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## Business Sustainability News

## International

### Embrace the bad stuff: turning crisis into business opportunity

By Amy Larkin, *for theguardian.com*

My years of work as a radical environmentalist in concert with multinational business has inspired me to believe that we can change our mindset from “Why don’t they?” to “Why don’t we?” So many engineers and executives demonstrate courage, tenacity and creativity when faced with regulation or resource constraint in the pipeline.

Real opportunities for transformative change lie in preparing for crises. The National Academy of Science’s new report, *Abrupt Impacts of Climate Change*, states:

“To willfully ignore the threat of abrupt change could lead to more costs, loss of life, suffering, and environmental degradation ... The time is here to be serious about the threat of tipping points so as to better anticipate and prepare ourselves for the inevitable surprises.”

Before Hurricane Sandy hit the US’s north-east in 2012, scientists and meteorologists warned of a likely devastating weather event on the eastern seaboard at some point. By day one after the storm, it was clear that we would spend more than \$100bn on recovery. You didn’t need an expert to imagine the financial devastation. But you did need serious analyses and one helluva backbone to make smart, tough decisions on infrastructure, relocation and rebuilding.

So taxpayers (federal, regional and local), businesses and families spent this huge sum of money, and we will likely have to spend it all over again in the near future. These difficult expenditures were almost obligatory despite strong leadership from local governors and mayors. We were simply not prepared for this predictable event. We do not have our transition agenda in place.

We are already between a rock and a hard place and we have no Plan B. We must now have the hard discussions to identify what we would need to do – and what we would be prepared to do – under exigent circumstances in a global (or local) emergency. We talk about a world of increasing population and constrained resources, yet we continue our high-carbon lifestyles, with business as usual and poorly directed government subsidies.

This is not how we operate in other situations. In healthcare, for example, we immunize ourselves with vaccines (from tetanus to smallpox). The entire insurance industry’s business model is based on high-impact, low-probability events. But when it comes to climate change, we fail to consider a black swan event that will create significant trauma, as well as transformational opportunities. Nothing is more urgent than being ready to seize these opportunities.

In our everyday lives, we have grown accustomed to the face of environmental degradation, from air pollution (more costly than tobacco in healthcare dollars) to water pollution (the FDA advises against eating king mackerel, swordfish and more, because of heavy-metal contamination). We can and must realize a world with a thriving low-carbon and low-waste economy – despite how hard and costly the early investments will be.

These investments may not satisfy short-term earnings pressures or public budget cycles, but will absolutely lower costs in energy, waste, water and healthcare in the medium and long term. This high price seems a fair trade for a decent life for our children and a modicum of stability for our fundamental public and private institutions.

My fellow environmental activists and I always say, “Business as usual cannot continue.” And now, many businesses – and the National Academy of Sciences – say the same thing as fiercely and straightforwardly. Unfortunately, one or more of these events will likely happen within the next five to 10 years:

Extreme weather devastates 20% of the world’s wheat, rice, corn; an entire marine ecosystem collapses; major energy outages/shortages interrupt basic survival systems; social upheaval caused by lack of food, water, energy or financial security; another nuclear/oil spill/chemical event; water shortage or drought causes mass migrations; large industries/economies collapse, a big resource war follows

Sorry, I’m not with you to buy you a drink after this list. What are our choices? We could do nothing new and pray for the best. This is a bad option.

But we have two choices that already have leadership, momentum and money on the table.

First, we can start radical transformation of business as usual to incentivize decisive action and investment for low-carbon, low-waste technologies.



Is Hurricane Sandy the new normal?. Photograph: Darren McColester/Getty Images

[<Source>](#)

## 'This is not a good place to live': inside Ghana's dump for electronic waste

By Afua Hirsch, for *The Observer*



A child at the Agbogbloshie electronic waste dump in Ghana. Photograph: Andrew McConnell/Alamy

The orange flesh of a papaya is like an oval gash in the landscape at Agbogbloshie, Ghana's vast dumping site for electronic waste, where everything is smeared and stained with mucky hues of brown and sooty black. A woman kneels among the carcasses of discarded computer monitors, scooping the fruit's flesh for workers hungry from a morning's work scavenging to eat.

If the appliances at Agbogbloshie were not being dismantled – plucked of their tiny nuggets of copper and aluminium – some of them could almost be technology antiques. Old VHS players, cassette recorders, sewing

machines, computers from the 1980s and every period since lie haphazardly on large mounds in the dump, which stretches as far as the eye can see.

"Electric waste comes here from all over the world – but especially from Europe," says Karim, 29, who, like almost all the scrap dealers at Agbogbloshie, originally comes from northern Ghana but has been salvaging, buying and selling at the dump for 10 years. "We get a lot of health problems here, but we manage, because we need the money."

Last week, the UN's "Solving the E-Waste Problem" initiative (Step), which was set up in 2007 to tackle the world's growing crisis of electronic waste, warned that the global volume of such refuse is set to grow by 33% over the next four years. Much of it will be dumped in sites such as those in Agbogbloshie, increasing the risk of land contamination with lead, mercury, cadmium, arsenic and flame retardants.

Agbogbloshie seems chaotic, apocalyptic in places, but there is an order to the large, desolate, rubbish-strewn site. At one side, boys and young men gather in groups, picking their way through piles of old hard drives, untangling wires, and breaking up old air-conditioning units and even irons.

Abdoulaye, 19, and a group of other teenage boys sit under makeshift iron shelters on the upturned cases of old PC monitors, working at a pile of e-waste with chisels and pliers and by hand.

The boys are surrounded by rows of rusty chest freezers, each one dangling a heavy padlock. Inside them, they store the fruits of their labour – piles of copper and aluminium – until the metal is bought by traders.

"I came here from Tamale five years ago," said Abdoulaye, who wears turned-up blue jeans and a blue and white striped polo shirt smeared with dirt. "I make between two and five cedis (£0.50 to £1.30) each day, and each month I send 50 cedis (£13) back to my family in the north. I would like to go back home, but my family needs the money, so I stay. We get too many problems here – sometimes I have to go to the hospital. It's not good for us."

Deeper into the heart of Agbogbloshie, huge plumes of foul-smelling smoke rise up from three large fires, where the dismantled items are burned to remove traces of plastic, leaving the metal behind. The fumes are head-pounding, but the men, women and children weaving in and out of the fires seem oblivious. Goats sleep deeply beside the upturned remains of a tree, now strewn with plastic rubbish.

Roles are gender divided at Agbogbloshie. Women and girls wander the sprawling site, hawking peeled oranges, water sachets and cooked food. Many have tiny babies wrapped in cloth tied tightly to their backs, all inhaling the toxic fumes. There are special jobs for children, who trawl the site with magnets tied on to the end of a piece of string, picking up any tiny scraps of metal left behind in the dirt.

In the centre of the dump, a clearing has been turned into a football pitch, and two teams are in the midst of a match. Agbogbloshie is not just a site for trading, burning and dumping electrical waste; it's also home to thousands of people, who carry on their lives and raise their children in the midst of its filth and fumes. There are shacks dotted throughout the central area of the dump. In the doorway of one, next to a large heap of discarded computer hard drives, is a large, grubby cloth poster of Thomas the Tank Engine.

Ghanaians have nicknamed Agbogbloshie "Sodom and Gomorrah," after two condemned Biblical cities, but its residents take a less hostile view.

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## Tips:

We are entering the New Year "2014" most people make New Year resolutions and later forget, let us also make one and adhere to it. "We being responsible citizens will do everything possible to preserve, conserve the natural resources. We will also contribute towards reducing pollution and making this world more suitable to live for our future generations."

Let us adopt such habits, life styles that would lead to meet our New Year resolution. I hope by observing following small things we may contribute significantly.

- Pursue green habits in banking i.e. Opt for internet banking for carrying out various transactions. Make online payment for utilities through credit/ debit cards or internet banking. Ensure that you use GREEN CHANNEL at your bank to withdraw /Transfer/ or deposit amount.
- Ask your bankers to send credit card statements electronically thus lot of stationery and transportation will be saved and this will be very fast too.
- While purchasing railway ticket online you need not take its printout instead you may use the SMS sent on your mobile while booking the tickets. *The interesting thing is that, about 5 Lakh tickets are booked everyday at IRCTC website and if no one takes print of them huge amount of paper can be saved every year.*
- If possible send your mails electronically in place of sending letters. This will reduce save paper and reduce carbon footprint as well as no transport will be required for delivering them.
- Store data and information electronically in suitable manner i.e. computer, flash drive, external hard drive, CD/ DVD etc. This will not only save paper etc. but also storage space.
- Subscribe and read online newspaper and magazines.
- Do not take print of the document unless the draft is finalized.
- Upgrade rather than replace. For example, you can increase the capacity of hard disc and RAM on most computers and purchase new software. As long as it does not affect efficiency do not replace your computer.
- While disposing your computer, ensure that it is recycled preferably dump it at collection point of the recycling company.



## Greggs bakes in solar power

By Jessica Shankleman for BusinessGreen, part of the Guardian Environment Network, for theguardian.com

Britain's largest bakery chain is cooking up some impressive carbon and energy savings, after it unveiled a series of major new solar installations.



Gregg's bakeries have fitted solar photovoltaic panels to save energy and cut emissions. Photograph: Christopher Thomond

Greggs has installed photovoltaic panels at 10 sites across the UK, in a move that it says will help slash its carbon emissions by 25% by 2015.

The 10 projects have seen a total of 1.28MW of capacity installed on bakery roofs, providing renewable power to the energy-hungry ovens that are used to bake the company's famous cakes and pasties.

Stephen Weldon, social responsibility manager at Greggs, said that in addition to energy bill and carbon savings the company would also benefit from feed-in tariff payments.

"As a responsible business, we have a duty to manage our energy consumption by becoming more energy efficient in our bakery and retail operations," he said.

"The installation of PV panels on our bakery roofs provided the perfect opportunity to make use of a previously unused [roof space], take advantage of the government's feed-in tariff scheme and generate carbon-neutral electricity for use in the bakeries, and, therefore, reduce the amount of fossil fuel we need to buy and consume."

He added that the PV installations will also help to boost Greggs' reputation as a company that is seeking to keep a handle on rising energy prices and carbon emissions.

"Solar PV one of the most reliable renewable energies on the market, with proven technologies operating across the globe," he said. "Installation makes a visible and public statement of an organisation's sustainable credentials, and provides a very reliable payback in terms of energy savings as well as the guaranteed and index-linked FIT scheme."

The solar panels will help Greggs meet a target to cut its carbon emissions by one quarter per £1m of turnover from 2010 to 2015, alongside energy efficiency measures in both its shops and bakeries.

The company has also this year been striving to boost its recycling rates to 90%, up from 80% last year.

[<Source>](#)

## Designing for sustainability: what are the challenges behind green materials?

*Sustainable materials are gaining ground, but long development time frames and gaps in knowledge make commercialisation tricky*

By Adam Aston, Guardian Professional



Bamboo was appealing as a sustainable material but the process to convert it into fibres proved just as toxic as the standard viscose method. Photograph: Chiang Ying-Ying/AP

Learning to surf in California's frigid breakers, Todd Copeland, a design guru at the Patagonia clothing company, concluded that wet suits weren't cutting it. Sure, a traditional Neoprene suit could keep him warm, but the suit's material could be synthesised only from non-renewable, energy-intensive resources such as petroleum or kiln-baked limestone.

In spring 2008, Copeland blogged about the need for a truly green alternative. And, later that summer, his cry found its way to Yulex, an Arizona-based company working to resurrect a low-energy, low-toxin recipe for rubber from guayule, a desert shrub native to North America. Research on the plant peaked during the second world war but was then shelved. Yulex had restarted the work around 2000 and was making hypo-allergenic surgical gloves, but was seeking a new market. It saw Copeland's post, and soon its reps came knocking.

Yulex's efforts are set to pay off later this fall, when Patagonia releases a full wetsuit made from a 60:40 blend of guayule and conventional Neoprene, five years after Copeland initiated the search. "We hope to get that to 100% [guayule], but it takes time to learn a new material," says Copeland, now Patagonia's environmental product specialist.

This serendipitous match between designer and material maker is, unfortunately, a rare exception. Speaking to Copeland recently, I wondered how many misses Patagonia has evaluated for every successful innovation, such as Yulex, it brings to market. "100? Probably more," he speculated. "And many, many more don't even make it that far."

The tale of Patagonia's eco-wetsuit offers a parable of the larger challenge facing green materials on the path from lab to market. The process remains a maze that few materials survive. But a recent survey of design leaders reveals that while eco-materials still face a tougher journey than their conventional counterparts, the process of green technology transfer is gaining momentum.

### Sales of green materials are surging

Though spotty, statistics on green materials markets are all pointing up. The building industry is one of the largest shifting towards lower-impact practices. In the US, the green construction market is worth roughly \$100bn, a ten-fold rise since 2006, according to the 2013 Dodge Construction Green Outlook. As a share, green construction now accounts for 44% of total US commercial and institutional construction, up from near zero a decade ago.

