Sustainability Forum @ IIML

May 2014 Volume III Issue 2

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

Business Sustainability News — International

Earth Hour: millions to switch off lights around the world

By Jessica Aldred, *for theguardian.com*

Millions of people around the world are expected to switch off lights in homes, offices and famous landmarks at 8.30pm local time for an hour on Saturday to mark WWF's annual Earth Hour.

London Eye and Southbank turns off the lights to support Earth Hour 2012. At 8:30pm local time, lights will be turned off around the world to mark WWF's Earth Hour. Photograph: Ryan Gregory/Corbis

Now in its eighth year, the mass participation event to show support for environmental issues comes as the Intergovernmental Panel on Climate Change prepares to launch its latest report in Japan on Monday, outlining how global warming will affect wildlife, food supplies, water and the weather.

"It's fortuitous timing that as millions of people take part in WWF's Earth Hour, the world's leading scientists release the latest IPCC report, which highlights the various impacts of climate change," said Colin Butfield, director of public engagement and campaigns at WWF-UK. "The significance of these two events is massive. Climate change is the biggest environmental threat facing our planet – it's real, it's happening right now, and we need to act fast."

This composite image shows the Sydney skyline illuminated shortly before the start of the 2012 Earth Hour (left), then being darkened (right). Photograph: Torsten Blackwood/AFP/Getty Images

Among the world's famous landmarks that will dim their lights are the Empire State building in New York, the Brandenburg Gate in Berlin, the Eiffel Tower in Paris, the Kremlin and Red Square in Moscow, the Bosphorus Bridge in Turkey and the Burj Khalifa in Dubai. In the UK, the Houses of Parliament, Buckingham palace, Tower Bridge and the London Eye will all dim their lights, with an estimated 10 million Britons expected to take part.

In Uganda, half a million trees were planted in an 'Earth Hour forest' and helped to help offset deforestation. Photograph: WWF

Launched in Australia in 2007, WWF says Earth Hour has now grown to become the world's biggest environmental event, mobilising people around a range of issues from deforestation to energy efficiency. Last year saw more than 7,000 towns and cities in 154 countries take part.

<ReadMore>

Entire marine food chain at risk from rising CO2 levels in water

By Oliver Milman, *for theguardian.com*

Escalating carbon dioxide emissions will cause fish to lose their fear of predators, potentially damaging the entire marine food chain, joint Australian and US research has found.

A study by the Australian Institute of Marine Science, James Cook University and the Georgia Institute of Technology found the behavior of fish would be "seriously affected" by greater exposure to CO2.

Researchers studied the behavior of coral reef fish at naturally occurring CO2 vents in Milne Bay, in eastern Papua New Guinea.

They found that fish living near the vents, where bubbles of CO2 seeped into the water, "were attracted to predator odour, did not distinguish between odours of different habitats, and exhibited bolder behaviour than fish from control reefs".

A lemon damselfish finding shelter in coral. Exposure to CO2 will make it more adventurous, and endanger its life. Photograph: Bates Littlehales/Corbis

The gung-ho nature of CO2-affected fish means that more of them are picked off by predators than is normally the case, raising potentially worrying possibilities in a scenario of rising carbon emissions.

More than 90% of the excess CO2 in the atmosphere 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 risk episodes of bleaching.

The AIMS study found the diversity of fish at the CO2 vents was not influenced by the extra carbon, but that fish's nerve stimulation mechanisms were altered, meaning the smell of predators became alluring.

"What we have now also found in our study of fish behaviour in this environment is that the fish become bolder and they venture further away from safe shelter, making them more vulnerable to predators," said Alistair Cheal, co-author of the research.

While fish at the vents faced fewer predators than usual, the consequences for fish in the wider ocean could be significant as more CO2 was dissolved in the water.

"Continuous exposure does not reduce the effect of high CO2 on behaviour in natural reef habitat, and this could be a serious problem for fish communities in the future when ocean acidification becomes widespread as a result of continued uptake of anthropogenic CO2 emissions," the study said.

A report released last year, which had input from the University of Western Australia's Oceans Institute, found global warming could cause oceans to become 170% more acidic by the end of the century, the fastest rate of ocean acidification in the past 300 million years.

<ReadMore>

Flat roofs may be the answer to managing urban floods

Using gravity to store rainwater on flat roofs could be a sustainable way to mitigate flooding, writes ***Jonathan Ward***

As recent weather events in UK have shown, we need more sustainable, quick-win solutions for flood mitigation. Photograph: Peter Macdiarmid/Getty Images

By Jonathan Ward, *Guardian Professional*

All sorts of causes are being blamed for the current flooding in the UK: lack of dredging, poor management of catchment areas, construction on flood plains and paving over front gardens to name a few.

One thing is for sure – we will be paying a lot more attention to the topic given the current experience. Wetter winters are predicted in our changing climate, with a certainty of more extreme events, which means that we need to look at more sustainable, affordable and quick-win solutions for flood mitigation.

We know how to address floodwater problems in new developments and how to attain sustainable credits. Large underground storage tanks with specialist flow control regimes allow us to minimise the impact of stormwater flows on the downstream drainage system.

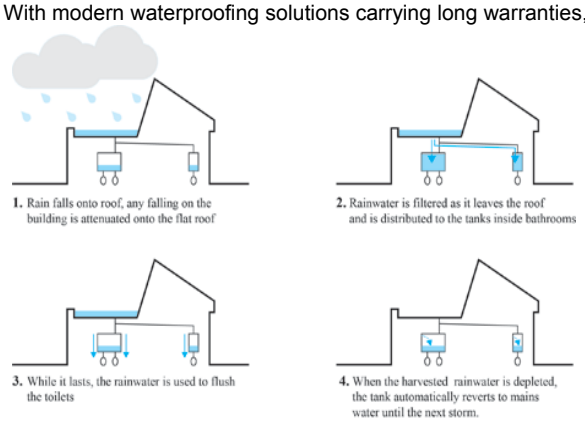
Sometimes, because of the level of the sewer, we need to pump the stored water – adding to the cost and complexity of the system. And all this is expensive; not a great message for these cash-strapped times. Recent experience has also shown us that it can be ineffective when inundated by a larger flood.

However there is a simple and cheap alternative that makes use of a free resource that we often neglect: gravity. Gravity offers a simple and cheap way to attenuate stormwater flows – by storing water temporarily on a flat roof. Attenuating roof drains which store stormwater on a flat roof at a depth of just three inches can reduce the impact of even a big storm.

The water will drain away slowly over a few hours, without affecting the downstream drainage system. The only additional costs are for slightly higher waterproofing details and a simple insert in the roof drain.

Worried about flooding into the building? No problem – simply provide extra overflow drains. And can the structure take it? The weight of the water is less than the weight of a heavy snowfall. As most roofs are designed for snow, the roof will be strong enough already.

With modern waterproofing solutions carrying long warranties, roofs can be designed flat, so very little needs to change in the design. If the load-bearing capacity of an existing flat roof is known, then it can be retrofitted to cope with stormwater. In the case of new builds, it's particularly cost effective because it saves expensive ground works.



And when it comes to existing housing or commercial buildings, it's possible that a building owner could claim a payment for upgrading a roof. The other side of this coin would be that building regulations in the future might require any re-roofing to adopt this technique. This is currently the case for any changes to front garden paving which now require a sustainable drainage solution.

These approaches make it a very cost-effective solution to what can otherwise be an expensive and unappreciated underground installation. It's also fully compatible with green or brown roofs, and can improve their appearance and biodiversity by providing a wider range of growing conditions.

If you want to take this solution a little further, then why not use the water as it trickles away down the pipes? The attenuating drains filter the rainwater, so you could pipe it to small tanks for flushing the toilets in the building. This makes it a zero-energy rainwater harvesting system that provides a sustainable urban drainage solution at the same time.

These ideas have already been developed, tested and proven in the field. There is no reason why this approach can't be used in the right context – it just takes lateral thinking, and appropriate detailing to accommodate the rainwater on the roof. The construction industry needs to start implementing the techniques and we will need to see promotion for this kind of design change from the government as part of its strategy to protect urban areas from flooding in the future.

There's no doubt that finding the full solution to flooding is a complex task. From time to time though, it's very satisfying to find an easy idea that is part of the solution, while saving money at the same time.

<Source>

Tips:

There are frequent articles in newspapers, magazines and discussions on electronic media about limited natural resources, pollution, rising temperatures, climate change and these have certainly affected human being positively. Though not much has been done in this direction but the initiatives are being taken by scientists, engineers, policy makers, innovators and they are quite encouraging. The technology and better practices are being developed. To start with, initiatives should be taken in our homes. To contribute in these efforts we are providing few tips just to remind and request every responsible citizen to bring these into habits.

- Use fuel efficient stove or wick stove, this will avoid depositing of carbon on utensils and save fuel too.
- Light the stove only after all preparations have been made, and the vessel is ready to be put on the stove. Collect all the required articles for cooking nearby so that you don't have to reduce the flame and go to fetch articles.
- While cooking, use wide bottom vessel with lid or a pressure cooker. It will be further beneficial if pressure cooker is used with separators.
- Take out refrigerated articles that are to be cooked in advance so that they attain room temperature automatically without use of any type of fuel.
- Pre-soak cereals and pulses for sometime before cooking. This will reduce the cooking time as well as the fuel consumption.
- Use minimum quantity of water, only sufficient enough for cooking. Thus you will save fuel and will also save nutrients from draining along with excess water.
- Once the item starts boiling reduce flame by bringing the burner knob to the simmer position and thus save fuel.
- Repeated warming of food reduces nutritional value of food. Therefore as far as possible eat together, to avoid repeated warming of food. This will not only save fuel, but also preserve the nutritional value of food.
- For heating water use solar water heaters if the facility is available. If not in hurry and sufficient time and facility is available, use solar cooker.
- Use focused lights instead of flood lights. Now all type of lighting fixtures are available in LED and these lights consume least power.
- Always opt for energy star rated electric and electronic appliances they consume lesser energy.
- Always switch off all lights, fan, AC etc while leaving the room unoccupied. This habit alone will save considerable amount of power.

White House Releases 'Strategy to Reduce Methane Emissions'

SustainableBusiness.com News

The White House announced a long-awaited plan today, a "Strategy to Reduce Methane Emissions."

As you know, methane is the main component of natural gas, but it also leaches from coal production and landfills as organics degrade. When released into the atmosphere, the gas is at least 20 times more effective at trapping heat than carbon dioxide - a climate-change forcer. Methane is responsible for nearly 9% of US greenhouse gas emissions, increasing 11% since 1990, says the White House.

Environmental groups call the plan a good first step, but it requires lots of information gathering and after that, regulations "could" be in place in a couple of years.

The only real line of action seems to be that this year, the Bureau of Land Management (BLM) will propose standards for oil and natural gas production on public land. We assume that means the extremely weak ALEC-based fracking standards will be updated.

On EPA's side, it will decide whether to pursue regulations - which would be completed by the end of 2016 - based on feedback from experts after it releases five white papers this spring. The papers will explore how to best regulate emissions from oil and gas production on public and private land.

"The Administration has laid out a process for EPA to review the facts and we are confident that EPA will find overwhelming evidence in favor of issuing strong regulations directly regulating methane from the Oil and Gas industry. Furthermore, reducing methane by requiring industry to stop the leaks is a "win-win-win-win" that saves fuel, reduces greenhouse gas emissions, improves air quality, and helps ensure pipeline safety," says Conrad Schneider of the Clean Air Task Force.

"Even at today's low natural gas prices, repairing virtually every methane leak from gas wells, processing plants, and compressor stations pays for itself, once the leak is found. New data from thousands of surveys of these sites shows that using infrared cameras to find the leaks is inexpensive enough to make leak detection and repair (LDAR) programs a very cost- effective way to reduce harmful pollution," says the Clean Air Task Force after releasing a study on 4,000 sites in the US and Canada.

Mandatory LDAR programs would cost the industry a few tenths of a percent of revenue, the study finds.

"Our results demonstrate that not only does cleaning up methane emissions benefit the climate but it can be done cheaply and quickly. We call on EPA to do its job and require clean-up of methane leaks from the oil and gas industry," says David McCabe, Senior Atmospheric Scientist for Clean Air Task Force.

The Strategy also calls for:

- EPA will propose updated standards to reduce methane emissions from new landfills this summer and solicit comments on whether to do the same for existing landfills.

  There are 621 landfill gas-to-energy projects operating and 450 sites with potential, according to EPA's Landfill Methane Outreach Program.
- BLM will open a public comment period this month on whether methane should be captured and sold from coal mines that are on public land.
- The Biogas Roadmap, which the dairy industry signed onto last year, will be officially released in June.
- Improved ways to measure methane emissions, giving $8 million to the National Oceanic and Atmospheric Administration for more towers and other technologies.

<ReadMore>

China says more than half of its groundwater is polluted

Number of groundwater sites of poor or extremely poor quality increases to 59.6%, Chinese government says

By Jonathan Kaiman, *theguardian.com*

A pipe discharges factory waste water from the Shenhua coal-to-liquid project into a stream in the hills in Ordos in the inner Mongolia. Photograph: Qiu Bo/Greenpeace

Nearly 60% of China's underground water is polluted, state media has reported, underscoring the severity of the country's environmental woes.

The country's land and resources ministry found that among 4,778 testing spots in 203 cities, 44% had "relatively poor" underground water quality; the groundwater in another 15.7% tested as "very poor".

Water quality improved year-on-year at 647 spots, and worsened in 754 spots, the ministry said.

"According to China's underground water standards, water of relatively poor quality can only be used for drinking after proper treatment. Water of very poor quality cannot be used as source of drinking water," said an article in the official newswire Xinhua, which reported the figures on Tuesday.

The Chinese government is only now beginning to address the noxious environmental effects of its long-held growth-at-all-costs development model. While authorities have become more transparent about air quality data within the past year, information about water and soil pollution in many places remains relatively well-guarded.

Xinhua reported last year that about one-third of China's water resources are groundwater-based, and that only 3% of the country's urban groundwater can be classified as "clean". A land ministry report from last year said that 70% of groundwater in the north China plain - a 400,000 sq km swath of some of the world's most densely-populated land - is unfit for human touch.

"The situation is quite serious -- groundwater is important source for water use, including drinking water, and if it gets contaminated, it's very costly and difficult to clean," said Ma Jun, director of the Beijing-based Institute of Public and Environmental Affairs.

"But still I consider this disclosure a positive move - greater awareness can help people prevent exposure to health risks, and eventually, motivate society to try and tackle this serious problem."

Few Chinese urban dwellers consider tap water safe to drink - most either boil their water or buy it bottled. Earlier this month, a chemical spill poisoned the water supply of Lanzhou - a city of 2 million people in China's north-west - with the carcinogen benzene, causing a panicked run on bottled drinks.

Last week, China's land ministry released some statistics from a nationwide soil survey, which was previously classified as a state secret. The ministry found that 16% of sites tested over a nine-year period were polluted, some with cadmium, mercury and arsenic. China's "overall national soil environment" is "not optimistic," the report concluded.

While Beijing's noxious smog has become internationally infamous, drought and water pollution may pose even greater existential threats to the city. Beijing's annual per capita water availability is about 120 cubic metres, about one-fifth of the UN's cut-off line for "absolute scarcity".

Last week, state media reported plans for a seaside desalinisation plant to provide one-third of Beijing's tap water by 2019. The state-run Beijing Enterprises Water Group will spend 7bn yuan (£667bn) building the plant in neighbouring Hebei province's Tangshan city, more than 200 km from the capital.

<Source>

Cisco and Amsterdam's plan to make a green city smart

By Joel Makower

What happens when one of the world's greenest cities meets the hyper-connected world? We're about to find out.

Last week, at its Silicon Valley headquarters, Cisco signed an agreement with the city of Amsterdam "to foster smarter and greener innovation" by working to shape the city as an "Internet of Everything 'lighthouse city'" — one of Cisco's showcase metropolises. That may sound like a nice mash-up of corporate marketing and tech jargon, but something interesting and potentially important is going on here.

The "Internet of Everything" is Cisco's branding for what most others call the Internet of Things, or IoT for short. By whatever name, it refers to the fast-growing network of physical objects accessed through the Internet — vehicles, buildings, thermostats, street lights, motors, sensors, smart meters, vending machines, parking meters, traffic signals and literally billions of other things. Estimates of the number of "things" that will be interconnected by 2020 range from 26 billion (Gartner) to 50 billion (Cisco). Whatever the number, it's big.

Bicycle parking in Amsterdam, by stratga via Shutterstock

Cities will be one principal locus of IoT activity, and companies such as Cisco see significant business opportunities in providing the vast range of technologies and services needed to create a truly connected city: the sensors, networks, communications, apps, dashboards, data standards, security, data analytics and many other things needed for all these "things" to connect and communicate effectively. Not to mention engaging the citizens and other stakeholders who have concerns about privacy, security and other matters.

Big business is at stake here. For example, smart city communications networks alone are slated to become a $3.5 billion global market by 2020, according to Navigant Research. That's just one relatively small piece of the IoT puzzle.

Amsterdam long has been one of the world's most environmentally progressive cities. With bicycles outnumbering cars — more than 60 percent of inner-city trips take place on two wheels — the city boasts a complex network of non-vehicle routes. (Here's a fun video about Amsterdam and bikes.) The City Council's objective is to slash CO_2 emissions 40 percent by 2025, compared against the 1990 baseline. The Netherland's largest city is ranked fifth overall in Siemens European Green City Index, with high marks for waste, water and land use.

Amsterdam aims to be not just green, but smart, and it seems to understand the connection between those two terms. Twenty-five years ago, it was the first city in Europe to be connected to the Internet. It was also one of the first cities to appreciate the importance of extending fiber-optic connectivity to its residents and businesses. Today, the city is part of a collaboration with businesses, research institutions and citizens called Amsterdam Smart City, toward the goal of becoming one of the world's most sustainable cities by 2040. The goal is to invest in capital and communication infrastructure in order to "fuel sustainable economic growth and a high quality of life, in combination with an efficient use of natural resources."

The Cisco-Amsterdam tie-up is one part of that effort. The two have been working together on a variety of smart-city endeavors for about a decade, including citywide optical fiber to homes, a smart grid, and public telepresence capabilities.

Part of the new initiative is to create an open platform for city projects. About 60 percent of the projects are expected to come from global companies such as Cisco, 20 percent from local companies and the final 20 percent from local citizens, "because nobody understands life in Amsterdam better than the people who live there," said Wim Elfrink, Cisco's executive vice president of industry solutions and chief globalization officer.

The partnership — Elfrink calls it a "conglomerate" that includes other big companies — could help address a challenge: For all the talk about smart cities and public-private partnerships, creating sufficient progress to live up to the hype of the Internet of Things can be slow going.

Photo of car charging next to canal by Hans Engbers via Shutterstock

<ReadMore>

Diesel, not just dust, has helped create this smog

London in the smog: but the pollution affecting much of the country is different from the old pea-soupers. Photograph: Dan Kitwood/Getty Images

By Ian Sample and John Vidal, *for The Guardian*

No one doubts that the Saharan dust in the smog affecting parts of the UK is to blame for the layer of grime now sitting on cars but experts agree that the more dangerous element for people's health is the increasingly noxious pollution belching out of our vehicles and industrial plants.

Air pollution from vehicles, factories and homes is now so bad, regularly, in Britain that when it is exacerbated by a storm in the Sahara 2,500 miles away, or by high pressure over northern Europe, it can leave millions gasping, their skin itching and eyes watering.

When, as has happened this week, all three factors coincide, the outcome is a "perfect storm" for air pollution, says Helen Dacre, a meteorologist at Reading University.

First, emissions from British traffic and industry have steadily built up in the air. Then gentle easterly winds have brought more pollution from the industrial centres of continental Europe. To make matters worse the dust that has blown in from the Sahara has been whipped up by a storm that produced gale force winds in north Africa.

The pollution seen in the milky white air that has blotted out the sun and shrouded half of Britain for much of the past few days, is mostly made up of tiny particulates, such as nitrates and sulphates, mixed with fine desert dust. The particulates come from partially complete combustion processes, but diesel engines are a big culprit, and wear and tear from brake pads and tyres, as well as construction sites, all add to the problem.

Saharan dust is blown in all directions. Much is dumped in the seas. But several times a year strong southerly winds bring dust clouds as far north as Britain, mostly during spells of dry weather in Europe, which stops the dust being washed out by rain along the way.

The size of particulates is directly linked to their potential to cause health problems. The smallest particulates, those less than 2.5 micrometres, called PM2.5s, are the most dangerous because they penetrate deep inside lungs. Long-term exposure to particles is linked to higher levels of fatal heart and lung disease, including lung cancer.

According to the Committee on the Medical Effects of Air Pollutants, a rise in the PM2.5 level of 10 micrograms per cubic metre leads to a 6% increase in overall death rates.

Today's pollution mix is different from that which plagued Britain 70 years ago. The historic culprit was coal burnt in homes and factories; you could smell it and see it in the tiny bits of carbon or unburned fuel that collected on clothes.

But the pollution now is colourless, odourless and tasteless, and mainly comes in particles so small they can pass through face masks. Traffic, especially diesel engines, is the predominate pollution source in cities.

One reason for the increased pollution is that there are now far more diesel cars. Numbers have increased across Europe by 35% since 1990 and, says the Society of Motor Manufacturers, more than 50% of all cars registered in Britain are now diesel, up from 23% in 2002. One reason for this is that cities and governments give tax incentives for diesels.

<ReadMore>

How FedEx's 'purple promise' shrinks emissions and grows revenue

By Anna Clark

When it comes to the environmental impact of an indispensable service, we often accept "less bad" as good enough. Aircraft, for example, create 2 percent of anthropogenic emissions — but unless we're willing to forgo the cargo and the commerce they facilitate, it seems we're stuck with the consequences. But FedEx is defying such conventional wisdom.

Blending technological and social innovation, FedEx is proving that companies can maintain growth and lower aviation emissions at the same time.

With services spanning more than 220 countries and territories, FedEx moves 90 percent of the world's GDP. By optimizing its facilities, planes and trucks, FedEx is mitigating the impacts of a gargantuan ecological footprint. The world's most recognized delivery company also recognizes that its ability to reach the most remote spots on earth is a sweet spot for corporate citizenship. That's how the company zeroed in on disaster relief as a giving opportunity.

Promising purple, going green

"It begins with 'the purple promise,'" said Nathan Loftice, sustainability leader at FedEx, at a recent conference at the University of Dallas. For FedEx employees, that's a promise "to make every experience outstanding" (PDF).

Loftice is big on mission statements, not just for personal branding or corporate messaging, but also for their strategic value. Giving attendees an aerial perspective of the company's global citizenship efforts, specifically the EarthSmart program, he explained, "You can't be all things to all people. So at FedEx we ask, 'Where do our strengths align with the world's needs?'"

With a background in finance, Loftice knows the simple definition for profit is revenue minus costs. But taking a more expansive view, he suggested, "Could 'profit' also mean helping society create revenue and infrastructure to support their communities? Or helping people lift themselves out of poverty through global trade networks?"

Loftice typifies the multi-dimensional thinking of FedExers who mix the purple promise with green values — and it extends beyond the borders of the CSR department.

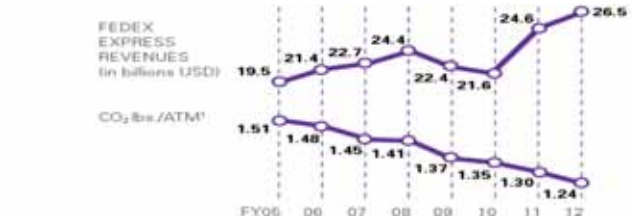
Aviation emissions slow down, growth takes off

For Bobbi Wells, managing director of air ops, fuel efficiency is not just a profit center. It's an act of corporate citizenship.

"We had such a tremendous focus on service that our thinking about fuel use was a secondary consideration," said Wells. "But in 2007, it became clear that we had to change our approach to fuel use for two reasons: one, it didn't fit with our position relative to being a good global citizen; and two, it did not fit our business model to displace planes so frequently for refueling."

Wells and colleagues set about developing a systematic approach to "tackling areas where we could create the biggest results and wins for the future." Among the measures her team has taken to increase efficiency and lower aircraft emissions is a fuel-management program called Fuel Sense.

"We knew we could not go after every opportunity at once," said Wells. "So Fuel Sense is a measured approach to implementing change." The program comprises 40 program teams that work together to optimize equipment, efficiencies and other practices in the transportation chain: "From safety to engineering to aircraft maintenance, everybody is involved."



Infographic courtesy of FedEx

Since launching, Fuel Sense has saved FedEx about 60 million gallons of fuel as of the end of fiscal year 2013, with a goal of overall improvement of 20 percent by 2020. FedEx also aims to get 30 percent of its jet fuel from alternative fuels by 2030. Through fuel conservation and best practices in aviation and ground transportation, the company substantially has reduced greenhouse gas emissions while increasing revenue.

Getting pilots on board with sustainable practices

The airline industry has a culture that said "gas equals safety," explained Wells. "We don't save fuel at the expense of providing service to our customers or ensuring the safety of our employees and assets. But we did need an honest, ongoing conversation about why and how they needed to reconsider their fuel practices." To change the culture, Wells convened a cross-functional group including front-line staff, analysts, pilots, engineers and management.

"Representatives from 10 different departments that touched airplanes relative to fuel met each month for over a year to focus on biggest buckets of opportunity," said Wells. "This was literally one of the best things I have ever done."

With a dispatch background, Wells understands that communication and connection between the lead pilots and dispatchers is paramount. "The captain has ultimate authority over the flight. They needed to learn that more fuel is not necessarily better," explained Wells. "But they also needed to know that dispatchers would not question it if a pilot made the decision to put more fuel on the plane."

Now operating as a domestic flight carrier under flag status, FedEx planes do not need to carry extra gas under certain circumstances. "It is rare to divert to an alternate airport, so carrying gas for this purpose is unnecessary and wasteful," said Wells.

FedEx plane image by Frank Kovalchek via Flickr.

<ReadMore>

Indonesia Gets World's First Net-Zero Energy Skyscraper

SustainableBusiness.com News

The world's first net-zero energy skyscraper will soon grace the center of Jakarta, Indonesia - the Pertamina Energy Tower.

