just compost them. Either way, you're contributing to the solution, instead of the plastic problem," says Briganti, who is confident that they can get more people thinking about reducing their waste.

Last year, three students from Imperial College London designed an edible water bottle, the Ooho, using a similar technique applied by David Edwards – spherification. They have a desire to cut the number of plastic bottles being used every day. Initial demonstrations suggest drinking it is messy and slightly impractical, but the membrane holding the water, made from brown algae, is biodegradable.

Getting the Ooho to market could be a complex endeavour. The engineering of the membrane may need to be refined, along with how they'd appear on supermarket shelves – "the distribution and display would be similar to the way we buy fruits," says Rodrigo Garcia Gonzalez, one of its creators – and then there's the issue of how it feels in the mouth. "It's a gelatinous texture that we are not used to," admits Gonzalez, adding that while the membrane is tasteless some people who have tested it preferred not to eat it.

The packaging industry acknowledges that there's a psychological barrier to eating packaging, particularly in regards to aesthetics. For example: bits of a membrane stuck between teeth or bits of cup floating in a drink. A combination of not wanting to alienate consumers and food safety regulations means that Loliware's cups and WikiFood's yogurt pearls are currently sold in eco-friendly packaging. While Loliware aspires to market its product in edible boxes, WikiFoods' ambition is to go container-free and for the pearls to be sold a bit like sweets in a pick'n'mix aisle. "It could be a served bar situation, like a gelato bar, or a bulk option in the freezer where consumers can fill their own containers," adds Freedman.

There's also the issue of hygiene to be navigated; sceptics are likely to be concerned about possible contamination. WikiFoods believes that this is simply because people aren't used to seeing certain products that are normally packaged out of their wrapping.

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Why banning dangerous chemicals is not enough

By Wayne Visser, *for theguardian.com*

The growth in chemical production in the past 40 years has been nothing short of explosive, with global output of $171bn in 1970 (pdf)burgeoning to more than $4tn in 2010 (an increase of more than 2,000%). By 2050, the market is expected to expand further to more than $14tn (an increase of more than 250% from 2010), with theBRICS countries dominating and accounting for more than $6tn together ($4tn for China alone).

The message is clear: this is not an industry that is going away. We are all, with our modern lifestyles, totally hooked on chemicals, whether for energy (petrochemicals), colourants (paints, inks, dyes, pigments), food production (fertilisers, pesticides), health (medicines, soaps, detergents) or beauty (perfumes, cosmetics).

Here to stay: the global output of chemical production in 2010 was $4tn – an increase of 2,000% from 1970. Photograph: Petros Karadjias/AP

Yet, like all drugs, chemicals have some serious side effects. The World Health Organization (WHO) estimates that the chemical industry causes around a million deaths and 21m disability adjusted life years (DALYs) globally every year (based on 2004 data). DALYs are a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death.

The main cause of these serious health impacts are acute poisoning, occupational exposure and lead in the environment. What's more, these WHO figures are almost certainly an underestimate, since they exclude (due to incomplete data) chronic consumer exposure to chemicals and chronic exposure to pesticides and heavy metals such as cadmium and mercury.

So here is the dilemma: chemicals are harming people – and even killing some of them – yet because of their benefits and the world's addiction, they cannot be eliminated, even if the renewable energy and organic farming sectors continue their boom of recent years. Taking this as a starting point, the next question becomes: what has the chemical industry done to make its products and processes safer?

The industry has a self-regulatory programme called Responsible Care, which was created in 1985. According to the International Council of Chemical Associations' (ICCA) decennial report (pdf) on progress in 2012, 85% of the world's leading global chemical companies have already signed up to its Global Charter. The ICCA can show significant improvements since 2002 in fatalities, injuries, carbon intensity and transportation incidents (others like water consumption, energy use and total carbon emissions are still heading in the wrong direction).

All this is part of ICCAs contribution to the UN's Strategic Approach to International Chemicals Management (SAICM), which aims to achieve "sound chemical management" and to "minimise significant adverse impacts on the environment and human health" by 2020. That sounds good. But is it working? The data suggests we have a long way to go.

For example, in North America alone, 4.9m metric tons of chemicals are released annually into the environment or disposed of, according to 2009 figures (pdf). This includes nearly 1.5m metric tons of chemicals that are persistent, bio-accumulative and toxic; more than 756,000 metric tons of known or suspected carcinogens; and nearly 667,000 metric tons of chemicals that are considered reproductive or developmental toxicants.

Besides the health impacts of these emissions, the disruptive effects of chemical pollution on ecosystems also have significant economic consequences. The cost to the global economy of chemical pollution has been estimated at $546bn. This is projected to rise to $1.9tn by 2050, or 1.2% of global GDP. 57% of these externalities are associated with listed companies and their supply chains, and $314bn can be attributed to the largest 3,000 public companies in the world.

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India will be renewables superpower, says energy minister

$100bn investment likely in five years but coal power plants will also expand rapidly to provide electricity to every Indian village

Damian Carrington, *theguardian.com*

Piyush Goyal, India's power and coal minister, says country could still follow a less polluting path to development, despite expanding coal sector. Photograph: Hindustan Times/Getty Images

India will be a "renewables superpower" according to its new energy minister, but its coal-fired electricity generation will also undergo "very rapid" expansion.

However, Piyush Goyal dismissed criticism of the impact of India's coal rush on climate change , as western governments giving "homilies and pontificating, having enjoyed themselves the fruits of ruining the environment over many years."

The aggressive statements are significant in setting out both how prime minister Narendra Modi will fulfil his government's ambitious goal to bring electricity to the 300m power-less Indians and also how India will approach the crucial 15 months of negotiations ahead before a UN dealto tackle global warming must be agreed.

Huge increases in energy supply in developing nations are needed to lift the world's poor out of poverty, but achieving this largely through polluting fossil fuels will lead to dangerous climate change.

In an interview with the Guardian, Goyal, minister for power, coal and new and renewable energy, set out why Modi wants to deliver electricity to every village in the vast country.

"Electricity can transform people's lives, not just economically but also socially," he said. "My own father studied under street lamps. We understand how agonising it can be for a young boy wanting to study or a pregnant women wanting to get care [without electricity] and working opportunities, jobs, entrepreneurship – it will be impossible to do it without an assured supply of affordable energy."

Goyal set out his government's pledge, including to end expensive and polluting diesel-based electricity: "Our commitment to the people of India is that we should rapidly expand this [energy] sector, reach out to every home, and make sure we can do a diesel-generator free-India in our five years."

Modi's government, elected in May, has brought forward a flurry of energy announcements in its first 100 days, with pledges to accelerate solar power particularly prominent. As chief minister in Gujarat, Modi delivered Asia's biggest solar park and piloted schemes that covered rooftops in cities and irrigation canals in the countryside.

"We will be a renewables superpower – you know Mr Modi's mantra: 'speed, skill and scale'," said Goyal, adding that he expects $100bn (£62bn) to be invested in renewable energy in India in the next five years.

He has killed an earlier proposal to hit cheap Chinese solar panels with an import tariff and revived a tax break for wind power. The previous government set a solar target of 20GW by 2022, but Goyal said this will be smashed: "It will be much, much larger. I think for India to add 10GW a year [of solar] and six, or seven or eight of wind every year is not very difficult to envisage."

Goyal has doubled the tax on coal that provides funding for clean energy and introduced incentives to close dirty and inefficient coal plants older than 25 years. But he is clear that coal-fired electricity generation will also grow quickly, given the pledge to bring power to all Indians and to continue the fast development of the Indian economy.

"Coal also would have to expand in a very rapid way," he said, refusing to predict a decline in coal's share of the growing energy supply. "I would wish [the proportion of renewable energy] was better but my fear is that, even if I would want to do more, I may not be able to fund. Coal I would be able to fund unlimited."

In a preview of the position India is likely to take into the final year of the global climate change negotiations, Goyal took a hardline in dealing with western criticism that huge expansion of coal power is environmentally irresponsible.

"Western countries have gone through their development cycle and enjoyed the fruits of ruining the environment over many years and are now giving us homilies and pontificating on responsibilities to the environment," he said. "I think they need to look inward. They need to recognise the cost to the world's environment that they have caused – and continue to cause for that matter – and set their house in order before sermonising to developing countries.

"Of course we aren't one of the largest polluters by any stretch of the imagination on a per capita basis." He said comparing the total emissions of very populous nations like with smaller countries was "very misleading".

Goyal said developing countries, including India which has over 360m people living in poverty, had a commitment to develop the jobs and infrastructure which was already in place in the west. "So I think we will have to balance our developmental goals and our environmental goals," he said.

The notion of compromising on the reduction of carbon emission to enable economic growth will alarm western observers. But, even with rapid coal expansion, Goyal said India could still follow a less polluting development path than seen previously in the west. "I am still fairly confident we will come out better than the west in terms of our overall development versus damage."

<Source>

Can Narendra Modi bring the solar power revolution to India?

By Damian Carrington, *for The Guardian*

Workers install photovoltaic solar panels at the Gujarat solar park. Photograph: Amit Dave/Reuters

From the observation tower in the Thar desert and as far as the eye can see, the dark blue arrays of a million solar panels can be seen sitting silently on the red dust. The Charanka solar park in Gujarat is an "ultra-mega" power project – the Indian government's phrase – and the biggest in Asia.

But unlike the hundreds of coal plants and their noxious smokestacks being built in the country, the only danger linked to the solar panels are the snakes and scorpions that slink and scuttle between the sparse shrubs, posing a minor hazard to those who dust off the panels after dusk.

"But today, God is doing the cleaning," says Poojan Ghodadra, programme manager for SunEdison, as rare, intense rain bounces off the panels. SunEdison has provided about a 10th of the 221MW total in the 5,000-acre solar park.

The project was the brainchild of Narendra Modi. As chief minister of Gujarat, Modi spurred companies to build more than 900MW of solar plant across the state in just a couple of years. Now, as prime minister, the question is whether he can repeat the feat across India, which receives more sunlight than any other country in the G20.

The Gujarat Solar Park in Gujarat, India, is Asia's largest solar power station with an installed capacity of 1,000MW. Photograph: Global Warming Images//Rex Features

The answer matters across the globe: at the heart of tackling climate change is bringing power to the world's poorest people without choking the planet with rising carbon emissions. The UN negotiations, which must deliver a deal to beat global warming by the end of 2015, began their crucial final stage on Tuesday in New York, with the assembly of more than 120 world leaders.

Boosting clean energy over dirty fossil fuels is high on the agenda and solar is booming, with new installations around the world doubling every two years. China is also aggressively pursuing the green technology, installing 12,000MW in 2013 – a record for any country in a single year.

As production goes up, solar panel costs are plummeting – down 80% since 2008, according to the New Climate Economy report released on 15 September. This puts solar on the edge of beating coal and gas on price.

Such energy choices are now on Modi's desk: he has pledged to give electricity to every one of the 300 million Indians living in the dark, a feat he achieved on the smaller stage of Gujarat, and energy experts in India are impressed with the impetus given in his first 100 days to renewable energy, particularly solar. Three more ultra-mega solar parks were backed with cash in July, as were solar-powered irrigation pumps and canal-top solar plants. The electric fences on India's sensitive northern borders will be solar-powered as the military installs 1,000MW of panels to replace expensive diesel generators across its posts. Another 7,000MW of solar is out for tender across the country and the rooftops of Delhi are to be bedecked with panels under a new scheme.Elsewhere, glitzy new shopping malls in India's blackout-prone cities are turning to solar for cheaper and more reliable energy, while thirsty Chennai is experimenting with solar powered desalination.

<Source>

How Climate-Smart Villages in Bangladesh, India and Nepal Are Preparing Farmers for the Future

Source Name: Global Voices Online

One of the initiatives to come out of the United Nations' summit on climate change on September 23 was the Global Alliance for Climate-Smart Agriculture, a group of 16 countries and 37 organizations that aim to enable 500 million farmers around the world to practice climate-smart agriculture by 2030.

What is climate-smart agriculture? It's the idea of helping farmers adapt to changing climates while weaning them off techniques and technologies that produce greenhouse gases. In a number of countries in Africa and Asia, the Consultative Group on International Agricultural Research (CGIAR), a global consortium dedicated to agriculture research, has already set up "climate-smart villages" to put the idea into practice (the CGIAR is a founding member of the UN alliance).

Farmers in northern India have grown used to a wide range of weather, and work their fields around monsoon seasons that regularly bring them torrential rains. But as climate change begins to change the weather, scientists predict that growing conditions in the country are likely to become even more challenging and could alternate abruptly between periods of severe rainstorms and drought, according to the group.

In response to the farming challenges brought on by climate change, the CGIAR's research program on Climate Change Agriculture and Food Security, together with the International Maize and Wheat Improvement Centre and partner organizations are introducing a portfolio of climate-smart agriculture practices and technologies in their climate-smart villages.

Paramjeet Singh uses the "Green Seeker" to check the nutrient levels of his paddy fields in Uncha Samana. The device helps him decide the most appropriate dosage of nitrogen fertilizers (Urea) for his crops.

Researchers, farmers' cooperatives, government bodies and private sector partners are working together at these villages to identify which agriculture practices and technologies can improve productivity and incomes and build resilience to climate risks. "Climate-smart" agriculture is highly localized; interventions that work in one place will not necessarily be suitable for another.

In India the project is undertaken currently in Haryana, Bihar and Punjab. The same model also operates in Khulna, Bangladesh and Rupandehi in Nepal. This video explains the idea behind the villages:

In the climate smart villages in India, farmers have begun to alter their use of mobile phones, the Internet, and basic measurement devices to adapt to the changes initiated by climate change, according to CGIAR. An interesting aspect is that farmers are actually not talking much about climate change, but rather are engaging themselves in alternative and innovative practices. The money that they are saving by doing things like using new planting methods for rice that reduces the amount of labor and water needed are resulting in a significant cost savings, CGIAR says.

Harpreet Singh checks the water level through a Tensiometer in his paddy fields in Birnaryna as a part of the Climate Smart Village (CSV) programme.

Under the project, voice and text messages are sent to farmers twice a week in Hindi or in other local language. The text messages include information on weather forecasts and suggestions for farmers, information on pests and remedies, etc. Last year messages were sent to 1,400 farmers in 50 villages in Karnal and Bihar and 10 villages in Punjab, according to the group.

<Source>

India says it won't cut emissions for 30 years. What's that mean for global warming?

Source Name: Vox

India's new environment minister, Prakash Javadekar, told The New York Times this week that his country's carbon-dioxide emissions would likely keep rising for the next 30 years.

IN THEORY, INDIA'S STANCE COULD BE COMPATIBLE WITH EFFORTS TO AVOID DRASTIC WARMING

"What cuts?" he said about international efforts to curtail emissions and slow the pace of global warming. "That's for more developed countries."

Some observers have interpreted Javadekar's comments to mean that India doesn't take climate change seriously at all. But it's a bit more complicated than that.

India's position has long been that it's willing to voluntarily slow the growth of its emissions (compared with current trends) but it won't make absolute cuts while it's still climbing out of poverty. And in theory, India's stance could be compatible with global efforts to reduce emissions and avoid drastic warming — though it certainly won't be easy. Here's a rundown:

India's climate stance: This mostly isn't our fault

India has long insisted that wealthier countries like the United States and Europe (and even China) should bear most of the burden for tackling climate change. After all, those nations got to enjoy the growth benefits that come with burning fossil fuels for their cars, power plants, and factories for many decades. Now it's India's turn.

The chart below shows the basic thinking here. India's per-person emissions are still one-tenth that of the United States and one-fourth that of China. India is still very poor, has 1 billion people, and, its officials say, deserves some leeway on this:

That doesn't mean India is totally ignoring climate change. In the Times interview, Javadekar said the country is looking at plans to slow the future growth of emissions (which are otherwise on pace to rise 60 percent between 2020 and 2040).

WHEN SOLAR CAN'T DO THE JOB, INDIA HAS MADE CLEAR THAT COAL AND GAS WILL EXPAND

On top of that, India has a goal of doubling wind and solar generation this decade. And prime minister Narendra Modi has suggested that solar power could play a helpful role in electrifying the country's rural areas.

Even so, fossil fuels are expected to keep growing. India's government has emphasized the need to supply electricity to the 300 million people who don't already have it — and in places where solar can't do the job, officials have been clear that coal and natural gas will expand. The current government is also focused on streamlining India's coal sector in order to allow more reliable access to cheap fuel and to reduce chronic shortages. What's more, as more people enter the middle class and buy cars, India's oil consumption has been soaring.