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# East coast surge: homes fall into sea, waves rip at pier, wildlife struggles

By Patrick Barkham and Kevin Rawlinson, for *The Guardian*

The telephone probably saved Ray Mooney's life. His brother called just as he was rushing to the back door of his home. Mooney, 55, took the call, and the back of his immaculate wooden chalet fell into the tumultuous sea below.



A home hit by the high tides along the crumbling coastline at Hemsby, Norfolk.  
Photograph: Jeremy Durkin/www.photo-features.co.uk

Mooney's house was one of five destroyed in Hemsby, Norfolk, by a storm surge higher in some places than the great flood of 1953, which devastated East Anglia and killed 307 people in the UK.

This year's similarly lethal combination of onshore winds, high spring tides and a storm surge caused by a North Sea depression, did not cause such loss of life or property, chiefly because of defences erected after the 1953 floods and a well-executed evacuation plan.

But some were still left defenceless against the power of the sea that trashed a historic pier, flooded a newly-acquired nature reserve and devastated beach-side business along the Norfolk, Suffolk and Lincolnshire coastline.



A property that has fallen into the sea due to the cliff collapsing in Hemsby.  
Photograph: Stephen Pond/Getty Images

Mooney's neighbours, Steven and Jackie Connolly, were in the local pub when they heard the cliff was going. Drinkers formed a human chain to help them rescue their sofa, Christmas presents and three-month-old kittens before their home of seven years was swallowed by the sea.

"Suddenly we heard a shout 'it's going, it's going' and we watched our kitchen get ripped apart," said Steven Connolly. "The whole house collapsed before our eyes. We're devastated at what we've lost but at least me, Jackie and the kittens are safe."

The houses at Hemsby were unusually affordable, mostly bought for less than £60,000 because of their proximity to sea. But many locals criticised the failure of the authorities to build the concrete defences that prop up much of this crumbling coastline. Instead, residents funded a DIY scheme in which concrete blocks were to be put on a 200m stretch of beach. Some blocks were placed there at 5.30pm on Thursday in a futile last-ditch attempt to stem the surge.

"Do you know what it's like going to bed every night fearing what tomorrow brings?" said Hemsby resident Angela Lewis, 57. "It's scary. How much longer have we got a home for? Will we have a home for Christmas? All we want is for someone to help us. People have nowhere to go. We can't start again – we can't afford to buy anywhere or rent anywhere."



Collapsed houses lie on the beach after a storm surge in Hemsby. Photograph: Darren Staples/Reuters

A local businessman has offered Mooney and the Connollys rent-free accommodation on a nearby chalet park but the homeless of Lowestoft, in Suffolk, are also looking for a new place to stay after their 27-bed hostel was closed by flood damage.

Emma Ratzer, the chief executive of the Access Community Trust who runs the hostel, said that an estimated £50,000-worth of damage to the ground floor meant it would be closed over Christmas.

"The people on the ground floor have lost all their belongings too, so we have been out buying them new socks, pants and everything," she said. "The first thing we need to do is buy 27 more beds."

The floods also sank the last surviving end-of-the-pier show in Britain. Waves ripped holes in historic Cromer Pier and pulled bench seating in the Pavilion theatre into the sea, forcing the cancellation of the pier's Christmas show – until council officials declare the pier safe again.



Robin Adams outside all that remains of his house at Hemsby, Norfolk. Photograph: Patrick Barkham/ Guardian

"There's probably a reason why people don't have theatres on the end of piers," said general manager Rebecca Wass. "But we're not giving up yet. The show will hopefully go on in some capacity." An alternative venue in Holt is being lined up.

The coast was littered with the remains of beach huts and beach cafes, with boats thrown onto the quay at Blakeney and flooded shops in Wells-next-the-Sea.

Even the fish couldn't escape: the stricken residents including sharks and a turtle from the sea-damaged Sea Life Sanctuary in Hunstanton were being rescued and transferred to another centre in Dorset.

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## Israel's drive for energy independence creating wave of sustainable start ups

By Claudia Cahalane, for theguardian.com



The Arava Solar Company is planning the Middle East's first commercial solar farm. Photograph: Israeli South African Embassy

Outside Israel's first ever fuel choices summit in Tel Aviv, earlier this month, delegates zipped around Habima Square on a futuristic-looking Muv-e, a portable, lightweight, electric scooter designed to travel at up to 25mph.

Weighing in at 30lbs, it was one of a dozen or so sustainable transport options being exhibited at the summit on the 12 to 13 November as part of the Israeli government's fuel choices initiative.

There were spaceship-like, solar powered overhead transport pods for cities, cars running on a battery powered by fresh air from a company called Phinergy, and a detachable electric battery which can be fixed to any bicycle from a venture named Cyclo. The battery is expected to be on the market next year for about \$300.

The Muv-e creation can be folded and wheeled on to public transport and is also due on the market next year for around \$2,000 to \$3,000, with a battery radius of roughly 7 miles. Also, on show was BeemCar, a proposed alternative to light rail, run on solar panels and designed to travel overhead in busy cities. It would offer 67% energy savings over an urban bus, say its creators.

The Israeli government is serious about becoming fuel independent as soon as possible, with a focus on ensuring 60% of energy in transport comes from the renewables sector by 2025. As part of the government's fuel choices initiative, launched in 2010, several sustainable energy technology pilots are being supported with a mixture of government and venture capital investment.

Israel has become known for its tech start ups, even if the best ones are often bought in their infancy by US companies. In August, the Boston Globe said the start up scene in Tel Aviv was second only to Silicon Valley. And, in March, Apple announced it would be opening its third Israeli-based R&D centre, in Ra'anana, a Tel Aviv suburb.

So, what is creating such a throng of activity in Israel? "There is a strong entrepreneurial vibe here," says Joanna Landau, founder of Kinetis, an organisation which sets about promoting Israel as somewhere which isn't just about conflict. "Our grandparents kind of created Israel as a start up in the forties. They were creating everything from scratch and they left an entrepreneurial legacy. That's the spirit we have here. We're a small place, with eight million people, and we're very close knit. And, a lot of innovations, like those in water recycling and drip irrigation have been a matter of survival."

Mandatory military service often brings people even more closely together, and a number of start ups happen during or after service between groups of people who've met while serving, Landau told me and a group of sustainability writers on a recent tour of the country.

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## London told to cut air pollution by 2020 – or face fines

By John Vidal, for theguardian.com

London and other European cities which are defying European law by illegally polluting the air will have to dramatically reduce their vehicle emissions by 2020, **the European commission has said.**

In a signal that Europe is running out of patience with countries that consistently fail to meet air pollution targets, environment commissioner Janez Potočnik served notice that the EC would start fining countries from 2020.

"Poor air quality is the number one environmental cause of premature death in the EU with a toll that outstrips road traffic accidents. It is an 'invisible killer' and it prevents many people from living a fully active life," he said.

Potočnik said air pollution already costs Europe €330-940bn (£277-789bn) a year in extra health costs and prematurely killed over 100,000 people a year.

Large cities like London have claimed to be unable to meet NO2 targets set in 1999 until 2025 at the earliest. They have argued for extensions but the new initiative is expected to force them to take traffic off the road using charges, and stricter low emission zones.



EC has warned cities including London to cut car emissions to clean the air or face heavy penalties. Photograph: Dan Kitwood/Getty Images

Potočnik proposed a package of measures aimed to avoid 58,000 premature deaths a year by 2030. The benefits, he claimed, would be about €40bn a year, or more than 12 times the costs of pollution abatement needed, estimated to reach €3.4bn a year in 2030.

The proposals, which will have to be studied by countries, included setting stricter emission ceilings by 2030 for six major pollutants, including particulate matter (PM) or the fine dust emitted by vehicles and shipping, sulphur dioxide which contributes to acid rain and soil acidification, and nitrogen oxides emitted by road vehicles.

He also plans to reduce pollution from large buildings, tighten up existing targets and fund cities to reduce pollution.

But environment groups said they were disappointed that Europe was not insisting on earlier targets. "We're encouraged that they recognise the scale of the problem, but disappointed they've bowed to pressure from industry and countries like the UK to put off taking action until 2030," said Alan Andrews, a lawyer with ClientEarth.

"The government, London mayor and local councils must take bold action to tackle air pollution – building new roads and expanding airports will simply add to the problem. The UK has been allowed to drag its heels on delivering clean air for far too long," said Jenny Bates, air pollution campaigner with Friends of the Earth.

[<Source>](#)

## UN's 2C target will fail to avoid a climate disaster, scientists warn

By Suzanne Goldenberg, for *theguardian.com*



A house on the beach of Doun Baba Dieye, northern Senegal, lies in ruins after sea level rise. Photograph: Seyllou/AFP/Getty Images

The limit of 2C of global warming agreed by the world's governments is a "dangerous target", "foolhardy" and will not avoid the most disastrous consequences of climate change, new research from a panel of eminent climate scientists warned on Tuesday.

In a new paper, the climate scientist Professor James Hansen and a team of international experts found the most dangerous effects of a warming climate – sea level rise, Arctic ice melt, extreme weather – would begin kicking in with a global temperature rise of 1C.

Allowing warming to reach 2C would be simply too late, Hansen said. "The case we make is that 2C itself is a very dangerous target to be aiming for," he told the Guardian. "Society should reassess what are dangers levels, given the impacts that we have already seen."

The research, published in the peer-reviewed journal PLoS One, represents Hansen's most public intervention so far into the world of climate policy, following his retirement earlier in 2013 from Nasa's Goddard Institute of Space Studies.

Hansen, who left Nasa to be more free to act as a climate advocate, set up a new climate policy programme at the Earth Institute in September. In a separate action, he intervened in November in support of a law suit demanding the federal government act to cut the greenhouse gas emissions that cause climate change.

The new study, however, was aimed at marshalling the expertise of 17 other climate and policy experts from the UK, Australia, France, Sweden and Switzerland as well as the US, to outline the dangerous consequences of sticking to the 2C warming target endorsed by the United Nations and world leaders.

The Intergovernmental Panel on Climate Change warned in its major in October that the world had only about 30 years left before it exhausted the rest of the 1,000 gigaton carbon emission budget estimated to lead to 2C warming. But Hansen and his colleagues warned that the UN target would not avoid dangerous consequences, even if it kept within that carbon budget.

"Fossil fuel emissions of 1,000 gigaton, sometimes associated with a 2C global warming target, would be expected to cause large climate change with disastrous consequences. The eventual warming from one gigaton fossil fuel emissions likely would reach well over 2C, for several reasons. With such emissions and temperature tendency, other trace greenhouse gases including methane and nitrous oxide would be expected to increase, adding to the effect of CO<sub>2</sub>," the researchers said.

The paper draws on multiple strands of evidence to make its case, including the rapid decline of Arctic sea ice, mountain glaciers, and the Greenland and Antarctic ice sheets, the expansion of hot, dry subtropical zones, the increase in drought and wildfires, and the loss of coral reefs because of ocean acidification.

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## US Navy predicts summer ice free Arctic by 2016

By Nafeez Ahmed, for *theguardian.com*

An ongoing US Department of Energy-backed research project led by a US Navy scientist predicts that the Arctic could lose its summer sea ice cover as early as 2016 – 84 years ahead of conventional model projections.

The project, based out of the US Naval Postgraduate School's Department of Oceanography, uses complex modelling techniques that make its projections more accurate than others.

A paper by principal investigator Professor Wieslaw Maslowski in the Annual Review of Earth and Planetary Sciences sets out some of the findings so far of the research project:

"Given the estimated trend and the volume estimate for October–November of 2007 at less than 9,000 km<sup>3</sup>, one can project that at this rate it would take only 9 more years or until 2016 ± 3 years to reach a nearly ice-free Arctic Ocean in summer. Regardless of high uncertainty associated with such an estimate, it does provide a lower bound of the time range for projections of seasonal sea ice cover."

The paper is highly critical of global climate models (GCM) and even the majority of regional models, noting that "many Arctic climatic processes that are omitted from, or poorly represented in, most current-generation GCMs" which "do not account for important feedbacks among various system components."



Greenpeace icebreaking ship, Arctic Sunrise, among broken floes of Arctic sea ice, photographed from the air. This image was taken in the Fram Strait, in the month that the sea ice coverage receded to the second lowest extent since records began. Photograph: Nick Cobbing

There is therefore "a great need for improved understanding and model representation of physical processes and interactions specific to polar regions that currently might not be fully accounted for or are missing in GCMs."

According to the US Department of Energy describing the project's development of the Regional Arctic System Model (RASM):

"Given that the Arctic is warming faster than the rest of the globe, understanding the processes and feedbacks of this polar amplification is a top priority. In addition, Arctic glaciers and the Greenland Ice Sheet are expected to change significantly and contribute to sea level rise in the coming decades."