When it's finished in 2019, it will be 99 stories high and ironically, serve as the headquarters of Pertamina, the national energy company. In addition to the 20,000 people who will work there, it will be the centerpiece of a campus that has a mosque, a sports center and a 2000-seat auditorium for the performing arts.

Shaped like a funnel, it opens at the top, capturing wind and sucking it inside to run a series of vertical wind turbines that provide 25% of the building's electricity.

Incredibly, its curved façade is precisely calibrated for Jakarta's proximity to the equator, which mitigate solar heat gain throughout the year. On two sides of the building are sun-shading "leaves" - semi-mobile curtains that allow daylight to enter while shielding the building from glare and heat from the sun. Radiant cooling systems replace air conditioners.

Other buildings on campus will be covered by solar panels, but the central energy plant that powers the complex will run on geothermal - a prime, renewable energy source in Indonesia.

A covered walkway called the "Energy Ribbon" winds through the campus, providing protection from the elements and generating energy from solar panels on top. It connects the buildings, while leading people across land bridges and gardens.

Designed to be a symbol of Indonesia's commitment to sustainable development, the architectural firm behind it is Skidmore, Owings & Merrill (SOM), known for combining innovation with energy efficiency and sustainability. Its Greenland Group Suzhou Center in China, for example, has a 30-story tall operable window and uses 60% less energy than typical skyscrapers.

"It is extremely exciting for the architects and engineers at SOM to be working on a tower and campus for which energy is the primary design consideration," lead designer Scott Duncan told *Fast Company*. "Historically, super-tall buildings have focused on structural challenges: resisting gravity and lateral forces from seismic and wind. The rules have changed, and energy has become the defining problem for our generation."

<ReadMore>

Sustainability and performance in textiles: can you have it all?

Materials like wool have surprising resilience and utility and don't endanger health or the environment like newer compounds

By Deidre Hoguet, *theguardian.com,*

Wool is rapidly renewable, biodegradable, recyclable and can be produced organically. Photograph: Murdo Macleod

Consumers are increasingly considering the sustainability of their purchases as they gain access to an array of fabrics that are practically self-cleaning. Is it possible to make a sustainable and high-performance fabric – or are these two things mutually exclusive?

What constitutes a sustainable textile?

Broadly speaking, the answer lies in four main factors: raw material extraction, textile production, added chemistry and end-of-life.

Raw material extraction for example, addresses the land and water used to grow natural fibers like cotton and wool, or the impacts of extracting fossil fuels for synthetic fibers such as polyester or nylon.

Production considerations include the water and energy used for manufacturing, the impact of production waste and a company's social responsibility towards its workers and the communities that surround its production facilities. Added chemistries, including dyes, finishes and coatings, may impact the health of textile workers as well as consumers of the final product.

Finally, the end-of-life scenario, including textile biodegradability and the reclamation infrastructure required to turn it into new raw material, strongly affect its sustainability.

What constitutes a high performance fabric?

Ultimately it comes down to longevity. As such, the first consideration is durability, or the degree to which a fabric resists deterioration. Tied in with this is the question of maintenance, or the ease with which a consumer can clean stains from carpet and upholstery or launder drapery and clothing.

In this context, longevity is an aspect of its sustainability. After all, garments that must be discarded after a short time are hardly sustainable. For that matter, neither are carpets or furniture textiles that need to be regularly replaced.

The hazards of performance additives

To produce a "high performance" fabric, manufacturers either embed chemicals in a material's yarn or apply finishes or coatings to a material after production. "Easy care" fabrics for example, receive stain resistant finishes, including perfluorinated compounds (PFCs), which are also used to make "nonstick" cookware.

Extreme use fabrics, like sportswear or hospital-use textiles, often have antimicrobial finishes, including silver and triclosan/triclocarban. As for flame retardant textiles, they tend to rely on halogenated flame retardants, which are added to their fibers.

While these chemicals improve performance, there is a growing consensus that they may also pose hazards to human and environmental health. PFCs, for example, are considered persistent and bioaccumulative, and have been found in humans and animals worldwide.

In addition to health concerns for users of treated textiles, many of the health risks can be higher for workers in textile finishing plants as well as the communities surrounding the plants. Epidemiological studies on PFCs have found probable links between PFC exposure and kidney cancer, testicular cancer and thyroid disease, among other concerns.

Not surprisingly, the LEED for Healthcare Furnishings credit lists PFCs as a "chemical to avoid". They have also been singled out by the industry group Zero Discharge of Hazardous Chemicals (ZDHC) as a chemical to be phased out of apparel products by January 2015.

Antimicrobials, including silver and triclosan/triclocarban, have come under similar scrutiny. While purportedly limiting mold, mildew and pathogen growth on treated fabrics, their widespread use is thought to have contributed to the spike in antibiotic resistance and (particularly for Triclosan) to endocrine disruption in humans. The American Medical Association has warned that "it may be prudent to avoid the use of antimicrobial agents in consumer products."

They are also potentially dangerous for the environment. A 2012 study by the Swedish Chemical Agency showed that up to 50% of antimicrobial treatments rinsed out after just 10 washes. These chemicals then went down the drain and into waterways. Antimicrobial additives have been singled out for avoidance in the LEED for Healthcare Furnishings credit, and are avoided by some major healthcare systems.

Halogenated flame retardants have also come under attack. Although they are regularly added to certain clothing and furnishings textiles to meet strict flammability standards in the US and the UK, recent reports have shown that they do not improve overall fire safety. They do, however, jeopardize human health: blood levels of widely used flame retardants are found in virtually all US citizens, and young children in the US now have some of the highest levels of flame retardants in their blood worldwide.

Some governments have begun taking action: product flammability standards are now undergoing review in several countries, and the Stockholm Convention on Persistent Organic Pollutants has listed a number of halogenated flame retardants to be banned globally.

In addition to the health and environmental risks, adding chemical finishes to textiles can negatively affect the sustainability pathways for fabrics at their end-of-life. Natural fabrics like cotton or wool, that could biodegrade post-use, are not able to do so safely if they are laden with chemicals.

Sustainability and performance: can you have it all?

With the health implications becoming ever more evident, it's worth asking what kind of performance is necessary for fabrics, and what level of risk is acceptable for the continued use of harmful additives. Fortunately, performance can be found in safer alternatives that are now entering the market, and in natural fibers that have perhaps been overlooked for their performance attributes.

One promising route is biomimicry, the application of nature's designs to man-made products. Research in this area has already led to the development of textiles that mimic the stain resistant properties found in lotus leaves. Other natural treatments have focused on mimicking the antimicrobial properties of crab and lobster shells. Textile applications of these technologies are already gaining strength.

Another route is to use existing fibers that have both performance and sustainable attributes. One example is solution-dyed nylon, which is widely used in carpet, upholstery and apparel. Solution dying, a process of locking the color into the fiber itself, produces a high-performing fabric. In garment applications, it produces clothing that does not fade after repeated laundering. Solution-dyed nylon furnishings, including carpet and upholstery, can withstand strong cleaning regimes without fading or deteriorating.

Since solution-dyed nylon is already highly cleanable, it obviates the need for an added stain-resistant finish. At the same time, it greatly reduces the water used in production, which has long been a sustainability issue for textiles. And it's also very reclaimable: when a consumer is finally done with his or her nylon carpet or upholstery, a widespread reclamation infrastructure already exists to recycle it back into new fiber.

Another sustainable, high-performance option is also one of the oldest: wool. Wool has several sustainable attributes: it is rapidly renewable, biodegradable, recyclable, and can be produced organically. There are also new wool traceability standards and animal welfare standards to track its production.

In terms of performance, wool is something of a miracle fabric. Highly durable, with inherent flame-resistant properties, it also has some natural water repellency. While not as slippery and oil-repellent as a perfluorinated finish, wool's performance attributes are laudable without the added chemistry

<ReadMore>

50m tonnes of e-waste generated every year – and it is increasing

By Duncan Jefferies, *for theguardian.com on*

The developing world is becoming the west's digital dumping ground. Every year around 50m tonnes of unwanted electronic devices make their way to vast e-waste dumps in Guiyu in China and Agbogbloshie in Ghana – often illegally.

Some of them will be repaired and resold. Others will be broken into their components, at considerable expense to the environment and people's health, and sold as raw materials to manufacturers. Yet more will be left as piles of toxic litter.

The absurdity of manufacturing a device in China, shipping it around the world to a European consumer and then, when it is disposed of, shipping it straight back to an e-waste dump close to where it was built is not lost on the Electronics TakeBack Coalition (ETBC), a group of organisations that promote green design and responsible recycling in the electronics industry. "We're buying more, getting rid of it [more quickly] and design changes are, in some ways, making recycling even more challenging," says Barbara Kyle, the ETBC's UK co-ordinator.

In fact, only around 13% of the e-waste generated each year is recycled. The increasing amounts of digital tech brought by middle-class consumers in China, India and Africa is a growing part of the problem. If the trend continues, the annual amount of global e-waste will be 65m tonnes by 2017, according to the STEP initiative (also known as solving the e-waste problem). Couple this with shortages of some rare earth metals and other resources from mining operations, and it is clear that something needs to change.

Part of the solution involves "closing the loop", which in this context means reclaiming and reusing valuable materials from discarded devices in an ethical, environmentally friendly way. Schemes aimed at building connections between designers, manufacturers and end-of-life disposal companies are springing up in response.

The Great Recovery project, established by the Technology Strategy Board and the RSA (Royal Society for the encouragement of Arts, Manufacturers and Commerce) in 2012, aims to build networks to explore manufacturing, design and recycling problems, investigate innovation gaps and incubate partnerships.

At the beginning, designers were invited to attend workshops at end-of-life facilities. This showed them what happens to their products after they had been discarded, and better understand the problems of dismantling them for recycling. LCD TVs, for example, can contain more than 250 screws, with 15 different screwdrivers needed to undo them.

Mike Pitts, lead sustainability at the Technology Strategy Board, says designers are "starved" of this kind of information. "It's crucial [they] connect with the materials they're working with, and it's quite hard for them to do that," he explains.

In the US, a course set up by the International Electronics Manufacturing Initiative (iNEMI) in conjunction with Purdue University and Tuskegee University is training engineers to develop sustainable alternative electronics materials. Students on the university-based "Global traineeship in sustainable electronics" program are helping to research soy-base resins for circuit board construction, which could one day replace petroleum-based components.

"Nanocomposites" made of natural materials, could one day be used for casing and circuit board construction, and are in development, as are adhesives made from marine organisms that could improve the construction and disassembly process for electronic devices.

Sustainable materials may be some years away but a new course looking at the environmental and social impact of technology at each stage of a product's life cycle is due to start this spring at the University of Illinois. The focus of sustainable manufacturing is on better use of what is already out there.

<ReadMore>

Storing Energy By Rail?

SustainableBusiness.com News

A new way of storing energy could soon take off - energy-storage-by-rail, developed by Advanced Rail Energy Storage North America. The first project is set for Nevada which would help stabilize the regional power grid so it can handle more renewable energy. It's a low-tech approach to large-scale energy storage. When rates are low a train drives uphill and then, when market prices are high, it simply rolls downhill to produce power. Nevada's Valley Electric Association is hosting a $40 million, 50 megawatt rail energy storage plant that connects to California's grid.

The technology is designed to provide energy storage without the use of water, while also enhancing grid security and reliability and supporting increased use of renewable energy.

Over the past few years, railroads have started to be repurposed to send energy back to the grid, but this process does it on a much larger level.

Here's an article from SNL that explains the technology:

"The basic concept is: How do I move mass with the force of gravity?" Advanced Rail Energy Storage North America (ARES) CEO James Kelly said in an interview. "It finally dawned on us to use 100-year-old technology, and that's electric railroads, and to add modern digital control systems to automate electric railroads for storage."

Rail energy storage can serve much larger energy storage needs than batteries and flywheels, and at half the price of hydro, said Kelly, a former Southern California Edison Co. grid executive. The ARES website says the company could build projects with up to 3 GW in capacity and 24 GWh of storage. All it needs is space and a steady incline to run its tracks.

The cars themselves are Australian ore trains with all the extras stripped off, each one the equivalent of a 2-MW generator, Kelly said. When storing power, the trains haul 230 tons of rock and cement up a hill. They can leave the loads at the top of the hill and go back down and get more, to increase capacity. When the system is not in use, the trains wait along the track, fully loaded.

When power is needed, they start rolling downhill, with the heavy load providing crucial inertia. The electric motor runs the other way, and power is pushed out on the grid. The system can ramp up in 5 to 10 seconds, not as fast as flywheels or batteries, but faster than a simple cycle gas turbine, Kelly said.

If the system has to run for long periods, empty locomotives drive back up the hill on a second track and pick up a new load of stone. Large systems will require multiple parallel tracks up to eight miles long, Kelly said. ARES has a round-trip efficiency of 86%, but Kelly thinks that number will rise as the company optimizes its equipment.

Utilities are notorious for being slow to adopt new technology, but ARES seems to have short-circuited that process, going straight from its test track to commercial construction.

Officials from Valley Electric, a Nevada co-op with a 150-MW peak summer load, first encountered ARES at a symposium in 2011, Valley Electric CEO Thomas Husted said in an interview. At the time the utility expected 3 GW of solar to come into its system, so it was very interested in energy storage. Husted was not put off by ARES' newness.

"We feel very good about the technology," he said. "When you look at it, it's really not new technology. This is off-the-shelf equipment. We don't see it as taking a chance with new technology."

Nevada is a particularly good place for ARES, because its landscape features exactly the kind of long, gentle slopes the trains need to operate at peak efficiency. Based on results at the Tehachapi test facility, the trains run best on grades between 6% and 8% and at speeds between 16 and 20 mph. In Nevada, and other dry plains around the world, Kelly expects to find slopes up to eight miles long. The longer the track, the more power the system can store.

The Nevada project will provide 50 MW of capacity and hold 12.5 MWh with the fast performance best suited to serving California's ancillary services markets. ARES hopes the project will be in service in 2016, in time to help California meet its 1,325-MW energy storage target.

<ReadMore>

Nowhere To Hide From Global Forest Watch

SustainableBusiness.com News

There's nowhere to hide now that Global Forest Watch has launched - citizens around the world now have all the information they need to monitor the state of the world's forests.

Global Forest Watch combines the latest satellite technology, open data and social media crowdsourcing to produce "near-real time, reliable, and actionable data" about what's happening to forests worldwide.

High resolution data from half a billion NASA Landsat satellite images measures whether tree cover is growing or lessening. You can even sign up for alerts that let you know when there's tree cover loss, pinpointing where it's occurring.

"Businesses, governments and communities desperately want better information about forests. Now, they have it," says Andrew Steer, CEO of World Resources Institute, which facilitated the project. Global Forest Watch "will fundamentally change the way people and businesses manage forests. From now on, the bad guys cannot hide and the good guys will be recognized for their stewardship."

Companies that buy commodities such as palm oil, soy and timber will be able to see for themselves whether suppliers are complying with laws and sustainability standards. When they do it right, suppliers will be able to conclusively show their products come from well-managed forests. No more wondering about who is telling the truth!

And forest protection groups can use the information to pressure companies and governments to stop deforestation.

Until now, the usefulness of satellite images has been limited because of the long time lag in getting them online. By the time people see them, the forests are cut, cattles are grazing (or palm trees are growing) and criminals are long gone. It typically takes 3-5 years to produce a national forest cover map.

"With the exception of Brazil, none of the tropical forest countries have been able to report the state of their forests," says Rebecca Moore, engineering manager with Google Earth Outreach and Earth Engine. "Now it will be possible to have near real-time updates of the state of the world's forests, open to anyone to use."

It's also a great tool for corporations that have committed to purchase only from sustainably managed forests. Nestle, for example, says the tool will give it better oversight of suppliers that produce raw materials such as meat, soy and palm oil - which forests are often cleared to grow.

"It is going to help us dramatically to refine our work on the ground, in places where we think there might be issues with our supply chain," says Duncan Pollard, associate vice president for sustainability at Nestle.

Global Forest Watch makes this possible by embedding key information in the images. You can see which palm oil company operates in a specific area of Indonesia where images have shown recent forest destruction. That could lead to a buyer canceling purchases from a supplier.

So if a palm oil company says it will no longer clear primary forests, now they will be watched to make sure they keep that promise.

The REDD market should also get a boost. When organizations buy credits for maintaining or restoring forests, and can actively view their progress, they will be more likely to invest.

It will also give people a birds-eye view of the extent of deforestation across the world.

The initial $25 million to build the tool came mostly from the governments of the US, UK and Norway. It's been developed by a partnership convened by the World Resources Institute, which includes Google and some 40 partners - the UN Environment Program (UNEP) and businesses and NGOs from around the world.

<ReadMore>

Jackfruit heralded as 'miracle' food crop

By Suzanne Goldenberg, *for theguardian.com*

It's big and bumpy with a gooey interior and a powerful smell of decay – but it could help keep millions of people from hunger.

Jackfruit (Artocarpus heterophyllus) growing in Kerala, India. Photograph: Olaf Krüger/Corbis

Researchers say jackfruit – a large ungainly fruit grown across south and south-east Asia – could be a replacement for wheat, corn and other staple crops under threat from climate change.

The World Bank and United Nations warned recently that rising temperatures and unpredictable rainfall had already reduced yields of wheat and corn, and could lead to food wars within the decade.

Now researchers say jackfruit could help provide the solution.

Jackfruit is the largest known treeborne fruit. Even a small jackfruit weighs in at 10-15lbs (5-7kg), and farmers have recorded specimens of more than 100lbs (45kg).

"It's a miracle. It can provide so many nutrients and calories – everything," said Shyamala Reddy, a biotechnology researcher at the University of Agriculture Sciences in Bangalore, India. "If you just eat 10 or 12 bulbs of this fruit, you don't need food for another half a day."

Jackfruit is sold on a Bangkok street, Thailand. Photograph: Bertrand Garde/Alamy

But jackfruit, despite its huge potential, remains underexploited as a food crop in India, where it originated.

That is beginning to change, however, with a growing number of researchers looking for alternatives.

Reddy's university will host an international conference on jackfruit in May. She said the Indian government had launched a number of new initiatives to promote the crop by expanding its use as a canned vegetable and as a processed food.

The effort coincides with a global push to expand food production, especially in developing countries which are expected to face growing challenges to feed their people in the coming decades.

Jackfruit can fill the gap on a number of counts, said Danielle Nierenberg, president of Food Tank, which works on sustainable agriculture.

"It is easy to grow. It survives pests and diseases and high temperatures. It is drought-resistant," she said. "It achieves what farmers need in food production when facing a lot of challenges under climate change."

The fruit is rich in potassium, calcium, and iron, said Reddy, making it more nutritious than current starchy staples.

Sri Lanka and Vietnam have established jackfruit industries, where the fruit is processed into products as diverse as flour, noodles, papad and ice cream. Jackfruit is also canned and sold as a vegetable for export.

<ReadMore>

Want to change customer behaviour? Try changing your business model

A growing number of companies are helping customers change their behaviour, prioritising brand loyalty and 'stickiness'

By Lindsay Clinton, *theguardian.com*

Philadelphia increased its residential recycling by nearly 20,000 tons after partnering with Recyclebank. Photograph: Corbis

This is the third in a series of posts by SustainAbility about business-model innovations that accelerate social and environmental impact.

Imagine if you got rewarded every time you rode your bike instead of driving, or if you could received a tangible benefit whenever you made a greener choice. Would this change how you go about your day? And could that change be a stimulus to speed up advances in global sustainability?

Convincing consumers to change their behavior is a significant component of the sustainability agenda. But for the most part, these efforts have been based in apps and campaigns, such as Alcoa's Aluminate can recycling app or Bank of America's Keep the Change savings program. By comparison, business models designed to stimulate sustainable behavior change are a relatively new – and largely unproven – concept.

However, given the growth of smart technology and social media, expect to see a behavior-change-focused business models in the future. If these models can generate profit and scale, they could help drive an economy decoupled from resource use.

One company trying to do just that is New York City-based Recyclebank. Its business model, refined over the last decade, connects behavior change to tangible benefits. The company rewards people for taking greener actions, like walking rather than driving, with points that they can use to make purchases at local and national retailers.

A key part of the Recyclebank model is its revenue-generating partnerships across the US and UK. To help promote behavior change, it works with companies that want to engage "eco-curious" consumers and cities that want to, say, increase recycling or encourage their residents to walk or bike.

Over the last several years, Recyclebank has worked with Philadelphia to give residents incentives to recycle more. Here's how it works: residents receive a recycling bin with a unique bar code. When city trucks pick up the bins, they calculate the weight of the materials inside and credit participants with reward points that can be used at local and national stores.

As a result of the partnership, Philadelphia has increased its residential recycling by nearly 20,000 tons. Its curbside recycling diversion rate went up 4% between 2010 and 2013.

This behavior changing model, used by just a handful of companies, is one of the emerging innovations identified in a new report by SustainAbility that I co-wrote and launched last month. Model Behavior: 20 Business Model Innovations for Sustainability reviews more than 80 companies that demonstrate business model innovations.

At their core, behavior-change business models aim to reduce consumption, change purchasing patterns or modify daily habits. In the process, they empower consumers with knowledge about their consumption, helping them track product or service use. To increase engagement, they frequently employ game dynamics that create competition between customers.

As consumers become more interested in reducing their energy bills, these models are gaining traction in the energy industry. Opower is one of several software companies that partners with utility providers across the US to promote efficiency among energy users. The focus of the company, expected to go public with a $110m initial public offering on the NYSE today, is two-fold: on the utility side, it helps companies capture and analyze large datasets to create business value; on the consumer side, it offers various platforms for engagement. In the process, Opower makes it easier for customers to understand their energy bills and encourages them to conserve energy, save money and reduce their carbon emissions.

Opower's business model is tied to the amount of behavior change that it drives. By empowering consumers with knowledge about their energy consumption, and by leveraging proven behavior-changing techniques, the company is transforming how people think about their energy use and driving further engagement between consumers and utilities.

<ReadMore>

How Sacramento takes food waste from tables to gas tanks

By Heather Clancy

An innovative partnership is helping Sacramento, Calif., to reduce emissions and reduce landfill waste, while stimulating at least $1.1 million in tax revenue and local business opportunities.

At the center of the Sacramento BioDigester project is an anaerobic digestion facility originally run by CleanWorld, which can process 25 tons of food scraps and organic waste daily. The plant is being expanded this year to handle four times that amount.

"As mayor, I have a vision to transform my region into the greenest in the country and a hub for clean energy technology," said Sacramento Mayor Kevin Johnson when CleanWorld was recognized with an Energy Vision leadership award for the project in November. "One of the signature projects to do this in Sacramento is to convert organic waste and specifically food waste to build a biofuels industry in our region. In fact, we had a specific goal to build three plants producing 1 million gallons of biofuel by 2020."

The city actually beat that goal by six years. With the expansion, the BioDigester will divert an estimated 40,000 tons of food waste from Sacramento landfills each year and displace the amount of diesel needed by these fleets by 700,000 "diesel gallon equivalents," according to Johnson. What's more, the facility reduces greenhouse gas emissions by some 20,500 tons annually and produces more than 10 million gallons of fertilizers and soil amendments that offer an additional revenue stream for the developers.

The process is pretty simple: organic scraps that have been separated from other waste streams are transported to the facility, where anaerobic digestion produces methane. The biogas is converted at the adjacent fueling station, where it is used to fuel the hauling equipment that brings the feedstocks there in the first place — closing the loop.

The project received four major environmental awards in 2013, including the governor's award for innovation. The back story of how the biodigester came to be includes not just Sacramento-based CleanWorld, but several key technology partners:

Atlas Disposal – A Sacramento-based waste hauler that not only transports feedstock to the facility but was the first to commit to procure the compressed natural gas created there for its truck fleet (the company created a division called ReFuel to focus on providing this service for other fleets)

BioCNG – The Madison, Wis., developer that created the system for refining the biogas created at the biodigester into fuel almost identical in chemical qualities to pipeline natural gas

Clean Energy Fuels – A Newport Beach, Calif., company that provided the refueling station used to deliver the fuel to trucks in the region. (It manages about 500 fueling stations across the United States and Canada.)

<ReadMore>

Plants the key to removing 63m tonnes of carbon dioxide a year

By Oliver Milman, *for theguardian.com*

Plants suck up CO2, which is released into the atmosphere when they die or are cut down. Photograph: Patrick Pleul/EPA

Australia can remove 63m tonnes of carbon dioxide a year from the atmosphere by 2050 if it embraces technology that captures CO2 and buries it, new modelling has shown.

The Jacobs SKM study, commissioned by the Climate Institute, says biomass carbon capture and storage (bio-CCS) can play a significant role in helping Australia play its part in keeping the global temperature increase to less than 2C compared with pre-industrial levels.

The latest report from the Intergovernmental Panel on Climate Change (IPCC), released on Sunday, says although the availability and widespread deployment of carbon dioxide removal technologies are "uncertain", they have to play a role if emissions are to be curbed.

The Climate Institute report finds that, without bio-CCS, Australia will have to pay more for emissions reductions or buy abatement from overseas.

A failure to remove carbon in this way will increase the cost of climate action by up to $60bn by 2050, the report says.

The study, the first in-depth look at biomass storage in Australia, stresses there is "no silver bullet that will stop climate change" but that carbon capture needs to be part of the mix to give the world a 75% chance of avoiding a 2C increase.

Bio-CCS involves using wood and crop material as fuel to generate electricity or other forms of energy.

Plants suck up CO2, which is normally released into the atmosphere when they die or are cut down. Bio-CSS prevents the second stage of this life cycle by burning the material for power then storing the released carbon underground.

This outcome, called "negative emissions", will ensure that more carbon is locked up in the ground than is released into the air.

The removal of 63m tonnes of CO2 a year by 2050 is equivalent to 1.5 times the current emissions from all cars in Australia.

The government has identified the storage of carbon in soils and plants as a key plank in its climate policy, outlining plans to plant millions of trees and fund projects that advance soil sequestering.

Critics argue carbon capture is unproven and a distraction from preventing emissions at the source. However, the CSIRO has conducted extensive work in the area of carbon capture and recently released a map of Australian soils suitable for this purpose.