Add it up, and India's emissions are likely keep rising. The big question is by how much.

The world can still cut emissions even if India's rise

So does that mean the planet is cooked? Not necessarily. It's worth noting that there are various scenarios out there in which 1) the world reduces emissions by enough to avoid more than 2°C of global warming but also 2) India's emissions keep rising indefinitely.

The authors tried to model a technologically feasible path for reducing greenhouse-gas emissions sharply by mid-century. Under this plan, wealthy countries would make drastic cuts — but China's emissions don't peak until 2030 and India's emissions keep growing indefinitely (albeit at a slower rate). The idea is that it's only fair to let those poor, populous countries catch up on growth.

INDIA WOULD STILL HAVE TO MAKE DRASTIC CHANGES IF WE WANTED TO AVOID 2°C OF GLOBAL WARMING

Is that specific scenario realistic? Maybe, maybe not. It would entail a radical clean-energy push from all countries — the United States, Europe, China, India. For its part, India would need to ramp up its use of wind, solar, and nuclear power far beyond what it's now planning. It would have to revamp its transportation policies to become less car-centric. India's city planners would have to rein in accelerating suburban sprawl. The country would also likely need outside help to develop carbon capture and other advanced technologies.

What's more, because there's not much room to maneuver in the "deep decarbonization" scenario, there are lots of opportunities for bickering among countries. If India wants even more leeway on emissions, then other countries would have to cut back even more deeply — or else the world will face even more global warming.

<ReadMore>

Yamuna's oxygen levels plummet to zero, spelling ecological disaster for river bank

Source Name: Daily Mail

As the Government spends considerable money to clean up the Yamuna, pollution remains a grave threat to the river that flows through the Capital. A recent study conducted at the ITO Bridge (Vikas Marg) and Nizamuddin Bridge (Bhoj Marg near Akshardam Temple), and published in the International Journal of Environmental Sciences, has revealed that pollution has lowered the dissolved oxygen (DO) level to zero mg/l.

That in turn has badly impacted on the aquatic life along the river bank. The biochemical oxygen demand (BOD) level has been in the range of 4 to 29 mg/l at both the sites, which is very high.

BOD is the amount of dissolved oxygen needed by aerobic biological organisms to break down organic material present in a water sample at certain temperature over a specific time period.

The BOD value of any water body should be 3 mg/l.

According to the study, conducted by Vaishali Sahu and Prachi Sohoni of the ITM University in Gurgaon, discharge of untreated waste water is responsible for chocking the Yamuna.

The discharge of untreated waste water is the main reason for the poor water quality, the study said.

There are other reasons behind pollution as well, like dumping of waste material, religious offerings of flowers or food, immersion of idols, humans taking baths, the washing of clothes, or the bathing of animals.

Rapid growth and increasing population density are making the situation worse, the study added.

<Source>

Switzerland to help India cut down greenhouse emissions

Source Name: Economic Times

As India strives for a low carbon inclusive growth — even as it facilitates speedy clearances for infrastructure projects — the government is looking at Switzerland to cut down its construction induced greenhouse gas (GHG) emissions.

The ongoing Indo-Swiss Building Energy Efficiency Project (BEEP) aims to reduce the energy consumption in new commercial, public and residential buildings and "disseminate best practices" for their construction, Swiss government officials said here. BEEP contributes to strengthen the objectives of government on energy conservation.

Speaking to TOI, Swiss ambassador Dr Linus von Castelmur said Switzerland was pleased that the cooperation of the two countries on energy efficiency in buildings had already resulted in sizeable achievements.

"One recent milestone was the development of energy efficient design guidelines for residential buildings which have been endorsed by the Bureau of Energy Efficiency of the ministry of power and launched recently as part of the government's 100 days agenda," he said.

Residential buildings in 2012 are said to have accounted for 20% of India's total electricity consumption which is expected to increase seven-fold by 2032.

In another project, Switzerland is supporting a research project on production of a new type of cement.

The Narendra Modi government also plans to develop 100 smart cities and other major infrastructure investments. As the demand for cement products increases, the pressure on India to contain its GHG emissions is also expected to rise

According to Swiss officials, it is now possible to double the quantity of cement produced from the same quantity of limestone. The so called Limestone Calcined Clay Cement (LC3) generates 30% less CO2 emissions compared to traditional cement. Joint research on LC3 is being carried out by an international team of the Federal Institute of Technology, Lausanne in Switzerland in collaboration with three Indian Institutes of Technology - IIT Delhi, IIT Madras and IIT Bombay -- and a technology incubation partner, Technology and Action for Rural Advancement (TARA).

India is the first country where LC3 is being tested, both in laboratory and in the field, on a large scale, said Swiss authorities. "India was selected for the size of its market and its growth potential, the wide availability of kaolin clays and most importantly the commitment of the Indian government to reduce CO2 emissions," said a Swiss official.

According to Switzerland, Indo-Swiss bilateral cooperation moves in line with India's emphasis on low carbon inclusive growth and its international voluntary commitment to reduce GHG emission intensity.

<ReadMore>

Waste into Value: Overcoming challenges in mainstreaming "sustainable products"

India generates 6,137 tonnes of uncollected and littered plastic waste each day. Further 40% of that plastic waste is not recycled becoming a source of continued pollution as plastic is not bio-degradable. In order to tackle the issue, stakeholders are re-imagining products that are considered "famous" for their plastic, like disposable dinnerware. The implementation of a product made entirely from waste serves as a "thought experiment" to imagine alternatives to the current plastic paradigm.

One such company in this realm is Prakritii - Cultivating Green. Prakritii's largest uptake comes from Domestic, Malyasian & Australian markets. Amardeep Bardhan, Partner in Prakritii explains "we have seen that the international market for sustainable products is already matured." The company produces bio-degradable disposable dining ware that substitutes plastic as an input raw material. Prakritii's model uses the waste material of areca palm tree as raw material for the creation of disposal dishware made from the Areca Leaf. The whole production of Areca Leaf into disposable dishware is 100% chemical free and only uses heating to form the product. In India, there is still a need to increase consumer awareness such that sustainability products can get traction in the market.

While creating consumer awareness is one challenge for sustainable products, another challenge is setting up a supply chain from scratch. In this case, the Areca Leaf is new to the market. Raw material from villages is procured using out-dated processes and hence its input costs are still relatively high. In addition, there is need to scale up production levels in a profitable way. Areca Leaf production for centuries has been tailored towards a small market so its production process was designed for a small consumer base. Further, Prakritii only receives abundant raw material from January to April and creates stockpiles to meet demand in the remainder of the year.

To overcome these challenges, as Amardeep Bardhan explains, "Prakritii is currently working to develop a cluster based program to increase Areca Leaf production in India." The company's plan is to use hand leaf collecting machines and train farmers by implementing a buy-back program. In turn, the farmers will provide Prakritii exclusive rights to purchase the raw material. The cluster base program is intended to provide adequate supply as demand for their products grow in international markets and India. With increased production of Areca Leaf, the price will eventually decrease to become competitive with plastic. Until then, the Areca Leaf dinnerware will find its niche as a luxury product.

There are many ways to target the sustainability of a supply chain but the largest impact comes from designing products holistically in order to reduce their resource consumption down the supply chain. Whether these products are successful will be heavily dependent on the growing "consumer consciousness" in India; the ability of products to serve a larger population; and the price competitiveness to current product alternatives. Prakritii delivers the message of "Consume Green, Consume in Green"

Prakritii - Cultivating Green is Parivaratan Awards nominee for 2014

Image Credits: Prakritii - Cultivating Green

<Source>

Delhi Metro makes a profit by reducing its carbon footprint

Source Name: Indian Express

After earning carbon credits through regenerative braking, the Delhi Metro Rail Corporation (DMRC) is now making profits from its second project — Modal Shifts — by successfully reducing its carbon footprint and selling the credits thus earned in the international market.

Speaking to Newsline, DMRC Director (Finance) K K Saberwal said the organisation is earning a part of its income by selling carbon credits — the first Metro system in the world to reportedly achieve the feat.

Carbon credits are like shares that are sold in the international market with a view to mitigate the growth in concentrations of greenhouse gases. One carbon credit is equal to one metric tonne of carbon dioxide or carbon dioxide equivalent gases.

"It's a unique aspect of DMRC — we earn by selling carbon credits. One project was already sanctioned by the United Nations Framework Convention on Climate Change. But now, we are earning revenue from our second project — the Modal Shift. DMRC has been able to demonstrate that the carbon footprint of travelling by Metro is less than that caused while travelling in other modes of transport. Thus, we were able to earn carbon credits and sell them in the international market," he said.

Currently, about 25 lakh people travel by the Metro, which is a non-polluting and an environment friendly system. Had the Metro not been there, these people would have travelled by cars, buses, two- and three-wheelers, which would have resulted in higher emission of greenhouse gases. Thus, the United Nations Body administering the clean development mechanism (CDM) under the Kyoto Protocol has certified that the DMRC has helped reduce emissions, Saberwal said.

The income from sale of carbon credits, however, has dwindled over the years, Saberwal said. "The CERs (Certified Emission Reductions) was selling as high as $20 per certificate at one point in the carbon market. Today, it is less than a euro. The West's own attempts to reduce carbon footprints has impacted the cost of CERs. But it is still important for us as the phenomenon only proves that the DMRC is an extremely clean mode of transport."

The first project that earned the DMRC carbon credits was the 'regenerative braking' system under the clean development mechanism, Saberwal said.

"Whenever our trains apply brakes, three phase-traction motors produce electrical energy which goes back into the overhead electricity lines. Accelerating trains — running on the same line — use this regenerated energy, thus saving on the overall energy use," he said.

<ReadMore>

Power ministry to sell LEDs at Rs10 against the market price of Rs 400

Source Name: Economic Times

A day after the Nobel Prize in physics was won by the scientists who invented blue light-emitting diodes (LEDs), the power ministry Wednesday launched a business model enabling the sale of LEDs to households at Rs.10 against the market price of Rs.400.

"The Bureau of Energy Efficiency (BEE) together with the Energy Efficiency Services Limited (EESL), which is a joint venture of four central public sector undertakings in the power sector, have worked with electricity distribution companies (discoms) to develop a business model under which EESL procures LED bulbs in bulk and sells them to households at Rs.10," an official release here said.

"The discoms then repay EESL, over a period of five to eight years from the savings that accrue due to use of this energy efficient lighting technology," it added.

Under an MoU between EESL and the Andhra Pradesh government, EESL last week completed the procurement of two million LEDs, the statement said.

"Almost the entire lighting industry participated in the bid and the lowest quoted price was Rs.204 per LED bulb," it added.

Andhra Pradesh Chief Minister N. Chandrababu Naidu Thursday launched the Energy Conservation Mission's Demand Side Efficient Lighting Programme (DELP) in the state, which promotes replacement of incandescentBSE 0.00 % bulbs with energy-efficient LED bulbs. The DELP is covering 3.7 million households, who will be provided with two high quality LED bulbs each at a subsidized price of Rs.10.

The programme started in Guntur, to be followed by Anantapur, West Godavari and Srikakulam districts.

The union power ministry has already decided that all below-poverty line households at the time of electrification under the Rajiv Gandhi Grameen Vidyuthikaran Yojana (RGGVY) would be provided LED technology.

LEDs are emerging as the most energy-efficient source of lighting as they use one-tenth of the energy of a normal incandescent bulb and half as much energy as a Compact Fluorescent Lamp (CFL) to produce the same amount of light.

The first LED lamp made in India, in 2010, was sold for Rs.1,200, the ministry said.

EESL has already completed a number of projects to retrofit existing streetlights to LED streetlights as well as a 750,000 LED bulb replacement project for households in Pudhuchery, the statement said.

"Increase in domestic demand would further reduce cost of LED bulbs with larger production capacities getting created in India," it said.

All lighting manufacturers have established domestic manufacturing facilities for LED-based lighting system, and have started training programmes for engineers and demonstration programmes in various buildings to showcase this technology, it added.

<Source>

Goa 'very vulnerable to climate-change impacts': Pachauri

Source Name: Times of India

While Goa is "very vulnerable" to a large number of climate-change impacts, it must lead the way in sustainable development and with vision and innovation emerge as a model not only for India but also for the rest of the world, said Nobel peace prize laureate Rajendra Kumar Pachauri on Saturday.

Pachauri was delivering the keynote address at the first Matanhy Saldanha memorial lecture on the subject 'Environment: A gift to mankind to be sustainably used and conserved for future generations'.

Pachauri said Goa, being a coastal state, is vulnerable to the impact of climate change which is leading to sea level rise as a result of the melting of ice bodies across the globe. There is also thermal expansion of the oceans.

The inter-governmental panel on climate change, which Pachauri chairs and which won the Nobel peace prize in 2007 along with former US vice-president Al Gore, has in its fifth assessment report found that average sea level rise across the globe has been 19cm since the beginning of the last century up to 2010.

Said Pachauri, "Now that's a substantial amount and if we don't mitigate the emissions of the greenhouse gases, then on the basis of this scenario that does not take into account any mitigation activity, we could get sea level rise up to 98cm. That would be a very serious outcome for a state like Goa."

He added that before submergence can take place, every time there is a storm surge and coastal flooding, because of the higher level of the sea, the extent of damage would be disproportionately higher.

Pachauri said that we need to be concerned about the beauty of Goa. "We have enjoyed the beautiful landscape and the sea in Goa. Surely, children and grandchildren who are yet to come, should also have the same benefit and that would be sustainable development," he said.

Pachauri said that Goa must develop as a model of sustainable development not only as an example to India but to the whole world. There are challenges like high population density, but places like Japan, which have higher population density, have excelled in sustainable development, he said.

Pachauri described the late Matanhy Saldanha as a "Titan" who will always be immortal because of his values, ideals, thoughts and deeds. "What he was able to do in Goa will certainly be respected, remembered and revered throughout the world. It is our primary duty to see that we uphold his values and ideals and spread them far and wide," said Pachauri.

Chief minister Manohar Parrikar was the chief guest of the function organized by the Matanhy Saldanha memorial foundation. Saldanha's spouse, environment and forest minister Alina is the managing trustee of the foundation.

<Source>

Andhra Pradesh switches to LED efficiency

Source Name: Deccan Chronicle

Andhra Pradesh will be one of the first states to take up energy conservation under the DELP (Demand Side Efficient Lighting Programme) on a massive scale to meet future energy requirements.

The pilot project, which will later be adopted for the entire state, has begun with Guntur district where 20 lakh LED bulbs will replace traditional incandescent bulbs in every household. By implementing this, Guntur alone will save an estimated 75 to 80 MU per annum.

The project is being implemented by the Energy Efficiency Service Limited (EESL) and is funded by PFC, PGCIL, REC and NTPC at a cost of Rs 1,000 crores.

The project in AP is being undertaken on a pilot basis in four districts including Guntur, Anantapur, West Godavari and Srikakulam.

In Guntur, where the project was started earlier this month, close to 80,000 bulbs have been distributed over the last 10 days.

Research has shown that every unit saved is equal to two units produced. AP alone has a potential to save 8,000 MU annually from domestic, agriculture, industries and street lights.

"According to the baseline survey conducted in AP, each household was using two incandescent bulbs on an average. The LED bulbs have a life span of 10 to 15 years, if used for four to five hours daily. We have also asked the manufacturer to give a back-to-back warranty to the consumers for five years on the LED bulbs. This means the manufacturer will have to replace any defective bulb within the five-year warranty period," said vice-chairman and managing director of EESL, Saurabh Kumar.

"Energy efficiency is the need of the hour as natural resources are depleting fast. Moreover, it will help in significantly reducing electricity bills of the consumers," said CEO, state energy conservation mission A. Chandra Sekhara Reddy.

Efficient pumpsets for farmer on cards

In the second phase of the energy conservation plan, agricultural pumpsets will be replaced with energy-efficient pumpsets. This has been launched as a pilot project at Rajamnagar, where 3,000 pumpsets will be replaced free of cost for the farmers.

Since power is free for the agricultural sector in the state, the inefficiency of the pumpsets has been very high for decades, as there was no incentive for the farmers to save electricity. The project aims to exchange the inefficient pumpsets with five-star rated pumpsets. This will increase the efficiency of the pumps by 30 per cent and reduce consumption.