Such Arctic changes "could have significant ramifications for global sea level, the ocean thermohaline circulation and heat budget, ecosystems, native communities, natural resource exploration, and commercial transportation."

The regional focus of RASM permits "significantly higher spatial resolution" to represent and evaluate the interaction of "important fine-scale Arctic processes and feedbacks", such as:

"... sea ice deformation, ocean eddies, and associated ice-ocean boundary layer mixing, multiphase clouds as well as land-atmosphere-ice-ocean interactions."

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## Green levies may well be 'crap'. The way to deal with carbon is to bury it

By Myles Allen, for *theguardian.com*



'The only institution in the world with the resources to get carbon burial technology deployed fast enough to prevent more than two degrees of warming is the extractive fossil fuel industry.' Photograph: Reuters

Who knows whether David Cameron really called green levies "crap". Downing Street has denied it, sort of. But everyone seems to accept that the autumn statement will contain a significant rolling back of environmental charges on energy bills.

Environmentalists and Liberal Democrats respond with grim-faced resignation, hoping that any rollback will be small and temporary. But with the roaring success of Ed Miliband's energy price freeze idea, the next election is likely to see the major parties duelling over who can roll back green levies fastest.

In the spirit of "never let a good crisis go to waste", now might be a good time to ask: is making fossil energy more expensive and using the proceeds to subsidise efficiency measures and carbon-free sources actually going to solve the problem of climate change? I'm not convinced it will.

My neoliberal economist colleagues assure me that putting a price on carbon is the most efficient way to reduce emissions. I'm not an economist, but I do get it: put the price up on fossil fuels and people will rationally find other ways to generate that energy or decide they didn't need it in the first place.

Being a physicist, not an economist, I also understand that reducing carbon emissions by a fraction is not going to solve climate change. Carbon accumulates in the climate system. So reducing emissions by 10% means we take 10% longer to reach any given threshold for dangerous climate change. To actually solve the problem, we need to reduce emissions to zero. Defenders of green levies need to explain how they are going to achieve that.

It is easy to point to examples of wasteful uses of fossil carbon today. Of course we could all heat our homes more sensibly. But we don't, that's the point. How many of us honestly even know what our monthly energy bills are?

Even if we do cut down on unnecessary emissions, there will always be productive uses of fossil carbon, no matter what the carbon price. UK petrol duties are equivalent to a carbon tax of over £200 per tonne of CO<sub>2</sub>, and we're still driving. If we were all to drive Priuses, we could cope with even higher fuel prices.

The only way a carbon tax, or the price of a carbon trading permit, is going to get net carbon emissions to zero is for it to rise high enough that it makes more sense to bury carbon dioxide rather than pay the tax or buy the permit. Estimates of what this means are in the region of £50-£200 per tonne of CO<sub>2</sub>. The green levy on gas amounts to well under £20 per tonne and permits under the European carbon trading scheme are wobbling around £5 per tonne or less. Can anyone imagine our politicians holding their nerve as they ratchet up green levies to price carbon out of the economy?

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## Waste Management, SAP prove the value of an 'against' position

By David Wilcox

Most articles work up to a conclusion, but the conclusion of this article is right up front, stated by Gavin Newsom, former San Francisco mayor and current lieutenant governor of California, in his keynote address at the California Economic Summit: "You can't continue to do what you've done and continue to get what you've gotten."

According to quotes from CEOs in the Accenture CEO Sustainability Survey, concern about the mediocre progress most corporations are making in addressing issues of sustainability is growing.

From the survey:

"CEOs see business caught in a cycle of 'pilot paralysis' — individual, small-scale projects, programs and business units with an incremental impact on sustainability metrics — and while they see a role for business in promoting sustainable development, their responsibilities to the more traditional fundamentals of business success, and to the expectations of markets and stakeholders, are preventing greater scale, speed and impact."

At CSRWire, we constantly advocate that global corporations can learn from social entrepreneurs in order to build business in emerging markets. Interest in SocEnt innovation revealed itself in the 2012 article "Social Entrepreneurship & Social Innovation: Not the Same Thing."

Although that post dealt with the comparison of for-profit (or hybrid) social enterprises with nonprofit social innovation, two key parameters from the article offer opportunities to innovate and drive sustainability for all organizations:



### 1. The "against" position

In branding, claiming the "against" position means using a competitor's dominant spend and mindshare to carve out an anti-space — the "Uncola," for example.

Social entrepreneurs are quintessential actors against positioners. At the New York Forum on Africa held in Gabon, professor and Nobel Peace Prize recipient Muhammad Yunus stated it clearly: "I looked at how traditional banks do business, and we did the exact opposite."

### 2. Buying impact, measuring success

Jason Saul of Mission Measurement exhorts funders to stop thinking about giving to charities and shift to buying impact.

Funds should flow to the organizations making and reporting measurable progress and actually solving key challenges. But impact buying reinforces the prevalent tendency in the nonprofit world to spend significant dollars on measurement. Funding those added "measurement investments" makes solutions more expensive and less sustainable.

Successful social entrepreneurs create business models where measurement is integral to the normal course of solving a challenge. This one innovation actually can make the difference between a profitable and a non-profitable model.

Social enterprise models have to operate in low-resource environments, and they have to scale without big capital investments — two of several reasons why doing the opposite is a must. Several of the most profitable global-scale successes have followed low fixed-cost scaling. Google, with its data center in a container model, is a prime example of how doing the opposite can happen in many ways. Waste Management and SAP also reveal the power in taking a different approach.

Photo of Waste Management truck via Waste Management

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## With new store, Walgreens goes net-zero for the first time

By Sustainable Business News



Sporting two wind turbines, 850 solar panels and a geothermal system burrowed 550 feet into the ground, Walgreens -- the largest drug store in the nation -- has opened its first net-zero energy retail store in the U.S., in the Chicago suburb of Evanston, Ill.

At the ribbon-cutting,

Mark Wagner, Walgreen's president of operations, said, "We have facilities that utilize wind turbines, solar installations and geothermal technologies, but this is the first time we are bringing all three of these technologies and many more together in one place. Our purpose as a company is to help people get, stay and live well, and that includes making our planet more livable by conserving resources and reducing pollution."

Thomas Connolly, Walgreens vice president of facilities development, said, "We are investing in a net-zero energy store so we can bring what we learn to our other stores and share what we learn with other companies. Because we operate more than 8,000 stores, anything we do that reduces our carbon footprint can have a broad, positive impact on the nation's environment."

### Going net-zero

The store is on Lake Michigan, which provides plenty of wind for power. One wind turbine is situated in front of the Walgreens sign, and solar cascades across the entire roof.

Engineering estimates -- which can vary based on weather, store operations and systems performance -- indicate the store will use 200,000 kilowatt hours a year of electricity while generating 220,000 kilowatt hours per year.



Interior of net-zero Walgreens store (Credit: Walgreens)

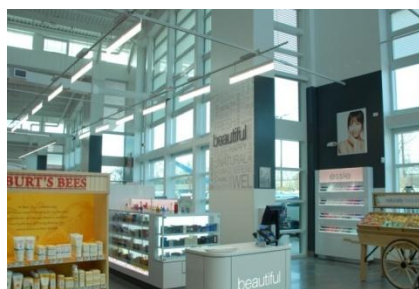
The store is built with state-of-the-art energy-efficient materials, runs fully on LED lights and uses the most efficient carbon dioxide refrigerant for heating, cooling and refrigeration equipment. It has bike racks, a bike repair station and an electric-car charging station.

### A sustainable commitment

Walgreens is participating in the Obama Administration's Better Buildings Challenge, which commits the company to a 20 percent reduction in energy across the chain by 2020.

For the Evanston store, Walgreens is seeking LEED Platinum certification and Net Zero Certification from the Living Building Challenge and has received GreenChill Platinum certification from the Environmental Protection Agency.

Some eco-friendly vendors for the store include Trane, CREE Lighting, Acuity Lighting, Cooper Lighting, CalStar Products, GE Lighting, GI Energy, SoCore Energy, Osman Construction, Wing Power Energy and Camburas & Theodore Architects.



The store's interior LED lighting (Credit: Walgreens)

Walgreens is truly becoming an environmental leader. It has 150 stores using solar, one running on geothermal power and a distribution center in Texas that runs on wind. More than 5,000 stores have energy management systems and use LEDs for cooler and freezer lighting. Net-zero waste has been achieved at 15 of the company's distribution centers. It was one

of the first to install electric vehicle charging stations and now 400 stores have them.

In addition, Walgreens ranks among the top corporate users of solar energy.

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## January 1: No More Inefficient Incandescent Light Bulbs

### SustainableBusiness.com News

On January 1, the US officially begins the shift we heard so much about a few years ago - those outdated, extremely inefficient 40- and 60-watt incandescent light bulbs will no longer be allowed to be manufactured or imported into the US.

75-watt and 100-watt incandescent bulbs have already been phased out over the past two years, but over half the bulbs bought in the US are the lower power 40- and 60-watt bulbs.

Retailers are allowed to sell their inventory of the old bulbs - Home Depot expects to run out in mid-2014.

Going forward, people will still be able to buy incandescent bulbs - the only difference is that they will use 28% less energy.

It's not that the old bulbs were banned - it's just that they don't meet new energy efficiency requirements. Incandescents are hot to the touch because almost all the energy they create (90%) is wasted as heat instead of producing light.

A 60-watt LED costs about \$10 today, down from \$25-\$40 just a couple of years ago.

All major lighting companies, including GE, Philips and Sylvania, have been supportive of the advance in technology and have already upgraded their supply chains to produce the energy-savings bulbs.

When the transition is complete, the US will save \$13 billion every year on energy - equal to that generated by 30 large coal-burning power plants (and their mercury emissions), says Noah Horowitz, Senior Scientist and Director of the Center for Energy Efficiency for the Natural Resource Defense Council.

When buying compact fluorescents and LEDs, it's important to look for the Energy Star label, because some perform better than others, he says.

If you're putting up xmas lights this year, LEDs will save you lots of energy and money on utility bills. Traditional xmas lights in the US use the same amount of energy as 500,000 homes do in a month, according to the Department of Energy.

Lighting consumes 19% of the electricity used in the US, and coincidentally, nuclear plants provide 19% of US electricity. Thus, one could argue that our fleet of 104 commercial reactors exists to keep the lights on.

Read our article, [Amazing Impact of Efficient Light Bulbs](#), to find out how to choose LEDs based on how much light they produce (expressed in lumens) rather than how much power they use (watts).

[<ReadMore>](#)



## Biggest Public Schools Join on Sustainable Food

### *SustainableBusiness.com News*

Six of the biggest public school districts in the US are working together to get more healthy foods on kids' plates while using more sustainable products, starting with compostable dishware.

School districts in NYC, Los Angeles, Chicago, Dallas, Miami and Orlando have formed the Urban School Food Alliance to cut the costs of serving healthy meals.

"This show of solidarity is unprecedented," says David Binkle, Director of Los Angeles Unified School District Food Services.

Because of local, conflicting regulations about how food is purchased, they aren't buying in bulk. Rather, they figure that vendors can lower prices for quality foods if they provide the same lunch to 2.9 million children.

Based on the most popular foods in each district, the Alliance developed the same menus for lunch. One example: roasted chicken, brown rice and seasoned black beans, steamed green broccoli, fresh fruit and milk.

Each school system is in charge of developing one aspect of the program: NYC is developing specifications for purchasing chicken (antibiotic, hormone-free), Miami is working on compostable plates, Dallas is focusing on cutlery, and Los Angeles is in charge of marketing and communication.

All the schools will place their orders using the very same specs.

That will make it much easier for food vendors to provide those foods at lower prices. "93% of all the school districts in the US are 3,000 students or less. A lot of those school districts are writing their own specs and wanting the distributor to bring a sample. It becomes very costly," Dennis Barrett, executive of School Food for New York told *Foodservice Director*.

Besides common menus, the Alliance is currently focused on switching from styrofoam to compostable plates - 271 million of them a year.

"We want to set the tone for the marketplace, rather than having the marketplace tell us what's available," Leslie Fowler, who directs nutrition support services for Chicago's school system, told the *NY Times*.



The New York City Education Department is about to evaluate the bids it received to supply about 850,000 plates. When they choose a vendor, all the school systems in the Alliance will place the same order without having to go through separate bidding processes. The RFP specifies

that all six school districts will be placing the same order for the same price.

Future Alliance projects will choose suppliers for organically grown fruit, compostable cutlery and goods that arrive with less packaging waste.

Smaller school districts are already showing interest. Besides getting much healthier food and supplies at lower prices, they wouldn't have to spend the

time developing their own specs. The template can also work for other big institutions, such as hospitals and universities.