"If we are serious about 2C, we've got to get this stuff out of the atmosphere and have a serious conversation about how the hell we do that," the chief executive of the Climate Institute, John Connor, told Guardian Australia.

"We've got to have a full press on energy efficiency and renewable energy, but we need to start looking at carbon capture. We need to turn off the tap but also pull out the plug. We're not pretending it'll be easy, but we need to start that conversation."

Bio-CCS involves the transition from coal burning to burning vegetative matter, in order to be emissions negative. Connor concedes this prospect will be opposed by the fossil fuel industry.

"The fossil fuel industry is its own worst enemy," he said. "It should be championing things that limit emissions for it to have a future.

"The lunacy in the public debate at the moment will have to subside if we're going to have these conversations and get serious about keeping to the 2C guard rail."

<Source>

Genetically engineered mosquitoes could be vital weapon against malaria

An Oxford-based biotech firm is modifying the males of the species to be sterile, effectively making the killers kill themselves

By Elisabeth Braw, *Guardian Professional*

An Oxford company breeds male mosquitoes that are genetically modified to be sterile, so they can mate but not procreate. Photograph: CDC / Phanie / Rex Features

627,000 deaths per year: that's a good figure. Malaria, the deadly illness caused by infected mosquitoes, is on the retreat, thanks to medical treatments that have reduced mortality rates by 42% since 2000. Among African children, the mortality rate has dropped even more: 54%. Even so, one African child dies of malaria every minute, according to the World Health Organisation.

It's not that NGOs and aid organisations don't try hard enough to prevent the parasite-infected mosquitoes from biting humans: it's just that keeping every one of the tiny insects away with nets and insecticides is very hard work.

What if all that mosquito-chasing wasn't necessary? What if the insects killed themselves? That's the idea behind Oxitec, an Oxford-based biotech company. It breeds sterile male mosquitoes for release in affected areas. As male mosquitoes always do, they'll find the females and mate with them – but because they're sterile, the offspring will die. "We're using mosquitoes' biological urge to our advantage", Oxitec chief executive Hadyn Parry tells Guardian Sustainable Business.

This is how Oxitec's pioneering mosquito intervention works: scientists breed both males and females on trays in the company's three factories; one in Oxford, two in Brazil. At the stage between larvae and fully developed insects, the mosquitoes are separated and the males, easy to identify thanks to their larger size, are kept. The separation can either be done on site or in the area where the sterile mosquitoes will be dispatched on their mission. "A coffee cup holds about 3m eggs, so it's inexpensive to send", explains Parry.

Oxitec's sterile Romeos are genetically modified mosquitoes; their code has been changed to make sure the genetic material they give their female partners doesn't result in offspring. The Oxitec scientists have also added a forensic marker – a colour – to their insects, which makes it easy for scientists and doctors tracking mosquito-borne diseases to establish where the sterile mosquitoes are active and how far they travel.

Letting the deadly mosquitoes kill each other softly seems a sensible solution, especially since Oxitec reports that the process has no environmental effects. Of course, it also saves humans in affected areas from constant exposure to insecticides. "People use insecticides to prove that they're doing something, even if it's not very successful", says Parry. "And you can only use insecticides in homes that are permanently open, as they often are in the African countryside. In cities, where people close their windows and doors, you can't use them." According to Oxitec, the cost of its sterile males is low as well.

To date, Oxitec has chosen to focus primarily on mosquitoes carrying dengue fever, an illness causing high fever, muscle pains and severe skin rashes. That's because the dengue virus is carried only by one mosquito species. "Genetically modified mosquitoes are much more applicable for diseases like dengue because malaria is carried by so many different kinds of mosquitoes", explains Dr Thomas Walker, a lecturer at the Department for Disease Control at the London School of Hygiene and Tropical Medicine. "Another potential drawback is that the sterile males may not be as fit as regular males." In other words, the killer males may not mate with the females as regular males are faster and fitter.

But with dengue infecting some 50 million people per year, combating its carriers is a large and potentially rewarding task in itself.

<ReadMore>

China's air pollution leading to more erratic climate for US, say scientists

By Jonathan Kaiman in Beijing, *for theguardian.com*

Smog in Beijing. China is revising its environmental laws to allow local authorities to shut polluting factories and punish offenders. Photograph: David Gray/Reuters

China's air pollution could be intensifying storms over the Pacific Ocean and altering weather patterns in North America, according to scientists in the US. A team from Texas, California and Washington state has found that pollution from Asia, much of it arising in China, is leading to more intense cyclones, increased precipitation and more warm air in the mid-Pacific moving towards the north pole.

According to the team's findings, which were released on Monday in the Proceedings of the National Academy of Sciences, these changes could ultimately contribute to erratic weather in the US.

The authors used advanced computer models to study interactions between clouds and fine airborne particles known as aerosols, particularly manmade ones such as those emitted from vehicles and coal-fired power plants.

"Our work provides, for the first time to the authors' knowledge, a global multi-scale perspective of the climatic effects of pollution outflows from Asia," says the study's abstract.

One effect, the study says, is an "intensification of the Pacific storm track", a narrow zone over the ocean where some storms that pass over the US begin to gather.

"Mid-latitude storms develop off Asia and they track across the Pacific, coming in to the west coast of the US," said Ellie Highwood, a climate physicist at the University of Reading. "The particles in this model are affecting how strong those storms are, how dense the clouds are, and how much rainfall comes out of those storms."

China is fighting to contain the environmental fallout from 30 years of unchecked growth. Of 74 Chinese cities monitored by the central government 71 failed to meet air quality standards, the environmental ministry said last month.

China's top leaders are aware of the extent of the problem. Beijing will soon revise an important piece of legislation and give environmental protection authorities the power to shut polluting factories, punish officials and restrict industrial development in some areas, Reuters reported on Tuesday.

The changes to the China's environmental protection law, the first since 1989, will legally enshrine oft-repeated government promises to prioritise environmental protection over economic growth.

Cao Mingde, a law professor at the China University of Political Science and Law, told the newswire that upholding environmental protection as a fundamental principle was a huge change. "It emphasises that the environment is a priority."

Although the legislation's fourth draft is nearing completion, it is still short on details, according to the report. China's legal system is often hostile to pollution-related litigation.

On Monday, a Chinese court rejected a lawsuit by five residents of Lanzhou, a city in the country's north-west, over an incident last week when dangerous levels of the carcinogenic chemical benzene were detected in the water supply. The residents demanded damages, a public apology and water quality data from the city-owned water company.

According to a local newspaper, the court claimed that under civil procedure law, the litigants were unqualified to sue; in pollution-related cases only "agencies and organisations" could press charges, and they needed official authorisation to take action.

<ReadMore>

WHO: air pollution 'is single biggest environmental health risk'

By John Vidal, *for theguardian.com*

Air pollution has become the world's single biggest environmental health risk, linked to around 7 million – or nearly one in eight deaths in 2012 – according to the World Health Organisation (WHO).

India Gate can barely be seen through smog in Delhi. Around 4.3 million deaths in 2012 were caused by indoor air pollution, mostly from wood and coal stoves in Asia. Photograph: Louis Dowse/Corbis

The new figures are more than double previous estimates and suggest that outdoor pollution from traffic fumes and coal burning, and indoor pollution from wood and coal stoves, kills more people than smoking, road deaths and diabetes combined.

Around 80% of the 3.7 million deaths from outdoor pollution came as a result of stroke and heart disease, 11% from lung diseases and 6% from cancers. The vast majority were in Asia, with 180,000 in the Americas and Europe combined, said the WHO.

Indoor air pollution led to 4.3 million deaths, of which 34% were caused by strokes, 26% heart diseases and 12% respiratory disease in children. Only 19,000 of these deaths were in rich countries, with the vast majority being in low- and middle-income countries. Because many people are exposed to both indoor and outdoor air pollution, the WHO said deaths attributed to the two sources cannot be added together.

"The risks from air pollution are now far greater than previously thought or understood, particularly for heart disease and strokes," said Maria Neira, director of WHO's department for public health, environmental and social determinants of health. "Few risks have a greater impact on global health today than air pollution; the evidence signals the need for concerted action to clean up the air we all breathe."

South-east Asia, said the WHO, is now the most polluted region in the world, with 3.3 million deaths linked to indoor air pollution and 2.6 million deaths related to outdoor air pollution. This reflects the explosive growth of cities and industrial development in China and India, as well as continuing deep poverty in rural areas.

A woman breastfeeds her baby while another prepares food on an open fire indoor in Kagera, Tanzania. Women had higher levels of exposure than men in developing countries. Photograph: Jochem Wijnands/Alamy

The new estimates are based not on an significant increase in pollution, but on improved knowledge of the links between air pollutants and heart diseases and cancers, in addition to known links with respiratory diseases. A 2008 WHO report estimated that outdoor pollution led to about 1.3 million deaths, while about 1.9 million people were killed by indoor pollution. A Lancet study last year suggested that the surge in car use in south and east Asia killed 2.1 million people prematurely in 2010. Last year, WHO's cancer agency classified air pollution as a carcinogen, linking dirty air to lung and bladder cancer.

"Cleaning up the air we breathe prevents non-communicable diseases as well as reduces disease risks among women and vulnerable groups, including children and the elderly," said Dr Flavia Bustreo, WHO assistant director general of family, women and children's health. "Poor women and children pay a heavy price from indoor air pollution since they spend more time at home breathing in smoke and soot from leaky coal and wood cook stoves."

Martin Williams, professor of air quality at the environmental research group, King's College London, said: "This is an important study, and although the majority of attributable deaths occur in south-east Asia and the western Pacific, air pollution impacts on mortality and health are still a significant public health problem in Europe, including the UK."

<ReadMore>

A Swedish denim label wants to change the way we wear our jeans

Nudie jeans recommends not washing jeans for six months and has repair stores offering a free fix up service for old jeans

By Leah Borromeo, *Guardian Professional*

A new breed of ethical jeans? Nudie Jeans aims to be totally transparent. Photograph: Nudie Jeans

Swedish denim label Nudie Jeans recommends people don't wash their new jeans for at least six months. It has also opened satellite repair stores around the world where customers can take their knackered trousers in for a free fix up.

Nudie wants to be a fully transparent company. "Caring capitalism" may be an oxymoron but Nudie appears to be shifting the public gaze towards something akin to responsible consumerism.

The website claims that they "do not envisage a trade-off between profit and people, or between manufacture and environmental responsibility". Fashion is still very much an industry and you won't find people screaming for the takedown of capitalism here. Not too loudly anyway.

I sat down with someone who was there at the start of Nudie – its CEO Palle Stenberg – and asked him to explain their business model. "I first met Nudie's founder Maria [Erixon Levin] when she was working at a small shop outside Gothenburg. She'd been working with denim for many years." Some years later, he adds, "she said 'Palle, let's do our own jeans'. She was fed up with the commercial side of things because everything was looking at the short term. Her idea was that instead of just looking at profit, let's do the jeans the way we want them. I said 'yeah, let's do it'".

Stenberg says Nudie started out with the ethical side hard-wired into the business model. "Those ethics have always been part of us ... The look and the fit is important - otherwise nobody buys them. But the social responsibility and taking care of nature was also there from day one. We wanted to know that everyone who worked with us would go to sleep at night having an OK life."

"We became 100% organic a few years ago, our next step is to be 100% transparent - to show everybody everything. We're just working out the way to do it."

In India, where Nudie gets some of its cotton from (it also sources from Italy and Turkey), Palle says they pay their workers living wages, not just minimum wages. He also takes great pride in Nudie's manufacturing - 90% of which happens in Italy. "Italy is a part of the EU and we pay the same taxes, their salaries are like the ones we have here in Sweden. I think that's where the big difference is. I think our margins are more or less like other brands … maybe even a little worse. But we're a profitable company. Shoppers are really behind us because of our core values."

Nudie Jeans are becoming popular and not everyone buys them for the ethics, but they soon get the hint. At a visit to one of their flagship stores in London, I was taken through their range, where their jeans came from and how to care for them. Their repair shop is in the front window next to the till.

You get the sense that the average Nudie customer wouldn't be seen dead with a dream-catcher listening to the Grateful Dead. Everyone who worked there and who walked in was effortlessly cool. The price point is cheaper or equivalent to most designer denim labels.

"We have three shops in Sweden, one in Berlin, one in London, five in Japan, five in Australia, one in Zurich and one in Barcelona," says Stenberg. "And then online. We also have distribution in 26 countries around the world. The cool thing is that the same people who started the brand twelve, thirteen years ago are still here."

Stenberg acknowledges that Nudie aren't perfect. It takes around 1,800 gallons of water to produce one pair of jeans. "It's no secret that the cotton industry is one of the worst industries in the world. We only work with organic cotton, and the people we work with reuse their water and they don't use pesticides to grow it."

When I ask about his own waste flows, Stenberg gets up and fetches an older-than-old pair of jeans. "Everyone wants to know what difference we make," he says. "Here is a pair I've been wearing every day for at least two years. Can you see the repairs? If I turn it inside out … you can see repairs. That's the idea. Buy a pair of organic jeans, never wash them and you wear them and wear them and wear them and they become like a second skin. You save water because you're not washing them too."

The Nudie business model is based around not washing your jeans? "Your jeans break, you come to the store and we repair them for free. You wear them for another six months at least, you bring them back, we repair them and so on and so on until you don't want to wear them anymore and we take them off you. You choose a new pair and we use your old pair to fix other pairs or we sell them to people," he says.

<ReadMore>

US Green Building Council Launches National Plan to Educate All Students on Sustainability

SustainableBusiness.com News

Leave it to the wildly successful US Green Building Council which turned one of the biggest, dirtiest industries significantly greener, to launch another massive project on our wish list: a National Action Plan for Educating for Sustainability.

Its goal: all students are educated for a sustainable future by 2040 through the integration of environment, economy and equity, with the ability to apply systems thinking to problem solving and decision-making.

"Education for Sustainability (EfS) empowers students to make decisions that balance the need to preserve healthy ecosystems with the need to promote vibrant economies and equitable social systems for all generations to come," they say.

credit: CELF Environmental Literacy

In partnership with global education leader Houghton Mifflin Harcourt, the action plan outlines a strategy for all 50 states to adopt a comprehensive green schools policy that includes a graduation requirement around sustainability literacy by 2040.

"When the U.S. Department of Education published its Green Ribbon Schools award which called for all K-12 graduates to be environmentally literate, we received that as a directive for the community to band together and figure out how we will ensure that happens," says Rachel Gutter, director of the Center for Green Schools at USGBC.

This year, the groundwork is being laid by forming working groups, an online communications platform, creating a funding campaign, and sharing/distributing best case models and materials. By June, they will establish the US Teacher Education for Sustainable Development Network.

The goal for 2015 is for EfS-related content to be included in the next revision of the ISLLC 2008 Standards for educational leadership, used by state policymakers to set high-level standards.

By 2020, EfS coaches should be available for all school districts and by 2023, sustainability professions should commonly be members of leadership teams in school districts. The following year, EfS will be embedded into the process of learning to be a teacher.

In 2025, the goal is for 35 states to have a comprehensive green schools policy, which includes an EfS graduation requirement, and by 2030, all state boards of education have adopted teacher evaluation standards grounded in EfS.

<ReadMore>

IPCC Update Emphasizes Series of Multiplying Risks

SustainableBusiness.com News

The always highly anticipated UN climate change report from the Intergovernmental Panel on Climate Change (IPCC) was released yesterday and unless we live in a fantasy world, there are no surprises.

Before issuing this report - the first update since 2007 - nearly 500 government officials (115 countries) and scientists huddled in Yokohama, Japan, obsessing over every word. They all had to sign off on it.

Production involved 309 coordinating and lead authors and review editors from 70 countries. They were assisted by 436 contributing authors, and 1,729 expert and government reviewers. The final product is 2,610 pages in 32 volumes.

The report is divided into three installments. The first, released in September 2013, covers the physical science of climate change. This second installment updates research on climate impacts, to be followed by mitigation strategies (April) and lastly a synthesis report on all the installments (October).

Scientists point to one bright spot amidst the frightening data. Since the 2007 IPCC report, there's growing evidence that governments and corporations are making serious adaptation plans.

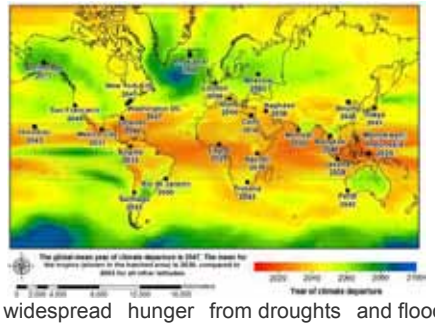
Summary of IPCC's first installment, *Climate Change 2013: The Physical Science Basis*:

- Warming in the climate system is unequivocal and is caused by humans through emissions of fossil fuels and clearing forests
- It will get much worse unless immediate, prolonged and vigorous action is taken to severely reduce the world's emissions.
- For the first time, scientists put forth a "carbon budget" for humanity - the upper limit of carbon emissions from industrial activities and forest destruction.
- Scientists expect warming to exceed the 2C threshold, where feedback loops and long-term changes kick in.

Summary of this second installment, *Climate Change 2014: Impacts, Adaptation and Vulnerability* :

- The effects of climate change are already affecting every country and all oceans, but humanity is ill-prepared for the consequences.
- Because climate change is well underway, moving much faster than earlier projections, **even a small amount of further warming could lead to "abrupt and irreversible changes."**
- The tipping point has already arrived for coral reefs and Arctic ecosystems, which are experiencing irreversible shifts. Other parts of the world could soon be at a tipping point.
- With high levels of warming that result from continued growth in greenhouse gas emissions, risks will be increasingly challenging to manage, and even serious, sustained investments in adaptation will face limits.

Dates for Climate Departure: For the first time, the report describes the effects of climate change as a series of risks, which multiply as temperatures rise - food production, fisheries, drinking water, power outages, etc. all of which will impact vulnerable populations the most, including the young, elderly and poor in all countries.



Without quick, strong action, rising seas will devastate coastal areas, there will be widespread hunger from droughts and floods, and extreme storms could threaten infrastructure and emergency services.

"Nobody on this planet will be untouched by the impacts of climate change," Rajendra Pachauri, IPCC Chair, told *Associated Press.*

Scientists still say these risks can be minimized if aggressive action occurs immediately, and governments need to act now to implement adaptive measures that protect their citizens.

"We definitely face challenges, but understanding those challenges and tackling them creatively can make climate-change adaptation an important way to help build a more vibrant world in the near-term and beyond," says Chris Field, Co-Chair of the Working Group.

As in the last installment, scientists concur that climate change is now locked in because of past, present and expected future emissions. Even if greenhouse gas emissions suddenly stopped, it would take thousands of years for atmospheric carbon to return to pre-industrial levels.

<ReadMore>

Green Technology Spotlight: World's First Biodegradable, Carbon Capturing Winery!

SustainableBusiness.com News

Hemp is used in hundreds of products, but here's a new one: a hemp wine cellar.

Château Maris, a bio-dynamic and organic French winery, has created a net-zero energy building by using bricks made from organic hemp and lime. Topped by a green roof with solar panels, it produces as much energy as it consumes.

The bricks create a 9,000-square-foot wine cellar that's both energy self-sufficient and biodegradable. They not only maintain consistent temperature and humidity, they also absorb carbon from the surrounding environment. And there's no need for systems that heat, cool or ventilate the structure.

Hemp has amazing qualities - the material both insulates and is "breathable" - keeping the building warm in winter and cool in the summer at a consistent 54°-63°F. Two exterior walls connected by an air tunnel also insulated against extreme temperatures. If more airflow is needed to lower the heat created by fermentation, there's a manual duct in the cellar's roof that can be opened and closed.

Why Hemp?

Wouldn't it be great if all business went through such a careful analysis of the materials they use? Here's how the two owners decided on hemp.

After five years of research, they chose a hemp/lime combination after evaluating other natural options such as stone, rammed earth and even straw. Why? Because they examined the lifecycles of potential materials and hemp was the least expensive and locally produced.

Hemp doesn't require irrigation or fertilizers and its rapid root growth creates good soil structure, controlling erosion.

They are using hemp straw - what's left after the crop is made into an assortment of products from rope to clothes to paper. It's inexpensive because Europe provides some subsidies for the crop and it fit the bill for low-carbon transport because hemp farms are nearby.

Even better, the hemp bricks are very light, making them easy to transport. A two-foot thick brick weighs 33 pounds. And when lime is added to harden hemp straw into bricks, the chemical transformation into limestone carbonate captures and sequesters carbon.

They basically created a biodegradable building that sequesters carbon - an estimated 44 kilos per square meter - for the next 20-25 years.

Château Maris is applying for LEED-Platinum certification. In addition to using LEDs for all lighting, they capture rainwater, recycle gray water, and have plans to run 100% on wind and solar.

To top it off, the wines are in recycled glass bottles with recycled paper labels, and the company donates $1.50 from each bottle sold from three wines to the Jane Goodall Institute, Rainforest Foundation or International Polar Foundation.

This year, the winery plans to sell 300,000 bottles, at such notable restaurants as NYC's Waldorf Astoria. "Our sales are at record highs and we continue to grow rapidly driven by the growing interest in products that are sustainable and organic," says co-owner Kevin Parker, who previously headed Deutsche Asset Management. He is now also CEO of Sustainable Insight Capital Management, which creates client portfolios around companies with superior environmental, social and governance practices.

<ReadMore>

Climate change action is the best insurance policy in world history

By Damian Carrington, *for theguardian.com*

An environmentalist embraces a globe during the Rio+20 UN sustainable development summit in Rio de Janeiro in June, 2012. Photograph: Nacho Doce/Reuters

As someone living in the rich west, I am far from unusual in insuring my life, my house, my travel, my teeth and even my dog. What I do not have, and what the new landmark report from the Intergovernmental Panel on Climate Change makes very clear is urgently needed, is global warming insurance.

While I am happy to pay relatively small premiums to protect myself from the remote chance of my house collapsing or losing a suitcase, the world – so far – has been unwilling to pay the small premium needed to protect against far more likely and more devastating risks. The new IPCC report, the consensus of hundreds of the best scientists on the planet and signed off by the world's governments, sets out the impacts of global warming and focuses on risk for the first time. The report details what we'd get in our climate change insurance policy: a reduction in the risk of the following:

- Mortality and morbidity during periods of extreme heat, particularly for vulnerable urban populations and those working outdoors
- Extreme weather events leading to breakdown of infrastructure networks and critical services such as electricity, water supply, and health and emergency services
- Food insecurity and the breakdown of food systems, particularly for poorer populations in urban and rural settings
- Severe ill-health and disrupted livelihoods for large urban populations due to inland flooding in some regions
- Death, injury, ill-health, or disrupted livelihoods in low-lying coastal zones and small island developing states, due to storm surges, coastal flooding, and sea-level rise
- Loss of rural livelihoods and income due to insufficient access to drinking and irrigation water and reduced agricultural productivity
- Loss of terrestrial and marine ecosystems, biodiversity, and the services they provide for livelihoods

Now that's what I call a comprehensive policy. It's particularly good value because the impacts of global warming on food, health, livelihoods and national security are already right here, right now. In contrast, try getting health insurance after you fall ill.

The climate change insurance policy is comprised of two key actions. First, carbon emissions must be cut rapidly to avoid large future temperature rises that, the IPCC report concludes, would lead to "severe, pervasive, and irreversible impacts". That is the path we are currently on.

Second, measures must be put in place to adapt as best we can to the future warming already locked into the system. It cannot be cut emissions or adapt, the IPCC report emphasises repeatedly, it must be both.

So how much is the premium for this policy? The straight answer is we don't know exactly: it depends on too many economic and social factors to be precise. But what we do know, and have since at least the 2006 Stern report, is that it is very likely cost more to do nothing than to take out the insurance. That's another reason why it is a bargain: for most insurance, most people pay more in premiums than they ever get back in claims.

<ReadMore>

Could future clothes, bottles and chairs be made from carbon emissions?

Companies such as AirCarbon and Novomer turn greenhouse gases to into new materials for a wide variety of products

By Bruce Watson, *theguardian.com*

AirCarbon rearranges the carbon molecules from greenhouse gas emissions and produces a plastic that can then be used to make everyday plastic products. Photograph: Christopher Thomond

Finding materials that are both sustainable and affordable has long been a central quandary in sustainable design. Certainly, high-cost, high-end materials, like sustainably-sourced hardwoods and post-consumer paper products, exist. However, the price of these products often pushes them out of the reach of many consumers.

Adding to the frustration is the fact that there is no dearth of available sustainable materials, including recovered waste. What if companies could move the recovered materials needle up a notch? What if, instead of simply diverting materials from landfills, they could recover a harmful waste material before it is even released? And what if, in the process, they could replace some of the most environmentally unsound materials currently in use?

Those questions lie at the heart of a new level of sustainable materials engineering. Across the globe, a growing cadre of engineers and researchers are looking for ways to transform greenhouse gasses into useable materials.

For the most part, the push to deal with greenhouse gasses has focused on limiting, offsetting and sequestering the materials, either by regulating the gasses that factories release, encouraging manufacturers to offset their "carbon footprint," or collecting greenhouse gasses and burying them deep within the earth. However, many of these gasses are at least partially composed of carbon, which means that they contain the building blocks of many popular materials, including plastic.

The vast majority of plastic is produced from petroleum, which means that the long carbon chains that make up the material come from one of the most environmentally costly materials on the planet. The question, then, is how to take the carbon molecules that make up greenhouse gasses like methane, carbon dioxide and carbon monoxide, and transform them into long, plastic-like carbon chains.

Creating carbon chains

AirCarbon entrepreneur Mark Herrema thinks that he may have a solution. By combining methane and carbon dioxide with a proprietary catalyst, his company rearranges the carbon into long chains, producing a plastic that can then be used to make bottles, chairs or almost anything else that plastic is currently used for.

AirCarbon diverts carbon from the atmosphere, but instead of burying it in the earth or storing it in canisters, it repurposes it as a useable material. Herrema emphasizes that his company's product is completely carbon negative: from collection of the greenhouse gasses to transportation to production of the plastics. Currently, AirCarbon's plastics are used by over thirty companies, including Virgin and KI.