<Source>

Indian Company Launches Solar-Powered Self-Cleaning Toilets

Source Name: Clean Technica

An Indian company has announced a potentially revolutionary leap in sanitation and hygiene with the launch of a solar-powered toilet to coincide with the launch of the Clean India Mission.

India's Eram Scientific has launched a solar-powered self-cleaning electronic toilet

Eram Scientific has announced the launch of the innovative "electronic toilet" armed with "state-of-the-art technology to address public sanitation challenges." This product has been specifically modified for use in schools.

Made of mild steel, the enclosure of the toilet is sleek and aesthetically pleasing, the company claims. The unit is self-sustaining and equipped with internet connectivity for remote access.

A user needs to insert a coin to initiate operation of the toilet. Upon the insertion of the coin, the door opens and a light is turned on. The user is even directed through voice commands. Water usage is also automated in this toilet. The toilets are programmed to flush 1.5 liters of water after 3 minutes of usage or 4.5 liters if usage is longer. All these operations are conducted using solar panels making the toilet completely "off-grid." The toilets to be installed in schools are expected to be usable free of charge.

The solar-powered toilet in schools can prove revolutionary in India. Lack of sanitary facilities in schools in semi-urban and rural areas is among the leading reasons for parents not sending their children, especially girls, to the schools.

A recent report filed by a leading Indian newspaper claims that the Directorate of Education found that several schools in India lack adequate number of toilets for their students. One of the girls' schools in the national capital Delhi has a ratio of one toilet for 1,669 students. Boys' schools fare only marginally better.

Officials of the Directorate say they usually aim for a ratio of one toilet per 100 students but would strive for a short-term target of one toilet per 140 students. Non-government organisations are hopeful that following this survey by the Ministry of Human Resources and the launch of Prime Minister's Clean India mission there will be a significant change in the ground-reality. Technical advances like the solar-powered toilets launched by Eram Scientific can certainly play a crucial role in this regard.

<Source>

Forthcoming Events

The International Conference on Renewable Energy Sources and Sustainability (RESUS-2014)

December 2nd - 4th, 2014

Rose Hill, Mauritius

The International Conference on Renewable Energy Sources and Sustainability (RESUS-2014) will take place during December 2nd - 4th, 2014 in Mauritius. The conference will be held in the premises of the Faculty of Sustainable Development and Engineering of the University of Mascareignes. This event aims at addressing how **climate change** and **energy security** issues have been affecting communities worldwide, particularly the small island developing states. It will investigate how local climate change effects are interrelated and the contributing factors to the vulnerability of certain locations. It will also explore possible mitigation and adaptation measures for these locations. The vulnerability and possible means to strengthen resilience of energy systems to environmental impacts will be a relevant issue to be addressed in the workshop.

Apart from Mauritius speakers from various countries of Europe, Asia, South America and North America are expected to participate in the conference and workshop.

<ReadMore>

The Waste Management India Summit 2014 is being organized at **India Habitat Centre, New Delhi on 4th December, 2014.** The summit is intended for a wide circle of waste industry professionals and experts from educational, research and development institutions; municipal and governmental agencies; technology and equipment vendors. Attending this summit will enable the participants to update their knowledge and share innovative approaches in the field of municipal solid waste processing and disposal, Waste Water Treatment & Pollution Control, Water Disposal, Recycling, Energy Technology, Renewable Energy, Waste to Energy, Water Disposal, Hazardous Waste, Non-Biodegradable waste, Sewage Treatment Plants (STP), Organic Waste and E waste, Mechanical-biological waste treatment. It is an endeavor to create a neutral platform to address, discuss and deliberate issues on reducing and recycling the wastage.

The summit will provide an excellent platform to discuss the problems, challenges, solutions and opportunities handling and managing all waste streams including agricultural waste, municipal waste, industrial waste, hazardous waste, e-waste, bio-medical waste and water waste.

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World Congress on Sustainable Technologies (WCST-2014)

December 8-10, 2014,

London, UK

The **World Congress on Sustainable Technologies (WCST- 2014)** is a multidisciplinary congress, Technical Co-Sponsored by IEEE UK/RI Computer Chapter. The WCST is bridging efforts across the natural, social and engineering sciences, the environment and development of communities. The congress covers a wide spectrum of topics that relate to sustainability, which includes technical and non-technical research areas. It also encourages sharing new knowledge in the field of sustainable technologies and the environmental impacts. The WCST-2014 will be held at the Heathrow Windsor Marriott Hotel, Berkshire, UK.

The objectives of WCST are to provide the opportunities for collaboration and reflection that have the potential to greatly enhance the infrastructure and capacity for conducting and applying art, science and technology for sustainability. The WCST-2014 bridges the gap between academia and industry by creating awareness of current development in sustainable technologies. The topics also include areas Carbon and Emission, Sustainable Energy Technologies, Environmental Challenges, Fuel Options, Renewable Energy Managements, Economics and Environmental Impact, Waste Management and sustainable building design etc.

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International Conference on Energy, Environment, Materials, and Safety (ICEEMS'14)

December 10 -12, 2014

KOCHI, KERALA (India)

ICEEMS is an International Conference on Energy, Environment, Materials, and Safety jointly organized by the Civil Engineering, Electrical & Electronics Engineering, Mechanical Engineering, and Safety & Fire Engineering divisions of School of Engineering, CUSAT supported by TEQIP Phase - II. ICEEMS'14 will be held during December 10 -12, 2014 at Cochin University of Science and Technology (CUSAT) Main Campus, Thrikkakara, Kochi, India. It is proposed to have several parallel sessions with invited keynote lectures by eminent academicians and experts from various fields. Speakers from India and other countries are expected to give deliberations.

The themes of conference include Energy efficiency, Energy Storage, Environmental Pollution and Control, Geo-environmental Engineering, Green Building Technologies, Hazardous Waste Management, Hybrid Energy Systems, Innovative and Eco-friendly Materials/Construction and Solid Waste Management.

<ReadMore>

Tropical Ecology Congress 2014

"Tropical Ecosystems in a Changing World"

10-12 December 2014

The **"Tropical Ecology Congress 2014"** shall take place during **10 – 12 December, 2014** at **Convention Centre, Jawaharlal Nehru University, New Delhi, India**. The conference is being organized by School of Environmental Sciences, Jawaharlal Nehru University (JNU)-New Delhi in Collaboration with International Society for Tropical Ecology (ISTE).

This Congress (TEC 2014) aims to bring together the researchers actively engaged in the field of Tropical Ecology from world over and provide an interdisciplinary platform for discussion to suggest future directions of research for the benefit of humanity.

Tropics and Climate change: impacts, mitigation and adaptations; Tropical Biodiversity and ecosystem services; Hill and mountain ecosystems in tropics; Coastal and marine ecosystems; Hydrology in terrestrial ecosystem & climate change and Management of degraded ecosystems figure among the broad themes of the Congress.

<ReadMore>

5th International Conference on Energy and Sustainability

16 – 18 December, 2014

Putrajaya, Malaysia

The 5th International Conference on Energy and Sustainability Energy will take place at The Everly Putrajaya hotel, from 16th to 18th December, 2014. The conference is being organized by Wessex Institute of Technology, Southampton UK and MYREN (Malaysia Research and Education Network, Malayasia. The conference shall provide a unique opportunity for **Networking** with experts from around the world and thus becoming part of an elite community.

Conference topics also include Smart Grids, Green ICT, Green buildings, Energy storage, Renewable energy resources, Biofuels (solid, liquid, gas), Waste to energy, CO2 capturing and management, Energy and transportation, Environmental risk, Energy policies, Greener power plant technologies, Hydrogen recovery techniques and Sustainable energy production.

<ReadMore>

2014 2nd Journal Conference on Clean Energy Technologies (JCCET 2014 2nd)

December 27-28, 2014

Phuket, THAILAND

The 2nd Journal Conference on Clean Energy Technologies (JCCET 2014 2nd) is being organized on 27th and 28th December 2014 at Cape PANWA HOTEL, Phuket, Thailand. This conference aims to provide a forum for researchers, practitioners, and professionals from the industry, academia and government to discourse on research and development, professional practice in clean energy technologies. It is one of the leading international conferences for presenting novel and fundamental advances in the fields of clean energy technologies. This conference will facilitate networking among academicians, practitioners, researchers and policy makers. This will also serve to foster communication among researchers and practitioners working in a wide variety of scientific areas with a common interest in improving clean energy technologies related techniques.

The conference topics include important and relevant topics of today like Photovoltaic Systems and Solar Energy Engineering, Wind Energy Systems, Renewable Energy Utilizations, Energy-Saving Technology, Energy Storage Technologies and Devices and Power and Energy Generation.

<ReadMore>

Fossil fuel is limited and is not going to exist forever, burning of fossil fuels is causing pollution and with number of vehicles increasing at a great pace is indeed a serious concern. So it is an apt strategy to always use right vehicle, demonstrated very nicely in the figure below.

Figure source: *http://www.respiromadrid.es/alquilar-coches-por-horas-fomenta-transporte-publico/2873/*

The Times of India, Delhi dated September 26, 2014

It's a dirty picture outside 2 hospitals

Garbage dumps set outside Saket City Hospital and Max Healthcare are a hazard for patients as well as pedestrians. They also hinder the movement of traffic

Risha.Chitlangia
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Photos: Yogesh Kumar

New Delhi: The dhalao outside Saket City Hospital, which is located at the crossing on Press Enclave Road, has become a major cause of concern for both the hospital and the area's residents. Overflowing waste bins kept outside the hospital not only create insanitary conditions but also result in a traffic bottleneck. But the South Delhi Municipal Corporation, which has started a special drive to keep Delhi clean, isn't bothered.

Bins kept outside hospitals create not only insanitary conditions but also a traffic bottleneck

There are three dhalaos on Press Enclave Road, and two are located near hospitals—Max Healthcare and Saket City Hospital. Visitors to Saket City Hospital often miss its main entry as it is located right after the crossing, and due to the waste on the main road, vehicles have to drive on the right side of the carriageway.

But the chief worry for the hospital authorities is the insanitary conditions. "It is not only an eyesore but also reflects poorly on India as we get a lot of international patients. They assume that if this is the condition outside the hospital, our services will be shabby too. With waste lying on the main road, patients find it difficult to walk," said Dr Garima Singh, CEO, Saket City Hospital.

EYESORE: South corporation says there is no proposal to relocate the three waste dumps on the road

PRESS ENCLAVE ROAD
CLOGGED ARTERY

Dhalaos near Max Healthcare and Press Enclave Colony are also in a pathetic condition.

Similarly, the main entrance to Khirki Extension, opposite Select Citywalk Mall, has turned into a dumping site.

Max Hospital in a statement said, "The garbage bin near Max Super Speciality Hospital, Saket is indeed an obstruction and inconveniences pedestrians. Also, the overflowing garbage is a potential source of infection".

South Corporation says the dhalaos are cleaned regularly but residents differ. "How can so much waste collect if they are cleaned regularly?" said PK Sharma, who lives in Khirki Extension.

Area councillor Anita Choudhary claims she has written to officials about relocating the dhalaos on this stretch, but there has been no response. Choudhary claims the dhalao outside Saket City Hospital is illegal. "I have asked corporation officials to relocate the dhalao outside Press Enclave Colony. Waste bins installed outside Saket City Hospital have to be removed," said the Congress councillor.

BJP-led South Corporation claims there is no proposal to shift the dhalaos. "We have not received any proposal from the councillor. If we get a proposal, we will quickly relocate them as there should be no dhalao near hospitals. I'll direct officials to clean the dhalaos immediately," said Shailender Singh Monty, BJP councillor and chairman of South zone's ward committee.

The Times of India, Delhi dated September 29, 2014

Green & fancy pandals to jazz up Durga Puja

TIMES NEWS NETWORK

Anindya Chattopadhyay

New Delhi: As Durga Puja draws closer, there are hectic preparations across the city to offer to goddess a grand welcome. Puja committees are busy putting the finishing touches to the pandals. The Times of India has extended the deadline for submission of forms for Best Durga Puja Pandal by a day—till 4pm on September 29—as part of its Durga Devi Namastute 2014 initiative.

Like every year, the committees have been innovative in choosing the themes—from environment-friendly to the traditional ones—for the pandal. Many themes have been explored to infuse the celebrations with verve and variety.

As part of its Durga Devi Namastute initiative, TOI organizes a contest for the best puja pandal. This year too, awards will be given for the Best Durga Puja Pandal and Best Zonal Pandal. Three top pandals will be awarded in the best pandal category. There will also be an award for the best 'green' pandal.

DURGE DEVI NAMASTUTE
THE TIMES OF INDIA

JAW-DROPPING: Diverse themes will lend colour to the festivities

In the zonal category, the best idol will also be picked. Prizes will be awarded for five zones—north; east, including Noida and Ghaziabad; west; south, including Faridabad; and Gurgaon. Once the applications are in, the jury will shortlist as well as visit the pandals. The registration forms can be put into the drop box at the TOI office.

The Economic Times, Delhi dated September 29, 2014

Go Green!

Green Consumer Day falls on September 28, and there isn't a more apt time than now to discuss how essential it is to imbibe green living into our businesses and daily lives

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Green Consumer Day is observed globally on September 28, every year. On this day, people across the world, are made aware to encourage purchasing only eco-friendly products which does not pollute the environment.

The depletion of natural resources is happening at an alarming rate and it is essential that we switch on the green mode at the earliest. We should focus primarily on awareness raising and the importance of recycling-reusing and reducing waste material.

Having said that, it is not only the common man, but also large corporates from all sectors, be it pharmaceuticals, real estate, IT, etc., are becoming 'Green Conscious' and are turning their business solutions towards a more greener business.

In India, specially, right from the plastics bags to the Holi colours that are available, the Indian buyer is definitely going green and is more than ever conscious about the environmental impact of products he/she buys.

Consumers purchase those products and packages that can be recycled or otherwise safely disposed off. As a result of this, industries, large corporates are gradually stressing more on producing items that are environmentally friendly. Green consumerism has helped spur significant shifts in the way in which some industries view the environmental challenges that are plaguing the entire world today.

Kaizad Hateria, general manager, corporate customer relations and asset class specialist, Rustomjee, says, "Green is the new age Vastu - a common sense approach to building residential and commercial complexes. In the past few years, there has been a tremendous awareness in India about environmental issues. Majority of the people have come to realise that sustainable development will happen only if a balance is struck between growth and environment protection."

Thinking green

Consumers now purchase products and packages that can be recycled or otherwise safely disposed off

The start of green consumerism begins at home and at an individual level by evaluating the material with which a product has been made and thinking about the implications that the product is likely to have towards the environment.

Echoing the same, Brian Leslie, technical advisor, Canadian Wood from British Columbia, shares, "The green building movement in India has seen a steady growth. This is because there is a growing awareness of how important it is to use materials that are carbon positive and are not energy intensive, either while production or during the life of a product. Real estate developers are now working with these kinds of building materials."

Amit Maheshwari, director, marketing and strategy, Carrier India, adds, "Though, Green Consumer Day is observed on September 28, globally, as responsible Indian citizens, it should be celebrated on a daily basis. One of the key concerns that should be addressed is that of awareness of the positives associated with sustainability. It is imperative to spread awareness to all the stakeholders of the industry the benefits of implementing environment technologies into their daily businesses."

Though, the current generation may not be affected to a large extent by the damage that is being caused on a day-to-day basis towards the environment and the ozone, but future generations might face the music if corrective measures are not taken now. Use of natural light and wind to light and ventilate homes, planting trees, rainwater harvesting, Sewage Treatment Plants (STPs), ensuring minimum waste production, using recycled water for washing cars, etc., are some of the methods adopted that make projects truly green.

The Times of India, Delhi dated September 29, 2014

Okhla plays host to early winter birds

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Noida: Three species of winter migratory birds, the black-tailed godwit, pied avocet and ruff, have arrived early this year at the Okhla Bird Sanctuary, having made the sylvan banks of the Yamuna their home in the last week of September.

The sanctuary on Sunday saw around 50 black-tailed godwits, a bird that is categorized as a red-listed threatened species by the International Union for Conservation of Nature (IUCN). These birds breed in north and east Asia and migrate during non-breeding period of winter to south and southeast Asia.

Around 200 pied avocets have also flown in. Pied avocets are passage migratory wader species, which breed in temperate central Asia, particularly Mongolia, Pakistan and Kutch. They migrate to south Asia and south-east Asia. Around 150 ruffs have also arrived at the sanctuary.