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## 5 deep retrofit projects: A fresh look from New York to Denver

By Elaine Gallagher Adams and Robert Hutchinson



*This story originally appeared on Rocky Mountain Institute's RMI Outlet blog.*

Five years ago, the Rocky Mountain Institute (RMI) embarked on a body of work to advance what it calls deep

retrofits, energy-efficiency retrofits that

save 50 percent or more of a building's energy consumption. Half a decade later, it's time to reflect on how far we at RMI have come with our Retrofit Initiative — and how far we still have to go.

First, though, the question is: Why focus on such profound energy efficiency? For starters, RMI cares a lot about eliminating wasted energy, and that's what most building energy consumption is: waste. But this is about more than simple waste. Done well and timed right, eliminating that waste makes good money. Further — and maybe most important — a highly efficient building (whether new or upgraded) is more comfortable, healthier, enables higher productivity and generally entices people to stay in it longer. Finally, it's increasingly important for employers and institutions alike to be able to say, and show, that they occupy high-quality, green buildings that perform both financially and environmentally. Real estate markets, especially in certain regions, are waking up to a new and powerful competitive dimension that RMI is helping to create.

RMI's Buildings Practice is working on all these dimensions, mostly in commercial buildings. Five important examples form the core of our retrofit work on individual buildings; work aimed at "Making Old Buildings Better Than New (Ones)." They are:

- Empire State Building (New York City)
- City-County Building (Indianapolis)
- IMF Headquarters 1 (Washington, D.C.)
- Byron Rogers Federal Building (Denver)
- The Clark Museum (Williamston, Mass.)

While our initial engagement on such projects was funded by the projects themselves, everything that followed, including educating the buildings industry and scaling solutions, comes from donor-funded dollars. Buildings work is often slow to show results. The work only just starts with the conceptual and system-level interventions that RMI has pioneered. Several years often pass before the physical work is done and the "verdict" is in with real measurements showing results.

Fortunately for RMI, some of our focus also has been on helping advance the role of sophisticated modeling tools that provide a very good sense of what to expect. For some of our fab five examples, the full story is still not in, but the answer is pretty clear. And the change we expect in the world is beginning to happen because of these results.

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## Autodesk, Unilever Lead On Reaching Science-Based Climate Targets

### *SustainableBusiness.com News*

Just as most countries have set climate change targets that fall short of meeting science-based targets necessary to keep temperatures from reaching 2°C, corporations are doing the same thing.

We have long scoffed at the array of targets we see companies pledging to - 5%, 10% or 20% reduction in carbon emissions by 2020, for example, from 2005 levels. Many choose targets they can pretty easily meet, rather than basing them on the urgent task of staying below a 2°C temperature rise.

Climate Counts, which analyzes and ranks the world's biggest companies on their efforts on climate change, analyzed 100 corporations' (across 10 industry sectors) on how much emissions declined from 2005-2012. They compared that performance with science-based targets of emissions reductions required to stay below 2°C.

"Instead of rating companies on the policies and procedures they have implemented to reduce carbon and other greenhouse gas emissions, we are rating them on actual emissions performance relative to science-based targets," the authors explain in the report.

### Good News & Bad News

The good news is that almost half the companies (49) are meeting science-based targets, led by Autodesk, Unilever, Eli Lilly, Canon and L'Oreal. And 25 of them are growing revenues as emissions decline, proving that decoupling growth and emissions is possible.

Autodesk, for example, uses C-FACT (Corporate Finance Approach to Climate-stabilizing Targets) - an open-source, science-driven approach tied to IPCC targets.

The bad news is that 51% of the companies studied are not on track - and do not set targets based on science-based thresholds.

Companies at the bottom of the list are: ConAgra Foods, Royal Bank of Scotland, United Parcel Service (UPS), Molson Coors and Weyerhaeuser.

The 100 companies Climate Counts researched aren't your typical companies, rather they are some of the most proactive and transparent of all global, publicly-traded companies - measuring their carbon footprint since 2005.

"While sovereign nations must come to an agreement on how global emissions reductions are achieved, there is also a role to be played by the business community, as 40% of the 100 largest economic entities in the world are corporations," says Mike Bellamente, executive director of Climate Counts.

"There has been great progress made in how companies measure, manage and report their CO<sub>2</sub> emissions," he says, "but it's clear from this report that the time has come for corporate carbon targets to be grounded in science."

Beyond this research, there's generally a deepening commitment among the world's largest corporations to addressing climate change. A majority have set renewable energy targets, greenhouse gas reduction targets, or both. But, like the countries of the world, they are moving far too slowly, and aside from a few standout companies, "rampant incrementalism" still rules regarding corporate sustainability.

Read the Climate Counts study:

Website: <http://climatecounts.blob.core.windows.net/carbonstudy/Climate%20Counts%202013%20Carbon%20Study.pdf>

[<ReadMore>](#)

## 2013: a year of disasters for Asia that we're all to blame for

Typhoon Haiyan, Indonesian forest fires, Rana Plaza - 2013 has not been good for Asia. Unless the growth-at-any price economic model is challenged we can expect more of the same



Typhoon Haiyan, Indonesian forest fires, Rana Plaza - 2013 has not been good for Asia. Photograph: Erik De Castro/REUTERS

Now is typically the season for looking back on the year's events and reflecting on what they have taught us. A good starting point is an image, posted online in May, which provides a valuable lesson.

It drew a circle centered on Hong Kong with a radius of roughly 2,500 miles (or about a four or five hour flight). Within this circle is the majority of the world's population.

2013 was not a good year for the people inside this circle. They suffered through the Indonesian forest fires in June and July, the result of slash-and-burn logging that destroyed vast swathes of Indonesia's tropical rainforest. These blanketed southeast Asia in the worst haze it experienced in 16 years and reduced visibility in ultra-modern Singapore to under 100 metres. More recently, Typhoon Haiyan, the strongest storm ever to make landfall in recorded history, destroyed entire villages and towns and killed over 5,000 people in the Philippines alone, making it the deadliest typhoon in that nation's history.

Both of these events look like acts of nature - tragic but unpreventable. And yet they are part of a larger string of events that are in one way or another, the result of actions and decisions made by man. Take the forest fires in Indonesia. Forest fires are nothing new, but the fires that have contributed to Indonesia losing 20% of its forest cover over the past two decades have little in common with the blazes in California and Australia that so often make the headlines.

These fires are the product of clearance methods used by palm oil and logging companies to keep costs low and output high. Many commentators have pointed this out yet almost none have gone one step further to identify the root cause of the problem - our relentless desire globally for ever increasing quantities of cheap goods.

Palm oil - which is used to produce everything from biscuits to cooking oil to shampoo to bio-fuel and is a key ingredient in the fast food explosion - is the product that much of the forests have been cleared to produce. This, combined with the massive international demand for hardwoods, sealed the fate of the forests.

The necessity of keeping costs low requires that most important steps involved in producing goods are simply not included in their final cost. With palm oil, that includes the rapid depletion in soil quality where oil palms are planted, the acres of forest cleared to make room for them and the resulting loss in biodiversity, and the effluent generated by processing plants which has polluted far too many rivers. Were any of these costs reflected in the final price, palm oil would be many times more expensive than it is and so would our groceries - but far fewer forests would be lost.

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## UK Decides to Prioritize Offshore Wind

*SustainableBusiness.com News*

Under the United Kingdom's new national infrastructure plan released this week, the government is shifting incentives toward offshore wind power—and away from projects on land that raise objections from local residents.

The UK government expects to invest \$65 billion in renewable energy by 2020 and is raising "strike prices" for offshore wind, while lowering them for onshore wind farms and solar parks.

A "strike price" is the guaranteed amount energy generators earn when they sign long-term power contracts, similar to power purchase agreements in the



US.

Starting in 2018, the strike price for offshore wind will be raised by \$8 per megawatt hour (MWh) to \$228 per MWh.

DECC also wants to raise incentives for companies and communities that install renewable energy facilities that provide heat - biomass boilers bigger than 1 megawatt; deep geothermal; combined heat and power plants, ground-source heat pumps, solar thermal installations and biogas burners.

Renewable energy (including hydro) reached its highest level yet in the UK during the third quarter, providing 13.2% of the country's electricity, up from 11.7% from Q3 2012. About 20 GW of renewable energy is installed in the UK and 11 GW more is in the pipeline for wind, both onshore and offshore.

But residents in rural areas are against big onshore wind farms and solar parks. In this small nation, they scar the landscape, introduce noise into formerly quiet communities, and threaten wildlife.

How will residents respond to the fact that the government plans to license two-thirds of the country's land for natural gas fracking?! Energy companies that have already expressed interest are expected to apply for licenses that would cover 15% of the land in the UK, reports *The Guardian*.

Final prices for the various renewable energy sources have been published and go into effect April 2015. For the binding and kept at that rate, finally giving developers certainty about what they will earn.

"It is vital that we get the level of support right so the market can invest with confidence, cost reductions can be achieved and the market can grow sustainably," Gregory Barker, Minister of State for Energy and Climate Change wrote to UK's Parliament.

The UK already leads the world in offshore wind with nearly 3 gigawatts (GW) installed as of 2012 - more than the rest of the world put together. This year, the first phase of London Array - the world's largest offshore wind farm - came online, bringing electricity to 500,000 homes.

Deploying 10 gigawatts by 2020 is achievable, says the Department of Energy and Climate Change (DECC), although it hasn't necessarily set that as a target.

"This package will deliver record levels of investment in green energy by 2020," Ed Davey, Secretary of State for Energy and Climate Change told *Bloomberg*. "Our reforms are succeeding in attracting investors

from around the world, so Britain can replace our aging power station[s] and keep the lights on."

The government has to invest \$180 billion to replace aging power stations and meet renewable energy and carbon targets.

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## BMW's solar partnership helps give EV industry a jolt

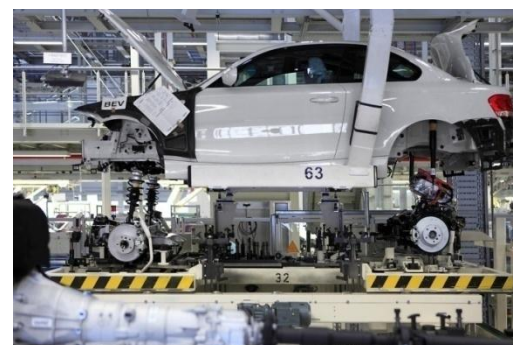
By BusinessGreen Staff

BMW has put in place another part of the jigsaw for the imminent launch of its BMW i range of electric cars, announcing a partnership with U.S. solar specialist SolarCity to allow American drivers to power their electric BMWs using solar power.



The two companies announced late last week that they are teaming up to offer drivers of the new BMW i vehicles access to SolarCity's most affordable solar financing package. "The partnership will make it possible for many BMW i owners in SolarCity's territories to power their cars with clean electricity for less than it would cost with electricity provided by their utility company," the companies said in a statement.

### BMW's solar commitment



Production of the BMW Active E at a plant in Leipzig, Germany. (Credit: BMW Group)

BMW is preparing to launch the high-profile BMW i range in the U.S. and Europe next year and is pioneering a new 360° Electric portfolio of products and services that are designed to support the "EV lifestyle," including preferential rates for solar technology

installations.

"Experience with our MINI E and ActiveE field trials has demonstrated that driving electric is a lifestyle, where customers gain a keen understanding of their driving habits beyond driving and are often inspired to find ways to live more sustainably," said Rob Healey, BMW's EV infrastructure manager, in a statement.

### Sustainable fuel made affordable

"With help from SolarCity, BMW i customers will have the opportunity to maximize their commitment to sustainability. This reinforces the entire concept behind the BMW i3, which is engineered and produced by the most sustainable manufacturing process in the automotive industry."

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## How e-bikes proved their pedal power and went mainstream

By **Robert McIntosh**

In developed countries, the automobile often represents the most desirable attributes of effective transportation: flexible, fast and effortless. But is it the right choice for increasingly dense urban environments?



Automobiles for personal transportation are a Pandora's box -- countries that once encouraged them now find it impossible to curtail their use, even as gridlock paralyzes city streets and vast energy resources are used to inefficiently move citizens.

Moving a person in a car requires moving 3,000 pounds of metal. But there's potentially a better way: electric bicycles.

### The benefits of e-bikes

Electric bikes (or "e-bikes") provide an alternative to cars for flexible urban transportation, and municipal governments should encourage their use in cities through infrastructure and policy. Compared to the weight of an average auto, moving an electric bike requires moving only 50 pounds (plus the rider, of course). Almost all the bike's energy is going toward transporting the person.

E-bikes have a battery and electric-assist motor that lets them cruise with minimal effort at 20 mph for up to 30 miles before recharging. They can be charged quickly with home plugs. The bikes let users skip around dense auto traffic, cost a few hundred (China) to a thousand (U.S.) dollars, and can run on less than a cent of electricity per mile. Even if the bike's approximately 300 watt-hour battery was charged using coal electricity (not ideal, but a worst-case scenario), it would take 81 bikes to emit the same amount of pollution as one car traveling the same distance. And the pollution from e-bikes generally would be released at power plants outside the city -- not within breathing distance of citizens.