"Keeping up with demand is our biggest challenge right now," Herrema explains. In August, 2013, the company scaled up to commercial production for the first time, and are now focusing on expansion. It plans to open another plant in late 2014 or early 2015.

Part of AirCarbon's high demand comes from the fact that it not only competes on sustainability, but also competes on price. "We want to make a global scale difference with this resin, and the only way we could do that was if we out-competed on price," Herrema says.

<ReadMore>

IPCC: How climate change will stunt economic growth

By Joanna Benn

As temperatures warm from climate change, risk to crops, water supplies, biodiversity and oceans multiplies. For the business community and investors, climate change will also hit growth, according to the latest report from the Intergovernmental Panel on Climate Change (IPCC).

The report found that the impacts will be felt by every sector of the economy and are relevant to all investors, financial services and businesses. Decisions made by private sector investors and financial institutions will have a major influence on how society as a whole responds to climate change.

"This report is essential reading for businesses everywhere," says Neil Adger from the University of Exeter UK and a chapter author of the IPCC's Fifth Assessment report. "If you want to understand the risks of climate change — to natural resources, to the insurance sector, to agriculture and food — the IPCC report paints the big picture. The insurance sector, for example, faces uncertainty in setting premiums, and major risks when wild weather damages property, people and assets. Understanding such risks within businesses, large and small is important work."

This is the second of three reports on the causes, consequences of and possible solutions to climate change. The first part of the report released in September was unequivocal that humans were the dominant cause of climate change since the middle of the last century. This second report is equally grim reading, with very few positive impacts projected under a changing climate at this speed.

After much debate, it was concluded with certain caveats that 2 degrees Celsius of warming would cause economic losses between 0.2 percent and 2 percent of global income. However, the IPCC says the economic models on which these numbers depend "vary in their coverage" of economic sectors, "depend on a large number of assumptions, many of which are disputable," and do not "account for catastrophic changes, tipping points and many other factors."

While describing the 0.2 percent to 2 percent figure as "incomplete," it concludes that losses "are more likely than not to be greater," rather than smaller, than this range. The U.N. panel also says there are large differences between and within countries — some will be affected much more significantly than others.

"When you really look at where we are with the modern science, I think those 0.2 percent to 2 percent numbers at 2.5 degrees are really old fashioned," says Chris Field, IPCC working group co-chair. "They don't include a lot of what we understand about the way climate change impacts work and about the way a multi-stressor threat multiplier can lead to damages. They don't capture a wide range of processes that are likely to be important, and they don't acknowledge the diversity of values."

Increased pressure on food production

From fish in the ocean to rainfall patterns, things are changing and not always for the better. The quantities and quality of fresh water available will lessen in dry regions and increase in high latitude. The current rate and magnitude of ocean acidification is faster than any event within the last 65 million years.

Climate change is a major factor in the decline of pollinators like bees, and warming will impact crop yields in temperate and tropical regions. While some individual areas may see increased yields in the short term, overall climate change is likely to reduce yields of staple crops, such as wheat, rice and maize, with most showing a decline by 2050 by as much as 25 percent. At the same time, demand for food will grow.

Areas suitable for the cultivation of coffee, tea and cocoa, which support millions of smallholders in more than 60 countries, will significantly shrink. It's likely the quality of coffee and other foods will decline, too.

As per recent examples, droughts in Russia in 2010 and the U.S. in 2012 led to major crop failures, a spike in prices and social unrest. The 2010-11 food price spike is estimated to have pushed around 44 million people below the basic-needs poverty line across 28 countries.

Ripples throughout the global economy

Climate change will have impacts that for many businesses, may not be in the forefront of primary concerns. But looking towards a stable and consistent workforce, climate change will increase displacement of people over the coming century. Impacts can also create rivalry between nations over natural resources and the risk of conflicts.

Estimates of the impacts of climate change on worker productivity, assuming current work practices, primarily through heat stress, indicate that productivity has already declined during the hottest and wettest seasons in parts of Africa and Asia. With more than half of afternoon hours projected to be lost to the need for rest breaks in 2050 in South East Asia, we may see up to a 20% loss in global productivity in 2100 under a business-as-usual scenario.

The physical impacts of climate change include increased risks to population centers and assets in coastal zones from sea-level rise and storm surges. Agricultural commodity prices will likely be higher and more volatile due to changes in agriculture patterns.

A large proportion of species face increased extinction risk, and although some will adapt to new climates, those that cannot adapt sufficiently fast will decrease in abundance or go extinct in part or all of their ranges. Many terrestrial, freshwater and marine species have already shifted their geographic ranges, seasonal activities, migration patterns, abundances and species interactions in response to ongoing climate change.

<ReadMore>

Solar plane bids to fly around the world without fuel

By Adam Vaughan, *for theguardian.com*

Solar Impulse 2, the single seater solar airplane which Bertrand Piccard and André Borschberg will fly in 2015 to attempt the first round-the-world solar flight. Photograph: Bayermaterials

A bigger, redesigned version of a solar-powered plane that flew from coast-to-coast in the US last year has been unveiled in Switzerland, which its makers say will attempt to fly around the world without fuel next year.

An early version of the Solar Impulse successfully flew from the US west coast to the east coast, marking the first time the journey had been undertaken without fuel.

The new version, Solar Impulse 2, which has a wingspan around eight metres larger than its predecessor, was shown off on Wednesday. The plane's cockpit has also been completely redesigned, built to improve aerodynamics and reduce weight.

The Swiss team behind the plane hope to fly it for five days and five nights in March 2015, solely using electricity generated from the sun hitting the photovoltaic panel across its distinct wing. The power generated during the day will be stored in batteries for the night journeys, when it will fly slower to conserve power.

Bertrand Piccard, one of the plane's pilots and chairman of Solar Impulse, told a press conference: "In the day we can fly much faster then we did with the first prototype."

He also joked that "it's not the easiest way to fly around the world, but probably the most spectacular to attract the awareness … to show what we can do with renewable energies."

Several test flights will be undertaken in 2014, before the round-the-world attempt next year, which is expected to take several months with around 20 days in flight.

<Source>

Geothermal And Lithium Production, Perfect Together

SustainableBusiness.com News

Tesla's Gigafactory is already spurring a new business that's vying to supply it.

A startup company called Simbol is in the final stages of raising funds for a factory that would open in 2017 - the same year as Tesla's world's largest battery plant.

Simbol's California plant - which breaks ground this summer - would be the first to create lithium by extracting it from geothermal power plant waste. The company is partnering with geothermal power producers in a mecca for that kind of energy - Southern California's Imperial Valley.

Tesla's plant will need lots of lithium to make batteries. At 30 gigawatt-hours of annual capacity, it will consume more lithium than produced worldwide in 2013. And demand for lithium is growing for other energy storage applications as well as for consumer electronics.

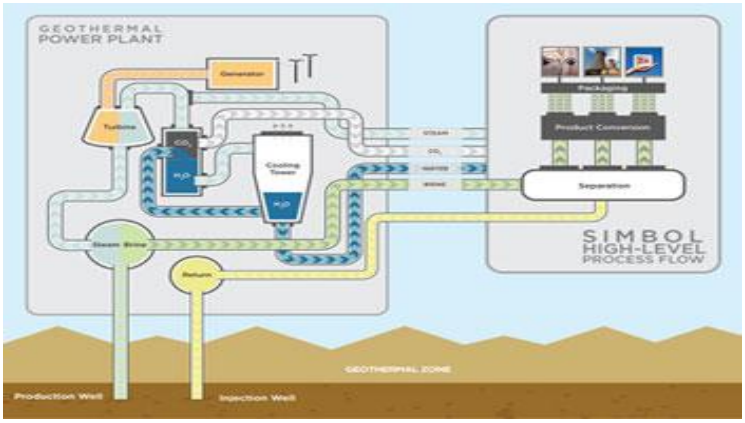
Luckily, geothermal, which has lagged other renewable energy sources, is finally growing. It will also be the sole power source for Sonoma Clean Power, a new municipal utility, and projects are popping up in a majority of countries. Geothermal surpassed 12 gigawatts (GW) last year and there are 30 GW in the pipeline, according to the industry's trade association.

"In numerous countries across Latin America, East Asia, Southeast Asia, geothermal is not just an option for renewable power but is the least-cost option for power generally, better than coal, gas and hydro," Mark Taylor from New Energy Finance told *Bloomberg*. "If a country has plentiful and powerful geo resources, geo will be highly competitive with all power and generally represent a growth opportunity."

Sustainable Lithium

If lithium can be produced as a byproduct of geothermal energy, that would make a more sustainable battery. The standard way of making lithium is by mining it from hard rock or through a complex process of slowly evaporating sea water, concentrating it into brine, and then using chemicals to separate the resulting lithium from salt, water and various solids.

Instead, Simbol would make lithium from brine that's a byproduct of geothermal power production. Since 2011, it's been operating a pilot plant in Calipatria, California where it extracts lithium from the brine of a 50 megawatt geothermal plant.



"The brine comes out of the ground, electricity is produced, elements will be taken out of the stream, and the brine will go back in the ground," Joseph Lowry, Vice President at Simbol, explains to the *New York Times.*

Since the soil stays at a steady temperature, the brine is preheated as it leaves the ground, reducing the energy costs of producing lithium, and since the brine is returned underground there's no need for environmental mitigation.

And to get access to the brine, Simbol simply bolts onto geothermal plants.

Simbol says the plant will be able to produce 15,000 metric tons of lithium a year along with other minerals from the most prolific brine source in the world. The result is a "transformational method for competitively producing the highest performing materials from a secure, scalable, and sustainable resource base," the company says. "With our proprietary bolt-on technology, Simbol and the Salton Sea will yield many decades of lithium, manganese, and zinc, securing our critical materials future."

Rare Earths Dilemma

That would help solve a dilemma for the cleantech industry, which relies on these rare earth minerals for everything from electric cars to wind turbines. Right now, 90% of those minerals are mined in China in an exceedingly toxic process.

But what about graphite, another critical component of batteries and consumer electronics? China is closing dozens of graphite operations down as it attempts to reduce pollution in the country. Australia plans to open a mine, but there's still concern about rising prices for batteries, which otherwise are dropping.

Extremely corrosive hydrochloric acid used to process graphite into usable form. If the acid is released into the environment as waste water, it is harmful to all forms of life.

An electric car has a lot of graphite, about 110 pounds. Next come hybrid cars with 10 kilograms and e-bikes with 1 kilogram. In terms of consumer devices, laptops have 100 grams and mobile phones about 15 grams.

Tesla's factory could alone double demand for graphite in batteries, requiring the equivalent of six new mines to enter production. Knowing the situation, the company announced it would source all minerals from the US. The vast majority Tesla uses is synthetic - not mined - and comes from Japan and Europe right now, she says.

"It will enable us to establish a supply chain that is local and focused on minimizing environmental impact while significantly reducing battery cost," Liz Jarvis-Shean of Tesla told *Bloomberg*.

The Department of Energy's ARPA-E program has funded a Batteries and Energy Storage Hub with $120 million to find alternatives to rare earths that also bring down the price.

<ReadMore>

Climate Change is Grim, But Future Cities Can Be Verdant

SustainableBusiness.com News

There's no getting around the grim facts on climate change, repeated again in the latest update of the United Nations IPCC report, but the world can still get its act together.

How that would look is imagined in sustainable design firm Arup's latest report, *Cities Alive,* which follows one released last year, *It's Alive.* That report envisioned buildings that breathe and adapt, producing food (Vertical Farms), energy and resources by 2050.

Cities Alive takes it up a notch to imagine what cities as a whole will look like as a response to climate change and population growth: integrated networks of intelligent green spaces, designed to improve the health and wellbeing of citizens.

The basis for design is for urban environments that promote nature as a key driver, recognizing its role in underpinning economic prosperity, health and wellbeing. Cities need to be conceived as socially cohesive, biodiverse urban environments in a connected ecosystem for people and wildlife that builds in resilience measures for protection from storms, floods, heat, drought and pollution, Arup says.

Architect Michael Sorkin visualizes New York City:

Linked city ecosystems will have parks, farms, woodlands, green streets and green facades and roofs, sustainable drainage systems, rivers, bike and walking paths.

While green space is often an after-thought today in urban development, either due to cost, lack of space, or lack of understanding of its benefits, its impact on the health and wellbeing of citizens and a city's carbon footprint warrants far more attention, says Tom Armour, who leads Arup's Landscape Architecture Group. "We should be developing cities to promote biodiversity rather than hamper it. As space becomes more precious, this planning needs to be a fundamental consideration, not an optional add-on."

We've all heard this many times, but it bears repeating: "Our current mind-set is that economic success requires increasing consumption - instead we should be valuing processes that reduce consumption - instead of focusing on GDP growth, we should place more value on improving health, education and quality of life," says Peter Head, who wrote "A New Approach to Resources" and is quoted in the Arup's report.

<ReadMore>

First Shipment of Grains Via Water Reaches Kerala

By ENS Economic Bureau - KOCHI

For the first time, Kerala has received foodgrains via waterways. The first such shipment arrived at Vallarpadam Container Terminal in Kochi on Tuesday from Kakinada in Andhra Pradesh.

The shipment carrying 6,323 tonnes of rice (2,989 MTs of boiled and 3334MTs of raw) is intended for the three Food Corporation of India (FCI) depots at Alappuzha, Kochi and Arakkulam.

The FCI moves boiled rice from Andhra Pradesh to Kerala, to the tune of around 70,000 tonne to 80,000 tonne a month or 8 to 10 lakh million tonne a year, by rail and road.

This is the first time the FCI is transporting foodgrains via waterways, said John Matha, FCI Area Manager.

“Normally, foodgrains were moved depending on the availability of goods trains from railways. Further, the rail movement requires multiple stages of handling which could lead to wastage,” he said.

“Also, the foodgrains, during their movement, could be exposed to cement, coal and iron ore etc. This problem can be solved with new way of transportation,” he added.

The FCI is planning to use the method in future as it is proved to be energy efficient as well as cost effective. At a time, 20,000 to 50,000 tonnes of grains can be transported via sea” he said.

The FCI had already invited tenders for the movement of food grains through waterways from designated depots of Kakinada in Andhra Pradesh to other regions.

<Source>

India Approves 3 Billion Rupees in Solar Pump Subsidies

By Natalie Obiko Pearson

India approved 3 billion rupees ($49 million) in subsidies to help farmers install solar-powered water pumps to boost agricultural yields and reduce expensive diesel fuel use.

The Ministry of New and Renewable Energy will provide grants to install 17,500 irrigation pumping systems to 2016 funded by a carbon tax on coal, according to a **notice** posted today on its website.

“Solar photovoltaic pumping systems can easily meet the irrigation requirements for small and marginal farmers,” the notice said. “It will increase the cropping intensity.”

India has 26 million groundwater pumps on farms that suffer from blackouts and volatile fuel costs. Switching those to run on solar would save about $6 billion a year in power and diesel subsidies and has drawn companies including BlackRock Inc.- backed **SunEdison Inc. (SUNE)** and **Jain Irrigation Systems Ltd. (JI)**, Asia’s top irrigation-equipment maker.

Farmers travel long distances to procure diesel for their pumps, the notice said. The project will allow them to boost output and reduce diesel consumption, it said.

The grants will cover as much as 30 percent of project costs. State governments including Rajasthan, **Tamil Nadu**, and Maharashtra that participate in the program will be required to match with a subsidy covering at least 15 percent of the cost. Farmers will cover the remainder. The program’s total cost is estimated at about 10 billion rupees.

India began taxing coal producers and importers 50 rupees a metric ton in 2010, raising 25 billion rupees in its first year.

<Source>

Indian solar installations are forecast to be approximately 1,000 MW

Debjoy Sengupta, *ET Bureau*

KOLKATA: Indian solar installations are forecast to be approximately 1,000 mw in 2014, according to Mercom Capital Group, llc, a global clean energy communications and consulting firm.

Solar installations in India totaled 1,004 MW in 2013 compared to 986 MW in 2012. In line with Mercom's forecast, there was very little growth in installations year-over-year. The firm's detailed survey of the market revealed that growth in installations might be elusive again in 2014 with numbers forecast to be similar to 2012 and 2013.

According to Mercom, there are several factors behind the slow solar growth. With a few exceptions, there are no Jawaharlal Nehru National Solar Mission (JNNSM) PV projects expected to come online until at least mid-2015. Most CSP projects have stalled, state policies are all over the map, and as we have warned for some time, India is now in a trade dispute with the U.S. in the World Trade Organization (WTO).

(Indian solar installations…)

"It is time for developers to go directly to consumers, there is a large power-starved market waiting to be served that looks better and better every day as diesel prices keep climbing," commented Raj Prabhu, CEO and Co-Founder of Mercom Capital Group. The United States recently announced its request for WTO dispute settlement consultations with India regarding the Domestic Content Requirement (DCR) in JNNSM Phase II projects. The United States claims that DCR rules discriminate against U.S.-manufactured solar cells and modules. In Phase II, India has extended DCR rules to include thin-film technology.

In addition to difficulties with project economic viability stemming from reverse auctions that have pushed down project margins, state policies have been delayed frequently, there is no real Renewable Purchase Obligation (RPO) enforcement in place, and national elections are fast approaching adding more uncertainty to India's solar market which could result in a slowdown in large-scale solar project installations.

Nevertheless, Mercom stressed that India's solar market potential remains as large as ever, even in a slower-growing economy. As power shortages continue, peak shortage is a critical problem that has stifled industrial growth, and back-up generation is becoming increasingly expensive. The government of India announced partial deregulation of diesel prices in January 2013, by incremental price increases of Rs 0.50 ($0.008)/month for retail customers, as the government tries to get subsidized diesel to a market-based price. This rise has resulted in a 15 per cent increase in diesel prices over the last 13 months, making solar a very attractive option. Meanwhile, coal has not been the answer to the country's energy problems with its own supply shortage issues, and coal power plants are increasingly dependent on imports as prices continue to climb.

"The case for solar in India will remain strong as long as the relevant policy goals address power shortages that affect millions of Indians, businesses, industries, and agriculture," added Prabhu.

<Source>

Maruti to supply new Swift hybrids to government

Source Name: Autocar India

Maruti Suzuki is all set to supply an undisclosed number of production-ready Swift hybrid hatchbacks, named Swift Range Entender, to the government as a part of its pilot project. However, the due to upcoming elections, the dates are not yet clear, a source close to the project told Autocar Professional. There would be more clarity on the project by the first quarter of the next financial year ie (financial year 2015), he said.

Maruti Suzuki had showcased this 'green' Swift at the Auto Expo 2014. The company will provide the government with these hybrid Swifts in financial year 2015.

He further added, "While the homologation process of the hybrid Swift is nearly completed, the team is expecting ARAI certification anytime now.

The new Maruti Suzuki Swift Range Extender will run on an inline three-cylinder, 658cc petrol engine (borrowed from Suzuki, Japan). It is also equipped with a front-axle mounted 55KW electric motor, which is powered by a 5kWh lithium ion battery. According to company sources, while the production-ready model has been developed in India, all the major electric gear (such as the electric motor, battery and other components) required for this project were imported from Japan and other countries.

The Swift hybrid model is around 130kg heavier than its conventional petrol-engined counterpart currently sold in India, which weighs between 960-990kg (kerb weight). Maruti's internal tests claim that the Swift Range Extender offers a combined fuel efficiency of up to 48.2km per litre, which includes a 25.5km run powered by the fully-charged battery. The battery, according to company data, takes nearly 90 minutes to get fully charged. While the company (along with other OEMs such as Mahindra & Mahindra, Tata Motors, TVS Motor Co and others) is eagerly waiting for the implementation of the National Electric Mobility Mission Plan 2020, it is known that the Department of Heavy Industries & Public Enterprises has written to the Finance Ministry seeking a grant of Rs 230-300 crore to kick-start a series of pilot projects (public transportation through electric vehicles) from April 2014. Though the commercial production of the Swift hybrid hatchbacks would depend on the status of the said pilot project(s), the battery operated variants would be possibly seen on the Indian roads later this year.

<Source>

Bio-waste Plant Set up by Thrissur Corp

By Express News Service - THRISSUR

The first biodegradable waste processing plant using organic waste converter technology in the state was set up by the Thrissur Corporation as part of its 'Decentralised waste management' project, at the Sakthan Thampuran market in May 2013.

The city corporation set up the organic waste converter at the Sakthan market,the place that produces a major share of the waste in the corporation limit. The waste converter, set up at a cost of `98 lakh on 30 cents of land, will collect 4 tonnes of waste a day and a total of 40 tonnes of waste in 10 days from the city and would convert into manure on 11th day.

The state government had earlier sent delegation from three corporations in the state to north India to find a solution to treat the accumulating waste in the city. Following this, Mayor I P Paul and Health standing committee chairman C S Sreenivasan visited the waste processing plants at Pune and New Delhi. The team impressed by the technology used at the waste treatment plant in Pune took technical assistance from the Pune plant, to start a plant here.

The plant produces manure from the waste without smell which is being sold to public in packets weighing 2 kg at a marginal rate. The newly commissioned plant also process the vegetable waste generated from the market. There have already been two biogas plants operating at the fish and meat markets.

<Source>

From waste to wealth, saving water and plants

M. K. ANANTH, *THE HINDU*

SAVING RESOURCES: Plastic bottles used for irrigation in an apartment in Salem. Photo: E. Lakshmi Narayanan

Empty plastic bottles turn into drip irrigator in homes

Abandoned empty plastic bottles are considered a serious threat to the environment. But at the Green Park Avenue Apartments near the New Bus Stand in Salem, residents have found out a novel utility for such bottles by using them for drip irrigation.

These bottles are not only helping the residents of 168 houses to save close to 4,500 litres of water everyday but also becoming the solution for keeping the colourful plants from getting dried up during summer.

Association sources said that last year many small plants dried up when water scarcity was at its peak.

"Recently one of the residents, M. Chandrasekar, saw a friend using empty plastic bottles for watering the plants in his house to keep plants alive during summer.

He suggested that it could be done in a bigger way in our apartments", President of the residents welfare association P. Saraswathi told *The Hindu*.

"We made an announcement in the notice board asking residents to donate plastic bottles. The response was overwhelming", she added.

The idea also attracted visitors, who were keen to understand and take pictures of the system.

The bottom of the bottles is cut open. A small hole is drilled into the bottle's lid. The bottle is then tied to the plants (upside down) so that water can be filled through the open end. The bottle is positioned in such a way that water drips near the plant's root and is not wasted.

These bottles are mounted on a small plastic pipe, which is tied close to the plant so that it acts as a support to bear the weight of a bottle filled with water.

"We use bottles of all shapes and sizes – measuring 500 ml to two litres – based on the size of the plant. We would soon be tying more such bottles to the remaining plants", E. Kasinathan, maintenance in-charge of the apartments, said.

The welfare association said that they required more than 5,000 litres of water a day to water all the plants and trees in the premises.

This mode of watering plants is keeping the shrubsand mid sized plants alive in their premises. Some flowers are used by the residents to offer prayers in a temple in that vicinity and for offering the same to the idols at home

"Now we are saving about 90 percent of the water. The bottles that we have tied to the plants require only about 500 litres of water a day", they said.

"These bottles are filled with water around 9.30 a.m. Water drips from smaller bottles till 3 p.m. The bigger bottles keep the soil wet till night", they added. Residents of the apartments are happy that the cost effective method is keeping their plants alive while many plants are dying in other parts of the city due to water scarcity.

<Source>

Environmental Science, Technology, & Business International Conference 2014

June 5th, 2014

Washington DC, USA

The conference will be held at the Double Tree by Hilton Hotel Washington DC Area- Silver Spring on June 5, 2014. The title and theme of the ESTBU 2014 Conference is "*Environmental Technology, Renewable, and Market Challenges*." The 2014 Environmental Science, Technology, and Business International (ESTBU2014) Conference will provide the ideal opportunity to the participants to present projects and experiences to experts in environmental science, engineering and technology, research, consultancy and advocacy. Also, the conference aims at providing an excellent platform for delegates to present their research and receive quality feedback.

Speakers and presenters will share new concepts, best practices, knowledge, experience, innovative equipment, and solutions, with a focus on promoting efficiency, sustainability, renewable energy entrepreneurship, capital, and commercialization of alternative energy resources, and quality management in energy industry. The conference topics also include, Energy Storage, Climate Change, Forestry, and Agriculture, Renewable Energy, Alternative Energy, and Waste Resource Management, Green Power Entrepreneurship, Environmental Impacts on Farming, Solutions of Environmental Problems, Sustainable Agriculture and Marketing and Eco-Friendly Products.

<ReadMore>

Ecology and Safety 2014 23rd International Conference

8th to 12th June 2014

Burgas, Bulgaria

"Ecology and Safety 2014" 23rd International conference, is being organized by Bulgarian Academy of Sciences, Union of Scientists in Bulgaria, Science & Education Foundation, Bulgaria, Al–Farabi Kazakh National University, Kazakhstan, Institute of Field and Vegetable Crops, Serbia and Kavala Institute of Technology, Greece. The conference will take place at Elenite Holiday Village, Bulgaria.

The topics are categorized under four broad themes viz. **1**. Energy, Climate and Global Security in the 21st Century **2**. Ecology of Air, Soil and Water **3**. Health and Safety and **4**. Civil Protection and Disaster Management. The topics of interest include: Greenhouse gas emissions, Sustainable & clean technologies, alternative energy sources for reducing dependence on fossil fuels; Biofuels, the media and protection of the environment, Waste processing projects (factories, garbage dumps), Waste management and waste recycling plans, Industrial ecology and transboundary pollution, and Innovative technology for early warning systems and disaster scenarios.

It is expected that the conference will be beneficial for acdemicians, scientists, policy makers and research scholars.

<ReadMore>

The International Academic Forum in conjunction with its global partners, are holding the Fourth Annual Asian Conference on Sustainability, Energy and the Environment, from **June 12-15 2014**, at the **Rihga Royal Hotel, & The Osaka International Conference Center, Osaka, Japan**. ACSEE 2014 will address these various dimensions of human sustainability as scholars are invited from around the world to address questions and search for synergies and solutions to the complex issues surrounding sustainability in a forum encouraging serious and thoughtful exchange between academics, members of the global business community, and practitioners in the fields of human endeavor that link these. Scientists from around the globe are expected to meet and share respective outlooks and collective wisdom on a critical issue of common concern: the pursuit of a sustainable world.