200 pied avocets have been seen

Ecologist T K Roy, who's actively involved with the sanctuary, said these migratory birds are seen in the middle of the park, since its eastern and western parts are disturbed by vehicular movement.

The Okhla Bird Sanctuary is roughly four square kilometres in area.

Officials said parts of the sanctuary are disturbed by frequent chopping of trees, which is done to keep branches away from the high tension power lines. But this destroys the terrestrial forest habitat and nests of terrestrial birds.

The Times of India, Delhi dated September 29, 2014

Power boost for mobile devices

Washington: Scientists have developed a new technology that could lead to gen-next wearable computers with self-contained power sources and smartphones that do not die even after hours of heavy use.

The technology could reduce energy consumption in mobile devices and computers by tapping into the power of a single electron to control energy consumption inside transistors, which are at the core of most modern electronic systems.

Researchers from the Erik Jonsson School of Engineering and Computer Science at the University of Texas at Dallas found that by adding a specific atomic thin film layer to a transistor, the layer acted as a filter for the energy that passed through it at room temperature.

© John Smith/Corbis

PROLONGED SUPPLY

The signal that resulted from the device was six to seven times steeper than that of traditional devices. Steep devices use less voltage but still have a strong signal.

"The whole semiconductor industry is looking for steep devices because they are key to having small, powerful, mobile devices with many functions that operate quickly without spending a lot of battery power," said Dr Jiyoung Kim, professor of materials science and an author of the paper.

"Our device is one solution to make this happen," said Kim.

Tapping into the unique and subtle behaviour of a single electron is the most energy-efficient way to transmit signals in electronic devices. Since the signal is so small, it can be easily diluted by thermal noises at room temperature. To see this quantum signal, engineers and scientists who build electronic devices typically use external cooling techniques to compensate for the thermal energy in the electron environment. PTI

The Times of India, Delhi dated September 29, 2014

Three IITs develop cement low on carbon content

New Product As Strong As Regular Cement, Likely To Take Pressure Off Depleting Limestone Reserves

TIMES NEWS NETWORK

New Delhi: Buildings in the city may soon be able to reduce their carbon footprint, though by a slim margin, thanks to low-carbon cement or 'LC3'. Scientists at IIT Delhi, along with IIT Bombay, IIT Madras and an environmental NGO called Development Alternatives (DA), have developed a type of cement that is not just low-cost, but can emit 20% to 30% less carbon than regular cement. For every tonne of cement produced, about 0.82 tonnes of CO_2 is emitted.

The most energy-intensive part of cement production is making clinker—grey balls of ground limestone and clay made by heating them at very high temperatures. These are then ground into a fine powder to make cement. CO_2 is a byproduct of this process, which is why cement production is a contributor of

BREAKTHROUGH

global warming. Cement usually contains about 70% of clinker and 30% fly ash.

IIT scientists have developed a variety of cement using just 40%-50% clinker and have supplemented it with low-grade calcined clay and low-grade limestone, which researchers say are being wasted. "Calcined clay is essentially China clay waste that is burnt. There are no takers for low-grade limestone in mines. The cement we have developed will have a major impact on India's limestone reserves that are depleting. Since this technology requires less limestone, the reserves will last us longer," said Shashank Bishnoi, assistant professor, department of civil engineering, IIT Delhi.

It took the three IITs over a year to develop the new variety of cement. IIT Delhi began the project in 2013 with DA. The other IITs were roped in this year.

GREEN MATERIAL

- What scientists claim about the new cement
- Has the potential to extend the life of limestone reserves from the current estimates of 50 years to 75 years
- Will emit about 20-30% less CO_2 than regular cement
- A production of 300 million tonnes of low-carbon cement will reduce CO_2 emissions by approximately 80 million tonnes every year
- Increased availability of resources to produce cement will prevent runaway rises in its price and, therefore, cost of building houses

"We found that the new cement is almost as strong as regular cement. The quality has been tested at IIT-D and Development Alternatives' laboratory too. In fact, we have built a two-storied building in Jhansi using the cement," added Bishnoi.

However, it will still take a few years before the cement is made commercially available. It needs a Bureau of Indian Standards (BIS) certification and standardization before it can be used on a large scale. Such standardization often takes up to ten years but industry bodies and scientists are keen that the shift be made within five years.

The project, funded by Ecole Polytechnique Fédérale de Lausanne, Switzerland, was also done in Switzerland and Cuba. Unlike India, Cuba is planning to convert all old cement plants to this new technology by next year.

"No sector of the economy consumes more material than construction and of all the materials used in construction, cement accounts for the largest share of resources extracted from nature. Obviously, any saving can yield a huge benefit for the environment," said Ashok Khosla, chairman of DA.

The Economic Times, Delhi dated September 30, 2014

Govt Seeks 3 More Months to Set up Green Regulator

Tells SC it needs time to consult with state govts before giving a final shape to the regulator

Urmi A Goswami & Samanwaya Rautray

New Delhi: The government has told the Supreme Court that it will need time till December 15 to finalise the design and the process of setting up the proposed environment regulator after consultations with state governments, but the court is yet to take a call on its plea for an extension.

That application is still pending before the forest bench, comprising Justices JS Khehar, Jasti Chelameswar and AK Sikri, amicus curiae ADN Rao said.

The court has earlier repeatedly expressed impatience over the government's feet dragging on setting up the regulator, and may or may not grant more time to the new government to get its act together.

Government sources, however, said it was open to the idea of having such a regulator and may eventually confer on it the status of a statutory body through a parliamentary enactment.

The regulator is expected to monitor environment impact of big projects and ensure compliance with clearance conditions.

The three-month window will be used to complete the process of getting inputs from states on the contours of such a regulator, sources said. The environment ministry plans to hold a day-long meeting with state ministers on October 15 to elicit views on the operational functioning and powers of the states. Earlier efforts to consult states did not yield much by way of inputs. In May, the ministry wrote to all states. By the end of June only six states had written back. Sources said the Union cabinet, which took up the issue at its meeting on July 9, was of the view that state governments' response had been inadequate and that proper consultations were required.

The court has earlier repeatedly expressed impatience over the govt's feet dragging on setting up the regulator

While the Environment Protection Act (EPA) is a central law, its implementation is undertaken by state and local governments, making their inputs crucial.

The top court had in January told the government to set up the regulator in keeping with the court order in the 2011 Lafarge case, and the undertaking given by the environment ministry. While the court-mandated deadline came to an end in April, elections and a change in government delayed the process of setting up the regulator. The ministry had prepared a Cabinet note in late August proposing setting up the regulator under Section 3.3 of the Environment Protection Act.

However, it decided on September 4 that broader consideration was required and set up a four-member committee, comprising environment minister Prakash Javadekar, road and transport minister Nitin Gadkari, chemical and fertiliser minister Ananth Kumar and coal and energy minister Piyush Goyal, to look into it.

A three-month breather will also give the government time to consider recommendations of the TSR Subramanian committee, which is reviewing five key environment-related laws. "It was felt by the ministerial committee that recommendations of the Subramanian committee, especially the portion relating to the proposed amendment in the EPA, 1986, would be helpful in firming up the proposal for setting up the regulator or authority, as the case may be," an official said.

The government has also made this point in its affidavit to the SC. With the government now open to the idea of an independent regulator set up by an Act of Parliament, the committee of ministers could revisit the blueprint prepared during Jairam Ramesh's tenure at Paryavaran Bhavan for the National Environment Assessment and Monitoring Authority (NEAMA). It was a two-phase plan with the authority being initially set up by an executive order under Section 3.3 of the 1986 Act. It could start functioning within three months of the Cabinet giving its approval. This would require appropriate changes to the Environment Impact Assessment notification, 2006, and the Coastal Regulatory Zone, 2011. The new system would separate the functions of the appraising and monitoring from that of approval.

Deccan Chronicle, Hyderabad dated September 30, 2014

■ Durgam Cheruvu is the fastest encroached lake; almost 200 water bodies are extinct

Encroachments kill city lakes

DC CORRESPONDENT
HYDERABAD, SEPT 29

Every high-rise building, colonies and even office blocks are to be demolished following the High Court's order on earmarking the full tank level of water bodies in GHMC and HMDA jurisdiction.

Ironically, the encroachment is so rampant that both the corporations have no list of illegal constructions on lake beds. A recent survey revealed that Durgam Cheruvu is now the fastest encroached lake, between 2010 and 2014 April. Twenty multi-storied building have come up between April to September 4, around the lake.

In urban Hyderabad, many water bodies have either vanished or are majorly encroached upon. Singadi Kunta lake, which once existed in the upstream of Banjara hills, has been erased completely and sadly its name is not found in the lakes enumeration.

In Chinnara, as many as 500 lakes are struggling to survive in the urban areas of Hyderabad and more than 200 water bodies, which once existed, are no longer mentioned in the lakes enumeration. As many as four colonies have come up in Shikam Kotha Cheruvu in Alwal. Locals have dumped debris in the lake, acquired land and have constructed colonies.

Lakes that have vanished

- Ramantha Cheruvu, Tara Nagar, (Domestic constructions)
- Vadla Kunta, Tara Nagar, (PJR Stadium)
- Kotha Cheruvu, Tara Nagar, (Cemetery)
- Bandam Kunta, Nanakramguda, (CK Convention Centre)
- Samala Kunta, Ameerpet, (Shopping complex)
- Cheruva Kunta, Yousufguda,(Krishna Kanth Park)
- Taadla Kunta, Meerpet, (Domestic constructions)
- Samala Kunta, Sanathnagar, (Park)
- Barrenkala Kunta, Mamidipally, (Domestic constructions)

Durgam Cheruvu, which was once spread across 160 acres has now shrunk to 80 and 90 acres, which is half its size. The IT Raheja Park earlier had three lakes, however, now office blocks have come up.

Earlier in July the GHMC had identified encroachments in the buffer zone and full tank level of 169 lakes in its jurisdiction and announced demolition of all ongoing and completed constructions at these spots. That remains an announcement.

LIST OF THE FEW LAKES ENCROACHED

500 LAKES STRUGGLE FOR SURVIVAL IN URBAN AREAS

- Durgam Cheruvu, Madhapur, (Commercial constructions)
- Mukkidi Cheruvu, Malkajgiri,(Rythu Bazaar)
- Kotha Cheruvu, Alwal, Drains
- Vennela Cheruvu, Jeedimetla, Primary school)
- Bakshi Kunta, Chandanagar, (Multi-storied buildings)
- Lingam Kunta, Chandanagar, (Domestic constructions)
- Uura Cheruvu, Kompally, (Commercial constructions)
- Mogulla Kunta, Kompally, (Public toilets)
- Pedda Cheruvu, Mansurabad, (Religious constructions)
- Fox Sagar, Jeedimetla, (Religious constructions)
- Malayya Kunta, Chandanagar, (Domestic constructions)
- Fox Sagar, Jeedimetla, (Religious constructions
- Mantrala Cheruvu, Jillelaguda, (Religious constructions)
- Chinna Cheriuvu, Gopanpally, (Domestic constructions)
- Gurram Cheruvu, Bandlaguda, (Roads)

Bathukamma lake vanished years ago

DC CORRESPONDENT
HYDERABAD, SEPT 29

Though Bathukamma has been declared a Telangana state festival, Bathukammakuntla, a well-known lake between Shivam Road and Amberpet, no longer exists.

The heavily encroached 32-acre lake had vanished 25 years ago thanks to encroachers and previous governments for sitting on the issue.

Today, women from Amberpet play on the road and perform their rituals at Hussain Sagar. Earlier, when Hyderabad and Secunderabad comprised smaller villages, ladies would go to their local tanks and perform the rituals.

Bathukammakuntla is one such water body which was especially designated for the festival. The name itself, "Bathukamma" (festival of flowers) and "Kuntla" (a tank or a pond) defines the purpose.

With urbanisation and loss of rural identity, the lake slowly started diminishing.

The massively encroached lake was choked with debris, following which high rise buildings were constructed first in the buffer zone, then at the full tank level and then on the lake itself, killing it effectively.

Despite repeated representations to former governments to ensure protection of the lake and plans to build a park around it, the municipal bodies allowed land grabbers to kill the water body.

In 2010, the state government had passed an order for a comprehensive inquiry into land allotments by IAS officer Navin Mittal for allegedly regularizing buildings in contravention of law. The land at Bathukammakuntla was said to have been sold at a price of ₹30 crore. However, this inquiry only remained on paper and no action was initiated.

The area also suffers from water-logging, a regular feature every monsoon and so far, the Greater Hyderabad Muncipal Corporation has not found a way to fix the problem.

The Times of India, Delhi dated October 02, 2014

AFP

HEAT IS ON: Pacific walrus that can't find sea ice for resting in Arctic waters are coming ashore in record numbers on a beach in northwest Alaska. An estimated 35,000 walruses were photographed on Saturday about 8 km north of Point Lay, according to the National Oceanic and Atmospheric Administration. Observers last week saw about 50 carcasses on the beach from animals that may have been killed in a stampede, and the agency was assembly a necropsy team to determine their cause of death. The gathering of walruses on shore is a phenomenon that has accompanied the loss of summer sea ice as the climate has warmed

The Times of India, Delhi dated October 02, 2014

New climate for Indo-US green talks

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New Delhi: Prime Minister Narendra Modi on Tuesday moved a step forward to accommodate US president Barack Obama's demand to discuss the contentious issue of hydro-fluorocarbons (HFCs) and find ways to phase down the climate-damaging refrigerant.

The meeting will be held soon to discuss "safety, cost and commercial access to new or alternative technologies to replace HFCs". India has resisted discussing the refrigerant despite forming a joint task-force for the issue.

That said, officials made it clear the discussion should not be interpreted as dilution of the country's stand. They said the discussion would assess effectiveness of available alternatives that may take care of domestic industry and consumers' interests.

"India will not phase down HFCs, used in fridges and air-conditioners, until it gets access to technologically feasible (safe) and economically viable (cost-effective) alternative", an official said categorically.

The Indo-US joint statement issued in Washington recognized the need to use institutions and expertise of the Montreal Protocol to reduce "consumption and production of HFCs" while continuing "to report and account for quantities reduced" under the UNFCCC which put the onus of phasing down the climate-damaging gases on rich nations. Since HFC is not an ozone-depleting substance, under the Montreal Protocol uniformly applied for all countries.

Coming on the heels of Modi's US trip, where India and US committed to ramp up measures to combat climate change, the decision was welcomed in the US. On the joint statement Durwood Zaelke, president of Institute for Governance and Sustainable Development, told TOI: "The phase down of HFCs is the biggest and most-secure climate mitigation available in the near-term. The announcement shows PM Modi and President Obama are moving forward to capture it".

The joint statement includes providing up to $1 billion in helping India's transition to a low-carbon and climate-resilient energy economy.

Deccan Chronicle, Hyderabad dated October 03, 2014

Monsoon affected by air pollution

London, Oct. 2: Emissions produced by human activity over the past 50 years have caused decline of the annual monsoon rainfall, on which billions of people — including in India — depend, a new study suggests.

In the second half of the 20th century, the levels of rain recorded during the Northern Hemisphere's summer monsoon fell by as much as 10 per cent.

Changes to global rainfall patterns can affect human health and agriculture, they said. Scientists said emissions of tiny air particles from man-made sources known as anthropogenic aerosols were the cause.

High levels of aerosols cause heat from the Sun to be reflected back into space, lowering temperatures on the Earth and reducing rainfall.

Levels of aerosol emissions have soared since the 1950s, with the most common sources being power stations and cars.

Researchers at the University of Edinburgh said their work provides clear evidence of human-induced rainfall change.

They calculated the average summer monsoon rainfall in the Northern Hemisphere between 1951 and 2005 and used computer-based climate models to quantify the impact of increasing aerosol emissions and greenhouse gases. They took account of natural factors such as volcanic eruptions and climate variability to gauge the impact of human activity on the amount of monsoon rainfall. —*PTI*

The Times of India, Delhi dated October 03, 2014

'Indian Ocean heating up, to hit monsoon'

Fastest Warming Tropical Water Body: Study

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Pune: A recent study says the Indian Ocean has been warming consistently for over a century and at a faster rate than any other region of tropical oceans — and this may weaken the monsoon.

Mathew Koll Roxy, lead author of the research and senior scientist at the Centre for Climate Change Research at IITM, told **TOI** this is the first time scientists have discovered warming of this rate and magnitude over the Indian Ocean. "Earlier analysis were for shorter periods (e.g. past 50 years), while our current analysis is with multiple datasets for the past 112 years," he said.