(Credit: silky via Shutterstock)

E-bikes cannot replace cars entirely -- they cannot easily haul cargo or multiple passengers, are vulnerable to inclement weather and lack the long ranges and high speeds of automobiles (although this is less an issue for average city driving).

Yet e-bikes can reduce auto use and have proven popular even in countries where automobiles are relatively ubiquitous and affordable. In Europe, for example, e-bike sales have been rising at 20 percent per year, because consumers see them as inexpensive alternatives to cars, buses and subways for urban transit.

Plus, e-bikes decrease the effort to use bikes and make them more appealing for the general populace. This makes them appropriate even for those who are elderly, out of shape or otherwise not capable (or willing) to put forth physical effort for transportation.

E-bikes increasingly are becoming a symbol of the most developed areas, rather than the least. They are becoming synonymous with areas where

citizens are conscious of fuel costs, parking and traffic difficulties, and the environment.

E-bikes are on their way toward leapfrogging past cars as the superior method of urban transit, at least in some places. But barriers continue to exist.

### Overcoming e-bike barriers

E-bikes are most numerous in China, where 130 million are on the road and 32 million were sold last year. Their low upfront price, flexibility and low operating cost have made them staggeringly popular. The market had been growing at a stunning pace (over 30 percent per year), but several cities in China recently banned the bikes. Why?

Culturally, the bike represented pre-industrialized transportation and was crowding out the cars that would symbolize China's status as an economic superpower. Chinese government entities are generally interested in promoting "modern" technologies in cities as signs of progress. As such, there has been a major push to expand auto use and ownership in China -- large-scale car use is the symbol of a fully developed country.

Practically, the bikes were causing accidents while zipping at high speeds through traffic and over sidewalks. The bikes were jam-packing roads and making traffic conditions even worse for passenger and freight vehicles. Transportation infrastructure traditionally has been designed around cars, and Chinese cities did not want to support a technology that could render their roads unusable to autos.

Although city governments were correct in trying to slow market growth of a technology using road and regulatory infrastructure not designed for it, unequivocally eliminating the use of e-bikes misses an opportunity for energy-efficient urban transit.



An e-bike in China (Credit: TonyV3112 via Shutterstock)

Fortunately, that tide is shifting. Major urban centers in developed countries are doing everything possible to get citizens out of cars and onto alternative transportation systems, such as bikes, subways and buses. And in China in particular, well-publicized urban air pollution challenges are prompting leaders to enact limits for new car licenses issued each month, forced vehicle retirements and other strategies.

### Bike-specific infrastructure

Dealing with the issue of e-bikes (as well as regular bikes) on existing roads is difficult. Cars and bikes travel at dissimilar speeds, don't maneuver and accelerate in the same way and are vastly different sizes. Expecting them to share the same space leads to crowding and safety issues for both vehicles.

Ideally, bikes could possess their own infrastructure, much as pedestrians use sidewalks rather than trying to share the road with cars. As cities look at expanding lanes on roads, building highways through cities or employing other methods to control auto traffic, they instead should donate the space toward dedicated bike transportation lanes, as some already have done. Boulder, Colo., for example -- home to one of Rocky Mountain Institute's offices -- boasts 159 centerline miles of on-street bike lanes and multiuse paths and underpasses.

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## Ocean Spray and Jelly Belly's sweet transportation plan

By Jason Mathers

When crafting a sustainable supply chain strategy, the choice of transportation mode is possibly the most important environmental decision a company can make. An increasing number of shippers are finding success with rail, which offers a terrific opportunity for reducing the environmental impact of shipping.



Certainly, trains don't work for every situation, given the distance to rail hubs and some lingering concerns about reliability. But every time even a portion of a shipment is shifted from truck to train, there's a positive impact on the environment. After all, freight transport is responsible for 15 percent of business-related carbon emissions, one of the largest sources in the U.S.

Take Ocean Spray, which cut carbon emissions by 20 percent in its U.S. Southeast distribution operations while driving down associated transportation costs by 40 percent. The fruit juice and food manufacturer [PDF] did this by opening a new distribution center in the region and finding an opportunity to take advantage of empty rail cars returning from a competitor's deliveries to Florida. (An independent logistics partner acted as a firewall to protect sensitive information.)

Ocean Spray is not the only company incorporating train into truck shipments for a double benefit of cost savings and reduced carbon footprint. The October issue of Inbound Logistics reported that intermodal traffic in the U.S. recently hit its highest weekly average, 257,795 units per week, as of August.



(Credit: Shaw Girl via Flickr)

That's meant more than \$500,000 in annual savings compared to just a year ago, when rail touched only 30 percent of those loads. More than 95 percent of the time, the company finds that rail matches the four-day transit times previously achieved via road shipment, according to Inbound Logistics.

In Europe, several companies have found an innovative approach to overcome one of the primary barriers to rail: having enough volume to make it worthwhile. By pooling their shipments, Colgate Palmolive, Mondelez International and Nestle expect to reduce carbon emissions by 18 million kg per year to start. It's exciting to see these sometime-competitors able to collaborate on distribution, with the help of a third-party logistics company.

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## Toxic 'e-waste' dumped in poor nations, says United Nations

By John Vidal, for The Observer

Millions of mobile phones, laptops, tablets, toys, digital cameras and other electronic devices bought this Christmas are destined to create a flood of dangerous "e-waste" that is being dumped illegally in developing countries, the UN has warned.

The global volume of electronic waste is expected to grow by 33% in the next four years, when it will weigh the equivalent of eight of the great Egyptian pyramids, according to the UN's Step initiative, which was set up to tackle the

world's growing e-waste crisis. Last year nearly 50m tonnes of e-waste was generated worldwide – or about 7kg for every person on the planet. These are electronic goods made up of hundreds of different materials



Tablets and other electronic goods bought this Christmas are destined to create a flood of 'e-waste'. Photograph: Anthony Upton/Rex Features

and containing toxic substances such as lead, mercury, cadmium, arsenic and flame retardants. An old-style CRT computer screen can contain up to 3kg of lead, for example.

Once in landfill, these toxic materials seep out into the environment, contaminating land, water and the air. In addition, devices are often dismantled in primitive conditions. Those who work at these sites suffer frequent bouts of illness.

An indication of the level of e-waste being shipped to the developing world was revealed by Interpol last week. It said almost one in three containers leaving the EU that were checked by its agents contained illegal e-waste. Criminal investigations were launched against 40 companies. "Christmas will see a surge in sales and waste around the world," says Ruediger Kuehr, executive secretary of Step. "The explosion is happening because there's so much technical innovation. TVs, mobile phones and computers are all being replaced more and more quickly. The lifetime of products is also shortening."

According to the Step report, e-waste – which extends from old fridges to toys and even motorised toothbrushes – is now the world's fastest growing waste stream. China generated 11.1m tonnes last year, followed by the US with 10m tonnes, though there was significant difference per capita. For example, on average each American generated 29.5kg, compared to less than 5kg per person in China.

By 2017, Kuehr expects the volume of end-of-life TVs, phones, computers, monitors, e-toys and other products to be enough to fill a 15,000-mile line of 40-tonne lorries. In Europe, Germany discards the most e-waste in total, but Norway and Liechtenstein throw away more per person. Britain is now the world's seventh most prolific producer, discarding 1.37m tonnes, or about 21kg per person. No figures are available from government or industry on how much is exported.

Although it is legal to export discarded goods to poor countries if they can be reused or refurbished, much is being sent to Africa or Asia under false pretences, says Interpol. "Much is falsely classified as 'used goods' although in reality it is non-functional. It is often diverted to the black market and disguised as used goods to avoid the costs associated with legitimate recycling," said a spokesman. "A substantial proportion of e-waste exports go to countries outside Europe, including west African countries. Treatment in these countries usually occurs in the informal sector, causing significant environmental pollution and health risks for local populations," he said.

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## Nike Moves to Revolutionary Water-Free, Chemical-Free Dyeing

*SustainableBusiness.com News*

Nike and Adidas are beginning to use what they call a "revolutionary technology" for the textile industry - a carbon-based process that dyes polyester without the use of water or chemicals.

The technology, Nike says, can revolutionize textile manufacturing, whose toxic footprint comes mostly from dyeing and which relies on enormous amounts of water.

"We want to collaborate with progressive dye houses, textile manufacturers and consumer apparel brands to scale this technology and push it throughout the industry," says Eric Sprunk, Nike's vice president of Merchandising and Product.

Adidas debuted clothing made with the process last year and Nike just opened its first dedicated facility in Taiwan. The equipment is made by DyeCoo Textile Systems BV.



Here's how it works. Carbon dioxide is put under extreme pressure, which temporarily turns it into a liquid that substitute for water in dyeing textiles. As it cools, the carbon turns back to a

gaseous state, where 95% of it can be recycled and used again.

Without the use of water, fabrics don't have to be dried - and that saves 60% of energy. They also dye 40% faster.

And there's no need to add chemicals to get the dye to adhere to clothes, as is necessary when water is the medium.

Founded in 2008, Netherlands-based DyeCoo is the world's first supplier of industrial carbon-dyeing equipment. The process was invented some 25 years ago, but DyeCoo figured out how to make it cost-effectively. Introduced to the market the year, it only dyes polyester; DyeCoo is working on expanding it to cotton and other materials.

Both Nike and Ikea are investors in DyeCoo through their venture capital arms.

Conventional textile dyeing is extremely water and chemical-intensive: for every two pounds of textiles dyed, 25-40 gallons of water is used. Nike's contracted textile plants consume about 3 billion gallons of water a year to process polyester and cotton for its products, and Nike itself uses another 325 million gallons.

A couple of years ago, after criticism from Greenpeace, Nike announced it would eliminate hazardous chemicals from its global supply chain by 2020.

Although Nike has been known as a sustainability leader for years, Greenpeace's "Dirty Laundry" report linked Nike and 13 other major clothing brands' suppliers to the release of hazardous and hormone-disrupting chemicals into Chinese rivers. Industrial waste water with a wide range of toxic chemicals was being dumped into rivers in two of China's most important textile manufacturing zones.

Since then, Nike has partnered on a "bluefinder" tool, which directs suppliers to pre-screened, sustainable textile preparations (dye systems, detergents and other process chemicals used in the manufacturing process).

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## Refrigerant phase-outs put the chill on climate change

By Timothy O'Connor

Back in the 1980s, an international alarm was sounded when a growing hole in the Earth's ozone layer was discovered over the Antarctic. This phenomenon was caused, scientists said, by the presence of Ozone Depleting Substances (ODS) such as the gases used in air conditioners, refrigerators and elsewhere.



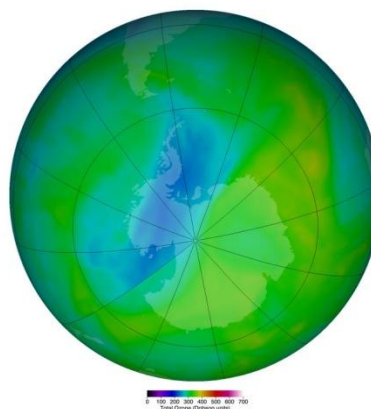
There were predictions, if the ozone hole were to spread, of massive crop failures, an explosion in skin cancer rates and mass extinction of species. Concern over the problem became so widespread that it even became the subject of a skit on "Saturday Night Live."

### ODS problems and solutions

Ultimately, however, the world community acted: In 1987, the Montreal Protocol was signed by 46 nations, mandating a global phaseout of ODS. Since then, scientists have shown that the production phaseout of ODS has helped to shrink the hole in the ozone layer, while at the same time helping to slow climate change.

The problem with this is that ODS substitutes still make their way into the atmosphere when refrigerators are recycled and air conditioners leak. Replacing chemicals that are 10,000 times more potent than CO2 as accelerants of climate change with ones that are a few thousand times stronger is no solution. Furthermore, as globalization and economic growth makes refrigeration increasingly available in the developing world, the climate change problem associated

with growing use of ODS substitutes is getting worse. Studies have revealed [PDF] that cooling systems in places including grocery stores and office buildings in Southern California regularly leak 15 to 30 percent of their refrigerant per year. That means that, worldwide, millions of tons of climate change pollution is being released annually.



Depletion in the ozone layer as of November 2013.  
(Credit: NASA Goddard Space Flight Center)

recharge chemicals. In addition, companies are popping up to help manage refrigeration use [PDF], and some equipment operators are demonstrably leaking less.

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## Los Angeles Makes Cool Roofs Mandatory

*SustainableBusiness.com News*

In April, we reported that the mayor of Los Angeles wanted to add cool roofs to the city's building code - now it's official.

This week, the Los Angeles City Council unanimously passed that update to the building code, making it the first major US city to do so. Going forward, when homeowners replace their roof it must be "cool" and all new homes must include them. NYC also has a cool roofs program, but it's not mandatory.