The conference theme is "Sustainability, Society and the Environment: Searching for Synergies" and the fields related to Sustainability, Energy and the Environment are covered. The topics include: Food and Water, Hunger and Thirst, Waste, Atmosphere and Air, Environmental Challenges and Economic Growth, Sustainable Businesses and CSR, Environmental Degradation and Renewable Energy and Environmental Solutions.

<ReadMore>

The Times of India, Delhi dated March 26, 2014

13 of 14 warmest yrs were in this century: Report

Vishwa Mohan | TNN

New Delhi: Just a week ahead of the release of a crucial report of a UN panel on impact of climate change on food, water and other resources, the World Meteorological Organization has set the tone. Sounding a note of caution, it said that "13 of the 14 warmest years" in recorded history fell in the current century.

The WMO, which made its findings public in its annual climate report in Geneva on Monday, also said 2013 was the sixth warmest year (tied with 2007) on record, indicating a long-term global warming trend. "Each of the last three decades has been warmer than the previous one, culminating with 2001-10 as the warmest decade on record," it said debunking the skeptics' theory of a 'pause' in global warming.

The findings show that effects of climate change are being felt everywhere — as reflected in many extreme weather events of 2013 ranging from Typhoon Haiyan in the Philipines, record hot Australian summer and heavy Monsoon rains and floods (like Uttarakhand disaster) and cyclone Phailin (in Odisha) in India.

WEATHER WOES

The climate report assumes significance at the time when the UN's Intergovernmental Panel on Climate Change (IPCC) is expected to predict many similar extreme weather events across the globe including one on the Himalayan glaciers. Unlike the 2007 report which wrongly projected that all Himalayan ice might melt by 2035, a leaked draft report of the panel mentioned that the IPCC would probably project that the Himalayan ice may "range from a 2% gain to a 29% loss by 2035" affecting the available fresh-water resources in India and China or affecting weather in this part of the globe.

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

Air pollution biggest health risk, says WHO

Killed 7M In 2012; 80% Of Deaths Tied To Heart Diseases

Kounteya Sinha | TNN

London: Air pollution has emerged as the world's single largest environmental health risk, having caused seven million deaths in 2012 —80% of which were from heart attacks and stroke.

The WHO announced on Tuesday that 1 in 8 global deaths were linked with air pollution. It recently categorized outdoor air pollution — caused by car exhausts, power stations, emissions from agriculture and industry as well as heating in people's homes — as a Group 1 carcinogenic, a cancer causing agent in the same category as tobacco smoke, UV radiation and plutonium. World Health Organization's International Agency for Research on Cancer (IARC) said there was "sufficient evidence of carcinogenicity in humans".

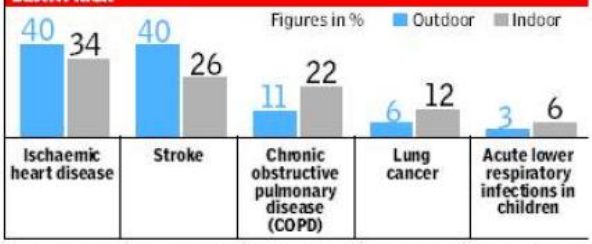
Six per cent of these deaths were due to lung cancer caused by both outdoor and indoor air pollution. This is the first time that WHO has directly suggested a link between air pollution and heart disease, respiratory problems and cancer. This finding more than doubles previous estimates of deaths caused by air pollution.

Regionally, low- and middle-income countries in the WHO South-East Asia and Western Pacific Regions had the largest air pollution-related burden in 2012, with a total of 3.3 million deaths linked to indoor air pollution and 2.6 million deaths related to outdoor air pollution. "Cleaning up the air we breathe prevents non communicable diseases as well as reduces disease risks among women and vulnerable groups, including children and the elderly," says Dr Flavia Bustreo, WHO assistant director-general family, women and children's health. "Poor women and children pay a heavy price from indoor air pollution since they spend more time at home breathing in smoke and soot from leaky coal and wood cook stoves." After analysing the risk factors, WHO estimated that indoor air pollution was linked to 4.3 million deaths in 2012 in households cooking over coal, wood and biomass stoves. The new estimate is explained by better information about pollution exposures among the estimated 2.9 billion people living in homes using wood, coal or dung as their primary cooking fuel, as well as evidence about air pollution's role in the development of cardiovascular and respiratory diseases, and cancers.

GASPING FOR BREATH

According to a WHO report, **ONE IN EIGHT** deaths worldwide is caused due to air pollution and it has become the single biggest environmental health risk

DEATH RISK



The Times of India, Delhi dated March 28, 2014

Earth Hour participation on the decline

TIMES NEWS NETWORK

New Delhi: The Earth Hour drive is losing its sparkle. A global campaign where lakhs of homes, shops and markets turn off lights, power connections for an hour is probably seeing fewer people participating now.

The declining trend is evident from the power savings data maintained by power utilities every Earth Hour. For instance, Delhi saved about 300 MW in 2010, but it came down to 250 MW in 2013. According to data with New Delhi Power Limited in North and North West Delhi, the power savings had almost halved since 2011 during Earth Hour.

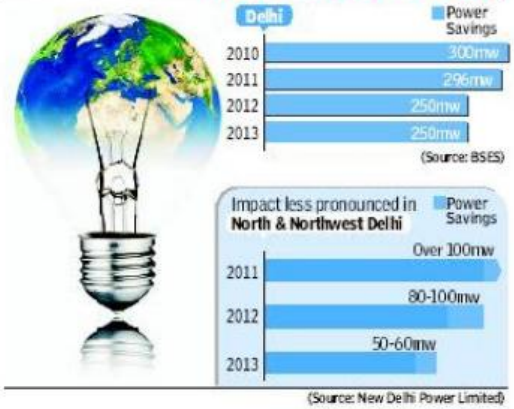
Even though Earth Hour is a symbolic effort to create awareness about climate change and inspire energy conservation in everyday life, the data suggests that Delhites are losing interest in the drive. BSES has appealed to its customers to support the event and voluntarily switch off their non-essential electricity for an hour staring 8:30pm on Saturday. BRPL and BYPL have also committed to switch off all lights at their over 400 offices. Most five-star hotels try to engage with guests during the Earth Hour by serving candle light dinners. Hotels like Le Meridian are planning to turn off exterior signage, dim interior lighting, and use candlelights in restaurants and bars.

Traders agree that the campaign is losing steam. "There should be more reminders and events to keep people engaged. I will send a circular to traders in CP asking them to turn off lights. But we can not force them. A lot of people think that turning off lights will affect their business," said Atul Bhargava, president of New Delhi Traders Association.

World Wide Fund for Nature (WWF), which organizes the Earth Hour in India in partnership with other organizations, is upbeat about participation in Delhi. "Delhi is at the heart of the movement in India. It has the highest participation and also switches off lights at iconic monuments. I don't think people are losing interest," said Rituparna Sengupta, communications head at WWF, adding they will launch a campaign in CBSE schools on Saturday to promote renewable energy. WWF will also launch interesting mobile apps to promote energy conservation.

Last year, many monuments like India Gate, Qutab Minar, Humayun's Tomb, Red Fort and buildings had switched off lights.

HOW CAPITAL CONSERVED POWER



The Times of India, Delhi dated March 29, 2014

'Pollution check can save 2bn life years'

Jayashree Nandi | TNN

New Delhi: India can save up to 2 billion life years if the places that exceed the national air quality standards (very polluted) were brought within standards, US-based economist, Michael Greenstone has estimated.

Greenstone, who is 3M professor of Environmental Economics at Massachusetts Institute of Technology (MIT), said in around 281 districts, 628 million people live in highly-polluted areas that don't meet the air quality standard.

He was delivering a lecture on 'Shorter Lives Due to Air Pollution' at the Public Health Foundation of India (PHFI) foundation day celebrations on Friday. Greenstone's estimates are based on data from the Central Pollution Control Board (CPCB) and other studies which show that 52% of India's population is living in areas that are monitored by CPCB, where PM 2.5 (very fine respirable particles) level is higher than the safe standard. Over 80% of the population is living in areas where PM 10 (coarse particles) levels are higher than the safe standard.

In India, 628 million people live in highly-polluted areas in 281 districts

Greenstone had conducted a similar "quasi-experimental" study on air pollution in China which assessed the life expectancy of a population north of Huai river where a lot of coal power plants were located due to a home heating policy and compared it with south of Huai river where no such policy existed. Life expectancy of those in north were found to be far lesser. A similar model of experiment is used in case of India.

Greenstone found that each person living in these areas may gain 3.3 years of life in India. "India is very highly polluted and needs to make policy to deal with it. WHO has recently released data that 1 in 8 deaths were due to air pollution in 2012. The majority of the impact is borne by South East Asia," said Greenstone who was also the chief economist in President Obama's Council of Economic Advisers.

The Times of India, Delhi dated March 30, 2014

IPCC report may warn of warming havoc in Asia

Vishwa Mohan | TNN

New Delhi: A UN panel will on Monday come out with its much-awaited report, assessing region-specific impact of climate change on human settlements and natural resources including drinking water and food-grain production. The report to be released in Yokohama, Japan, is likely to predict how many Asian cities, including Mumbai, Kolkata, Dhaka and Bangkok, may be at risk due to rising sea level.

The panel, comprising hundreds of scientists and government representatives from across the globe, on Saturday finalized its report after a marathon five-day meeting. Though a 'leaked' draft of this report — which first appeared in the Guardian in UK — took the suspense out of this process, findings of the Intergovernmental Panel on Climate Change (IPCC) still have the potential to jolt policymakers across the world.

MUMBAI AT RISK?

Besides predicting displacement of millions from low-lying areas and wiping off trillions of dollars from the global economy, experts may forecast risk of violent conflict in many parts of the world due to pressure on available resources, including drinking water. According to the 'leaked' draft, the experts will predict impacts of global warming on food-grain production and fresh-water resources, with Asia facing the brunt.

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

The Deccan Chronicle, Hyderabad dated April 01, 2014

Polluters told to clean up Katedan lake

DC CORRESPONDENT
HYDERABAD, MARCH 31

Residents of Kantedan and civil societies are questioning why citizens should pay for treatment of effluents being generated by industries.

Currently, a five MLD sewage treatment plant functions at Noor Mohammad Kunta lake maintained by public bodies. However, the treatment plant is ineffective as the industrial effluent needs a higher capacity of STP.

The treated lake water is pinkish red even after passing through the treatment plant

— MR CHAKRI, Save Our Urban Lakes

"There are several plastic recycling units under the Katedan limits that wash all sorts of containers for reuse. The water generated flows into the lake, while the STP at the lake is just of five MLD capacity. The treated lake water is pinkish red even after passing through the treatment plant," said Mr Chakri of Save Our Urban Lakes.

As the Hyderabad Metropolitan Development Authority plans to upgrade the STP with public funds, civil societies have asked industries to set up a separate Common Effluent Treatment Plant in their industrial area to prevent further pollution of the lake. "In a meeting, we called on the industrialists and officials to set up a CETP and then release the water," added Mr Chakri.

The Times of India, Delhi dated April 01, 2014

Govt to fix deadlines for green nod

Readies E-Okay To Curb Delays, Mechanism To Be In Place For New Regime

Sidhartha | TNN

New Delhi: The government is set to fix timelines for forest clearances and hopes to grant approvals in less than a year, compared to a much longer time period, under a new electronic mechanism proposed to be put in place around the time a new regime takes charge.

In what is being seen as a first, officers at the state-level would be required to scrutinize applications within 10 days and if no queries are raised, the proposal would deemed to be accepted under a new paper-less approval mechanism that includes state as well as central-level forest clearances, which are an eight-stage process, said officials familiar with the development.

REMOVING HURDLES

- Officers at the state-level will be required to scrutinize applications within 10 days and if no queries are raised, the proposal would deemed to be accepted
- The ministry of environment and forest has agreed to implement the new mechanism
- A large number of projects have been held up for the past several years due pending environment and forest clearances

The ministry of environment and forest has agreed to implement the new mechanism and a portal is being readied with test runs slated to begin as early as next month. This will be followed by a similar exercise for the five-step environment clearances, with mining approvals due to be taken up next.

A large number of projects have been held up for the past several years due to the red-tape related to environment and forest clearances. Of the project cleared by the project management group (PMG) in the cabinet secretariat, which is dealing with large infrastructure projects held up due to inter-ministry wrangling, nearly a quarter related to green clearances, while 42% of the unresolved issues are environment and forest approvals. In several cases, forest clearances have been pending for years, holding up investments running into thousands of crores. Close to 40% of the projects were held up due to want of green clearances.

Sources said the e-approvals driven by the cabinet secretariat were meant to provide transparency and also help fix responsibility on officials holding up approvals. "The idea is to allow online tracking of documents, approvals and online communication at every stage to avoid physical movement of files," said an official. The system will enable an applicant can see the proposal move from one desk to another.

For forest clearances, projects will be divided into four categories with those involving forest land up to less than five hectares getting the fastest approvals, while those with over 100 hectares will take longer to get a green light. For example, the smaller projects will be examined by the divisional forest officer, conservator and the collector within 30 days, the larger ones will have to be approved within 60 days.

Climate change may lead India to war: UN report

VishwaMohan | TNN

New Delhi: Asia is facing the brunt of climate change and will see severe stress on water resources and foodgrain production in the future, increasing the risk of armed conflict among India, Pakistan, Bangladesh and China, the latest report of a UN panel has warned.

UN's Intergovernmental Panel on Climate Change, in its report assessing impacts of climate change on human health, settlements and natural resources released on Mon-

▶Be ach tourism, P 14

day, carried a dire warning. "The worst is yet to come," it said, if no measures are taken to curb the ill-effects of global warming.

India, like other developing economies, may lose upto 1.7% of its gross domestic product if the annual mean temperature rises by 1 degree Celsius compared to pre-industrialization level, hitting the poor the most. The report also predicts an increase in extreme weather events such as last year's flash floods in Uttarakhand and cyclone Phailin in Odisha if steps are not taken to control the rise in temperature.

"Nobody on this planet is going to be untouched by the impact of climate change," R K Pachauri, IPCC chairman said while releasing the report.

ALARM BELLS

- More **extreme weather** events in most parts of the globe in coming years
- Maldives, China, India, Pak, Bangladesh and Sri Lanka among **most affected in Asia**
- Possible **armed conflict over fresh water** resources in South Asia and China (Himalayan river basins) by middle of 21st century

The Economic Times, Delhi
dated April 01, 2014

Global Warming Will Lead to Food Insecurity: IPCC

URMIA GOSWAMI
NEW DELHI

Unseasonal rains in India and excessive snowfall in the US all point to erratic weather patterns and climate change. Unchecked global warming will exacerbate fresh-water scarcity as well as hurt food production, driving up prices and increasing food insecurity and malnutrition, said the Intergovernmental Panel on Climate Change (IPCC) – the body tasked with assessing and processing scientific research on climate change, its risks and impacts.

These are among the key conclusions of the IPCC's report released on Monday in Yokohama for governments to consider while formulating their policies to address global warming. The 30-volume report, Climate Change 2014: Impacts, Adaptation, and Vulnerability, is the second installment of the IPCC's fifth assessment report.

For India, it is not good news as the study points to the country being hit hard by global warming. Climate change is not a hot-button issue in the upcoming elections. However, India's quest to pull itself back on the path of 8% or faster growth is definitely on the agenda of all political parties and this makes it imperative to address the risks and threats posed by climate change. The IPCC's new report makes it clear that the new government, which will be in place by end-May, cannot ignore India's high vulnerability to climate change as it charts a path to pull the economy back onto to the path of fast growth.

For India, the issue of increasing water scarcity even in the Gangetic plain, lower wheat yields and increased incidence of heat waves pose a grave challenge, particularly to its poor and vulnerable population. "All aspects of food security are potentially affected by climate change including access and pricing," said Aromar Revi of the Indian Institute for Human Settlements, who was one of the lead authors of the report.

Given India's growth imperative and the risks that climate change presents, IPCC chairman RK Pachauri stressed that the new government should use "knowledge and objective information" available to prepare and implement an effective plan to adapt to and minimise the impact of global warming. "Unfortunately, that doesn't always happen. Policies are sometimes made in vacuum as far as knowledge and science are concerned," the IPCC chairman said.

Pachauri suggested that the next government should prioritise addressing distortions in pricing of diesel and promote policy and schemes which have climate co-benefits, such as expanding solar energy generation. Pachauri, who is a member of the Prime Minister's Council on Climate Change, said while the National Action Plan on Climate Change was formulated six years ago, it had not been properly implemented. "We need to modify or refine this plan in the light of new knowledge which is now available to us. This plan should be implemented properly. I think, this should be the first challenge (of the new government)," he said. Scientists are now more sure than ever before that climate change is being induced by human activity and stress that decisions taken over the next 15-30 years are critical. "We live in an era of man-made climate change...In many cases, we are not prepared for the climate-related risks that we already face. Investments in better preparation can pay dividends both for the present and for the future," said Vicente Barros, co-chair of Working Group II of the IPCC.

According to the report, a global mean average temperature rise of 2 degrees may lead to global aggregated economic losses of between 0.2% and 2% of income, and the loss would be more keenly felt in developing countries. "There is a choice to lock ourselves on the path to higher warming of 5 degrees or make the development choices that will contain warming to 2 degrees," said Revi of the Indian Institute for Human Settlements.

The Economic Times, Delhi
dated April 01, 2014

Green Activists Offer Plan for New Environment Regulator

As an alternative to the ministry design, group outlines proposal for a more powerful authority

M RAJSHEKHAR
NEW DELHI

Even as the ministry of environment met its March 31 deadline to submit a plan to the Supreme Court for a new environment regulator, a set of academics, activists and environmental lawyers have weighed in with their own design. Concerned that the ministry version "would not meet the minimum standards of an independent regulatory authority", this set, called Watchdog and Action Group for the Environment, have proposed an authority that has greater powers and independence than the design outlined by the ministry.

According to Shekhar Singh, an RTI activist who leads the group, the ministry had not shared with the public any of its thinking behind the proposed authority. "We felt we had no other option but to draft our own set of recommendations and try and ensure that these are considered and, as far as possible, incorporated in the new bill," he said in an email response.

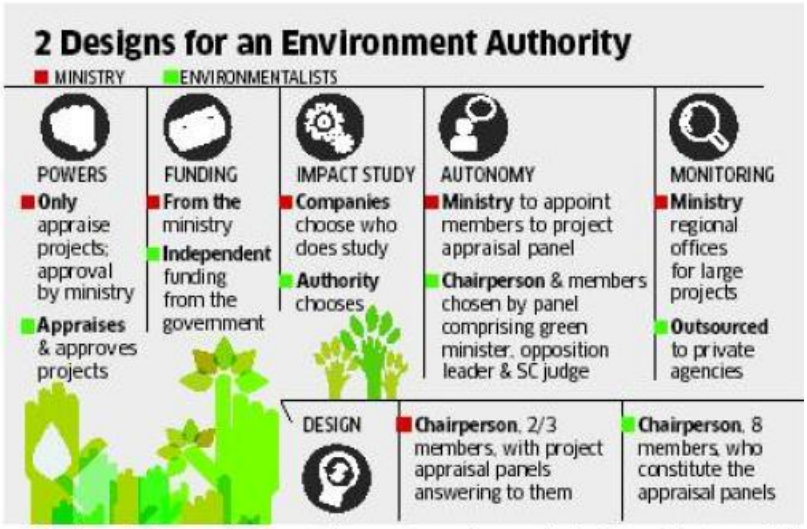
The group submitted its plan last week to the ministry and to the central empowered committee that advises the SC on forest matters. The group is also considering becoming a party to the SC case on the new authority.

The group's blueprint for the authority is different from that of the ministry on many counts. For inconomystance, while the ministry only wants the authority to appraise projects, the group wants it to also approve and reject projects.

Speaking on the condition of anonymity, a senior official at a leading industry federation said the authority as proposed by the group -- it chooses who studies a project, it evaluates that study and gives a verdict -- could become a law unto itself. "It may once again lead to centralisation of power," the official said. Counters Singh: "All decisions can be appealed in the National Green Tribunal (the courts that settle environment disputes). This would make it as accountable as most other independent institutions."

Another sizeable difference is whether the authority should be created under the existing Environment Protection Act, as directed by the SC, or through a new law, as both the ministry and the group want. "We have to be within the SC decision," says a senior official in the ministry, not wanting to be named. "However, for the sake of greater independence and the ability to levy financial penalties, etc, we do need a bill for the regulator."

William Lockhart, emeritus professor of Law at the University of Utah's S. Quinney College of Law, who has been studying the environment clearance process in India, feels that just creating a regulator is not enough. The planners also need to reconsider "specific aspects of the present design that encourages slapdash or dismissive treatment of environmental issues". For example, he adds, the exclusion of project-affected people from the process that defines the parameters along which project impact has to be studied.



The Times of India, Delhi dated April 02, 2014

Delhi faces high flood risk: Report

Jayashree Nandi | TNN

New Delhi: Environmentalists have been warning about growing encroachments on the Yamuna floodplains being a recipe for disaster. Now, the latest UN panel report on climate change echoes these fears, putting Delhi among three of world's mega cities that are at high risk of floods.

The other two cities facing similar risk are Tokyo and Shanghai, says the Intergovernmental Panel of Climate Change's report — Cli-

▶Temperature rose, P 6

mate Change 2014: Impacts, Adaptation and Vulnerability — released on Monday. It says river floodplains need to be secured to be able to adapt to extreme weather and recommends setting aside buffer zones along rivers instead of "hard defenses" like channelization or dams.

Mumbai and Kolkata figure among top Asian cities vulnerable to coastal flooding by 2070s, along with Dhaka, Guangzhou, Ho Chi Minh City, Shanghai, Bangkok, Rangoon, and Hai Phong.

The report also delves into Delhi's past-paced growth impacting the micro-climate of the city.

Piyal Bhattacharjee

MEGA WORRY? A waterlogged road in Delhi in 2013

Palam's average temperature rose by over a degree: Study

▶Continued from P1

The report cites the example of Palam, where a rise of more than 1 degree in annual mean minimum temperature has been recorded.

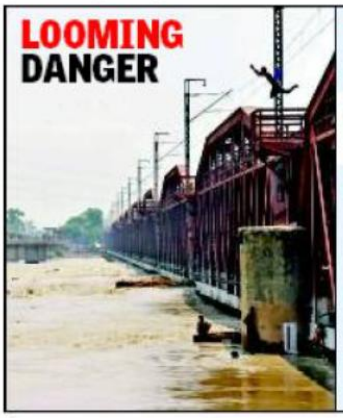
Delhi's environmental problems have found mention for the first time in any report of the UN's IPCC. The latest one talks about the city's vulnerability to flooding. Environmentalists have been raising alarm about rampant land-use change of Yamuna floodplains in Delhi. The flow in the river is also highly restricted as most of the water is channelized for irrigation and drinking water purposes before it enters Delhi.

"As per our estimates, 30% of the existing floodplains — Palla to Jaitpur — have already been converted. A few instances of conversion, such as the DTC millennium bus depot, can still be reversed. But the rest like Akshardham, Batla house, Metro stations and others are pretty much permanent. We had conducted a detailed study on the floodplains from Wazirabad to Okhla which had large encroachments," said Manoj Misra of Yamuna Jiye Abhiyan.

The IPCC report also focuses on climate change impacts on urban areas and how extremely dense city areas have a significant impact on micro climate through the urban heat island effect. The report quotes a study by IIT Delhi which found that the annual mean minimum temperature at Palam weather station had increased considerably since the 1970s and is now comparable to temperatures at Safdarjung weather station.

"Palam used to be a deserted area compared to Safdarjung in 1968. We started measuring the difference between the annual mean minimum temperature at Palam and Safdarjung to understand how urbanization affects temperature change. By 80s, there was no difference in the annual mean minimum temperature difference between two locations and in the 2000s Palam often records a higher annual mean minimum. This is because of urbanization. It is the urban heat island phenomenon but in more magnified proportions," said Manju Mohan, IIT professor and author of the study quoted in the IPCC report.

There has been a rise of more than 1 degree in the annual mean minimum temperature in Palam, according to her study. The IPCC report states that climate change will modify the UHI effect in cities. "Increased frequency of hot days and warm spells will exacerbate urban heat island effects, causing heat-related health problems and, possibly, increased air pollution, as well as an increase in energy demand for warm season cooling. Conversely, widespread reduction in periods of very cold weather will mean a decline in heating demands," the report says.



- Delhi at high-risk of floods due to climate change and misuse of floodplains
- Faces urban heat island (UHI) effect. Climate change will modify UHI in cities
- Contaminated urban floodwaters can cause exposure to pathogens and toxic compounds. Mental disorders and post-traumatic stress syndrome have also been observed in disaster-prone areas which are likely to intensify with an increase in extreme weather events

The Times of India, Delhi
dated April 03, 2014

Dust from Sahara desert chokes UK

Air Pollution Alert Put At 'Very High' Level

Kounteya Sinha | TNN

London: Parts of Britain woke up on Monday to dust from the Sahara desert, thousands of kilometres away. The country has announced a red alert. The country's environmental agency has asked people to prepare for "very high" levels of air pollution over the next few days as dust blows in from the Sahara desert.

Defra has warned that very high levels of pollution — almost 9 on the scale, will hit several parts of England and Wales. It says the elevated pollution levels are the result of a combination of light south-easterly winds, the continental air flow and dust which has blown up from the Sahara desert. North-west of Norfolk saw levels of pollution hit 10.

Defra said, "Today the UK is experiencing high levels of air pollution. This is a result of local pollution combined with pollution blown over from Europe and the Sahara. Individuals, particularly vulnerable groups such as those with existing heart or lung conditions, may experience increased symptoms. We encourage people to take sensible precautions such as reducing or avoiding strenuous activity and ensuring they have access to their usual medication, such as asthma inhalers." The east of England and Midlands were the worst-affected areas.