CLIMATE THREAT: The study by scientists from Pune's Indian Institute of Tropical Meteorology (IITM), Sorbonne University in Paris and Pune's Fergusson College found the warming of the Indian Ocean has been a major contributor to the total global sea surface warming

The study by scientists from Pune's Indian Institute of Tropical Meteorology (IITM), Sorbonne University in Paris and Pune's Fergusson College found the warming of the Indian Ocean has been a major contributor to the total global sea surface warming, which may have long-term effects on the climate such as weakening the southwest monsoon and being detrimental to marine biodiversity.

Global ocean surface warming has long-term effects on the climate since it persists for a longer time compared with land temperatures.

The study was recently published online by the Journal of Climate of the American Meteorological Society. It is part of an Indo-French collaboration carried out under the National Monsoon Mission set up by the ministry of earth sciences. Ritika Kapoor, Pascal Terray and Sébastien Masson are the study's co-authors.

Roxy said among the major oceans, Indian Ocean is the smallest but also the warmest. Hence it plays a critical role in regulating the climate and variability of the Asian monsoon, as well as the global climate. This research found warming over the Indian Ocean to be happening at a rate faster than any other region of the tropical oceans, and with a 'potential' to alter the strength and course of the monsoon.

Generally, the western Indian Ocean has cool surface waters, while the central-east Indian Ocean is a warm pool with sea surface temperature (SST) greater than 28 degrees C. "Earlier studies have shown that the warm pool has considerably warmed over the past half-century, though the reasons have remained elusive until now," said Roxy. "However, our research, which used extended data of sea surface temperature during 1901-2012, revealed that the relatively cool western Indian Ocean has been warming for more than a century, and has attained the warm pool SST values of 28 degrees C."

The Times of India, Delhi dated October 04, 2014

NCR board, UP on crash course over eroding greens

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New Delhi: The NCR Planning Board (NCRPB) and Uttar Pradesh government seem to be staring at a fresh face-off.

This time the issue is the alarming reduction in the area falling under Natural Conservation Zones (NCZs), which include forest, waterbodies and wasteland.

While the board has raised the issue of up to 44% decline in NCZs in the UP sub-region between 1999 and 2012, the government has now hit back asking why the NCRPB did not raise the issue if it was so concerned, while approving the state's sub-regional plan.

Sources said the state government has replied to the board with its objections and observations. "After we had submitted the first draft subregional plan, the board had made 85 observations. Once we responded and made modifications, these were reduced to 25.

Before finalizing the plan, the suggestions and observations came down to only four, which we complied with. They should have brought up the NCZ issue before the plan was finalized and notified," said a UP government official.

NCRPB sources said the decrease in NCZ was found after the latest satellite images were superimposed on the regional map that was notified in 2005.Out of the five districts in UP sub-region, Gautam Budh Nagar had the worst record with the reduction in NCZ area being 55%.

"All the member states were asked to give details of why they could not protect the areas falling under NCZ, which is crucial for sustainability of the entire region. It highlighted how protecting these areas has been a low priority for states," said an urban development ministry official.

He added that the states have been asked to delineate the recorded NCZs. Sources said that so far only Haryana has set up committees to prepare the details and delineate the areas.

A similar process has started in Delhi too, while there is no news of the Rajasthan government taking any step in this direction.

They added Haryana has no option since the sub-regional plan is still facing legal hurdles. NCRPB has already told the Punjab and Haryana high court that it had asked the state government to put the plan on hold until issues relating to green areas were addressed.

According to NCRPB records, between 1999 and 2012, the overall reduction in NCZs in Delhi was around 15.43%.

The Times of India, Delhi dated October 04, 2014

DERC sets rules for users supplying green power

System To Feed At Least 20% Of Transformer Capacity

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New Delhi: Power regulator DERC has formulated guidelines for the minimum transformer-level capacity that must be offered by consumers for connectivity to the renewable energy system and other procedural requirements. This comes a month after Delhi electricity Regulatory Commission started the process for letting power consumers become generators of renewable energy. The commission also declared tariffs for solar power generation which will be the average power purchase costs for the whole year.

Not less than 20% of the rated capacity should be offered so that the discom can connect the renewable energy system for net metering by the respective distribution transformer. This means that the transformer must have at least 20% connectivity. The commission said it would assess the DT level capacity through an independent agency to protect the consumers' interest. "Solar power connectivity will be decided on the basis of the transformer's capacity," said an official.

The solar tariffs will be the average cost of power for the whole year that is procured from several sources, including thermal and gas. For FY

APPLY TO DISCOM FOR CREDITS

2014-15, the tariffs will be Rs 4.75-Rs 5 per unit. 'The average power purchase costs are always declared at the beginning of the financial year and then trued up towards the year-end," said chairman P D Sudhakar. Chances of consumers Delhi selling solar power to the grid, are not that high as solar generation will be possible only during very sunny days. "Most renewable energy generators will use the solar power for their own consumption. If they still export any power to the grid, the discom will pay the consumer on the basis of the tariff set as the annual average cost of power. The consumer will get due energy credits in their next power bill. At the end of the financial year, any pending energy credits will be paid to the consumer," added Sudhakar.

With the final set of guidelines issued, consumers can now begin to become renewable energy generators. "The connectivity shall be provided on a first-come-first-served basis subject to a feasibility analysis, including operational and capacity constraints. For initial application, a fee of Rs 500 has been prescribed," say the new guidelines. The net metering regulations outline how people can generate renewable energy on their premises and then reduce their electricity bills through the amount of power they supply to the grid. DERC officials said the idea was to make consumers independent power producers. "With this, consumers can set up their own solar panels and either supply directly to the grid or use it partially. Whatever you supply to the grid, you can draw back whenever you need it." How much power a person supplies and draws back from the grid will be metered. If they draw more than they supply, the difference will be billed. If they draw less, they will be given energy credits in the next billing cycle. To become generator, you will have to apply to your area's discom. The discom will allow the connection after analysing the transformer capacity.

The Times of India, Delhi dated October 05, 2014

More eco-friendly visarjans, but pollution up

TIMES NEWS NETWORK

Photos: Prem Bisht & Sanjay Chauhan

New Delhi/Noida: It's a sign of the changing times. After Chittaranjan Park in the capital, a Greater Noida puja decided to go green by immersing its Durga idol in an artificial pond instead of the river. In CR Park, two puja samitis carried out immersion on-site while several other committees used environment-friendly material for their pandals and idols.

Despite this, and efforts by the local administration to restrict pollution in the Yamuna by setting up temporary enclosures at the ghats, a lot of immersed material found its way into the main channel. Lack of water in the river made matters worse and in the absence of a proper flow, puja material immersed on Saturday stagnated there. Enclosures created by the flood control and irrigation department did little

GOING GREEN: A Greater Noida puja immersed its Durga idol in an artificial pond instead of the river. Two samitis in CR Park also did the same

to contain the material since people threw plastic packets across them into the river.

Thousands of idols and tonnes of puja material were immersed in the Yamuna on Saturday. While all the material might not be toxic, the Yamuna resembled a sheet of black water layered with piles of waste. Groups of men and boys from nearby JJ clusters checked further spread of the puja material by diving into the river to retrieve idols that strayed into the main channel for their bamboo and wood frames. "Some of us use the wood and *baans* to light fires in winter while some others use them for strengthening their huts. We come here every year for this," said Bhole Lal, a resident of the Pushta.

Puja committees that carried out immersion in tanks close to their pandals said they made the decision to stop pollution that happens in the name of religion. Abhijit Sen, general secretary of Greater Noida Kalibari Society (GNKS), said: "We've dug a 16ft-wide, 24ft-long and 6ft-deep pit within the mandir compound for immersing the idol." The pit will be filled up with mud and bricks.

"We will wait for a couple of days for the idol to disintegrate in the water and then take out its wooden cast and fill the pit with mud. Till then, the pit will remain barricaded with bamboo, and guards will keep a watch so that children and other residents do not fall into it," said Sekhar Sengupta, president of GNKS.

Dakshinpalli Durga Puja Samiti in CR Park's Pocket 52 started on-site immersion last year. "We will wait for the idol to disintegrate and then use the water to irrigate nearby parks and gardens," he said. The B-Block puja committee also built an underground tank for immersion this time.

The Economic Times, Delhi dated October 06, 2014

Alternatives to Hydroflurocarbons Remain Up in the Air

Lack of economically viable option to HFCs proving to be a roadblock in efforts to reduce their usage

No Breakthrough

HFCs are gases in air-conditioners and refrigerators that have global warming potential

The joint statement by Narendra Modi and Barack Obama reiterates the decision taken in September last

Experts say the share of HFCs of greenhouse gas emissions could rise to 3% from 1% now by 2030

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New Delhi: The decision by India and the US to work together on cutting the use of hydroflurocarbons (HFCs), gases in air-conditioners and refrigerators that have global warming potential, doesn't signal a major breakthrough. However, the symbolic value for both countries is immense – it allows the US to claim leadership role in the global effort to tackle climate change by grabbing low-hanging fruit and presents India an opportunity to shed its obstructionist image in international fora.

The joint statement issued by Prime Minister Narendra Modi and President Barack Obama reiterates the decision taken in September last year. Both leaders once again "recognised" the need to "use the institutions and expertise of the Montreal Protocol to reduce consumption and production of HFCs, while continuing to report and account for the quantities reduced under the UN Framework Convention on Climate Change."

HFCs account for 1% of greenhouse gas emissions, according to UN estimates

The Montreal Protocol is the UN-sponsored agreement concerned with protecting ozone layer, under which the consumption and production of chlorofluorocarbons was phased out and substituted by HFCs.

The pledge to "urgently arrange" a meeting of the joint India-US task force on HFCs before the next meeting of the Montreal Protocol scheduled in November may be viewed by some as a move forward. However, the issues — safety, cost and commercial access to new or alternative technologies to replace HFCs — remain unresolved.

"Accounting isn't the main issue. The real concern is that there is no proven and economically viable alternative that is available. We have held three or four meetings with industry representatives and they raise the issue of viable alternatives," a senior official told ET.

Following the meeting of the joint task force, "the two sides would thereafter cooperate on next steps to tackle the challenge posed by HFCs to global warming." "There are no timelines for the follow-up action, much like the decision between Obama and Chinese President Xi Jinping in June last year.

The Modi-Obama statement reflects a renewed commitment to an existing understanding to work together to reduce the production and consumption of HFCs and to identify viable alternatives. The US has taken the lead to forge a consensus to allow for discussions on phasing out of HFCs under the Montreal Protocol.

The real value of the effort may be limited. HFCs account for about 1% of greenhouse gas emissions, according to UN estimates. Experts say the share could rise to 3% by 2030 and the United Nations Environment Programme estimates HFC emissions at 7% to 19% of carbon dioxide emissions in 2050.

For Washington, India's decision helps buttress the Obama administration's green credentials and addresses a domestic constituency that see countries such as India and China getting a free pass on tackling climate change. For New Delhi, it is a clear signal that it is unwilling to be the last man standing on phasing out HFCs and that it is mindful of the need to take efforts, even in small measures.

The Times of India, Delhi dated October 07, 2014

World goes green with bio cremations

After US & Canada, Europe Set To Okay Chemical Hydrolysis For Disposal Of Bodies

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London: Bio cremations — a practice that ensures that the human body is turned into a liquid and not ashes — is all set to be legalized in parts of Europe. At present, the only legal way to cremate the dead in the continent is to exhume the body or bury it.

Belgium and the Netherlands are contemplating allowing the mass use of bio cremations which has been legalized recently in the US and Canada.

The process is also known as chemical hydrolysis — an environmentally-friendly alternative to present day trend of the disposal of bodies. The technology replaces the use of flame with the utilization of water, blended with an alkali solution of potassium hydroxide (KOH).

The process uses 95% water and 5% alkali instead of direct flame and fossil fuels to cremate human remains.

The body is placed in a stainless steel cremation chamber where water, an alkali additive, heat and pressure are added. The body is reduced to bone fragments and a sterile solution that is recycled to the earth.

The average adult body takes approximately 2-3 hrs to complete a bio-cremation. Upon completion of the cremation cycle, bones are dried and processed to a powdery substance which is then placed in an urn and given back to family.

FINAL GOODBYE: Bio cremation, which involves the human body being turned into a liquid rather than ashes, is an environment-friendly option as it releases less carbon dioxide into the atmosphere

Bio cremation is an environmentally friendly option as it uses less energy and releases less carbon dioxide into the atmosphere. It also uses eight times less energy than traditional flame based cremation.

The practice is being pushed by the Flemish funeral sector in Belgium while the Dutch parliament too is discussing the possibility of making it legal.

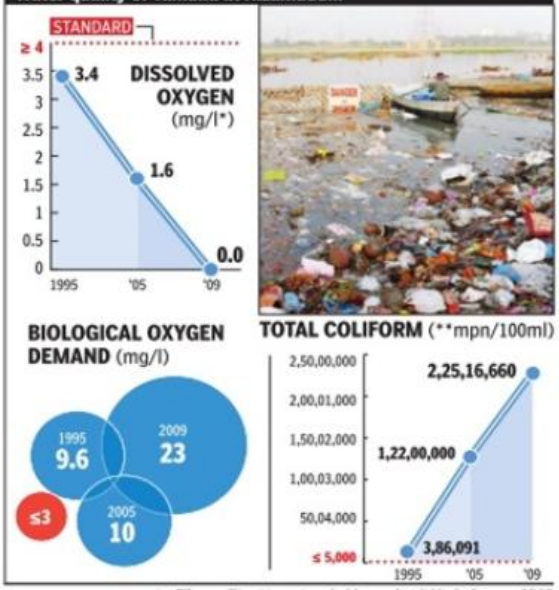
In 2011, a Florida funeral home became the first in the world to perform a bio cremation and since then, over 3,000 people in the United States have chosen the procedure.

The decision will soon be taken by the European Council.

The Times of India, Delhi dated October 08, 2014

THREAT TO ECOSYSTEM

Water quality of Yamuna at Nizamuddin



* milligram/litre ** most probable number/100ml ; Source: CPCB

'Action plan fails to clean Yamuna'

TIMES NEWS NETWORK

New Delhi: A study by The Energy and Resources Institute (Teri) has found that Yamuna needs approximately 3.46 billion litres per day (BLD) of fresh flow of water to be able to sustain aquatic life and support day-to-day activities of people living on its banks. The figure is almost equivalent to the amount of drinking water the city needs everyday. However, not even a fraction of that is being added to the Delhi stretch of the river now. Teri researchers say there is no data on addition of water fresh water as most of it is sewage.

TERI ANALYSIS

The study that assessed data from various monitoring agencies for the past 10 years also suggested that the Yamuna Action Plans (YAP) may have failed to improve water quality but it has not deteriorated drastically either after its implementation.

The study was presented at a conference on "Cleaning of Indian Rivers" organized by Teri on Tuesday. Teri researchers claimed that YAP I and II, which had been implemented at the cost of hundreds of crores may not be a complete failure. "We have found in the data for 10 years that water quality has been very poor but stable. It could have become worse if there was no YAP," said Deepshikha Sharma, researcher from Teri University.

The 10-year data was also used to assess what kind of solutions would help in reducing pollution levels. The research team formulated four scenarios—business as usual (BAU) where no special intervention is made and the water treatment plan goes as per master plan 2021 with interceptor sewers and 100% capacity efficiency of STPs; scenario 2 considers that all STPs are upgraded with advance tertiary treatment options; scenario 3 considers that all the 13 drains on the right bank of the river are diverted into Agra canal, and scenario 4 considers recycling and reuse options, along with scenario 3.

Researchers found that the best option seemed to be scenario 4 where drains are diverted and there is treatment and reuse of sewage water at the same time. The research team has also made recommendations to upgrade water quality—they suggest increasing flow by impounding the river to use water stored during monsoon and releasing it during the dry season, artificial aeration for the stream, its tributaries, open drains, use of treated waste water for irrigation, horticulture and industrial needs. .

The Times of India, Delhi dated October 09, 2014

Pollution watchdog to keep an eye on factories online

New System To Reduce Human Intervention

Using an analogy of a childbirth in which the mother's life could be at stake, the minister said she would, at the first place, like both the mother (Ganga) and child (industry) to survive. But, if she has to choose between the two, she would choose "maa". "If the child starts sucking mother's blood, I would prefer the mother to survive," said Bharati even as representatives of these units voluntarily turned up to hold consultations for finding a solution.