The report, *Bright Roofs, Big City*, which analyzes the potential benefits of widespread adoption of cool roofs in Los Angeles, finds that besides reducing the heat island effect, \$30 million would be saved on energy bills and greenhouse gases would be cut by the equivalent of taking 7 million cars off the road for a year - 80% of LA's carbon footprint.

Cool roofs - which are usually white, but can also be shades of gray, red or other colors - reflect so much sun that they can be 50°F cooler during the heat of summer, keeping building interiors several degrees Fahrenheit cooler.



"Cool roofs are one of the quickest and lowest cost ways we can reduce our global carbon emissions and begin the hard work of slowing climate change," said Steven Chu, former Secretary of the Department of Energy, as he directed the agency to install

them during renovations.

Temperatures in LA are expected to be between 3.7°F and 5.4°F higher by 2050, with triple the number of "extreme heat" days above 95°F in downtown LA, according to research by University of California/ LA research.

Keeping the city cooler not only cuts greenhouse gas emissions by reducing the heat island effect, it will reduce heat-related hospitalizations, improve air quality by reducing ozone formation, make power outages less likely and cut homeowner energy bills.

Incentives are in place so that cool roofs won't cost more than traditional roofs.

Cool roofs are in California's first-in-the-nation mandatory Green Building Standards Code, CALGreen, which took effect in 2011.

The Global Cool Cities Alliance is working to spread cool roofs worldwide. They want 100 major cities to sign on to becoming "Cool Cities" by 2015:

Website: [www.globalcoolcities.org/?page\\_id=11](http://www.globalcoolcities.org/?page_id=11)

## Cleveland Browns kick off a new waste-to-energy plan

By **Martin LaMonica**

Uneaten food prepared for Sunday's Cleveland Browns' football game at FirstEnergy Stadium will take on a second life as electric energy and fertilizer. The system will generate valuable products while diverting waste from landfills and reducing greenhouse gas emissions, officials say.

Before the game, state and federal officials showcased the stadium's operation to collect waste food from kitchens and send it for treatment at a nearby anaerobic digester. Operated by Quasar Energy at Ohio State

University, the anaerobic digester is a column-shaped building that processes organic wastes. Naturally occurring microbes essentially eat the material and produce a biogas, which can be burned to make electricity or power natural-gas vehicles. Remaining solids contain nutrients that can be used as fertilizer.



### FirstEnergy Stadium's food waste play

FirstEnergy Stadium installed a system called Grind2Energy, made by Emerson's InSinkErator business. Like a household garbage disposal, the Grind2Energy machine grinds up food scraps and, with the addition of water, creates a slurry. Rather than send it into the sewers, though, FirstEnergy Stadium has installed large tanks to collect the slurry, which is then collected and transported by truck to Ohio State University's Ohio Agricultural Research and Development Center.

The Browns estimate that over the course of the season, uneaten food



Quasar Energy facility in Buffalo, N.Y.

generates 35 tons of waste. Quasar will add dairy cow manure and potentially other sources of organic waste to the slurry and put it all into the digester. Over the course of

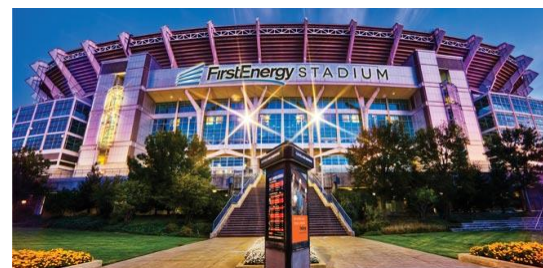
weeks, the waste breaks down and

produces biogas, which can be siphoned off and burned in a generator for electricity and heat. In a landfill, that food waste quickly would decompose into methane, a potent greenhouse gas. FirstEnergy Stadium estimates that its system will reduce the equivalent of 28,000 pounds of CO2 emissions, and generate enough electricity to power a home for a year and half. The Browns project is part of the U.S. Department of Agriculture's U.S. Food Waste Challenge, a program launched this year to increase organic waste recycling by sharing best practices among organizations.

### The cutting edge of recycling

Converting organic waste into useful products is, in some respects, the cutting edge of recycling. Municipalities have been collecting yard wastes to produce fertilizer for many years and, of course, home composting is hardly new. There are also anaerobic digesters that convert wastewater at treatment plants into energy and fertilizer. But states and municipalities, which already have traditional recycling programs in place, are stepping up efforts to collect organic waste.

A handful of states, including New York, Texas, Connecticut and Vermont, have put in place mandates that require organizations,



such as hospitals and hotels, to divert some or all of their food waste. Next year, Massachusetts will be the first state to ban large businesses and institutions, such as universities, from throwing away food in landfills. In states with limited space for landfills, the reduction also helps offset the costs of sending garbage to landfills or incinerators in other states.

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## From drain to drink: innovations in wastewater reuse

By Rachel Cernansky



California is known for many things — surf, sun, cinema — but water sustainability doesn't likely crack the top 100. Yet the state is leading the way in a trend that's picking up around the world: municipal wastewater being treated, disinfected and reused near its source for a variety of purposes, from wetlands restoration to irrigation — and, yes, drinking.

Water recycling, also known as reuse or reclamation, is not new; nonpotable (not for drinking) water recycling systems have been in place for decades. In arid states, including Texas and Nevada, and rainy states, such as Florida and Virginia, municipal wastewater is collected and treated to an extent that doesn't meet drinking water standards, but is approved for certain uses that don't involve human contact, such as agriculture, landscaping and golf course irrigation.

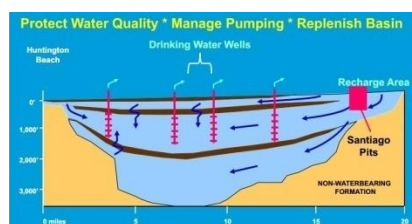
Today, due mainly to increasing drought conditions and groundwater depletion, nonpotable uses are expanding. Municipalities are figuring out more ways to treat sewage less like waste and more like a resource. In addition to watering golf greens, recycled water is being used for street cleaning, fire-fighting, geothermal energy production, preventing seawater intrusion into freshwater aquifers, industrial processing, commercial laundering, restoring natural wetlands and creating constructed wetlands.

Recycled water flows along the San Antonio River Walk, which touts itself as Texas' No. 1 tourist attraction. "Everything that goes down the drain here is treated and reused," said Greg Flores, vice president of public affairs for the San Antonio Water System, citing university campuses, the San Antonio River Walk and Toyota and Microsoft facilities as examples.

The more notable change, however, is that a growing number of municipalities are shifting toward or considering "potable reuse" — recycling wastewater into drinking water.

### Wastewater reuse innovation

In the 1990s, California's Orange County faced serious water-related pressures: increasing seawater intrusion, the potential need to build a second ocean outfall to discharge wastewater to the ocean, and a recent drought with water experts predicting greater frequency of drought in the future — all while expecting increased demand due to population growth. It decided to turn to potable reuse as a solution. In 2008, Orange County started operating its now-celebrated Groundwater Replenishment System [PDF], which injects treated wastewater into the water supply of nearly 600,000 residents. The project, said Orange County Water District president Shawn Dewane, is "taking water reuse to the next level. Instead of pouring it on the ground, in terms of landscape irrigation, [we are] turning it into drinking water." With a capacity of 70 million gallons per day, the Orange County system is the world's largest for water purification and potable reuse. And it's on track to reach 100 million gallons per day by 2015. Primarily because of its scale — and the fact that the problems Orange County faced in the 1990s have spread well beyond California — the system has attracted interest both nationally and internationally. Dewane said he's recently hosted officials from Japan and the United Arab Emirates, and his team also has been working with England and even Singapore, which already has a potable reuse system supplying about 30



The Orange County Water District illustrates water functions in its Groundwater Replenishment System report

percent of its drinking water. (Reuse is also already established and growing in Australia and some European countries.)

The Orange County system, like most potable reuse projects today, practices "indirect" reuse, which means there's an environmental buffer — a groundwater basin, say, or a reservoir — between the wastewater process and the municipal water supply intake. In direct potable reuse, there's no environmental buffer; water is treated and sent directly back to the municipal water supply. It's something that more, primarily arid, places are starting to consider as a way to make the most of their increasingly scarce water resources.

Experts say reuse technologies have been proven, and treatment plants can get wastewater as clean as distilled water. The three-step process used in Orange County — microfiltration, reverse osmosis and a combination of ultraviolet treatment with hydrogen peroxide — is becoming the standard for potable reuse. "That's state of the art right now," said Wade Miller, executive director of the WaterReuse Association.

Water photo by Vitaly Raduntsev via Shutterstock

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## Green consumers alive and well, but living in emerging economies

By Doug Miller

To those of us seemingly surrounded by climate burnout and indifference, it is perhaps comforting that important places in the world are experiencing their first big wave of green consumerism.

This is the picture that emerges from GlobeScan's latest 20-country consumer poll that tracks climate concerns and low-carbon behavior. Results show low-carbon consumer behavior is surging in emerging economies such as China, India, Indonesia and Mexico. Asked what, if anything, they have done over the last year to reduce climate change, increasing numbers of consumers in these countries volunteered that they had bought energy-saving light bulbs or low-energy appliances.

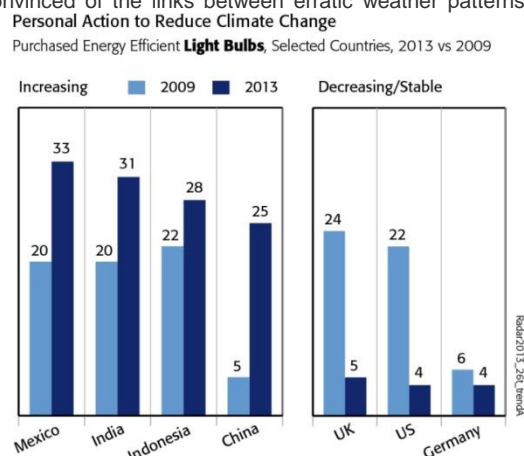
Meanwhile, these same behaviors have dropped away in industrialized countries such as the U.S., U.K. and Germany since 2009.

### Emerging economies join the climate change fight

As we reported here in Proof Points earlier this year, climate concerns have been growing among citizens of emerging economies as they become wealthier and more convinced of the links between erratic weather patterns and manmade climate change. It is heartening to see consumer behavior in these countries reflecting these increased concerns.

Conversely, consumers in North America and Europe have lost their focus on carbon-reducing actions, in keeping with their declining climate concerns.

The fact that low-carbon behavior is now popular among consumers in emerging markets such as China and India is consistent with other GlobeScan research over the last two years. The surveying has identified a large and powerful new segment of the consumer markets in these countries, which we call the "aspirational."



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## Fashion forward: Innovations drive sustainable clothing

By Anna Clark

Industry leaders convened last week in Istanbul at the Textile Exchange's 2013 Textile Sustainability Conference to share solutions to enhance the integrity of products and practices in apparel and textiles.

"The industry is addressing fast fashion and moving toward a closed loop where end of use does not mean the end of life," said Tricia Carey, vice chairperson of Textile Exchange and senior merchandising manager for Lenzing [German], a leading manufacturer of sustainable fiber. "But the biggest challenge is educating the consumer to decide about their purchases not by price, but by the environmental impact."

Unfortunately, the vast majority of consumers are far from appreciating the intricacies of environmental impact. Nevertheless, the industry is making strides to measure and lessen these effects.

### An exciting new analysis tool

One way the industry is doing this is through a complex process called lifecycle analysis (LCA), which quantifies the impact of everything that happens to make and use clothing, including raw materials extraction and production; manufacturing; product packaging and transport; use; maintenance; and disposal or recycling.

"The impact of a single item is only part of the story," said Barbara Close, president of Princeton Sustainability Advisors and LCA practitioner. The length and intensity of utility as a denominator also can provide guidance on the relative impact of any given garment in a wardrobe.

"A high-impact item that can be worn often and kept for a long time may represent less of an environmental investment than a low-impact item worn once or twice for a short fashion cycle," Close explained. "Brands should heed the contributing factors to lifecycle impact by all aspects of their supply chain, product design and quality."

Brands and manufacturers can use the results of LCA to identify areas of environmental impact or risk, optimize product design and processes, and communicate their business and product impacts.

### Tips for integrating sustainability into apparel



A Stella McCartney look on the runway. Credit: Peter Scholz via Shutterstock

Some apparel brands that are proactively lessening environmental impact include Patagonia, Stella McCartney, Loomstate, Eileen Fisher and NAU. While these labels still lie beyond the budget of the middle market, they prove that sustainability can be woven into fashions, from fiber to finished garments.

To follow their lead or at least get on track to mitigate risk in the future, "it's best for brands to start in the design and development phase," said Debora Annino, president of Common Project and the creative director who launched Matthew

McConaughy's new brand JKL.

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## Climate Change Temperature Targets Still Too High

*SustainableBusiness.com News*

World governments are nowhere close to staying below the 2°C (3.6 °F) temperature rise threshold they have promised to avoid, and new research shows even that level is too high to prevent disaster from climate change.