REUTERS

SMOGGY MORNING: A man wears a mask as he cycles near Buckingham Palace in London on Wednesday

Motorists across the country found their cars coated with desert sand. The Met department later confirmed that it was transported to Britain from the Sahara desert in North Africa by southerly winds. Drivers across the South East, Cornwall and Devon besides parts of Northern Ireland were surprised to find dust all over their courtyards and cars which had dropped from the sky above just like rain. The Met department said "An unusual weather pattern transported the red grains thousands of miles from North Africa to Britain." Defra added, "Anyone experiencing discomfort such as sore eyes, cough or sore throat should consider reducing activity, particularly outdoors."

The European Commission has already dragged Britain to court for failing to deal with air pollution. The Commission has launched legal proceedings against the UK for its failure to cut excessive levels of nitrogen dioxide, a toxic gas.

Air pollution causes 29,000 early deaths a year in the UK. The WHO last week said air pollution has emerged as the world's single largest environmental health risk, having caused seven million deaths in 2012 – 80% of which were from heart attacks and stroke. WHO said 1 in 8 global deaths were linked with air pollution.

The Sahara is the world's hottest desert and the third largest after Antarctica and the Arctic. It covers over 3,500,000 square miles or around 10% of the continent.

The Deccan Chronicle, Hyderabad
dated April 04, 2014

Pollution hits farming, destroys livelihoods

SUDHEER GOUTHAM | DC
HYDERABAD, APRIL 3

- **The bulk drug manufacturing units are paying only a pittance as compensation**
- **Farmers are forced to take whatever is being given as they cannot fight the drug firms**

Chirman Ramulu, a 65-year-old farmer can now be seen at temples begging for food and money.

Ramulu, who has seven acres of farmland in Kazipally village, was well off years back and used to support his family of four including his wife and two daughters. He used to grow paddy on his land and earn enough by selling it twice a year. But, now he has given up farming as his fertile land has turned barren due to pollution of the land and water due to effluents from bulk drug units and the pharma industry.

"Twice a year I used to grow paddy and earn up to ₹40,000 a acre every year. But, now my land has become useless. I cannot grow anything on it. As the entire land has become polluted even the Kazi Lake which was our water source is also completely polluted," said Ramulu.

This is not the case of Ramulu alone but over 200 farmers of Kazipally village in Medak district, who lost their source of livelihood.

Over 120 acres of farmland in Kazipally has become unsuitable for farming. There are over 40 bulk drug units — SMS Pharmaceuticals, Aurbindo Pharma, DIVI, Hetero Drugs, Apex, Nylon, Sarca, Virchow and others whose effluents flow through the Jallevagu.

Later when the farmers realised that polluting industries were destroying their land they raised the issue in court and with the government. As per direction of the SC, the government intervened and collected compensation to hand over to the farmers. Later, the officials asked the farmers and the local Sarpanch to deal with them directly for yearly compensation.

However, the bulk drug industries are paying only a pittance and are shirking their responsibilities.

"We have been fighting in court and have also held several dharnas in front of these drug units. But, now the local representative and some farmers have made an agreement with the bulk drug factory owners. Farmers are being given ₹4,000 per acre every year," said C. Shankar, a local ward member.

"Since we are fed up with court cases and as the government does not pay attention to our problems we are talking what is being offered. We are given ₹4,000 an acre every year. How will that compensate our agricultural income and how will we raise our families. Our lands have turned barren and we have no other source of income. Our children have become labourers," said M. Bheema another farmer. However, the case is still pending in the National Green Tribunal.

The APPCB has turned a blind eye to the violations. "After notification the drug units are following the Zero Liquid Discharge method that does not cause pollution since there is no outflow of effluents," said Joint chief environmental engineer Bhaskar Rao. However, a visit to the place clearly showed effluents still flowing out from the drug units.

The Times of India, Delhi
dated April 04, 2014

London smog forces Cameron to skip jog

London: The thick blanket of smog caused by dust from Africa's Sahara desert that is engulfing the city of London on Thursday even forced British PM David Cameron to cancel his daily morning jog.

Saharan dust has caused high levels of air pollution in the British capital, which was left gasping for fresh air for the second day.

Cameron, who runs every day as part of his morning routine, told BBC, "Didn't go for my run this morning. I chose to do some work instead. It is unpleasant, and you can feel it in the air. The advice I would give to people is listen very carefully to what the Met Office is saying about the weather".

Some schools in London have banned pupils from outdoor playgrounds to reduce their exposure to the polluted air. London Ambulance Service reported a 14% rise on Wednesday in 999 calls related to breathing difficulties.

The smog-like conditions, which are expected to clear on Friday are caused by a mixture of local and continental pollution, and dust from the Sahara Health warnings have been issued for people with lung and heart conditions.

The department for environment, food & rural affairs said that on a 10-point scale, air quality in eastern England had reached nine. AGENCIES

The Deccan Chronicle, Hyderabad dated April 04, 2014

Hazardous wastes kill villagers

DC CORRESPONDENT
HYDERABAD, APRIL 3

Villagers of Kazipally fear whether their pregnant women would have live births, as cases of foetal deaths are common here.

"Foetal deaths, joint pains and skin allergies have become common among villagers," said Bheema of Kazipally village.

The ground water is highly contaminated with hazardous chemicals released by the bulk drug units.

"Unaware of the toxicity levels of the groundwater, poor people were drinking it till a few months back. These deaths were caused by the consumption of polluted groundwater," said Prof. Vijay Haragopal, who has been spearheading the campaign against violations by bulk drug units.

"The untreated hazardous effluents released by Hetero Drugs unit-I (located less than a mile away from village), on the open land of the village and in the pond have polluted groundwater," he said.

The Economic Times, Delhi dated April 04, 2014

Citings

On Climate Change

ANDREW WINSTON

Wild weather is taking a toll on people and businesses around the globe... It's impossible to pin any one weather event on climate change, but the scientific consensus is that as the planet gets hotter, the frequency and severity of destructive weather will only increase.

Along with — and often because of — these weather patterns, we're seeing higher prices of most commodities that business and society rely on. This is a sharp reversal of the trend toward lower prices during the last century. Major storms, droughts and floods are cutting the supply of some renewable commodities, such as crops and clean water. Non-renewable resources, such as oil and some metals, are also becoming scarcer...

Though companies are facing many global-scale challenges, extreme weather caused by climate change and increasing limits on resources are both having an unprecedented impact, threatening corporate profits and global prosperity. These "megachallenges" will require companies to fundamentally rethink their strategies and tactics.

To manage them, all parts of society — government and public institutions, the private sector, and citizens — must act in concert. But business, with its financial and material resources, innovativeness and talent, must lead the way...

A profound change in strategy, operations and business philosophy will make organisations more resilient and help them create new value in a hotter, resource-scarce world.

From "Resilience in a Hotter World"

The Times of India, Delhi dated April 05, 2014

Trees tweaked for easier papermaking

Kounteya Sinha | TNN


© A. Green/Corbis

GREEN WAY

London: Researchers have genetically engineered trees that will be easier to break down to produce paper and biofuel. They used genetic engineering to modify lignin to make it easier to break down without adversely affecting the tree's strength. The breakthrough will mean using fewer chemicals, less energy and creating fewer environmental pollutants. Lignin makes up a substantial portion of the cell wall of most plants and is a processing impediment for pulp, paper and biofuel.

Currently lignin must be removed, a process that requires significant chemicals and energy and causes undesirable waste.

"One of the largest impediments for the pulp and paper industry as well as the emerging biofuel industry is a polymer found in wood known as lignin," said Shawn Mansfield, a professor of Wood Science at the University of British Columbia. "We're designing trees to be processed with less energy and fewer chemicals and ultimately recovering more wood carbohydrate than is currently possible." The structure of lignin naturally contains ether bonds that are difficult to degrade. Researchers used genetic engineering to introduce ester bonds into the lignin backbone that are easier to break down chemically. The new technique means that lignin may be recovered more effectively and used in other applications, such as adhesives, insolation, carbon fibres and paint additives. In the future, genetically modified trees could be planted like an agricultural crop, not in forests.

Poplar is a potential energy crop for the biofuel industry because the tree grows quickly and on marginal farmland.

The Deccan Chronicle, Hyderabad dated April 07, 2014

Anadarko to pay $5b for pollution

Washington, April 6: The US saw the largest pollution cleanup settlement in history on Saturday according to a report in the *New York Times (NYT)* and *Huffington Post.*

The department of justice and the environmental protection agency announced on Thursday a $5.15 billion settlement with a subsidiary of Anadarko Petroleum.

The settlement stems from pollution left behind by the KerrMcGee Corporation, which was acquired by Anadarko in 2006, the reports said.

KerrMcGee's decades-long legacy of polluting industries dates back to at least 1928, and included uranium mines, wood treatment facilities and chemical manufacturing plants.

The department of justice claimed that between 2002 and 2005, KerrMcGee transferred the more profitable oil and gas portions of its company to a new entity, referred to in the case as "New KerrMcGee."

The government argued that KerrMcGee devised this scheme to evade responsibility for cleanup and instead passed the cleanup costs on to local communities and the federal Super-fund programme, reports said.

In 2006, it transferred other parts of its company associated with the years of pollution into a separate company, Tronox, which was left insolvent. Tronox couldn't pay the costs of the environmental cleanup and went into bankruptcy in 2009.

The government argued that KerrMcGee devised this scheme to evade responsibility for cleanup and instead passed the cleanup costs on to local communities and the federal Superfund programme, reports said. A court last December found KerrMcGee guilty of fraudulent conveyance.

The court also held the new company and its parent, Anadarko, liable for the cleanup costs.

— *Agencies*

The Times of India, Delhi dated April 07, 2014

Eco-friendly cement from old toilets?

Washington: Discarded toilets, along with other ceramic waste such as basins, stoneware and bricks, can be recycled into an eco-friendly form of cement, scientists say.

The method involves grinding the ceramic waste and mixing it with an activator solution and water. The mixture is then poured into a mould and subjected to a high-temperature hardening process. Researchers conducted tests with items made from red-clay brick waste and found the cement was actually stronger than types that are currently in common use.

Currently, researchers are using sodium hydroxide or sodium silicate as activators. The researchers, from Spain, the UK and Brazil, are looking into using rice husk ash as an activator. If it could be used, the result would be a cement made entirely from waste materials. The eco-friendly cement could be used as an alternative to Portland cement. Production of Portland cement releases large amounts of carbon dioxide. AGENCIES

The Deccan Chronicle, Hyderabad dated April 08, 2014

US turns seawater into fuel

Washington, April 7: The US Navy believes it has finally worked out the solution to a problem that has intrigued scientists for decades — how to take seawater and use it as fuel.

The development of a liquid hydrocarbon fuel is being hailed as "a game-changer" because it would signficantly shorten the supply chain, a weak link that makes any force easier to attack.

The US has a fleet of 15 military oil tankers, and only aircraft carriers and some submarines are equipped with nuclear propulsion.

All other vessels must frequently abandon their mission for a few hours to navigate in parallel with the tanker, a delicate operation, especially in bad weather.

The ultimate goal is to eventually get away from the dependence on oil altogether, which would also mean the navy is no longer hostage to potential shortages of oil or fluctuations in its cost.

Vice Admiral Philip Cullom declared, "It's a huge milestone for us."

"We are in very challenging times where we really do have to think in pretty innovative ways to look at how we create energy, how we value energy and how we consume it," he said.

"We need to challenge the results of the assumptions that are the result of the last six decades of constant access to cheap, unlimited amounts of fuel," added Admiral Cullom. "Basically, we've treated energy like air, something that's always there and that we don't worry about too much. But the reality is that we do have to worry about it," he said.

US experts have found out how to extract carbon dioxide and hydrogen gas from seawater.

Then, using a catalytic converter, they transformed them into a fuel by a gas-to-liquids process. They hope the fuel will not only be able to power ships, but also planes.

That means instead of relying on tankers, ships will be able to produce fuel at sea. The predicted cost of jet fuel using the technology is in the range of three to six dollars per gallon, say experts at the US Naval Research Laboratory, who have already flown a model airplane with fuel produced from seawater. — *AFP*

The Deccan Chronicle, Hyderabad dated April 09, 2014

ANOTHER | CHOICE ■ **Toyota, Honda, Ford and Telsa are leading the experiment with alternative fuels**

Global auto manufacturers test hydrogen-fuelled cars

Washington, April, 7: The United States seems to be in full steam to reduce vehicular emissions from its over 230 million cars. According to latest market data the country, which is yet to sign the Kyoto Protocol on climate change, is seriously considering hydrids, solar and hydrogen-powered cars.

At the frontline of green innovation then, are four companies — Toyota, Honda, Ford and Tesla.

Toyota are headliners in this market with the company's Prius electric-petrol Hybrid even managing to seduce Hollywood celebrities.

Leonardo DiCaprio drives one and the Japanese giant hopes many others would follow suit.

Honda, meanwhile, are hoping their "car of the future", the FCX clarity gets more than just a handful of Hydrogen fuel pumps in the US.

In fact, the world has its money bet on the fuel cell-powered FCX Clarity with many motoring experts claiming 'it is the one'.

The car combines hydrogen and oxygen and after some more front-end sorcery, is able to move without emitting a single puff of carbon monoxide. In fact, it only emits water — H2O.

Trying to Innovate

According to latest market data United States, which is yet to sign the Kyoto Protocol on climate change, is seriously considering hydrids, solar and hydrogen-powered cars.

Toyota are headliners in this market with their Prius electric-petrol hybrid.

But the only thing that's stopping the Clarity from putting the Arabs out of business is the cost of storing and processing hydrogen.

The United States has only 10 hydrogen pumps. But the outlook is hopeful as besides Honda, Toyota and Hyundai are mulling big leaps into fuel cell technology. This market rush, experts claim, could pressure government-backed innovation into delivering

But not everyone has give up on the sun to power their cars. The Ford C-MAX Solar Energi concept car, for example, has a rooftop covered in solar panels that could keep the car energised for a week. Ford has also developed a special canopy for the C-Max that constantly tracks the Sun's journey across the sky. This, Ford claims, can get its car more solar 'juice' than normal solar-powered vehicles.

Ford is also looking at the ground for resources. The company has added an all-aluminium F-150 to its planet-saving blueprint.

The F-150 is one of Ford's must successful models ever and this is probably the first time the "truck" has taken a shot at staving off global warming. With aluminium, F-150 owners can boost average fuel economy and can considerably cut down both consumption and expenditure.

But all of the above technology needs to rush if America plans to make a credible stand in the fight against pollution.

A recent statistic from the North Carolina State University. To see even the tiniest drop in quantities of key airborne pollutants, the US needs to turn 42 per cent of its 230 million vehicles into hyb-rids or solar cars. — *Agencies*

The Economic Times, Delhi dated April 09, 2014

The Times of India, Delhi dated April 09, 2014

Party manifestos mum on pollution in rivers

Jayashree Nandi | TNN

New Delhi: Pollution in Yamuna or Ganga do not figure in the manifestos of the capital's three major political parties nor does any focused plan on addressing the crisis of rivers.

Despite having its roots in Delhi, Aam Aadmi Party doesn't talk about its plans for the extremely polluted Yamuna. With little progress made on the Ganga and Yamuna action plans, the Congress merely aims to "clean rivers on a large scale". The BJP, meanwhile, continues to pitch its controversial pet project—interlinking of rivers. Environmentalists say little thought has gone into addressing urgent ecological concerns like the state of rivers or their position on dams.

Congress in Delhi oversaw most part of the Yamuna Action Plan's Phase II but, as per reviews by various civil society groups, neither YAP I or II contributed much in improving the health of the river. About Rs 6,500 crore has been spent on the river in the past 19 years, according to Yamuna Jiye Abhiyan. But this time, activists were hoping that AAP, which is more of a local party, would have a plan for Yamuna.

"AAP doesn't say anything on rivers. Since it appeared to be a more forward looking party, we hoped it would have some radical plans for the river and floodplains. This is a letdown," Manoj Misra of Yamuna Jiye Abhiyan said. The only 'radical' proposition by AAP is to transfer the ownership of minor minerals and forest produce to local communities and have a "royalty and revenue sharing agreement" with them in cases of commercial exploitation of natural resources.

However, there are even more serious concerns about BJP's manifesto that plans to interlink rivers and provide "piped water to all households". "It's a disastrous proposition to interlink rivers. It's not just unscientific. The fact that it has not taken off in the past 10 years is proof of the fact that it can't be done. It's very expensive and can lead to huge displacement," said Himanshu Thakkar, coordinator of SANDRP (South Asia Network on Dams, Rivers and People).

BJP has been proposing interlinking of rivers since 2004 because it sees it to be a means to provide irrigation to all states, Thakkar says. He adds that the "right wing attempt to save the Ganga" also doesn't reflect in the manifesto. Instead a very populist agenda comes across with BJP promising water for all but not reflecting on how it will manage that feat, he says. In the cultural heritage section of BJP manifesto, it does mention about "purifying" Ganga water but there is no action plan on how it can be purified.

The plight of Ganga that hasn't got any focused agenda from the three parties seems even more pertinent considering that the PM candidates of BJP and AAP are contesting from Varanasi.

Congress, for its part, has a very simplistic view on rivers—it wants to "clean rivers on a large scale". "Something that is successful can be replicated. But the action plans have not been successful, so I don't know how they plan to clean all rivers. The manifesto should have elaborated on how they will clean the rivers," said Thakkar. However, Congress has managed to put down a few concrete plans—like launching a Green National Accounts so that environmental costs are reflected in national accounts and setting up a National Environmental Appraisal and Monitoring Authority for environmental appraisals.

jayashree.nandi@timesgroup.com

MISSING FROM AGENDA

BJP
- Interlinking of rivers
- Says pure waters of Ganga essential for spiritual and physical well-being of Indians
- No mention of Yamuna

Congress
- Cleaning of rivers on large scale. No mention of Yamuna

AAP
- Doesn't have an agenda for Yamuna or other rivers

Solar Power Generation on Waterbodies may be Possible

DEB JOY SENGUPTA
KOLKATA

Solar power can now be generated from still water found in ponds, lakes and waterbodies. A system of generating electricity from floating panels has been developed by a college in Kolkata. Solar panels will be set up on floating platforms which will be anchored firmly so that it does not sway around on the water surface. However, scientists in charge of the project are still working on the ways of securing the platform in case there are strong winds.

With large waterbodies available in eastern and south-eastern part of the country in states such as West Bengal, Assam, Orissa and Andhra Pradesh, this technology can lead to considerable savings on land prices and bring down power generation expenses, thus reducing the gap between thermal and solar power. It is also expected to offer greater generation yield compared to similar panels installed on land.

The first of its kind in India, the project is under execution at a lake in the outskirts of Kolkata city. The project estimated at ₹35 lakh has been fully funded by the ministry of new and renewable energy and is expected to generate around 12 kilo watt of power by December.

The simple technology is expected to drive down land prices. Following the government's announcement of setting up 2 lakh mw of solar power generation capacity, prices of barren land earmarked for solar power projects have gone up by at least 20-30%. This has, in turn, pushed up solar power prices. Waterbodies can now offer an alternate solution to this problem. To generate a mega watt of solar power, one requires about four acres of land at an investment of about ₹7 crore. It produces power costing ₹8 per unit.

In contrast, if panels are installed on floating platforms, the area required is likely to be 10-20% less. Capital cost for such solar projects will be around ₹6.5 crore per mw which will generate power at ₹7 per unit. It will also qualify for the state and central subsidy that the government provides as part of its solar mission.

The surface of the waterbody can be rented out by the owner and the rent will be minimal because such water surfaces can be put to no other use. In contrast, thermal power plants require an investment of up to ₹6 crore per mw of generation capacity and the produce is priced at ₹5-6 per unit.

"The ecology of the waterbody is not likely to be affected much and it will also reduce evaporation, thus helping preserve water levels during extreme summer. Solar panels installed on land face reduction of yield as the ground heats up. When such panels are installed on a floating platform, the heating problem is solved to a great extent," said SP Gon Choudhury, chairman, Renewable Research College.

According to the system, solar panels will be set up on floating platforms which will be anchored firmly so that it does not sway around on the water surface

The project has already attracted attention from state officials of Orissa and Kerala. "We have been approached by Chilika Development Authority (CDA) in Orissa and the Kerala Airport Authority for setting up similar facilities in their areas," said Choudhury. "While the Chilika lake has an area of over 1,100 square kilometre, the airport in Kerala has a huge waterbody where such a facility can be set up. Such panels could also be installed on water reservoirs of dams."

Floating with Technology

SOLAR PANELS WILL BE set up on floating platforms which will be anchored firmly so they don't sway on the water

THIS TECHNOLOGY IS expected to offer greater generation yield compared to similar panels installed on land

THE FIRST OF ITS KIND in India, the project is currently under execution at a lake in the outskirts of Kolkata city

The Economic Times, Delhi
dated April 12, 2014

SOCIAL SPENDING CSR rule is expected to add ₹15 –20-kcr to the sector anually

CSR Consultants Mushroom After 2% Spending Law

Start ups and online portals are now advising cos on how to invest strategically

SHREYA ROY & ARJUN MEHRA
BANGALORE

Cos on the Front

SAMITHA SOCIAL VENTURES has launched CSR Market Place that helps connect corporates with NGOs

ITALENTIA CONNECTS corporates at the same location & identify needs specific to their localities

2CSR HELPS COMPANIES invest in a manner that generates revenue and improves top and bottomline

In Mumbai, Priyam Gandhi and Sonia Agarwal are in their first month of operations at 2CSR, a consultancy for corporate social responsibility.

The fledgling firm scouts for clients who want to know how to 'give' for social initiatives under a new corporate law.

In Bangalore, Sandeep Kejriwal, former CFO of EMC India, has launched iTalentia. The fivemonth-old company has CSR (corporate social responsibility) consultancy as one of its core practices, in addition to corporate coaching. Similarly, Samitha Social Ventures, a not-for-profit organisation backed by the Nadathur Foundation, has launched CSR Market Place, a platform that connects corporates with NGOs and social ventures.

The three ventures are part of a growing tribe of startups that advise companies on how to give in a meaningful way.

"A lot of companies don't understand the law, and also confuse CSR with charity and philanthropy. What we want to do is help them understand how best to strategically invest in CSR activities, to make it a revenue generating process, given that this is allowed in the law," said Sonia Agarwal, the 23-year-old co-founder of 2CSR.

Under the new law, any company with net worth of . 500 crore or turnover of . 1,000 crore or net profit of . 5 crore must set aside, from April 1, at least 2% of its average net profit in the previous three years for corporate social responsibility.

The CSR requirement, legislated under the Companies Act, covers anywhere between 8,000 and 16,000 companies.

The CSR provision is expected to inject . 15,000-20,000 crore every year into the social sector. In addition, given the gap between corporates and NGOs/social ventures, gray areas in the new laws and lack of exposure to "strategic CSR", such consultancies and online platforms are mushrooming.

"We help build CSR programs that will reflect well on the top line and the bottom line," Agarwal said. For instance, an FMCG company may want to give money for education, but it might make better business sense to invest in a social venture that is involved in waste management.

iTalentia, on the other hand, helps offers to connect corporates at the same location, and among other services, helps identify social needs specific to their localities. These companies can then pool-in to address common objectives. Even when a company has all legal and strategic requirements in place, identifying the right NGO or social venture may prove tricky. "There is a high risk of a lot of money being wasted if not invested in legitimate social enterprises," said Aparna Sanjay, who runs the Bangalore chapter of Social Venture Partners, a platform for venture philanthropists. "Out of a possible 2 million NGOs in India, just about 500 are genuine," added the IIM and London School of Economics graduate.

Recently, SVP has also seen interest from corporates that want to work in partnership with the firm, and understand concepts such as measuring impact and building volunteering programs for employees.

But this type of consultation service is not just for companies.

"We found that 30% of the NGOs have never interacted with corporates. And social ventures do not understand that they need to work as vendors for companies, and not just as recipients of CSR funds," said Priya Naik, founder and managing director of Samitha. Naik, who holds a masters degree in economics from Yale and in public policy from the University of Michigan, added, "Almost $3 billion is going to enter the social sector, and they are just not prepared to use it. Working with stake holders at this end of the spectrum is an important part of what CSR consultants need to do."

Samitha is hoping to solve some of these problems. Its online market place for CSR provides a platform for NGOs and corporates to interact companies can access, and in a way, shop around for NGOs or social ventures that fit their plan.

The Times of India, Delhi dated April 13, 2014

UP, Haryana told to increase forest cover in NCR towns

Dipak Kumar Dash | TNN

New Delhi: In a bid to increase the green cover in the National Capital Region, the environment ministry has suggested that Uttar Pradesh raise its forest cover by 500% and Haryana by 400%. Over the years, the NCR has witnessed a huge increase in population and depletion of green areas.

BID TO GO GREEN

In a letter addressed to the NCR Planning Board, the ministry of environment and forest (MoEF) has said that while the national average forest cover is around 21.05%, it is only 6.2% in the NCR. While pushing for more green cover in the region and the need for member states to put in more effort, the MoEF has mentioned that the track-record of Delhi and Rajasthan is much better than the other two member states—Haryana and Uttar Pradesh. In Delhi, the forest cover is about 11.9% and in Rajasthan it is around 14.4%.

According to environmental analysts, since there Delhi and Rajasthan each have a sanctuary—Bhati in Delhi and Sariska in Rajasthan—a major portion of forests has been protected. However, Haryana has not yet earmarked any areas as protected forests despite the Aravalis, which fall under Faridabad in the NCR, having a sacred forest.

Urbanization, road expansion and illegal mining have taken a toll on the green cover in the NCR between 2000 and 2009. While the dense forest cover in the area has reduced by nearly 40%, there has been a marginal increase in open forest areas with shrubs and minimal plantation. Delhi remains the greenest city in NCR with nearly 11.9% of its area having some forest cover.

The first-ever comparative satellite-based study of change in land use in NCR had indicated how green cover and water bodies, almost equal to a quarter (23%) of Delhi's area, have been lost to development works and rapid urbanization in the region between 1999 and 2012. The region lost 32,769 hectares of green areas and 1,464 hectares of water bodies. During the same period, the NCRPB study found that built-up area in the region grew by a massive 34%, bringing 95,803 hectares of land into the construction zone.