Javadekar and many experts, including Vinod Tare, coordinator of an IIT consortium that is preparing the Ganga River Basin Management Plan and R K Pachauri, director general of Teri and chairman of the UN's IPCC, attended the consultations and pitched for quick action to save the river.

The idea of setting up sensor-based online monitoring system is to reduce human intervention and bring transparency in the process of monitoring which has, so far, failed to stop discharge of untreated industrial waste into rivers across the country.

Under the new system, the industries are required to install "continuous effluent and emission monitoring devices" at their discharge outlets. The devices would be linked online with State Pollution Control Boards (SPCBs) offices and with the Central Pollution Control Board (CPCB). It will allow the central pollution watchdog to monitor the discharges on real-time basis.

The dialogue on Wednesday involved specific consultation with Grossly Polluting Industries (GPIs) located in five states — Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal. The discussions involved presentations from the CCPB on the regulatory framework and from the leading industrial associations regarding actions taken and challenges faced in order to abate the pollution generated during the industrial processes.

PTI

PITCHING IN: Industrialist Anil Ambani cleans a road near Churchgate, Mumbai, on Wednesday as part of the PM's Swachh Bharat drive. The Reliance Group chairman invited nine other celebrities, including Big B and Mary Kom, to join the initiative

Times View

The minister's tough stance on severely polluting industries along the Ganga is indeed welcome. She should however not restrict it to this river alone. The vast majority of India's rivers and water bodies face appalling levels of pollution and action on them cannot be taken sequentially. It must be done simultaneously. The message must go out clearly to all polluters – clean up or shut down. The environment ministry must also buttress this with a similarly uncompromising stance on all forms of pollution.

The Economic Times, Delhi dated October 09, 2014

Centre May Revive PM's Council on Climate Change

There is renewed focus on taking domestic measures to adapt and reduce impact of climate change

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New Delhi: With the adverse impacts of climate change becoming more evident and the recent spate of extreme weather events, Prime Minister Narendra Modi is actively considering reviving the high level advisory panel to coordinate national efforts to assess, adapt to and counter the impact of climate change.

The PM's Council on Climate Change constituted by the UPA government in 2007 last met in February 2011 and limited itself to assessing the eight missions that comprised National Action Plan on Climate Change (NAPCC).

There has been little action on the ground in most of these core missions, the most successful of which was the one focused on energy efficiency while the solar mission also registered modest successes. "Part of the reason for the slow movement was a lack of proper coordination, delayed availability of funds, especially for programmes which were not in the regular mould of government schemes," a member of the erstwhile council said. Unlike the Prime Minister's Council in the UPA regime, the new council is expected to go beyond the missions under the NAPCC, a person familiar with the matter said.

With the impact of climate change becoming more evident, and robust projections by scientists, particularly the Intergovernmental Panel on Climate Change on the adverse impact on food production, water availability and other key developmental issues, there is a renewed focus on taking domestic measures to both adapt to and reduce the impact of climate change. The decision comes at a crucial time in the international climate change negotiations as well.

Countries have agreed to put in place a new global compact by December 2015 in Paris to address climate change and limit its impact. As part of this effort, each country is expected to put forward efforts and actions to tackle climate change or in climate negotiation parlance "intended nationally determined contributions".

The PM's Council is not focused primarily on international negotiations but on advising on efforts to address climate change and its deliberations will feed into India's stance in the negotiations. The council is expected to include a fair representation from industry, in contrast to the previous council in which then Tata Group chairman Ratan Tata was the sole representative from industry and was included in his capacity as chairman of the Investment Commission of India.

"Industry is a key stakeholder in addressing climate change. Consider the effort to increase the share of renewable energy and introduce energy efficiency in manufacturing processes, buildings and appliances, and keeping out industry doesn't make sense for an advisory body," said an official.

The ministry of environment, forests and climate change, which is the nodal ministry for the issue, has already given its suggestions on the members. The ministries implementing the eight missions comprising the NAPCC have also given their suggestions on inclusion of experts in the panel, a senior official said, adding the Prime Minister's Office is likely to take the final call on the members of the reconstituted council soon.

Among the names doing the rounds for inclusion in the panel are that of Jayant Mauskar, former co-chairperson of the UNFCCC's Adhoc Working Group on the Durban Platform, and former special secretary in the ministry of environment; former environment secretary Prodipto Ghosh and currently a distinguished fellow at Teri.

The Times of India, Delhi dated October 10, 2014

Hudhud to hit city air quality

Air Currents From Coast To Dump Pollutants Over Plains

TIMES NEWS NETWORK

New Delhi: The Hudhud cyclone that's likely to hit the Coromandel coast on Sunday will have a serious effect on Delhi's air quality. The models prepared by System of Air Quality Weather Forecasting and Research (SAFAR) at Indian Institute of Tropical Meteorology show levels of carbon monoxide, ozone and particulate matter rising steeply Friday evening onwards. Meteorologists at SAFAR say Delhites should brace up for very poor air quality, especially if there is no rainfall in Delhi.

Scientists at Delhi Pollution Control Committee air quality lab also confirmed that levels of certain pollutants are set to rise. According to SAFAR's model, CO levels will rise from the current 1.2 parts per million to about 3 PPM over the weekend. The threshold for CO is 1.7 PPM, according to SAFAR. Ground level ozone is associated with serious health problems such as breathing difficulty and reduced lung function. Ozone levels are likely to increase from the present level of 40 parts per billion (PPB) to 63 PPB. The threshold for ground-level ozone is 50 PPB.

The particulate matter (PM 2.5 and PM 10) concentration is likely to increase by 60% to 70%. PM2.5 (fine respirable particles) levels may reach about 180-200 micrograms per cubic metre when the standard is only 60 micrograms per cubic metre. PM10 (coarse particles) levels are likely to be about 260 to 270 micrograms per cubic metre.

"The air from the coastal region will sweep out the air rich in pollutants and dump it on the Indo-Gangetic plains which will affect Delhi, too. The effect from this will also dissipate quickly. But for two days air quality will be very poor. If it rains then PM levels may get better but CO and ozone levels will be high," said Gufran Beig, chief project scientist, SAFAR. The Indian Meteorological Department forecasts a clear sky on Saturday but for Sunday there are chances of thunderstorm and gusty winds.

The worst air quality is likely to be faced by other parts of Indo-Gangetic plains like Uttar Pradesh and Punjab. DPCC is also gearing up for an awareness drive up to keep air pollution in check during Diwali.

TOI file photo

CALM BEFORE STORM: Country boats tethered to the shore at Jalaripeta in Andhra Pradesh ahead of the impending cyclone

Models showed levels of carbon monoxide, ozone and particulate matter rising steeply from Friday evening. If it rains then PM levels may get better, said the expert

Deccan Chronicle, Hyderabad dated October 13, 2014

CENTRE | STRENGTH ■ **Satellite measures gravity shift that happened during ice melt**

Antarctica ice loss shifts earth's gravity

London, Oct. 12: Antarctica has lost so much ice that it has caused a shift in Earth's gravity, according to a new study.

The European Space Agency's GOCE satellite has shown that the ice lost from West Antarctica over the last few years has left its signature. "The loss of ice from West Antarctica between 2009 and 2012 caused a dip in the gravity field over the region," ESA said in a statement.

More than doubling its planned life in orbit, GOCE spent four years measuring Earth's gravity in unprecedented detail.

Scientists are armed with the most accurate gravity model ever produced. This is leading to a much better understanding of facets of our planet - from the boundary between Earth's crust and upper mantle to the density of the upper atmosphere.

The strength of gravity at surface varies from place to place owing to factors such as the planet's rotation and the position of mountains and ocean trenches.

Changes in the mass of large ice sheets can also cause small local variations in gravity. High-resolution measurements from GOCE over Antarctica between November 2009 and June 2012 were analysed by scientists from the German Geodetic Research Institute, Delft University of Technology, the Netherlands, the Jet Propulsion Lab in US and the Technical University of Munich in Germany.

They found that decrease in mass of ice during the period was mirrored in GOCE's measurements, even though the mission was not designed to detect changes over time. GOCE data could be used to help validate satellite altimetry measurements for an even clearer understanding of ice-sheet and sea-level change, ESA said. —*PTI*

Gravitational shifts

- Strength of gravity at surface varies from place to place owing to factors such as the planet's rotation and the position of mountains and ocean trenches.
- Changes in mass of ice sheets cause small gravity variations. GOCE data could be used to help validate satellite altimetry measurements for understanding of ice-sheet change.

The Times of India, Delhi dated October 13, 2014

Soon, gadgets that dissolve fully in water

Washington: A new generation of electronic devices that dissolve completely in water, leaving behind only harmless end products may soon become a reality.

Pioneering research at the University of Illinois at Urbana-Champaign may bring in devices that range from green consumer electronics to biomedical sensor systems that do their work and then disappear.

John A Rogers' research group at the Department of Materials Science and Engineering Frederick Seitz Materials Research Laboratory is leading the development of such concepts, along with all of the required materials, device designs and fabrication techniques for applications that lie beyond the scope of semiconductor technologies that are available today.

"Our most recent combined developments in devices that address real challenges in clinical medicine and in advanced, high volume manufacturing strategies suggest a promising future for this new class of technology," said Rogers.

Practical applications might include: bioresorbable devices that reduce infection at a surgical site. Other examples are temporary implantable systems, such as electrical brain monitors to aid rehabilitation from traumatic injuries or electrical simulators to accelerate bone growth.

Additional classes of devices can even be used for programmed drug delivery, Rogers said.

Research at the University of Illinois at Urbana-Champaign are designing devices that range from green consumer electronics to biomedical sensor systems that do their work and then disappear

The devices would provide robust, reliable, high performance operation, but only for a finite period of time dictated, for example, by the healing process - they would not only be biologically compatible, but also biologically punctual, performing when and as the body needs them.

After their function has been fulfilled, they would disappear through resorption into the body, thereby eliminating unnecessary device load, without the need for additional surgical operations.

The research will be presented at the AVS International Symposium & Exhibition next month in Baltimore. PTI

The Times of India, Delhi dated October 15, 2014

E-waste dismantlers flout pollution, safety norms

Agencies 'Clueless' About Units in Seelampur, Other Areas

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New Delhi: Tonnes of electronic waste being dismantled in Seelampur on a daily basis not only pollute the environment but also create a serious health risk for workers and other people in the vicinity, say green activists. A visit to the area makes it obvious that the e-waste management rules are far from being implemented here as dismantlers neither use any safety gear nor follow pollution norms.

Worse, pollution control agencies have no clue about the goings-on in Seelampur and other areas in the city. "There is no e-waste dismantling or recycling unit in Delhi as per our records," said an official of the Delhi Pollution Control Committee (DPCC), which is supposed to monitor such activities in the capital. He said these could be illegal units. "The Central Pollution Control Board (CPCB) may be doing something about them," he added.

CPCB officials, on the other hand, put the blame on DPCC. "We are not monitoring them. It's the state pollution agency that's supposed to control them," said a CPCB official when asked about e-waste dismantling hubs such as Seelampur, Shashtri Park and Mustafabad.

Truckloads of e-waste —mostly discarded desktop computers and TV sets are brought to Seelampur for dismantling every day where circuit boards are acid-washed or heated on electric stoves or with blowtorches after which recyclable metal components are retrieved. In the process, fumes from heavy metals and acids result in environmental pollution, which also have serious health implications for workers.

Experts say dismantling of e-waste is a thriving market with turnovers in crores. It generates employment for many but the profits go to the middlemen. "From what we understand, most of the money from this business is earned by the middlemen who source the waste from different agencies and sell the recovered valuables. The workers who dismantle the electronic goods are exposed to lead, cadmium, mercury and acid fumes making them vulnerable to severe health impacts. We also suspect that waste from the dismantling process is being thrown into nearby drains, which flow into Yamuna or Hindon," said Piyush Mohapatra of Toxics Link, an environmental NGO.

When **TOI** visited the units near Seelampur's Kanti Nagar, dismantlers were reluctant to share any details about their trade. Some said Seelampur was one of the biggest recycling hubs in the country. "We get waste from Chennai, Mumbai, and Bangalore everyday. We buy each monitor for Rs 800 and then the components are sold at different rates. Not many of us use acid here, they are acid-washed in Mustafabad," said a dismantler who had just received a truckload consignment from Bangalore. There were sacks of retrieved copper wires and PVC monitors that were being sold by middlemen who sat with calculators as buyers gathered at each unit to buy discarded compact fluorescent lamps (CFLs), cathode ray tubes (CRT) of TV sets and dismantled circuit boards. The waste from the process is often thrown into a nearby stormwater drain.

Vinod Kumar Sharma of Toxics Link claimed that a large chunk of e-waste had been coming to India from the West. "Usually these imports are listed as donations or items for reuse. But they eventually land up in places such as Seelampur," he said. Researchers at Toxics Link attribute this to cheaper recycling options available in India compared to regulated units in those countries. The issue assumes significance as the National Green Tribunal has recently sought response from the Centre on a plea alleging rampant violation of E-waste Management Rules 2011. Toxics Link, in its petition, had alleged that tonnes of second-hand or used goods were being dumped in India leading to pile up of e-wastes.

The Times of India, Delhi dated October 16, 2014

5 Indian cos in global A list of green firms

Have Shown Leadership In Reducing Carbon Emissions, Reveals Climate Report

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New Delhi: At a time when the government is exploring various options to move on to a low-carbon growth path, five Indian companies have made it to the global list of firms that have shown leadership in adopting measures to cut their climate-damaging emissions.

The list reveals which companies around the world are doing the most to combat climate change. It has 187 companies from across the globe that illustrate how a low-carbon model does not mean low profit.

Most of the companies performing better in terms of their efforts to combat climate change are located in Europe, followed by the US and Japan.

The Indian companies that made it to the list of CDP Climate Performance Leadership Index 2014 are: Essar Oil, Larsen & Toubro, Tech Mahindra, Tata Consultancy Services and Wipro.

This new global index has been prepared by the CDP — an international not-for-profit organization — at the behest of 767 investors who represent more than a third of the world's invested capital. The CDP (formerly Carbon Disclosure Project) is the only global system for companies and cities to measure, disclose, manage and share vital environmental information.

COMPANIES AGAINST CLIMATE CHANGE

1. The global leadership **Index** reveals which **companies around the world are doing the most** to **combat climate change**
2. Report reveals that **energy efficiency** is the key means by which companies are acting on climate change
3. Report analyses **responses towards climate change** from **top 200 Indian companies** by market capitalization
4. The global 2014 Climate Performance Leadership index **has 187 companies**

Indian companies which made it to the list:

- Essar Oil
- Larsen & Toubro
- Tata Consultancy Services
- Tech Mahindra
- Wipro

Among global majors which made the cut are:

- Apple Inc (USA)
- BMW AG (Germany)
- Fiat (Italy)
- Cap Gemini (France)
- Google Inc (USA)
- Hewlett-Packard (USA)
- LG Electronics (South Korea)
- Microsoft Corporation (USA)
- Samsung Electronics (South Korea)
- Volkswagen AG (Germany)

"Awarded an 'A' grade for their performance, they (the companies in the list) earn a position on the first global ranking of corporate efforts to mitigate climate change", said the organization in a statement while releasing the report on Wednesday.

It said, "Collectively the climate performance leaders have reduced their total (absolute) emissions by 33 million metric tons in the past reporting year, equivalent to turning London's car owners into cyclists for two-and-a-half years".

"The businesses that have made it onto our first ever global list of climate performance leaders are to be congratulated for their progress; they debunk economic arguments against reducing emissions. However, global emissions continue to rise at an alarming rate. Businesses and governments must raise their climate ambition," CDP's CEO Paul Simpson said.

The India 2014 report titled 'Indian companies decouple business growth from carbon emissions' reveals energy efficiency is the key means by which companies are acting on climate change. "Over 60% of surveyed companies are introducing process energy efficiency initiatives, consequently, 21% have reduced their absolute emissions and an additional 26% have reduced their emissions intensity while driving business growth and profitability", the report said.

The report that analyzed the responses from the top 200 Indian companies by market capitalization found they are now better at identifying and prioritizing the climate change issues they want to actively manage.