17 leading climatologists including James Hansen believe the upper limit must be set at 1°C (1.8°F) instead, which would keep atmospheric carbon levels at 350 ppm. Currently, we are at 0.8°C - awfully close. Achieving the 2°C target would bring us to 450 ppm.

Allowing a 2°C rise will likely result in sea level rise on the order of 20 feet, while inducing "slow amplifying feedback" such as minimal ice sheets and rising methane and nitrous oxide levels in the atmosphere. At that point, the situation would be out of humanity's control because it would take many centuries for oceans to cool down.

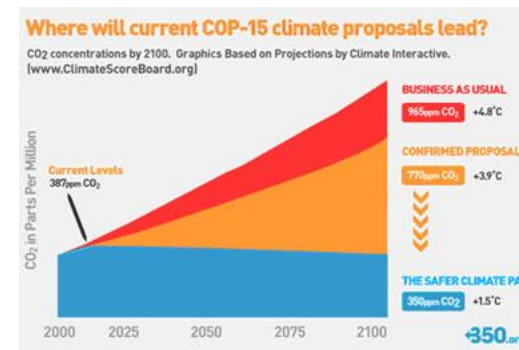
The earth's climate has to stay in the Holocene range - the temperature range of the past 10,000 years - to keep these slow feedbacks small, they conclude.

### It CAN Be Done

Although it may seem like a futile exercise, given that worldwide emissions are still rising, Hansen and his colleagues believe it is an achievable goal. It can be accomplished by limiting cumulative fossil fuel emissions to 500 gigatons and by pursuing public policies that sequester 100 gigatons of that into the soil and forests.

We *can* reduce atmospheric carbon to 350 ppm by 2100, they say, which would restore Earth's energy balance and stabilize the climate. It can be achieved if emissions from burning fossil fuels are reduced 6% a year from 2013 and through reforestation.

If the world allows fossil fuel emissions to keep growing through 2020, they would have to cut by 15% a year starting then.



The research team, which includes three economists, recommend - once again - a carbon tax that would be collected from fossil fuel companies. "An advantage of a carbon fee or tax is the relative ease with which it can be

made global [quickly]," they say. "An agreement among even a few of the largest economies (United States, China, European Union, Japan) could spur near-global agreement. Countries agreeing to have a rising carbon fee would likely place border duties on products from countries without a carbon fee, thus providing strong incentive for countries to join."

If nothing is done soon, "The huge fossil fuel energy infrastructure now in place makes it practically certain that the 500 billion metric ton limit will be exceeded," they say. At this pace, temperatures will rise at least a 6°F by the end of this century.

With a price on carbon, solar can provide a third of the world's energy by 2060, says the International Energy Agency, and renewables could provide 80% by 2050. Other studies show we can get there even faster.

Indeed, this year, carbon levels briefly hit 400 ppm — the highest recorded in human history — and are expected to climb as high as 450 ppm by mid-century if emissions continue on their current course.

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## Turning up the volume on climate change isn't changing behaviour

*The scientific message on climate change is already loud and clear, but we persistently ignore it, writes **Jonathan Rowson***



Students from Edinburgh University changing behaviour by encouraging cycling. But despite a broad scientific consensus on climate change, many are in denial.  
Photograph: Murdo MacLeod

On discovering that their mother tongue is not shared by everyone, tourists have been known to redouble their efforts to communicate by raising their voices. This comical failure to grasp the difference between a message not being heard and not being received also has a tragic side, because we appear to be doing something very similar on climate change.

The scientific message is already loud and clear. The planet is getting hotter, we are causing it, the warming represents an imminent existential threat to humanity's only habitat, and we need a sharp global reduction of carbon emissions to minimise the already inevitable impacts. However, collective action problems continue to trump the moral imperative, and global emissions are going up, not down. The climate message is being heard, but not really received.

So what to do?

Scientists have been turning up the volume on abstract figures: The IPCC is 95% certain, 97% of peer reviewed papers agree global warming is man-made, 100% of National Academies of Science. But these facts bounce off most people like a foreign language.

The response from political leaders has mostly been to reiterate their generic injunctions even more emphatically: "we should act on climate change" becomes "the time for action is now!" Alas, these words sound hollow because they rarely speak to our competing commitments to fuel prices, energy security and economic growth that militate against such action.

The response from business leaders has been to amplify the credible business case for reducing emissions. However, while green growth is good for everyone's morale, even the most exemplary sustainable businesses are quiet on the inconvenient distinction between absolute and relative reductions in emissions. What matters for climate change is not reducing carbon on a unit by unit basis, but reducing emissions overall. Halving emissions to double the size of your business is much better than business as usual, but it doesn't really help to deal with climate change.

So what are the alternatives to turning up the volume? Today the RSA publishes a report: A New Agenda on Climate Change: facing up to stealth denial and winding down on fossil fuels. There are four main points to our argument.

First, and most politically, we need to recognise that anthropogenic climate change is driven primarily by the economic logic of global fossil fuel extraction, and only to a lesser extent by the social practices and infrastructure that shape national emissions.

Second, climate change badly needs reframing. Thus far it has been subsumed by a broader environmentalism, and is often conflated with a more general concern for sustainability. The problem is ecological in nature, but it is driven by economic activity and has significant implications for public health, immigration, industrial policy, pensions, financial stability and energy security. The collective climate challenge could become much more meaningful if we could start thinking and talking about it at this more inclusive level.

The third challenge is to face up to 'stealth denial', which we believe applies to about two thirds of the British population (63.9%). A nationally representative RSA/Yougov survey of over 2,000 people in May 2013 revealed that those who accept the facts appear to disavow the connection with their emotions, personal agency and daily lifestyle.

We characterise 'stealth denial' in terms of those who accept the reality of man-made climate change but who agree with at least one of the following narratives (which are not mutually exclusive). Emotional Denial: "I don't feel uneasy about climate change"; Personal Denial: "My daily actions are not part of the climate change problem"; Practical Denial: "There is nothing I can do personally that will have any significant effect on limiting climate change"

Of course, the attempt to measure complex psychological traits and processes through a relatively crude survey instrument raises a host of methodological questions, but it felt important and timely to provide empirical reference points for a notion that is already true to our experience, and each form of denial is cross-validated with other elements in the survey.

Facing up to pervasive stealth denial sheds fresh light on a range of climate-related issues, and helps to explain why we appear to persistently ignore or underestimate rebound effects on energy efficiency savings. There are many different kinds of rebound effects, but they mostly stem from the neglected empirical fact, highlighted by Duncan Clark, that 'energy begets energy', and that energy supply in one place often creates demand elsewhere.

At a planetary level we are therefore caught in dissonance and doublethink, simultaneously trying to minimise emissions at a national level, while maximising fossil fuel production. Energy efficiency remains an important part of the transition story to renewable energy, but believing it has a direct and significant impact on emissions begins to look like false consciousness.

The fourth and most practical challenge is to clarify the call to act on climate change. We give details of eight recommendations for the UK at the end of the report, to help move the discussion from a generic call to action, to a debate about particular acts:

- 1) Build a Climate Alliance with clear shared objectives that is not part of the environmental movement.
- 2) Consistently refocus the media debate away from the existence of the problem towards competing ideas about solutions.
- 3) Create public platforms for people to speak to each other about climate change for extended periods.
- 4) Lobby for consumptions-based emissions reporting to better capture national progress.
- 5) Support and promote divestment in fossil fuels.
- 6) Campaign for the reduction of fossil fuel subsidies and the dismantling of the European Emissions Trading Scheme.
- 7) Collectively supply and manage our own renewable energy where possible.
- 8) Build reciprocal commitment with other countries to reinforce national commitment.

We need to debate and act on such ideas to help us face up to stealth denial and to keep fossil fuels in the ground. It is time for a new agenda on climate change. As Chinese philosopher Wang Yang-Ming once put it: "To know, and not to act, is not to know."

[<Source>](#)



## Some Good News on Climate Change: Emissions Headed for Plateau

### *SustainableBusiness.com News*

In 2012, global greenhouse gas emissions continued their trajectory to all-time highs, but some researchers are cautiously optimistic that the world is edging closer to a plateau.

"Unexpectedly, for the first time our Index draws a cautious picture of hope", says Jan Burck, an author of the annual Climate Change Performance Index by Bonn-based Germanwatch and Climate Action Network Europe (CAN-E).

It's not that emissions are coming down, but "We see positive signals toward a **slowdown in the increase in global CO<sub>2</sub> emissions**.

That's largely because China—the world's biggest emitter—has improved on climate protection. From 2002-2012 China accounted for about four-fifths of the world's growth of carbon emissions.

Although world carbon emissions rose 1.4% last year - to a record 31.6 gigatons - that was less than half the 2011 rise of 3.2%.

The index, which ranks the top 58 climate-polluting countries (1 is the least polluting, 58 is the biggest polluter), ranks China as #46 this year, from #48 in 2012. After peaking in 2012, China's growth in emissions slowed this year - emissions grew by 27% compared to 54% last year.

As we recently wrote, a key to solving the climate change dilemma may be in addressing what's more tangible - air pollution.

With its cities choked by smog, China has begun to implement an air pollution action plan, which will force major provinces to cut back on coal. Also important are the cap-and-trade pilot programs, now underway in several cities, and its aggressive moves on solar and wind installations.

In 2012, China - for the first time - increased power production from wind more than from coal.

"Record air pollution has changed the discussion about coal, and now prominent policymakers and opinion leaders, even vice-ministers, call for capping coal use, especially in the eastern populated and industrial areas of China," says Li Shuo, climate and energy campaigner for Greenpeace in Asia.

### **Which countries are #1, #2, or #3?**

Not a single one - because none is on track with policies that would keep temperature rise below 2°C.

Denmark leads the world on cutting carbon pollution, ranking #4, and slightly improved its score on every criterion this year.

It may surprise you the UK takes fifth place (up from #10 last year). Although the country has been tussling with its renewable energy subsidies, it has cut emissions 15% in the last five years. Portugal is #6 (up from #7 last year).

So where is Germany - the country we hear the most about?

For the first time, Germany dropped out of the top 10 – slipping from #8 to #19 - one of the biggest losers in this year's index. Incredibly, this long-time renewable energy leader is using more coal and has been "less constructive in the EU energy debate, blocking urgently needed reforms in the cap-and-trade program."

On the bright side, Morocco has moved up to #15 because of its national climate change plan and recent moves to install a series of gigantic solar projects. And that's in a country that still has relatively low emissions.

As for the US, we are way down the list at #43 for two years in a row, even with our emissions declining 8% in the last five years. That's because the US is far from truly taking proactive measures on climate and energy.

"The US government shows more stringency in climate policy than in the last legislative period," they say, because of policies that are improving fuel

economy and new regulations on coal fired plants. The US is also playing a constructive role on phasing out HFCs.

It's a shame that Canada comes in dead last at #58 for the second year (among industrialized countries). Known for decades as one of the world's most environmentally conscious countries, it has turned solidly toward exploitation of tar sands, minerals and a lack of interest on climate policy.

With the election of a far-right administration, Australia also slid this year, taking the second-to-last slot - #57. Last year, Australia ranked #51, but it is now in the process of dismantling its pioneering carb tax, which was just getting off the ground (along with most other carbon reduction efforts).

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## A positive diagnosis: How hospitals are reducing energy consumption

By Michael Bendewald and Kendra Tupper

With the media attention paid to the rollout of the Affordable Care Act (aka Obamacare), it's easy to miss a related, if seemingly mundane, development: the recent release of the U.S. Department of Energy's "Advanced Energy Retrofit Guide for Healthcare Facilities." Of all the challenges facing the nation's health care system, one of the most pervasive -- yet solvable -- is its overwhelming energy consumption. U.S. health care facilities spend \$8.8 billion per year on energy.



### Connecticut's Greenwich

Hospital was one facility contributing to that colossal number. On the U.S. government's 1-100 rating scale for Energy Star, Greenwich Hospital scored a disappointing score of 47, falling far short of the 75 required to garner an Energy Star designation. The hospital implemented a deep energy retrofit and the results [PDF] speak for themselves: Greenwich saved more than 1.7 million kWh and \$303,000 of electricity per year, nearly doubled its Energy Star rating to 88, and reduced its overall energy consumption by 35 percent with a less-than-six-month payback on the effort.

According to the "Advanced Energy Retrofit Guide," there are ample opportunities such as this that can lead to savings of more than 30 percent in hospital energy costs. Health care retrofits provide numerous other benefits as well, ranging from improved equipment longevity to decreased patient recovery times to a more attractive brand. Because the value of retrofits isn't limited to just energy savings, demand should be strong.

Co-written by the Rocky Mountain Institute, the National Renewable Energy Laboratory's "Advanced Energy Retrofit Guide for Healthcare Facilities" is part of the "Advanced Energy Retrofit Guides" series, which provides retrofit guidance specific to various commercial property types. The health care guide reveals the significant impact retrofits in this industry can have on energy savings and patient care.