Emissions increased despite green measures: UN panel

Vishwa Mohan | TNN

New Delhi: Nearly two weeks after predicting a bleak future for the world due to global warming, a UN panel on Sunday came out with yet another alarming report, telling the global community that emissions of climate-damaging greenhouse gases (GHGs) have increased substantially despite reduction measures by different countries. In its report, the Intergovernmental Panel on Climate Change (IPCC) said the emissions grew more rapidly between 2000 and 2010 than in each of the three previous decades. It, however, emphasized that the world has tools to fight climate change and the time has come when countries must implement the measures more effectively.

Highlighting that existing efforts were not enough, the panel urged nations to take measures to lower global GHG emissions by 40-70% from the 2010 level by mid-century if the world wanted to limit the increase in global mean temperature to a manageable 2 degrees.

Pitching for a low-carbon future by increasing use of renewable energy and substantially cutting down consumption of fossil fuels, the IPCC also set another target,

URGENT ACTION

saying the emissions must be cut down to "near-zero by the end of this century", saying "ambitious mitigation may even require removing carbon dioxide from the atmosphere".

The report – Mitigation of Climate Change – carries a number of recommendations for policy makers which can be implemented so that the level of emissions is reduced. Though the IPCC did not get into country-specific recommendations, it enlisted a number of measures which can be taken up by developing countries like India, China and Brazil.

Navroz Dubash, one of the Indian authors of the IPCC report, told TOI that the recommendations regarding reduction of subsidy for fossil fuels (diesel and petrol), specifically in the transport sector, and the use of energy-efficient products are a couple of suggestions which can be adopted by India. Dubash and other Indian authors — including Eswaran Somanathan, Shreekant Gupta and Joyashree Roy — also highlighted that there are many co-benefits of these measures which India can adopt even if New Delhi may not agree to certain other suggestions which developed countries are pushing for.

They also pitched for substantial use of renewable energy and said these efforts had "co-benefits" as cutting down fossil fuel consumption would save money, besides lowering emissions.

Asked about high cost of existing clean technology, Somanathan said if you would use it more, the cost would eventually come down and renewable energy would become more affordable. The IPCC report came out with sector-wise recommendations for cutting down GHGs emissions. It said stabilizing greenhouse gas concentration in the atmosphere requires emissions reductions from energy production and use, transport, building, industry, land use, forestry, agriculture and human settlements.

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

The Times of India, Delhi dated April 15, 2014

Climate change will spread diseases

Durgesh Nandan Jha | TNN

New Delhi: US scientists have warned India of increased incidence of infectious and vector-borne diseases in coming years due to climate change. According to a report on climate change and infectious diseases in India authored by top scientists from Environment Safety and Health Compliance Office of Centers for Disease Control and Prevention and Climate and Health Program, National Centre for Environmental Health, cases of diseases like dengue and chikungunya are all set to go up.

The incidence of diarrhoeal diseases, which is responsible for one-fourth of child deaths, may rise further, states the report. "Diarrhoeal diseases are largely attributable to unsafe drinking water and lack of basic sanitation.

Rapid urbanization and industrialization, population growth and inefficient water use are already causing water shortages in India. Climate change will exacerbate the lack of available fresh water as annual mean rainfall decreases in many areas," scientists have argued in the article titled 'Climate Change and Infectious Diseases in India: Implications for Healthcare Providers' published in a recent issue of the Indian Journal of Medical Research.

Dr C S Wattal, chairperson of the microbiology department of Sir Ganga Ram Hospital, explained, "The earth is getting warmer by 0.5-0.9°C due to global warming which is resulting in an altered behaviour of disease causing organisms. We are seeing re-emergence of many diseases like leptospirosis, legionolosis and kala azar even in places like Kashmir."

According to Dr Sandeep Budhiraja who heads the medicine department at Max Hospital, Saket, diseases like dengue have turned endemic. "It has spread to areas hitherto unaffected and incidence has increased significantly. We get patients suffering from the mosquito-borne diseases even during winter months," he said. Earlier, dengue cases were mostly reported in rainy season but doctors say such cases are now reported throughout the year. In March, the municipal corporations in Delhi reported two cases which is unusual.

The Times of India, Delhi dated April 16, 2014

Bye street light: Now, a road in Netherlands that glows in dark

AFP

NEW WAY TO SAVE ENERGY

London: A first glow-in-the-dark 'smart highway' spanning 500 metres has been developed to replace street lights in the Netherlands. It is the first time "glowing lines" technology has been piloted on the road and can be seen on the N329 in Oss, approximately 100km south east of Amsterdam.

Designer and innovator Daan Roosegaarde teamed up with Dutch civil engineering firm Heijmans to developed the technology. The glow-in-the-dark markings are made of paint that contains "photo-luminising" powder which charges up in the daytime and slowly releases a green glow at night, 'BBC News' reported.

Once the paint has absorbed daylight it can glow for up to eight hours in the dark, doing away with the need for street lights. The innovative technology will be officially launched later this month and if successful could trigger a mass switch-off of lighting across the country's road network, potentially saving the nation millions of Euros.

Heijmans said that the glow in the dark technology is "a sustainable alternative to places where no conventional lighting is present".

Roosegaarde's past projects have included a dance floor with built-in disco lights powered by dancers' foot movements, and a dress that becomes see-through when the wearer is aroused. In the UK, engineers have developed water-resistant, spray-on coating that makes roads glow in the dark by absorbing UV light during the day and releasing it at night. The coating can adapt to the lighting conditions in its surroundings to glow accordingly. AGENCIES

The Times of India, Delhi dated April 17, 2014

Green Norms for Projects Spread over 5 acres may Hit Cos

VIKAS DHOOT
NEW DELHI

Even as industrial output is hitting new lows every passing month, India Inc is belatedly waking up to a major environmental clearance deterrent that is jeopardising investments across manufacturing, services and even the agriculture sector.

In early 2013, the environment ministry had made it mandatory to obtain a prior environmental clearance for all investment projects involving a construction of over 20,000 square metres or five acres of land. This has already scuttled and delayed a few projects of auto and power sector majors, who have been told to get environmental nods for building or expanding industrial facilities like factories and warehouses — a process that takes at least 18 months in a best-case scenario.

For industry, this is yet another legacy from Jayanthi Natarajan's controversial 30-month reign in UPA-II as minister with independent charge at the environment ministry that led to lakhs of crores of investments being put on hold between 2011 and 2013. While the present environment minister Veerappa Moily cleared dozens of stalled projects, he did not roll back this particular directive .

Top India Inc managers in firms affected by this diktat told ET on conditions of anonymity that the new green hurdle arises from what is probably a deliberate mis-interpretation of the 2006 environmental impact assessment rules as it equates the building of a factory or even a large IT-enabled services facility with pure real estate activities such as building townships and housing complexes.

"Though the rules issued in 2006 explicitly kept sectors like automobiles and manufacturing out of the regime for prior environmental clearances, the environment ministry introduced the requirement through a clarification it issued to Hyundai Motors India in January 2013," said a senior vice-president in a large manufacturing firm tracking the issue.

Change in the green clearance norms has already hit a few projects in auto and power sectors

Hyundai Motors had proposed an expansion of its plant in Kanchipuram that was to take its built-up area to around 38,000 square metres. The company was asked to seek an environmental clearance first as per the norms for building construction and township and area development activities.

The diktat to Hyundai set a precedent, which almost all state environment departments have used since then to force companies to seek a green clearance for new capex that would take their unit's size beyond the 20,000 square metres threshold.

"The government says it wants to raise manufacturing's share in the economy to create millions of jobs, but the environment ministry's stance means that any firm looking to set up a production facility of competitive scale must first factor in a delay of around two years to obtain the green clearance. This makes investment planning highly risky as there would be a two-year lag in responding to market forces," said an official in an industry chamber that is in the process of flagging the issue with the government.

"Moreover, the ministry considers the cumulative construction in a plant for this purpose. So if a 19,000 square metre auto component plant needs to expand by a mere 1,000 more square metres, it will have to seek an environmental nod for the entire plant," pointed out the industry executive quoted earlier. Given that most investments of a viable scale involve at least five acres of land, can the environment clearance machinery in states and the Centre cope with the workload this would entail?" he asked.

Some industrial clusters where units are hit by this directive as well as major auto and power generation equipment makers have already approached environment ministry mandarins to set the record straight about the environmental impact assessment norms so that industrial investments can fructify sooner.

At least one public sector capital goods maker has even sought legal advice on the issue from senior law officers in the government who have opined that such projects do not require a prior environmental clearance under the Environment Protection Act or the Environment Impact Assessment notification of 2006.

The Deccan Chronicle, Hyderabad dated April 18, 2014

Firms move EC on green woes

Permit troubles

● Ever since the poll code has been implemented, industry bodies claim that the ministry of environment and forests has kept these permissions for the projects in abeyance.

New Delhi, April, 17: India Inc has asked the Election Commission to issue clarifications on pending project approvals sought by the environment ministry as the industry faces difficulties due to delays in getting the clearances.

"Ever since the Model Code of Conduct (MCC) has been implemented, we are given to understand that the ministry of environment and forests has kept these permissions for the projects in abeyance pending opinion about the on-going clearance process," Ficci secretary general Didar Singh said in a letter to chief election commissioner V. S. Sampath.

"This is further delaying the implementation of these projects and affecting their viability as it has taken many months for them to reach at this stage of clearance," he said.

Environment, forest, wildlife and other clearances for proposed projects have been pending since implementation of the model code of conduct on March 5, when the Lok Sabha election schedule was announced.

The ministry of environment and forests had sought the Election Commission's permission to allow granting approvals, saying these were routine jobs.

Assocham secretary general D. S. Rawat has also written to the chief election commissioner saying that the project proponents are "facing a lot of difficulties owing to delay in grant of environment and forest clearances by the ministry of environment".

The ministry takes decisions on environment, forest and wildlife clearances based on recommendations made by sectoral expert appraisal committees, the forest advisory committee and the standing committee of National Board of Wildlife, which consider the various proposals. — *PTI*

The Economic Times, Delhi dated April 19, 2014

SILVER LINING

Climate Change Impact Can be Averted, says IPCC

Reducing carbon emissions will hardly impact growth but nations need to act fast

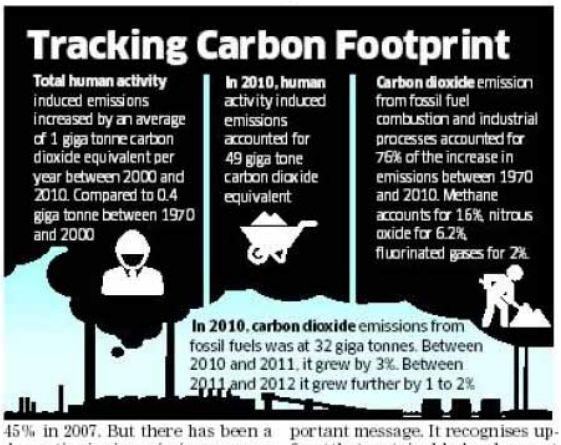
URMI A GOSWAMI
NEW DELHI

Unseasonal rains, freak snowstorms and droughts because of global warming may be becoming the new normal but now the Intergovernmental Panel on Climate Change in its recent report has offered a glimmer of hope.

The severe impacts of climate change can be avoided or minimised provided countries act collectively and quickly. Besides, it will not cost the earth to save the earth. Efforts to reduce carbon emissions would have minimal impact on growth—0.06% of GDP.

However, there is a caveat, countries must act soon—climate scientists, economists and social scientists say there is a two-decade window to work towards limiting worldwide temperature increase to less than 2 degree Celsius, from pre-industrial levels, by the end of the century.

"The high-speed mitigation train would have to leave the station soon and all of global society would need to get on board," IPCC chairman RK Pachauri said. "Effective mitigation won't be achieved if individual agents advance their own agenda independently. This brings out the need for international cooperation." Since 2007, there has been an increase in efforts to limit emissions. In 2012, 67% of the greenhouse emissions were subject to national laws and efforts compared to 45% in 2007. But there has been a dramatic rise in emissions—population and economic growth remain the main causes.



The IPCC is of the view that the pledged emission reductions under the Cancun agreements will not get us to the 2 degrees Celsius mark and much more needs to be done.

The loss to economic growth on account of measures taken to address climate change will not be as substantial as traditionally understood. "Ambitious mitigation would reduce growth by about 0.06 percentage points of GDP in a year. This estimate doesn't take into account the benefits that would be derived from lower carbon emissions such as improved local air quality and health," said Ottomar Edenhofer, co-chair of IPCC's Working Group III. For India, which is aiming for a high (8% plus) growth path and improvement in the lives of the millions who continue to live in poverty, the report has another important message. It recognises upfront that sustainable development and equity have to be the basis for climate policy. It also accepts that climate policy intersects with other goals related to health, food security, poverty eradication, environmental quality and energy access.

"This is an important message for India—policies that address climate change don't need to have development at its cross hair," said Navroz Dubash, senior fellow at the Centre for Policy Research and the lead author on national and sub-national policies for the IPCC report.

Industrial growth will be an important plank of India's economic recovery.

"Globally, 25% of the emissions is from industry. These can be reduced by deploying best practices and technology, greater collaboration across sectors. There are immense opportunities," said Jadavpur University's Joyashree Roy, who is also an author of the IPCC report.

The Times of India, Delhi dated April 21, 2014

'Contaminated water for 42% of urban, 60% of rural houses'

Subodh Varma
TIMES INSIGHT GROUP

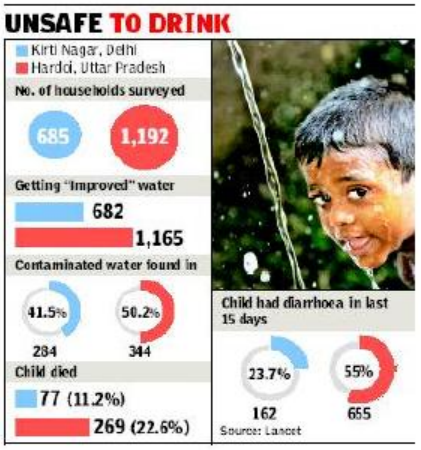
Sometimes, a shard of reality can raise serious doubts about what looks like a grand feat. A small study of water samples taken from urban and rural households declared as getting drinking water from "improved" sources has shown that about 42% of urban and 60% of rural households were actually getting contaminated water. About half of the surveyed anganwadis, where small children and pregnant mothers were taken care of, also got contaminated water.

Last year, Unicef and WHO had reported that India has done very impressive work in providing safe drinking water to its citizens, with over 90% now getting treated water. This was cause of much celebration as it also meant that India had achieved one of the Millennium Development Goals of halving the number of those without access to safe drinking water.

But serious doubts have been raised about this by this study of water quality that is considered 'safe'.

Published in the medical journal Lancet on Saturday, the study was done by Pratham Education Foundation, Delhi, Montreal University and Harvard Center for Population and Development Studies between May and October 2013.

The survey covered 685 households in a New Delhi slum (Kirti Nagar) and 1,192 households in 60 villages in UP's rural Hardoi district. Apart from interviews, tests were carried out on the water using a UNICEF-validated rapid test for coliform bacteria. Water was found contaminated in 41.5% (284 of 685) of urban and 60% (715 of 1191) of rural households.



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

Brightening Moon to save electricity?

TORU HIGUCHI/amanaimages/Corbis

FLASH OF BRILLIANCE?

New York: A Sweden-based cosmetics company has proposed a bizarre new method to eliminate the need for streetlights — brighten the surface of the Moon. The idea is to use materials already on the Moon to lighten its surface. The goal is to reflect slightly more sunlight onto Earth, making the night sky brighter, according to the company's thinktank, Foreo Institute.

A brighter night sky would mean less need for streetlights, which could potentially translate into less electricity usage and thus fewer globe warming carbon emissions, it said. "We want to raise public awareness about the project and generate consciousness about the global energy crisis," said Paul Peros, CEO of Foreo. The proposal has a hint of a "marketing scheme" to it, but precisely why the cosmetics company came up with this idea remains unclear, LiveScience reported.

When asked, a company representative told the website that Foreo is an "innovation company" that engages with experts from diverse fields. However, scientists are sceptical about the idea. "Making the Moon brighter is not something I've ever heard of in geoengineering literature," said Ben Kravitz, a postdoctoral researcher in the atmospheric sciences and global change division of Pacific Northwest National Laboratory.

Foreo's claims to have raised $52 million for research and testing and a timeline on the company's website says its first Moon mission is slated for 2020 with new rovers deploying every three years. According to Foreo, only about 0.1% of the Moon's surface would need to be transformed to reach 80% of the "desired brightening effect".

Peros said the company is looking into smoothing over a portion of the Moon's surface to increase reflectivity. "We are looking at the surfaces and composition of the soil and materials on the Moon and how to utilize them," he said. Even if such a mission were successful, it could have side effects. Light at night can disrupt sleep and has been linked to increases in several types of cancer. Foreo says the brightening effect would happen over 30 years, allowing humans time to adjust. AGENCIES

The Economic Times, Delhi
dated April 22, 2014

How Green Is My Home?

Living in a green home is good for your health and the environment. You can buy, build a bonafide and certified green home or retrofit your existing home to be green

NILAKSHI SHARMA

The Earth is home to six billion humans and the number is rising. But the cost of our individual homes is beginning to place an undue burden on the planet. From the material used to construct our home to the energy and water needed to live in that home, humanity is beginning to place a burden so heavy upon the finite air, water, and energy resources of the planet that humanity is beginning to become unsustainable. Amidst all the talk of going green to save the planet perhaps the most important contribution any individual can make is to make their own home green.

WHAT IS A GREEN HOME?

A green home is one that reduces its carbon footprint and focuses on sustainability. A green home comprises many elements; such as:

Sustainable construction practices - such as using locally sourced and eco-friendly construction material

Components made from renewable resources; sometime the contents used in construction may even be from recycled material

Have non-toxic interiors

Energy efficient practices and appliances

Rainwater harvesting and emphasis on reduction of water wastage

Design that takes into account the micro-climate; that works with the natural elements to reduce energy consumption - careful placement of windows to maximise ventilation and natural light

Many other components can be included depending upon your individual preferences. An energy efficient home can bring down your energy bill by as much as 30% . Similarly, water efficient appliances, toilets, faucets, utilisation of harvested rain water can help you save upto 50% of your water bill. Plus you are helping the environment.

RATING A HOME GREEN

Today a home can be rated on its greenness by independent agencies with a fixed set of criteria. There are various types of certifications globally that declare a home as a green home. In India there are two green home rating systems available. GRIHA: The Green Rating For Integrated Habitat Assessment is carried out by the technical experts of T.E.R.I. (The Energy and Resources Institute). In 2007, GRIHA was adopted as the national rating system for green buildings by the Government of India. The Association for Development and Research of Sustainable Habitats (ADaRSH), a joint initiative of T.E.R.I. and the Ministry of New and Renewable Energy, assess buildings

on various parameters and measure their green quotient. It is now mandatory for all new government buildings to have a certain minimum GRIHA score.

GRIHA will assess a building on altogether 34 different criteria, which includes optimal use of energy and water resources, an integrated design approach, recycling, etc. The points are awarded on a scale of 100 and a building must attain at least 50 points to qualify as GRIHA green. IGBC: IGBC was formed by the Confederation of Indian Industry (CII) in the year 2001. It has licensed the LEED - Leadership in Energy and Environmental Design - Green Building Standard from the U.S. Green Building Council.

IGBC Green Homes Rating System is a measurement system designed for rating new residential buildings which include construction categories such as : Individual homes, high rise residential apartments, gated communities, row houses, existing residential buildings which are retrofitted and redesigned in accordance with the IGBC Green Homes criteria. The criteria itself takes into consideration various factors such as water and energy efficiency, management of resources with an emphasis on recycling, reusing salvageable material, leveraging the micro climate for natural light and ventilation, non-toxic indoor material, etc. The certification rates buildings as silver, gold and platinum.

MY GREEN HOME

If you are on the verge of buying a home you can simply check if the construction firm has had its building plan rated by either GRIHA or IGBC. The certification process starts with the design itself. Once built the complete checks for certification are carried out. Many real estate developers today have the option of offering homes in green habitats. Some have already begun to do so. Rising consumer demand can make this the norm for the real estate sector.

If you are planning to build your home then the first step is asking your architect to build you a green home. GRIHA and IGBC certifications are equally applicable to small, individual residential homes.

If you already own a home you can start with small steps. The first of which is ensuring that every time you need to replace a product that consumes power you opt for one with the BEE five-star energy efficiency label. Bureau of Energy Efficiency - BEE - ratings that are now visible on all appliances are designed to help you identify the most energy efficient products. The higher the star rating, with a maximum of five, the higher the efficiency. While the higher rated appliances may be more expensive now, in the longer run the energy savings make it more cost efficient along with being a greener option. You can also look into installing solar energy panels in your home to make your energy consumption more sustainable. For a small cost you can convert your home to harvest rain water. There are many other ways to make your home green, large or small, keep it plastic free, recycling your garbage, ensuring that your paint is non-toxic, etc. The trick is to opt for what can become a part of your lifestyle and a daily habit.

The Times of India, Delhi dated April 22, 2014

waste-to-energy plants

CLEAN AND GREEN

New Delhi Municipal Council's twin strategy for effective waste management

To set up small scale waste-to-energy plants in residential colonies

To set up a system for organic waste management in NDMC parks

Waste-to-energy plants

First plant will be set up on 1,000sqm near Safdarjung Hospital on PPP basis

Energy consumed daily 150mw

Daily generation target 40mw

The land will be given on lease for 5-10 years

There will be four such plants

Organic waste management plants

- These plants will be set up in **Nehru Park, Talkatora Garden, Purana Qila Nursery and Lodhi Garden**
- Organic waste will be processed into **fuel in form of pellets**
- Daily waste generation: **250 metric tonnes**

Risha Chitlangia | TNN

New Delhi: As part of its green initiative, New Delhi Municipal Council (NDMC) plans to set up small-scale waste-to-energy plants in its localities. The first plant will be set up near Safdarjung Hospital. Officials say the civic agency will soon float tenders for the project.

At present, waste generated in NDMC areas—close to 250 metric tones daily— is sent to the waste-to-energy plant in Okhla. Officials say due to high transportation cost and technical problems, often, the entire waste is not transported to the landfill site. These small-scale waste-to-energy plants will bring down the transportation cost and also help in effective waste management.

The energy generated from these plants will be used to meet the energy requirement of the neighbouring areas. "These plants don't require much space. It can be set up on a 1,000 square metre plot. We have received expression of interest from six companies. We will soon float tender for the project," said O P Mishra, director project department, NDMC.

According to the proposals received by the agency, one plant is likely to generate 40 MW of energy daily, said sources. The average power consumption in NDMC area is 150 MW. Officials say that with the latest technology, it seems possible to generate maximum power with minimum waste. "If we are able to produce some electricity from waste in localities, it will help us meet the local requirement," said an official.

The civic agency is finalizing the tender documents. Sources say the land will be given on lease for a period of five-ten years. "If this project is successful, then we will set up similar plants at two other locations," said an official.

At present, the civic agency has a waste-to-energy plant at Okhla which is managed by a private concessionaire. Officials say it is a large scale project where close to 1,500 metric tonnes of waste is processed everyday to generate power.

Apart from these small-scale waste-to-energy plants, the civic agency plans to set up organic waste management plants in all its major gardens. NDMC will hire private concessionaires to process organic waste into fuel. "We plan to convert organic waste into pellets (fuel). We will soon float tenders for the same. CPWD has installed a similar system in Buddha Jayanti Park," said Mishra.

The plants will come up in Talkatora Garden, Lodhi Garden, Purana Qila Nursery and Nehru Park. NDMC officials say a lot of organic waste is generated in all its major parks and gardens. Initially, the civic agency was planning to set up a composting plant, but decided against it as that needed a lot of space. "Instead of compost, we will now generate fuel (pellets)," said an official.

STUMBLING BLOCK: Due to high transportation cost and technical problems, the whole waste doesn't reach Okhla plant

Click trees near you, save record for future

Project Encourages Uploading Of Tree Photos On Biodiversity Portal To Help Maintain A Database

Jayashree Nandi | TNN

New Delhi: If you have always loved the view of that copse of gulmohur and queen's crape myrtle near your house, here is a chance to know those trees better and document their species. India Biodiversity Portal, along with several other environmental and research organizations, has launched a unique citizen science project that aims to document tree species across the country through crowd sourcing. The campaign—that will be launched on April 22—is urging citizens to go out and take pictures of their neighborhood trees and upload them on a space called TreesIndia.

This, according to the founders of the portal, will help maintain an extensive, real-time database of the tree diversity in India and provide clues to distribution of these species.

Such crowd-sourcing projects have been popular in the West where citizens have been documenting rare species, but the Neighbourhood Trees campaign is probably the first such project in India.

Delhi-based naturalist Pradip Krishen is one of the founding members along with several others from around the country. The process is simple. One has to take photographs of trees in their area or in any area of their choice. Then upload the picture along with the location and any other observation that you want to share. The focus of the exercise is not on tree population but on variety of species.

EARTH DAY

"The concept of citizen science is gaining prominence around the world. For a subject like ecology which has vast spatial distribution if we have huge numbers of people collating data, we have much more information. People also develop an appreciation for nature while doing such exercises. This also gives a chance for amateurs to interact with experts and share their knowledge. The data generated can be used for research," said R Prabhakar, lead developer of India Biodiversity Portal and co-founder of the campaign.

Bangalore-based Ashoka Trust for Research in Ecology and the Environment (ATREE), along with partner organizations, is developing content and maintaining pages of the portal.

Being a crowd sourcing project, founders are also aware of its shortcomings in India since many remote parts of the country may not be active on the internet. "All over the world, biodiversity observations are confined to urban areas. That's the nature of bias of the medium. But we hope it evens out," added Prabhakar.

In fact the founders are hoping that some enthusiastic researchers who are in transit most of time can document species even in remote corners of the country. For instance, in the activity space, there are already some updates from various parts of the Western Ghats. "This concept is very popular in the West where they are successfully documenting biodiversity through portals like ispot, inaturalist or Atlas of Living Australia. It's an iro ny that despite having such huge population we haven' done this yet in India," sai Prabhakar.