The occasion also saw release of the CDP India 200 Climate Change Report 2014, showing how the Indian firms are using their increased commitment to climate change action to drive innovative sustainable businesses processes. Indian firms expressed their eagerness to engage with the government to keep abreast with regulatory changes. This will ensure they can take precautions and proactively maintain their competitive advantage and brand image, it said.

The Times of India, Delhi dated October 17, 2014

Deccan Chronicle, Hyderabad dated October 16, 2014

Pollution spike to hit city most

■ Among metros, Hyderabad also has a better chance of clean up

DC CORRESPONDENT
HYDERABAD, OCT. 15

Compared to other metros, Hyderabad faces the threat of witnessing the highest mortality due to increase in pollution.

Studies show that Hyderabad would record most deaths among other cities with a similar quantum of increase in pollution. However, researchers say that this is also an encouraging sign signaling that the city has not reached the threshold of pollution.

Research carried out by experts at IIM Ahmedabad has shown that a 10 microgram increase of 10 micron particulate matter (PM10) would result in an increase in mortality rate by 0.85 per cent in Hyderabad, 0.22 per cent in Bengaluru, 0.20 per cent in Mumbai and 0.16 per cent in Ahmedabad.

Researchers say that as the pollution in Hyderabad increases, the risk and associated mortality rate will increase at a faster pace than in other cities. The study on Atmosphere Environment was published by Dr Amit Garg, Dr Dhiman Bhadra and Dr Hem Dholakia.

Experts found that the mortality rate for a smaller city like Shimla was even higher than that in Hyderabad. "As the levels of pollution increase, the associated mortality rate also increases with higher pollution causing higher number of deaths. But it is not equal among all cities," Dr Hem Dholakia, Research Fellow at the Public Systems Group, IIM-A, explained.

But this also means that the level of pollution is considerably lower in Hyderabad than Bengaluru or Mumbai and chances of cleaning it up are better. "When pollution levels reach a certain threshold level, any further increase doesn't result in an increase in mortality rate. It just becomes a constant from there on. And when pollution levels are lower, a small increase results in higher mortality rate. It is a good sign for Hyderabad," Dr Dholakia explained.

This means while other cities like Bengaluru and Mumbai might have reached their thresholds, Hyderabad still has a chance to clean up.

TREADING DANGER

RESEARCH AT IIM AHMEDABAD SHOWS THAT A 10 MICROGRAM INCREASE OF 10 MICRON PARTICULATE MATTER WILL RESULTS IN AN INCREASE IN MORTALITY RATE BY 0.85 PER CENT IN HYDERABAD.

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- While cities like Bengaluru and Mumbai might have reached their thresholds, Hyderabad still has a chance to clean up.

UP sugar mill polluting Ganga fined ₹5 crore

Toxic industrial wastes are said to be affecting the Gangetic marine life

TIMES NEWS NETWORK

New Delhi: The National Green Tribunal (NGT) has cracked the whip on industries that have been polluting Ganga. It has imposed a Rs 5 crore fine on Simbhaoli sugar mill and distillery unit and a fine of Rs 25 lakh on Gopalji dairy in Ghaziabad. It was hearing an appeal that alleged that the industries were discharging toxic effluents in Phuldehra drain which falls into Ganga through the Syana canal.

The application had also alleged that toxic wastes were affecting dolphins, turtles and other riparian species.

"There is ample documentary evidence to show that Simbhaoli Mills has not only been a source of continuous pollution but also failed to take precautions of its own accord. Thus, it has endorsed itself to incurring a liability for compensation for causing damage and for restitution of environment in the concerned areas," the order said.

The Tribunal slapped a fine of Rs 5 crores on Simbhaoli Mills and ordered that this sum shall be used for removal of pollutants and prevention of ground water pollution.

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

Vedire is adviser for Ganga rejuvenation

Software engineer-turned politician and national convenor of BJP's water management cell Shriram Vedire has been appointed as adviser to the ministry of water resources, river development and Ganga rejuvenation. The appointment was made on Thursday when the government brought in senior IAS officer of Uttar Pradesh cadre Anuj Kumar Bishnoi as the new secretary in the ministry. TNN

The Economic Times, Delhi dated October 18, 2014

PURITY INDEX Will be formalised later this year and rolled out early next year

Air Quality Index Launched

Our Bureau

New Delhi: India has launched a National Air Quality Index to provide a simple, composite and easy to understand measure of air quality.The index has been conceived of as a tool that is simple for people to understand and allows for easy dissemination of information about air quality and associated health risks.

Over the next 45 days, stakeholders will be able to examine the draft index and send in their comments. The index will be formalised later this year and rolled out early next year.Environment Minister Prakash Javadekar, who launched the index, said it would no longer be "business as usual" and that improving air quality was part of the Swachh Bharat Abhiyan, a cleanliness drive launched by Prime Minister Narendra Modi on October 2. "In future, we will act differently, we will succeed and we will take people along," Javadekar said. The index will measure the eight major pollutants that impact health—particulate matter (PM 10 and PM2.5), nitrogen dioxide, sulphur dioxide, ozone, carbon monoxide, ammonia and lead. At present, only the first three are measured. As such, in increasing tbasket of pollutants being measured, India has taken a big step.

"These are baby steps, and some tightening will be required, but it is still a good step as for the first time there is clear cut accounting of pollutants," said Parthaa Bosu, India director of Clear Air Asia. Over the next five years, 46 cities with population of over a million and 20 state capitals will generate this index based on real-time monitoring and disseminate information on associated health risks through a colour-coded easy to identify format. Each colour will indicate a level of the index—there are six levels–good, satisfactory, moderately polluted, poor, very poor, and severe.

At present, 246 cities in India have some form of air quality monitoring, but only 16 cities have real-time monitoring. This index is set to change this situation. The plan is to extend the system to cities with populations of more than half a million.

> Tool will measure the eight major pollutants that impact health

"The objective of the index is to quickly disseminate air quality information almost in real-time that entails the system to account for pollutants, which have short-term impacts," an official of the Central Pollution Control Board said.

While the tool has value for public dissemination, the continuous and online measuring of pollutants, that the index entails, will help administrators to assess priorities and allow for better assessment of impact of alternative air pollution strategies. "The index is meant to alert us, but it has to also drive us to action," said Ashok Lavasa, secretary of the ministry of environment, forest and climate change. .Aunomita Roy Choudhary, executive director at Delhi-based Centre for Science and Environment, who is a member of the expert panel hopes once the information about air quality becomes easy to access for people, it will mean that there will be pressure on administrations to take measures to address the issue of air pollution.

Deccan Chronicle, Hyderabad dated October 18, 2014

Sans green cover, Vizag to be hotter

DC CORRESPONDENT
VISAKHAPATNAM, OCT. 17

Tree challenge

On the lines of Ice Bucket Challenge, Vizagites have started 'Plant a Tree' challenge. Social media is already abuzz with it. According to the rules, one has to plant a tree and upload the picture and challenge someone else to do the same.

As the Cyclone Hudhud has damaged almost every single tree in the city, the Vizagites have to prepare themselves for a warmer city this time.

A drive along any of the city roads will make one realise how the city has been robbed of its green cover.

"One tree is equal to four air conditioners. Now, imagine the situation of the city and how badly Vizag will suffer due to such damage of trees in and around the city, While many trees were completely uprooted, some trees have been mutilated to such an extent that it will take at least five-six months for these to be regenerated. By then, the city will definitely be a hotter place," said Prof. E.U.B. Reddy, Environment Sciences department of Andhra University.

Prof. Reddy said that even if the mercury levels do not rise, the city folks will definitely feel the heat as 'urban heat island' has been created. Such heat islands, according to researches, have secondary effect on local meteorology like resulting in altering of wind patterns and increased humidity.

AP forest department has begun enumeration of tree loss and is also exploring the option of aerial seeding to improve tree cover.

AP forest department principal chief conservator A.V. Joseph said, it will take two to three days to complete the assessment.

The Economic Times, Delhi dated October 18, 2014

The Benthemplein Water Square, the underground parking and water storage at Museumpark and the Willem-Alexander Rowing Course are examples of a multifunctional approach to managing and storing excess water

How to Climate-proof Your City

The Dutch port city of Rotterdam worked on a system to adapt urban design with climate change, reports **Urmi A Goswami**

Water logged roads, endless traffic jams have become par for the course on rainy daysin cities across the world. In Indian cities, the growing volume of cars, burgeoning urban populations, and massive rise in built-up areas have only made rainy days a nightmare. Add to that the growing threat of extreme rainfall events, which are bound to increase in periodicity and intensity on account of climate change.

But with competing demands on space, local governments in cities like Delhi, Mumbai, Bangalore or Kolkata are finding it difficult to address this new problem. The port city of Rotterdam in The Netherlands provides interesting solutions to managing and storing excess water.

Rotterdam faces all these challenges and one more-it is six metres below sea level. Located in the delta of the Rhine and Meuse rivers, nearly 90% of the Dutch port city is below sea level. So it isn't just heavy rains that threaten Rotterdam, the rising sea level makes it imperative for the city to find ways to ensure that excess water keeps flowing out.

In 2008, the Rotterdam city administration took a decision to climate proof the city . "It was a paradigm shift, how to combine urban design with adapting to climate change," explained Arnoud Molenaar, manager of the city's climate initiative, Rotterdam Climate Proof.

Molenaar explained that in dealing with heavy and extreme rainfall that was becoming more common due to climate change, the city had to find a way to control the flooding. "We are a country that has always invested in keeping the water out, but sometimes that is not enough, it was necessary to find ways to manage the water." The trick that Rotterdam mayor Ahmed Aboutaleb realized was to show the city the opportunities that climate initiatives presented-hence the idea of an urban public space, underground parking and rowing track, all of which double up as water storage areas.

BENTHEMPLEIN WATER SQUARE

On a regular sunny day , Benthemplein looks like any other urban space-a colourfully done up open space. With its basketball hoops and amphitheatre like seating, the square doubles up as an open play space for the adjoining school or another spot where the school goers can hang out at break time. But Benthemplein is no ordinary public square.

On a rainy day when it seems that roads will be waterlogged, Benthemplein doubles up as rain water storage area. The sunk-in design, which allows for the amphitheatre like seating, helps transform the "square" into a water storage area.The two additional basins, which are located on either side of the main square fill up first. These have sloping edges which allow for the overflow from the steel gutters to be collected.The water remains in a temporary storage area before moving through the sewage and water pipes through the treatment units and finally into the nearest water body without overburdening the system. "The underground is so packed that there is no way to put in more pipes to deal with the excess water. So, we needed a system that would take the water off the streets and let it move slowly into the water canals," explained Arnoud Molenaar.

Designed by the Rotterdam-based architecture firm, DeUrbanisten, the Benthemplein water square can hold up to 1700 cubic metres of water. The square was built at a cost of 2.5 million euros, with a subsidy of 1.2 million euros from the European Commission.

UNDERGROUND PARKING AND WATER STORAGE AT MUSEUMPARK

There is more to this underground car park than meets the eye--it has an underground storage facility with a capacity to store 10,000 cubic metre. The e 10,000 cubic metre. The water is kept in this storage area and later pumped into the sew ers, and treated for re lease into water ca nals when the system is no longer under pressure.

> Apart from competing demands on space, the city has another challenge: it is six metres below sea level

The storage was built at a cost of 11 million euros, and uti lized a section of the underground parking that could not be used for cars, explained Bas de Wildt, advisor in the Rotterdam city's public works departments.

Besides relieving pressure on the sewage system, this storage system ensures that untreated sewage water is not released into the water canals during the rains. The city's water management system relies heavily on canals. "But when there is heavy rains, it is difficult to pump the rain water into the system fast enough," de Wildt explained. The underground system allowed for a way out to hold the excess water in an unobtrusive manner till it could be treated and released."

WILLEM-ALEXANDER BAAN ROWING COURSE

The Willem-Alexander Baan, located 20 minutes by road from Rotterdam, in the Eendragtspolder, is another example of multifunctional approach to water storage-an international rowing track which is really a 300 hectare water storage area.

Polder" refers to land reclaimed from the sea by building dykes.Traditionally these areas were used for farming or even habitations. The polder had drainage systems which would ensure a steady and guided flow of water into the sea and river. Rising population, increased need for drainage and the threat of climate change has meant that the traditional drainage channels were not sufficient.

Designed in co-operation with FISA and Royal Dutch Federation as an international rowing course--2,200 metre long, with eight lanes that are13.5 metre wide, with the surrounding area functions as a cycling, walking track as well as other outdoor activities--the Willem Alexander Bann provides a solution for storing some 3000 cubic meters of water.

The water in this rowing track is treated allowing for humans to row and swim in it. "Some 150,000 people have visited this track since it was inaugurated by King Willem Alexander shortly before his coronation in April 2013," said Johan Helmer, who handles international projects for the district water authority of Schieland en de Krimpenerwaard.

(The reporter was there at the invitation of ministry of foreign affairs of the Netherlands for the living in the deltas program)

The Times of India, Delhi dated October 18, 2014

DRIVE AGAINST CRACKERS A DAMP SQUIB AS CITY'S AIR QUALITY PLUMMETS

Air pollution on Diwali getting worse

TIMES NEWS NETWORK

New Delhi: The festival of light seems to be the worst time for people suffering from asthma and other respiratory diseases with the city's air quality deteriorating with each passing year during Diwali. Even the Delhi government's campaign against crackers has failed to bring down the pollution levels.

An analysis of levels of various pollutants on Diwali day since 2010 reveals a disturbing trend. Levels of some pollutants, including sulphur dioxide (SO_2) and nitrogen dioxide (NO_2), seem to be on the rise.

The levels of particulate matter (PM) 2.5 (particles smaller than 2.5 micrometres), which have serious health implications as these tend to get lodged in the lung and can even enter the bloodstream, have been seven to eight times higher than the standard level for several years.

PM 2.5 is associated with a number of health impacts such as asthma, bronchitis, chronic respiratory symptoms including, shortness of breath and painful breathing, and premature deaths. High SO_2 levels are also linked with inflammation of airways and severe breathing difficulty.

Meanwhile, the Delhi Pollution Control Committee (DPCC) on Friday announced that it had formed seven teams to assist DCs and visit various areas to check noise levels on Diwali. It asked the Delhi Police to ensure that the total number of firecracker licences issued this year should not exceed the last year's figure.

List of licences granted to be displayed on the official website of licensing unit of the Delhi Police, a copy of which is to be given to the DPCC.

Sub-divisional magistrates have been asked to organize meetings with RWAs to sensitize them about of Supreme Court directions regarding complete ban on bursting of sound emitting firecrackers between 10pm and 6am.

As far as air pollution is concerned, Anand Vihar seems to be the worst affected. PM 10 (coarse particles) levels have been 10 to 13 times higher than the standard level in 2012 and 2013,

PM 2.5 levels have been about seven to eight times the standard. Experts say heavy traffic in Anand Vihar and vehicles from Ghaziabad may be adding to the Diwali emissions. "We have noticed that even on regular days, air pollution levels are on the higher side in Anand Vihar, Civil Lines and IGI Airport. In Anand Vihar, the interstate traffic may be causing levels to go up. As for high SO_2 levels, they may be from imported crackers that seem to have high sulphur content," said Anumita Roy Chowdhury, head of clean air programme at the Centre for Science and Environment (CSE).

M P George, scientist at the DPCC air lab, said Anand Vihar's high particulate matter levels could also be linked to the industries near the Delhi border.

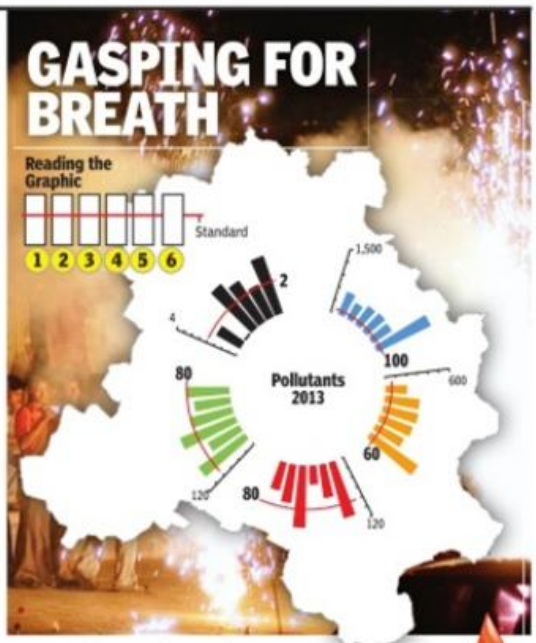
Delhi Pollution Control Committee had tested firecracker samples recently and found most of them to be flouting the Explosives Rules, 2008, as their manufacturers did not mention the chemical composition on the packages. This means that there is no monitoring of the heavy metals that are also emitted from crackers.

"You will notice that a lot of colour crackers are being used now. So they are not just noisy and polluting, they may be causing toxic pollution due to presence of heavy metals. We are not even aware of what health impacts these coloured and imported crackers may be causing," added Roy Chowdhury.

An analysis of levels of various pollutants on Diwali day since 2010 reveals a disturbing trend. Levels of some pollutants, including sulphur dioxide (SO2) and nitrogen dioxide (NO2), seem to be on the rise

Pollutants: PM 10, PM 2.5, SO_2, NO_2 (microgram per cubic metre); CO (milligram per cubic metre)

	2010	2011	2012	2013
Civil Lines (1) On map				
	663	285	364	562
	480	324	235	201
	73	43	89	106
	95	59	85	106
	9.5	2.1	7.5	1.6
IGI Airport (2)				
	630	285	573	423
	324	–	370	326
	52	39	31	62
	89	64	87	67
	5.6	1.7	2.0	–
Mandir Marg (3)				
	500	379	510	528
	254	224	244	337
	10	37	20	35
	31	72	118	110
	0.6	1.3	2.6	3.4
Punjabi Bagh (4)				
	561	382	536	560
	468	231	287	324
	11	34	70	114
	46	71	117	81
	1.2	3.5	3.5	2.9



	2010	2011	2012	2013
RK Puram (5)				
	578	382	664	533
	468	231	304	293
	11	34	46	71
	46	71	66	68
	1.2	3.5	3.3	2.1

	2012	2013
Anand Vihar (6)		
	1115	1378
	407	533
	117	53
	162	81
	3.1	3.6

The Times of India, Delhi dated October 21, 2014

NCR eco zones shrinking: Survey

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New Delhi: An assessment of the extent of damage or diversions from satellite images and maps prepared by the National Remote Sensing Centre has revealed an "alarming" shrinkage of the natural conservation zones, the National Capital Region Planning Board, in its affidavit to the National Green Tribunal, has said.

The NCR planning borad has claimed it has written to state governments several times seeking reasons for such shrinkage. Replies haven't been forthcoming, it said.

In its affidavit, NCRPB claims that it sent letters dated April 7, May 6, May 8 and May 12 of this year to the NCR states of Haryana, Delhi, Uttar Pradesh and Rajasthan about the issue.

It also claimed that, concerned over such large diversions, it had on June 23 written to all the nodal officers (principal secretaries) of these states. NCRPB has requested the NGT to take action against erring states.

"They (states) must satisfy the tribunal regarding such alarming shrinkage as observed through satellite imageries... your lordships may impose sanctions, and orders be issued to rectify the wrong," the affidavit states.

NCZs are eco-sensitive areas marked out in sub-regional plans and master plans where large constructions are not allowed. The affidavit makes another i nteresting suggestion—"in view of the very low existing

AFFIDAVIT BY NCRPB

forest cover of the region (4.02%) it is imperative to bring more areas under forest so as to maintain the ecological balance".

All wastelands identified in the existing land use 1999 and proposed land use plan 2021, irrigation canals, drains, roads, railway lines and village common lands are thereafter proposed to be brought under forest cover.

The affidavit was submitted in an application filed by the Legal Aid Committee of the NGT Bar Association against the ministry of environment and forests.

"The NGT bench will hear the matter again on November 11," said Raj Panjwani, senior advocate representing the applicant.

Panjwani explained that in such cases punishment could be sought for officers involved. The corruption angle can be explored to see how the land has been diverted and the 'polluter pays' principle will apply.

NCRPB's remarks on a proposal to treat even wasteland and common lands as forest may ensure protection for densely-forested zones like Mangar Bani along the Gurgaon-Faridabad highway.

But land use specifications in the master or regional plan do not seem to be a deterrent. A study carried out by Intach (Indian National Trust for Art and Cultural Heritage) last year had found that as many as 21 lakes have disappeared in the national capital alone since 1997-98.

CRYING OUT FOR PROTECTION

Natural conservation zones (NCZs) in regional plan 2021

ENVIRONMENTALLY SENSITIVE AREAS SUCH AS

Extension of Aravali ridge in Rajasthan, Haryana and Delhi

Forest areas

Rivers and tributaries of Yamuna, Ganga, Kali, Hindon, Sahibi (Najafgarh drain in Delhi)

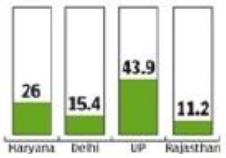
Sanctuaries

Major lakes and water bodies such as Badkal lake, Surajkund, Damdama in Haryana and Siliserh in Rajasthan

GROUNDWATER RECHARGE ZONES SUCH AS

Water bodies, ox-bow lakes and paleochannels

HOW MUCH NCZ IS LOST AS PER NCRPB'S REVIEW (%)



The Times of India, Delhi dated October 22, 2014

Air to be worst a day after Diwali

Scientists Say Pollution To Reach Dangerous Levels Despite Warm Weather

Times News Network

New Delhi: Delhiites are likely to breathe in severely polluted air the day after Diwali. At present, the capital's air quality is hovering in the category range of 'moderate' and 'very poor' according to the national air quality index launched by the Centre on Friday.

But a forecast made by System of Air Quality and Weather Forecasting and Research (SAFAR) under Indian Institute of Tropical Meteorology, factoring in weather and estimated quantity of crackers burnt warns of extremely poor air quality in Delhi starting Diwali.

Winter has not set in yet, the average temperature being slightly higher than what it had been this time last year and one year prior. But air pollution is likely to reach dangerous levels despite the warm weather. The analysis suggests that in case there is a 22% reduction in the amount of crackers burnt from last year the pollution levels will still make it to the 'very poor' category in areas that would otherwise be graded 'severe'. "There will be a rapid increase in fine, respirable particles (PM2.5) from October 22 but the rate of increase in coarse particulate matter (PM10) will be slower," SAFAR says.

The temperature in many parts of Delhi is likely to come down. This, however, is not only due to the change in weather pattern. Increase in aerosols over Delhi is likely to thicken the boundary layer or the lowest part of the atmosphere usually till 1-2km above the earth's surface. "In NCR, there will be rapid loading of aerosols during Diwali. It's likely to enhance aerosol optical depth by 35%," says a statement by SAFAR on Tuesday.

AOD is the degree to which aerosols (airborne solid and liquid particles) prevent transmission of light in an area—and it's also considered a proxy for air quality. Enhanced AOD is likely to deplete this boundary layer to as little as 150 metres on October 24 morning. Fortunately, the boundary layer will remain much higher than the 50-70 metres it hit last year.

The highest pollution levels are likely to be recorded at Mathura Road followed by DU, Pusa or New Rajendra Nagar and Noida. Pollution levels are likely to be relatively lower in Palam (T3) and Aya Nagar. The level of oxides of nitrogen oxides (NOx) is likely to shoot up. The current NOx levels in Delhi are between 20 and 35 parts per billion. This is likely to shoot up to 30-65ppb.

GLOOMY FORECAST

PM2.5 concentration
(in micrograms per cubic metre)

Monitoring station	Oct 22	Oct 23	Oct 24	Oct 25
Mathura Road	155	300	370	260
Delhi University	224	240	366	220
Pusa	188	230	320	200
Noida	197	235	311	212
Lodhi Road	156	200	277	178
Palam T3	180	203	267	167
Aya Nagar	170	199	260	180
Overall	184	218	300	193

PM10 concentration
(in micrograms per cubic metre)

Mathura Road	245	421	560	390
Delhi University	312	400	544	300
Pusa	200	350	420	290
Noida	270	322	470	280
Lodhi Road	266	288	383	260
Palam T3	235	297	355	220
Aya Nagar	254	310	350	222
Overall	255	341	440	280

PM2.5		PM10	
252 and above	Severe	421 and above	Severe
210-252	Very poor	351-420	Very poor
90-210	Poor	151-350	Poor
60-90	Moderate	101-150	Moderate
30-60	Satisfactory	0-100	Satisfactory

The Economic Times, Delhi dated October 23, 2014

Green Measure: Ministry Plans Fund to Encourage Cargo Transportation by Ships

Smooth Sail

Shipping ministry wants ships plying along the coast to carry cargo

Subsidy of ₹200 crore planned to incentivise this modal shift

Reduction in port related charges | **Priority berthing** for coastal vessels

₹**0.5 incentive** per km over rail and road

Coal and oil to be kept out of the scheme's purview

WHY THE EMPHASIS?

Coastal transport is cheaper & environment-friendly

It will reduce burden on roads & rail

India has over 7,000 km of coastline

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New Delhi: Inspired by Europe, India wants to make cargo movement greener and cheaper. The shipping ministry proposes to set up a fund, on the lines of the European Union's Marco Polo programme, to offer incentives for sustainable freight transport. The objective is to get cargo off trucks and trains and carry them on ships plying along the coast.

Although India has a 7,517 km coastline, only 15% of the country's local freight is moved along the coast, compared with 43% in the European Union. The Indian Railways carried 532.44 million tonnes of freight in the six months ended September 30, an increase of 4.2% from a year earlier, according to the government.

The cargo transported by rail includes coal, iron ore, cement and foodgrain, carried by more than 7,000 freight trains every day. The Narendra Modi government will soon finalise the policy to incentivise coastal shipping. The shipping ministry will start off with a subsidy of ₹200 crore to be used over the next two years to encourage traders to use coastal shipping.

The proposals include reduction of port rates such as vessel-related charges, automated movement of cargo and an incentive of 50 paise per kilometre over rail and road. The subsidy is likely to be made available for all cargo, except coal and oil, which already use the coastal route.

Diversion of 5% of cargo transportation to coastal waterways can result in annual savings of ₹2,000 crore and a 6% reduction in emission of harmful chemicals and pollutants, shipping ministry estimates suggest. The Marco Polo programme budget for 2007-2013 was 450 million euros.

Earlier this year, the Food Corporation of India decided for the first time to move foodgrain bound for Kerala's public distribution system along the coastline from Kakinada to Vallarpadam in Cochin. "By choosing ships over rail or road, FCI chose not only a more economical but also more environment-friendly way," a senior government official said.

Kerala has banned the movement of hazardous cargo by road or rail and has shifted it to national waterways.

The Times of India, Delhi dated October 23, 2014

Global green meet calls for changing growth path

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Copenhagen: Giving a thrust to the bid to reach a global climate deal by the 2015-end deadline, close to 400 leaders from governments, businesses, civil society groups and think tanks got together to canvass for green growth solutions for the world in a two-day annual conclave convened here on Denmark's initiative.

The fourth Global Green Growth Forum (3GF) ended on Tuesday with the warning that the current path of development was unsustainable and called for changing production and consumption patterns across the world through transformative action.

"The global middle class will more than double to 5 billion people by 2030. Achieving sustainable living for all is a challenge that requires us to change our way of life. We as leaders need to make right decision now to ensure a bright future for the generations to come," said Denmark's PM Helle Thorning-Schmidt in her keynote address.

FUTURE FOCUS

The 3GF was set up in 2011 in the aftermath of the failure of the COP15 Copenhagen climate talks with the idea of promoting green growth through technological solutions and finance. It is now partnership of seven countries — initially comprising Denmark, South Korea and Mexico, and later joined by China, Kenya, Ethiopia and Qatar — collaborating on green solutions through private and institutional partners such as Danfoss, General Electric and the International Energy Agency.

This year's meet, coming in the run-up to the big UN climate summit in Paris next year, was attended by three heads of the governments (Ethiopia and Ghana, apart from host Denmark), besides leaders of public institutions, businesses, NGOs, banks and financial institutions.

This year's theme, Changing Production and Consumption Patterns, included sessions on future middle-class consumers, transforming cities and food production, energy efficiency and a gamut of related issues.

The meet ended with the signing of 11 partnerships on green projects.

The Times of India, Delhi dated October 25, 2014

Diwali sends pollution levels spiralling in city

Anti-Cracker Campaign Fails To Have Effect

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Delhi recorded very high levels of carbon monoxide this Diwali

New Delhi: The sustained anti-firecracker campaign, clampdown on Chinese crackers and a 10pm deadline do not seem to have made the city breathe any easier this Diwali than during the last one.

FULL COVERAGE: P 2-5

There was no significant improvement in air quality compared to last year. The range of average PM2.5 (fine, respirable particles) may have reduced from 201-533 microgram per cubic metre last Diwali to 145-500 microgram per cubic metre but this has been negated by a substantial rise in oxides of nitrogen. An analysis by the Central Pollution Control Board in the run-up to Diwali day also showed very high levels of carbon monoxide and benzene. In short, Delhiites were exposed to unhealthy air both on Diwali and the day after.

The marginal dip in some pollutants was due to the warm weather and breeze that helped in dispersal. Air quality remained very poor with average PM10 (coarse particles) and PM2.5 at least five times the safe standard at almost all monitoring stations.

▶'Up by 16 times', P 5

PM2.5 levels up by 16 times

▶Continued from P1

In fact, a random check of real-time data on the website of Delhi Pollution Control Committee (DPCC) on Diwali evening showed PM2.5 levels peak to about 16 times higher than the standard!

There was also an increase in oxides of nitrogen (NO_2) and sulphur dioxide (SO_2) levels which are linked to respiratory conditions and reduced lung function. "The maximum average of NO_2 has certainly shown an increase over last year — it has shot up by more than two times the standard. This could be linked to the heavy traffic on Diwali and before Diwali while high SO_2 levels are linked to use of sulphur-rich crackers. I don't see any significant improvement compared to previous years," said Anumita Roychowdhury, head of Centre for Science and Environment (CSE).

The CPCB's analysis of pre-Diwali and Diwali day air pollution pointed at certain pollutants that are otherwise ignored. Carbon monoxide levels, for instance, peaked to 4,328 microgram per cubic metre as against a safe standard of 2,000 microgram per cubic metre. In the run-up to Diwali, on October 20, levels of carcinogen benzene peaked to 22 micrograms per cubic metre as against the safe standard of 5 microgram per cubic metre. Benzene is a component of crude oil and petrol. The levels of PM2.5 – particles smaller than 2.5 micrometres (these fine particles can penetrate lungs easily) – were not available with CPCB on Friday evening. Officials said they could release the data on Saturday. But, according to DPCC's data, PM2.5 levels had improved slightly but were still about eight times the standard at some locations.

Sanjeev Rastogi

NOT A PLEASANT SIGHT: Shakarpur in east Delhi on Friday morning

"Delhi government has taken steps to contain air pollution levels in Delhi during Diwali through multi-pronged anti-firecrackers campaign with the support and assistance of various stakeholders like eco-clubs, schools, colleges and RWAs. A mass awareness campaign was also carried out through radio channels and media," the environment department claimed in a statement on Friday.

But what both CPCB and DPCC did not talk about was the dangerously high air pollution on Friday, the day after the celebrations. System of Air Quality Weather Forecasting and Research (SAFAR), a joint project of Indian Institute of Tropical Meteorology (IITM) and Indian Meteorological Department (IMD), found air quality to be "severe" at most monitoring sites. SAFAR follows the air quality index (AQI) which simplifies the air pollution data by providing a colour grading and associated health impacts. The maroon category stands for "severe" which in simple terms means that the air quality is so bad that it can cause health complications even among the healthy population.

SAFAR, however, claimed that there was improvement in air quality compared to previous years. "The weather was warm and the boundary layer (lowest one or 2km of the atmosphere) was up. The slight breeze may have also helped pollutants disperse. There was also some reduction in bursting of crackers," explained Gufran Beig, chief project scientist, SAFAR.

An analysis by CSE of regulations abroad shows the stark disregard for enforcement in Delhi. "In order to cope with record smog, Beijing has issued an emergency plan to curb air pollution, including a ban on fireworks when the city sees three consecutive days of heavy smog. The city government recently introduced a regulation requiring people who buy five or more boxes of fireworks to register with an official ID; the city will halt fireworks sales entirely if pollution rises to dangerous levels," says the analysis.

It also found that Shanghai had cut the city's number of authorized firework sellers by 400.

Fireworks Regulation Act 2004 prohibits the use of fireworks in England and Wales between 11 pm and 7 am. These regulations are enforced by the police and a penalty of up to £5,000 or six months in prison can be enforced for a breach.

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