As of now only two peopl from the national capital re gion—one from Bharatpu and the other from Gurgaon —have signed up but foun ders say they expect Delhi ites to participate in larg numbers because Delhi i known for its trees. The por tal has a number of resourc materials for amateurs —books like Trees of Delhi, field guide by Pradip Krish en, or Common Trees of Del hi by the Delhi government There are similar books o reports for other parts of th country so that people wh are interested can delv deeper into the subject.

The campaign ends o April 27, but it's an ongoin process, say founders. Onl after a year or so can the dat be used to, hopefully, aug ment the 7,500 documente species of trees still existing

The Neighbourhood Trees campaign aims to record distribution of tree species across the country through crowd sourcing

- One needs to **create an account on the India Biodiversity Portal**
- You can also **join an existing local event** in Delhi or sign up to organize one here
- There is a **lot of resource material on the website** like names of books that can familiarize you with trees of the region

The campaign will roll out between April 22 & April 27

PHOTOGRAPH AND DOCUMENT trees in your garden, road, neighbourhood park, farms, forests, lake shores, river banks, or any other place of choice

UPLOAD your observations with date, location and notes on the portal

EXPERTS WILL HELP you identify unidentified species and confirm identified ones

- The **checklist and maps of trees in a park or road** provide an inventory of trees in the city. This information can be **valuable in protecting them**

Crowd-sourcing projects have been popular in the West where citizens have been documenting rare species. This campaign will also shed light on distribution of species

The Times of India, Delhi
dated April 22, 2014

EARTH DAY

No recycling, so landfills are choking

Jayashree Nandi | TNN

New Delhi: The capital is drowning in its own filth and the crisis is deepening. Look around you everywhere and you will find overflowing dhalaos and garbage piling up by the roadside. People just hold their nose and walk past. Some even lob bags of household refuse at the dumps or even by the roadside on the sly, not willing to pay even the meagre amount that the garbage collector gets. The 8,500 tonnes of solid waste generated daily in the city is likely to double by 2020 and our overflowing landfills can't take it anymore.

The controversy around burning of garbage is still simmering and waste-to-energy plants, like the one in Okhla, have run into fierce opposition because of their air pollution potential and the general 'Not in my backyard' stance. So where will all the waste go?

Experts say Delhi hasn't realized even a fraction of its recycling potential which can curtail waste and the cost of managing it. Waste disposal is becoming unmanageable and unaffordable.

Sejal (13) and her brother, Prawesh (17), who stay in RK Puram, got their parents to segregate waste after they learnt in school about the vast opportunities of reusing binned waste. They used a separate waste bag for dry waste. But the teens, probably the only ones in their colony to sort the waste, are so disillusioned that they are thinking of reverting to a single bin.

The bags of waste handed to the private contractor land up in a dhalao near the house and raise a stink. The mixed waste is carried to landfills. "Why should we segregate it if it's going to be lumped together? We are doing this to reduce the amount of waste sent to the landfill. But that doesn't seem to be happening," says Prawesh. Residents of the area had to send several complaints before the mound of waste was cleared.

When it comes to waste disposal, Saket is worse off. Residents are clueless where the colony waste is going. "The pick-up van comes every morning but we don't know where it deposits the waste," says homemaker Sabita Agarwal. Actually it goes nowhere—it just rots in a dump half a kilometre away.

Shah Alam (63) sifts through Saket's dhalaos for newspapers, plastic packets and bottles. His hands are soiled. "I wish they would segregate wet and dry waste. People don't understand these things can be reused by the poor," he says. Alam and his family have lived off waste for 30 years now and they have seen it rise exponentially. "The population is increasing and so is waste," adds Alam, who earns Re 1 for every kilogram of raddi and Rs 4 for every kg of paper of better quality. In all, he manages about Rs 90 a day.

Experts say our system favours waste disposal, not recycling. "There is no segregation at source as residents don't have any incentive and nor is recycling being encouraged. They know it will all be sent to landfills," says Ravi Agarwal who specializes in urban waste management.

Even so, Delhi's informal sector collects daily about 1,088 tonnes of recyclables, taking considerable load off the corporation. Recycling these items is saving the corporations about Rs 795 million per year as transportation and collection costs, according to a Columbia University study of 2012.

Anjor Bhaskar, a scholar with Tata Institute of Social Sciences who is researching on the potential of decentralized waste management, has found the current model of landfilling extremely polluting and expensive. His analysis shows that transporting a tonne of solid waste costs Rs 67 and releases about 2kg of CO_2 on average. He has also found that the corporations spend over 50% of their budget on transportation alone.

Less than 5% of the waste is being recycled, Agarwal says. More than 50% of municipal waste in Delhi is compostable but less than 5% is being composted.

According to Manish Gupta, South Corporation commissioner, Delhi cannot do away with dhalaos. "These dumps are an integral part of the waste management system here. Waste is collected and cleared once a day but the flow continues, so dhalaos always seem filled," he says. He adds that a new tender has been invited. The corporation has proposed separate chains of waste management for four kinds of waste—dry, sludge, construction, and demolition waste and green waste like dry leaves.

(Tomorrow: Case of civic failure)

Yogesh Kumar

GROWING MOUND: Waste dump at Saket

THE WASTE LAND

SOME SUCCESSFUL MODELS

Photo: Yogesh Kumar

How Delhi tried & failed to segregate waste

- In 2004, 2005 and 2006, awareness programmes were run among school children, ragpickers, and home makers for waste segregation, but these proved to be futile
- MCD introduced blue and green bins in 2005 for wet and dry waste. Total non-compliance resulted in rollback in 2011
- In 2011, auto tipper facility to collect waste from households in over 200 wards was started. This ensured collection but not segregation

CAPITAL'S WASTED EFFORTS

Pune Several agencies have come up with the concept of 'zero waste electoral wards' in Pune. About 7,500 establishments in a ward provide nine tonnes of waste daily to waste pickers. Nearly three tonnes of segregated wet waste is sent to biogas plants; dry waste is recycled

Delhi NDMC works with Chintan to include waste-pickers in doorstep collection for 4,000 households in some NDMC areas and 25,000 households in East Delhi Municipal Corporation areas. Chintan also runs a waste recovery centre

Bangalore Mayflower block residents in Brigade Millennium apartment in JP Nagar have started segregation at source last year. This was done in steps—giving residents plastic bags for segregated waste, and educating residents and housekeeping staff. Waste here is segregated into wet, dry (recyclable) and non-recyclable types. Wet waste is segregated into two types—edible by cattle and for compost

- Residents of a housing enclave near Yelahanka not only segregate waste into wet and dry but divide dry waste into 14 categories. Not a bit of the 950 kg waste generated every month goes to the landfill. It is either reusable or compostable

Mumbai BARC, Mumbai, has developed a technology to process biodegradable waste originating in kitchens, markets and abattoirs. This can be set up in every colony, and waste after segregation at source can be used

- A TISS project encourages on-site segregation. It also sets up on-site biogas or composting facilities for wet waste, while non-biodegradable waste is transported directly to recycling units. Only a small amount of dry waste is transported to dumping grounds

WHERE THE WORLD STANDS

- The Netherlands and Austria have the best waste management programme in Europe, according to a recent report by European Commission
- Data released recently by Eurostat, Denmark, Belgium, Germany, The Netherlands, Austria and Sweden have eliminated almost all their landfill disposals through incineration, recycling and composting
- In 2004, China became the world's top waste generator. It will have to spend eight times more on waste disposal by 2020 and will require 1,400 new landfills

The Times of India, Lucknow dated April 22, 2014

Relief for economy as SC lifts ban on iron ore mining in Goa

Caps Output At 20 MT; Asks For New Leases

TIMES NEWS NETWORK

New Delhi: Heeding pleas to restart mining in Goa, the Supreme Court on Monday lifted the complete ban on extraction of iron ore in the state but made resumption of mining activities conditional on issuance of fresh leases.

The decision offers a ray of hope to thousands thrown out of jobs after the court shut down mining following reports of massive illegal extraction of iron ore though awarding of fresh leases will be time-consuming.

The order has implications beyond Goa, as the mining sector's woes contributed to the economic slowdown along with low growth in manufacturing. Mining has been affected in Karnataka and Odisha as well.

During April 2012-January 2013, iron ore exports fell about 68.27% to 16.35 million tonnes year-on-year. From April to September 2013, the mining sector shrank 1.6%. It has been negative in the last two fiscals.

The mining sector has also been hurt by Coalgate and long pendency of key amendments to the Mines and Minerals (Development and Regulation) Act to allow private firms to engage in mining through competitive bidding. Goa has been seeking a review of the ban as thousands of livelihoods and state revenues are being severely impacted.

The SC has now limited ore extraction to 20 million tonnes a year and cancelled mining leases extended after 2007 following completion of 20-year renewal periods. This is a hurdle the mining industry and the state government have to cross and the role of the new government at the Centre, expected to be in office by May, will be crucial in ensuring quick clearances.

On Monday, the green bench of Justices A K Patnaik, S S Nijjar and F M I Kalifulla ordered cancellation of all mining leases given extension after 2007 even after completion of the maximum 20 years of renewal period and upheld the state as well as central government's decisions in September 2012 in this regard.

▶ Monitor pollution, P 8

Roy makes improved offer to pay ₹10,000cr

Sahara chief Subrata Roy and two directors on Monday told the SC they would deposit Rs 10,000 crore, half in cash before May 30 and half through bank guarantee by June 20, if they are released from Tihar jail where they've been for the last 45 days. P 13

SC seeks Goa's reply to Tejpal bail plea

The Supreme Court on Monday rejected the interim bail plea of Tehelka founder Tarun Tejpal in the rape case against him but sought a response from the Goa government within three weeks to his petition seeking regular bail. P 5

'Strictly monitor pollution levels in mining areas'

▶ Continued from P 1

It also set out conditions like defining a one-km buffer zone around national parks and sanctuaries as no-mining areas and asked the Union ministry of environment and forests to issue a notification within six months demarcating eco-sensitive zones around national parks and sanctuaries.

As an interim measure, the court permitted resumption of iron and other ore mining by those granted fresh leases by the state government in accordance with "its policy decision and Mines and Minerals (Development and Regulation) Act".

The court also asked the state to prepare inventory of the sale of iron ore through e-auction

"Until the final report is submitted by the expert committee, the state government will, in the interests of sustainable development and intergenerational equity, permit a maximum annual excavation of 20 million MT from the mining leases in the state of Goa other than from dumps," said Justice Patnaik, who authored the judgment for the bench. The bench asked Goa Pollution Control Board to strictly monitor the air and water pollution levels in the mining areas and furnish relevant data to the expert committee. The court also asked the state to prepare inventory of the sale of iron ore through e-auction.

It asked the monitoring committee to submit its final report on the utilization and appropriation of the sale proceeds of the iron ore within six months and directed iron ore mining lessees to pay 10% of sale price to Goan Iron Ore Permanent Fund.

"The state government will within six months frame a comprehensive scheme with regard to the Goan Iron Ore Permanent Fund in consultation with the Central Empowered Committee for sustainable development and intergenerational equity and submit the same to the court," the bench said.

Another petition filed by NGO 'Common Cause' sought immediate stoppage of iron ore mining in the wake of damning Justice Shah commission report.

The bench asked Odisha government and the Centre to respond to the petition, which requested the court to cancel existing iron ore mining leases saying the situation in the state was worse than Goa and Karnataka.

According to the NGO, Justice Shah commission had indicted Navin Patnaik government saying "from the inquiries conducted by this commission, it is apparent that all modes of illegal mining... are being committed in the state of Odisha".

The Times of India, Delhi dated April 23, 2014

People unaware, so no segregation

No Incentive For Sorting Garbage At Home; Multiplicity Of Authorities Compounds Problem

Risha Chitlangia & Jayashree Nandi TNN

New Delhi:Almost eight years after the erstwhile Municipal Corporation of Delhi (MCD) outsourced waste management, the civic agencies are still struggling to streamline the system. From installing GPS in trucks carrying waste to uploading pictures of dhalaos online, they have tried everything but without any results.

Poor monitoring, lack of infrastructure, accountability and awareness, and multiplicity of authorities are prime reasons for the failure of all the schemes introduced by the civic bodies ever since waste management was privatized in 2005. Private concessionaires claim they didn't get the "desired" assistance from these agencies. "The first P (Public) in PPP is missing in the project. It is only the private party's responsibility to implement the project. For the success of door-to-door collections, waste segregation at source and awareness among people was crucial. But the civic agency didn't do much,'' said Abhay Ranjan, collection and transportation head, Ramky.

Officials admit it has been a one-sided partnership. Also, the civic agencies have done little to create awareness about the need for effective waste management. "Till now, we have left everything to the private concessionaire. The fact that it is a PPP project means the civic agency has some responsibilities,'' said Manish Gupta, commissioner, South Delhi Municipal Corporation. They have now floated fresh tenders under which the civic agency will be responsible for creating awareness. "We will hire a consultant for developing information education communication material and planning programmes to create awareness. The material will be printed by us, but workshops in residential colonies will be organized by the private concessionaire,'' said Gupta.

In 2009, the erstwhile MCD started door-to-door waste collection in two zones — Rohini and Civil Lines. It outsourced the project for effective implementation. The scheme was to be subsequently implemented in other zones but it never happened. At present, private concessionaires are responsible for lifting waste from the dhalaos and dumping it at the landfill site, which are maintained by the civic agencies. The civic agencies still manage waste collection in colonies and at landfill sites. "Multiplicity of authorities and lack of coordination between all the players is responsible for poor implementation of the scheme. In case of aproblem at the landfill site, we are not able to lift the entire waste from dhalaos and we are penalized for it,'' said Ranjan.

While the south and north corporations are struggling to streamline the system, the east corporation has made considerable improvement. Post-trifurcation, it has streamlined its collection system by improving surveillance. "Earlier, we used to collect 1400 metric tonnes of waste. Now, it has increased to over 2000 metric tonnes. We have improved monitoring of vehicles by installing GPS," said Sanjay Surjan, chairman of standing committee, east Delhi.

But all corporations admit they have not focused on creating awareness. Experts believe waste management in Delhi is oriented towards generating more and as a result land-filling more. "Private parties are not concerned about what is going to the landfill or what is at the dhalao, simply because they get paid as per the weight of garbage. They don't encourage segregation because they prefer more weight. Had the corporations involved the waste pickers from the informal sector, they would have taken out every bit of the recyclables which is about 20% and ensured segregation. We think the system has failed completely," said Chitra Mukherjee, manager, advocacy and outreach at Chintan, an NGO that is working with NDMC on involving the informal sector in collecting waste.

Chitra said the corporation's awareness building efforts failed because they neither incentivized segregation, nor penalized non-segregation. "The policy should be to make it mandatory. Otherwise nobody cares," she said.

In fact, most big cities have failed in dealing with dhalaos and unsustainable landfills. A few municipalities are taking baby steps now. Anjor Bhaskar, a research scholar with Tata Institute of Social Sciences (TISS) who is studying the benefits of decentralizing waste management, cites the example of Pune Municipal Corporation. In association with NGOs and waste pickers, it is working on a 'zero waste ward'. The ward, called Katraj, lies in the south of the city and consists of a population of nearly 10,000 households. The municipality set up a bio-methanation plant to convert organic waste into biogas within the ward. Waste pickers are engaged to collect segregated wet waste from households and are provided a sorting shed where they are able to sit and sort through the day's collection.

Photo: Sanjeev Rastogi

Toilet flushes may help power homes

Seoul: Tired of erratic power-cuts at home? Flushing your toilet may help!

Scientists have developed a novel way to harness the motion of water, including from raindrops cascading down a window or from a toilet flush, as a sustainable energy source that can power homes. Researcher Youn Sang Kim and colleagues at Seoul National University and Korea Electronics Technology Institute (KETI) have adapted a transducer to convert the mechanical energy from water motion into electrical energy.

When dielectric materials are in water, an electrical double layer forms around the outside of the material. Variations between water and a poly (4 vinyl phenol) dielectric layer were shown to induce electric charges at an electrode, 'Chemistry World' reported.

Researchers demonstrated that the motion from a 30 micro-litres water droplet in such a system was able to generate enough electricity to power a green light-emitting diode (LED).

"Using the energy harvesters based on this novel concept, we demonstrated the wide applicability toward natural water's motions, such as rain, rivers, and even sea waves as well," researchers said. AGENCIES

The Times of India, Delhi dated April 24, 2014

Kavita Nair

NO STOPS FOR THIS LED LIGHT!

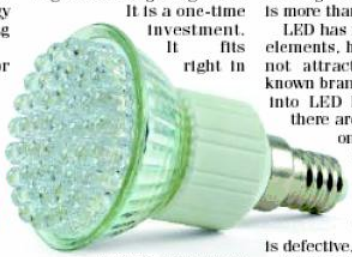
Going the eco-friendly way, LED lights are here to stay

In the current scenario, given the rising prices of commodities, the common man has to literally pay through his nose to make ends meet. At such times, paying your electricity bills becomes a herculean task as the amount generated on the bills has almost started resembling your telephone number! So you have tried everything, switching off the fans while leaving the room, power saver ACs, washing machines, etc. However, not much thought is given when you decide to light up your homes. This is where LED lights come to your rescue.

WHAT ARE LED LIGHTS ALL ABOUT?

These are solid state lights that use Light Emitting Diodes (LED) as the source of light. They are a little expensive than normal lights, but are cost effective as they consume less energy and are blessed with long service life.

Ekta Khialani, an interior designer, says, "LED lights are the best bet, especially if you are setting up your home. Lights form an integral part of your home décor. LED lights, though expensive, are any day better as they consume less energy and give the same amount of brightness as compared to halogen bulbs or tube lights. Nowadays there are various well-known brands that have come up with long-lasting LED lights. You also get the dimmer option with these lights wherein you can reduce or increase the brightness using a regulator.



It is a one-time investment. It fits right in today's time given the go green mantra. It is also sustainable."

Talking further about where all these lights can be used, Ekta elaborates, "These are good for every room in the house. For ceiling, I suggest you use the round-shaped ones with white panels. They not only look good but are also easy to fit as there is no question of alignment as in case of square or rectangular ones. Warm white LED lights are best suited for kitchens. LED lights starts with one watt but the effect multiplies. You can use up to nine watts as per your requirement, although five to seven watts is more than sufficient."

LED has no light pollution elements, hence insects are not attracted to it. Well-known brands have ventured into LED lights. However, there are a lot of Chinese ones available that are cheaper. "But if you buy 10 pieces, there are chances that one of them is defective," states Ekta.

Ramesh Malhar, dealer of LED lights, says, "Initially, sodium bulbs were used. Then mercury lamps that used a chemical powder to generate light were in vogue. Now with the advent of LED lights, a lot has changed. They consume less energy and are highly cost-effective. The best part is no maintenance is needed for LED lights." They start from Rs 1000 onwards.

The Deccan Chronicle, Hyderabad dated April 24, 2014

CAUGHT IN A STORM

People cover their faces as strong winds blow insulation material off a building in Hami, northwest China's Xinjiang region on Wednesday. — AFP

60% OF CHINA'S UNDERGROUND WATER POLLUTED, SAYS REPORT

Beijing: Sixty per cent of underground water in China which is officially monitored is too polluted to drink directly, state media have reported, underlining the country's grave environmental problems. Water quality measured in 203 cities across the country last year rated "very poor" in an annual survey released by the Ministry of Land and Resources. — AFP

The Deccan Chronicle, Hyderabad dated April 24, 2014

After decades, fluoride issue continues to haunt

DC CORRESPONDENT
HYDERABAD, APRIL 23

Water-borne diseases account for 80 per cent of the total disease profile in Nalgonda

Every election, the ill-effects of fluoride on the people of Nalgonda becomes an issue and the problem has become a bane for ruling governments who have not been able to solve it.

As per recent statistics, seven mandals falling under the Bhongir Parliament constituency and 10 under Nalgonda have been declared as "severely affected mandals" with excess presence of fluoride in groundwater (2.5 and above milligrams per liter). Ramannapet of Bhongiri is the only village free from fluoride.

Dusharala Satyanarayana of Jala Sadhana Samithi, who has filed a complaint with the National Human Rights Commission arguing that denying safe drinking water to citizens was a violation of human rights, said, "The government had shown only about 1,500 villages as fluoride-affected, although all habitations were troubled. The groundwater in affected villages contains fluoride levels of up to 20 mg/l, as against the permissible 0.6 mg/l-1.5 mg/l."

The problem has led to exodus of inhabitants as well.

Today, close to 1,315 villages get potable water and 178 affected villages receive no drinking water at all. It is also an established fact that water-borne diseases account for 80 per cent of the total disease profile in Nalgonda.

SEVERELY AFFECTED BY FLUORIDE

7 mandals under Bhongir Parliament constituency

10 mandals under Nalgonda constituency

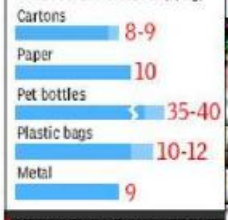
Amount of fluoride in groundwater in these areas — 2.5 and above milligrams per liter

The Times of India, Delhi dated April 25, 2014

UNDERSTANDING WORTH OF WASTE

Photo: Rajesh Mehta

HOW MUCH RAGPICKERS EARN FROM WASTE (₹/kg)



WAYS TO TREAT DRY WASTE

Waste pickers can sort, grade and sell recyclable dry waste. The only waste which is required to be transported to landfills is non-recyclable dry waste

WAYS TO TREAT WET WASTE

Aerobic composting | Decomposition that relies on bacteria

Vermi-composting | Composting using worms

Bio-methanation | Waste is microbiologically converted to biogas

Terrace farming/gardening | Using the compost for gardens

Bricketing for making fuel | Compressing waste into pellets

WASTE PICKERS' DEMANDS

- A central legislation that makes it mandatory for state and local governments to guarantee livelihood and social security
- Their work be officially recognized with legal status and government IDs
- Space in every neighbourhood for segregation of waste and composting
- Rights for door-to-door collection
- Provision for state-managed recycling units at the community level and sanitary landfills at the district level

NGO turns trash to cash, gives dignity to workers

Jayashree Nandi | TNN

New Delhi: There's a jumble of plastic bottles, aluminium cans, cartons, filthy bags, paper napkins, hotel slippers and cardboard on the table — altogether about four tonnes of waste from five-star hotels. But before the day is out, 60 women working in two shifts will salvage and sort most of the recyclable material from it. Less than a tenth will go to a landfill.

The process followed at the Bhopura, Ghaziabad waste recovery facility of Safai Sena, a registered group of waste-pickers, could be a model for urban waste management, reducing the pressure on and need for landfills, but at present it is practised only at a few places.

The recovered recyclables are sold to units in Delhi and UP, earning the group enough to pay each of the women a monthly salary of Rs 7,500 besides all the other expenses of the operation, which are considerable. While they send plastic bags directly to a recycler, plastic bottles and boxes are shredded before being dispatched to a unit in Narela. Paper and cardboard are recycled at various units in UP, glass bottles are turned into lamps,

THE WASTE LAND

glasses and jugs in-house, and about 750kg of organic waste is composted within the facility.

The waste-to-money model is quite complex. Safai Sena head Jaiprakash Choudhury says some hotels sell their waste for as much as Rs 1 lakh a month. "Not everyone charges, though. Some five-star hotels and malls give it to us for free. Some even give it segregated wet and dry," he says. Safai Sena rents the site for Rs 33,000 per month and pays Rs 10,400 daily to transport the waste. "Waste can very well generate employment," Choudhury says. Safai Sena has similar centres at New Delhi Railway Station, Seemapuri and Tughlaqabad.

Nisha Kumari and Satyavati Devi, both waste workers at the facility, say they find it much better than working for kabadis. "Here, we wear masks and gloves all the time. We have a steady income, and get an ID card and uniform," said Satyavati.

The model could be even more efficient—with lower transportation costs—and eco-friendly if implemented at the ward level. "This will save on transportation and give informal waste pickers a source of livelihood," said Shashi Bhushan of All India Kabadi Mazdoor Mahasangh (AIKMM). Each ward has 40,000-70,000 residents. AIKMM claims Delhi's municipal corporations are paying Rs 900-1,500 per tonne to private companies for solid waste disposal.

jayashree.nandi@timesgroup.com

Haryana U-turn for NCRPB nod

Dipak Kumar Dash | TNN

New Delhi: In a U-turn, Haryana government plans to drop the provision of allowing construction beyond 0.5% in natural conservation zones (NCZs) like Aravalis in the NCR. Sources said chief minister Bhupinder Singh Hooda would make this proposal at the NCR Planning Board meeting on Friday so that the state's sub-regional plan can be approved.

TOI has learnt that the state government is also "agreeable" to demarcate Mangarbani sacred grove in Faridabad as a protected forest. Ministry of Environment and Forest (MoEF) had raised over a dozen of green concerns, including these issues, on the revised regional plan of NCR and Haryana's sub-regional plan. "As such in the draft Mangar Development Plan we have earmarked the sacred grove as no-construction zone. So, declaring it as a forest is not an issue. Since we are not going beyond the 0.5% limit on construction, there will be no construction in the buffer area of Mangarbani," said a source.

Mangarbani

However, whether this major shift in Haryana government's stand will ensure passage of the revised plan of NCR and Haryana's sub-regional plan is not clear. In a last minute missive before the board meeting, MoEF recommended to the secretariat that the plans should not be cleared until the outstanding environmental issues are resolved. Even the Prime Minister's Office sent a similar letter to the secretariat on Wednesday.

Sources said MoEF has stated that Haryana's geo-reference maps with regard to forest areas in NCR have some major gaps which need to be resolved. It has also said since the exercise to identify the forest in Faridabad district is under way, the plans should not be approved.

Meanwhile, Haryana government officials said they have sent point-by-point replies to 17 observations of MoEF including the exercise to map and delineate forest area and preparation of geo-reference maps in line with two Supreme Court orders. An official said they are ready to align the sub-regional plan to earmark the NCZs as per the NCR plan.

Edited by: Prof. Sushil Kumar
Centre for Business Sustainability, IIM Lucknow