### Energy use in health care facilities

Health care facilities are among the most energy-intensive facilities in the U.S. According to the 2003 Commercial Building Energy Consumption Survey (CBECS), the average hospital spends \$675,000 on energy costs annually, exceeding the per-building energy costs of other building types by a factor of 10. The energy use intensity for hospitals is approximately 250 kBtu per square foot, ranking just behind the food-service sector. To put that in context, the energy use intensity of hospitals is nearly three times that of a typical office building.

The energy cost savings potential in health care facilities ranges from 10 to 32 percent, according to an analysis completed of "typical" facilities in five climate zones. The "Advanced Energy Retrofit Guide for Healthcare Facilities" analysis breaks this savings potential into two steps:

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## 'Every little helps' is a dangerous mantra for climate change

*Plastic bag charges may seem a step forward but nudging and tweaking behaviours will never address climate change; a fundamentally different economic system is needed*

By Adam Corner, *Guardian Professional*,



Re-using plastic bags is an iconic "sustainable behaviour" but these incremental steps may not be a proportionate response to climate change. Photograph: Christopher Thomond

In 2014, England will follow the example set by Wales and Scotland and introduce a carrier bag charge. If the Welsh and Scottish experiences are anything to go by, the policy will drastically reduce the number of bags in circulation, keeping unnecessary waste out of landfill and removing a little polythene from the diet of our cities' seagulls.

Like recycling, re-using carrier bags has become something of an iconic "sustainable behaviour". But whatever else its benefits may be, it is not, in itself, an especially good way of cutting carbon. Like all simple and painless behavioural changes, its value hangs on whether it acts as a catalyst for other, more impactful, activities or support for political changes.

The evidence from Wales is not encouraging. My colleagues at Cardiff University analysed the impact of the introduction of the carrier bag charge. Although their use reduced dramatically, rates of other low-carbon behaviours among the general public remained unaffected.

To be clear: fewer plastic bags would be a small, good thing. But as a major two-day conference at the Royal Society headquarters in London this week made clear, "every little helps" is a dangerously misleading mantra when it comes to climate change.

The Radical Plan meeting featured contributions from across the physical and social sciences, as well as civil society. The organisers – Professors Kevin Anderson and Corinne Le Quere of the Tyndall Centre – posed contributors a brutally simple question: what would need to happen if we were to do more than simply pay lip service to the idea of avoiding dangerous climate change?

The answers were undeniably radical – and none mentioned re-using plastic bags.

Scientists and engineers described the unprecedented scale of energy system change necessary to decarbonise rapidly. Social scientists argued for a transformation in the way we view ourselves, our consumption, and our role in society. Economists demolished the idea that economic growth could be maintained forever in a fossil-fuel driven, finite world. Policy experts questioned whether our current carbon targets were fit for purpose.

But across almost all of the papers presented at the conference, there was an inescapable consensus: a fundamentally different economic system is required, if we are serious about avoiding dangerous climate change, based on nurturing wellbeing rather than stoking corporate profit.

This is, of course, not a new idea. But what was striking was the convergence across contributors from the breadth of the physical and social sciences. The clear message was that unrestrained capitalism is incompatible with decarbonisation: the sums simply don't add up.

[<ReadMore>](#)

## Sustainability movement will fail unless it creates a compelling future vision

*We will only create prosperity within planetary boundaries if we start to really believe it is possible, writes Jo Confino*

By Jo Confino, *Guardian Professional*,

"It's all a question of story. We are in trouble now because we don't have a good story" - Thomas Berry

The greatest risk to the sustainability movement is that it is struggling and so far failing to articulate a vision of a future that is both prosperous while remaining within planetary boundaries.

Until it is able to showcase a plausible paradigm shift, then no-one is going to feel safe letting go of the current system that is driving us towards the edge of an environmental and social abyss.

This goes to the very heart of the explanation why large businesses are doing no more than incremental tinkering with their operations and also explains the growing evidence that corporate sustainability is hitting a plateau; companies just don't know where else to go before they have to start challenging their core business model and that is scaring the shit out of them.

Even leaders such as Unilever are unable, within the current framework, to articulate a future that does not include continued growth; in its case, a doubling of its size by 2020. Even if it also meets its ambitious objective of halving its environmental impacts, that's still no overall emissions reduction.

The lack of a credible alternative also explains the sense of disconnection that many feel to the scale of the sustainability challenges we face. I was at the annual CEOs meeting a few weeks ago of the World Business Council for Sustainable Development listening to a talk by Johan Rockstrom, head of the Stockholm Resilience Centre.

His portrayal of the environmental and social disaster we are hurtling towards should have had all the senior executives weeping into their handkerchiefs. But there were no tears and precious little mention of his warning as the conference progressed.

How could that possibly be? Because our minds don't allow us to look to the far horizon when we can't see more than a few steps ahead so instead we tend to look down at our feet. This explains why even environmental catastrophes only hold our attention for so long.

It is true that there are a number of interesting sustainability initiatives such as the circular economy and a growing number of cross-sector collaborations. But none of these offers a truly systemic solution.

At its worst, this means that sustainability professionals are essentially operating in the dark, frantically seeking to change the world without really understanding whether ultimately their initiatives or projects are causing more harm than good.

So what can we do about this? What I am hearing from numerous experts is that we need to find a new narrative that creates a sense of confidence to take more radical steps.

This was also the conclusion of a day-long experiential roundtable of 24 diverse global experts I chaired recently in Copenhagen. We discussed more than a dozen key sustainability solutions, ranging from natural capital valuation to education initiatives, but what was felt to be most important was being able to tell the story of the future we all want and which we believe is feasible.



We need to look further into the horizon and develop a new narrative for sustainability, argues Jo Confino Photograph: Alamy

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## Centre plans 4 solar UMPPs of Rs 90,000 cr

*These projects are planned in Rajasthan (4000 MW), Gujarat (4,000 MW), Kargil (2,000 MW) and Ladakh (5,000 MW)*

**BS Reporter | Mumbai**

The Centre has proposed four ultra mega solar power projects (UMPPs). These would be in Rajasthan (4,000 Mw), Gujarat (4,000 Mw), Kargil (2,000 Mw) and Ladakh (5,000 Mw). These would cost Rs 90,000 crore.

Tarun Kapoor, joint secretary, ministry of new and renewable energy, said the



per Mw capital cost has been estimated at Rs 6 crore against the existing Rs 7-7.5 crore. The per unit rate is estimated at Rs 5.50.

"The one in Rajasthan would be developed on an engineering procurement and construction (EPC) basis. For this, public undertakings Bharat Heavy Electricals,

Solar Energy Corporation of India, Power Grid, Hindustan Salt and Satluj Jal Vidyut Nigam and Rajasthan Electronics & Instruments will form a joint venture company."

According to Kapoor, BHEL which will be a lead company in the proposed JVC, will manufacture solar panels needed for Rajasthan project.

Kapoor informed that the first phase of 1,000 MW of Rajasthan UMPP is expected to be operational in three years while the entire project in seven years. The land has already been identified. He said the power to be produced from Rajasthan UMPP will be sold to Solar Energy Corporation which will trade it to various distribution companies.

As far as Gujarat UMPP is concerned, it will be developed with five to six companies. However, Kapoor said the Centre has yet to finalise details in this regard. Further, a lot of private developers have desired to develop 1,000 MW to 3,000 MW on their own.

However, it won't be possible as the project will be tendered, he added. According to Kapoor, transmission is a major issue for the development of Kargil and Ladakh UMPPs.

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## Coal on barges marks a milestone in India's inland water trade

**By Sumit Moitra**



Waterways Authority of India (IWAI) told **dna**.

NTPC to start shipment of coal through Hooghly river from Bay of Bengal to its Farakka plant in Murshidabad district today.

The maiden effort in the country to transport coal via waterways has just started.

NTPC, India's largest power producer, would start moving coal on barges from the mouth of the Hooghly river at the Bay of Bengal to Farakka power station in West Bengal from today, Inland assistant director Arvind Kumar

The trial run of shipment through the mode under which 3 million tonne of coal would be transported via waterway took place last week.

The project mooted five years ago would be run by IWAI on behalf of NTPC.

The development, in coming days, may bring down costs of imported coal and, consequently, lesser power costs.

"The first shipment has been successfully delivered on a trial basis and the shipping minister will formally inaugurate the launch on Monday," he said.

By shipping coal through a 900-kilometre water route, NTPC would save more than Rs 200 on every tonne brought to its power plant at Farakka in Murshidabad district.

The process of transportation, however, is a complex one as Hooghly river has very low depth forcing the ocean going large Panamax vessels to unload the consignment at the mouth of the river to smaller vessels and then again to barges to be finally taken to the doorstep of the power plant.

Despite such complexities and need to develop related infrastructure, carrying coal via waterways remains an attractive proposition.

A single barge can carry cargo equivalent to 15 rail wagons or 60 trucks and the operating cost of transportation via rail is 2.5 times, as per a study by National Council for Applied Economic Research. NTPC, in 2008, had signed a memorandum of understanding with IWAI for supply of 2-3 million tonnes of imported coal per annum for its Farakka, Kahalgaon and Barh power stations in Bihar from Haldia.

[<ReadMore>](#)

## Greenko commissions first phase of wind farm in Andhra Pradesh

**By Bhawna Gupta**

*Founded in 2006, Greenko aims to reach 1,000 MW of operational power generation capacity by 2015.*

London's AIM-listed clean energy producer Greenko Group plc has commissioned phase 1 of its 51.2 MW Balavenkatapuram wind farm located in Andhra Pradesh in India, as per a stock market disclosure.

The total cost of the first phase was approximately €40 million (\$53.5 million) and uses a GE turbine, which has the potential to deliver close to a 30 per cent capacity in a year.

"The project is completed a month ahead of schedule and takes Greenko's total generating portfolio to 411 MW, a 38 per cent increase since April 2013. The project has secured a 25-year power purchase agreement with the state of Andhra Pradesh and benefits from the recently increased tariff," the company said in the release.

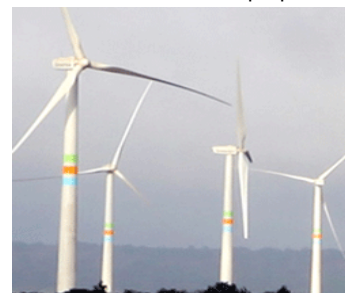
"Our first two wind farms refined our modular approach to wind farm construction, which is now delivering substantial and predictable growth. As a result, we should double our generating capacity this financial year to 600 MW and remain in line to hit our 2015 target of 1,000 MW," said Anil Chalamalasetty, CEO of Greenko.

The grid connection for the Balavenkatapuram site's full capacity of 200 MW has also been completed. Its second phase which would add another 50 MW using Gamesa's turbine is currently under construction and on schedule.

Founded in 2006, Hyderabad-based Greenko Group is a renewable energy generation company involved in biomass, hydro and wind energy. The company aims to reach 2,000 MW of operational capacity by 2018.

It had recently signed up an agreement with Spanish wind turbine company Gamesa for the supply of 300 MW of wind turbines.

(Edited by Joby Puthuparampil Johnson)



[<Source>](#)

## Forthcoming Events

### International Conference on Strategies for Sustainable Economic Development in Green Era February 01-02, 2014 Dubai, UAE

On February 01-02, 2014, the Centre for International Interdisciplinary Research and Trade (CIIRT) , IIDRC, University of Malaya, Universiti Putra Malaysia, Eurasian National University, Financial Academy Astana and Universiti Kebangsaan Malaysia is hosting the International Conference on **Strategies for Sustainable Economic Development in Green Era** in Dubai, UAE. The conference is being organized at **Holiday Inn Dubai, UAE**.

The main theme of the conference is **Green Banking**, the topics include Financing a Green Economy, Financing A Green Economy, Creating and Sustaining Green Industries, Opportunities for A More Sustainable Transport and Tourism Industry and International Initiatives, Standards and Regulatory Framework.

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The third India Sustainability Conclave is scheduled on **February 4- 5, 2014 in FICCI, Federation House, Tansen Marg, New Delhi**. This year the Conclave will focus on sustainability reporting, supply chains, sustainable financing, relationship between CSR and sustainability, global trends and outlook on corporate sustainability and sustainability as a business excellence mantra. The Conclave focuses on the three aspects of corporate environmental sustainability: Challenges that corporates face in addressing sustainability, Enablers that will help address these challenges and Opportunities that they can harness by aligning their business goals in a sustainability paradigm.

The Conclave is expected to make the dialogue more vibrant and the outcomes more recommendatory and meaningful. It will be a topical brainstorming platform with knowledge, networking and capacity building as additional advantage for addressing key issues around business sustainability.

[<Brochure>](#)

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ITM University, Gwalior is organizing “International Conference on Climate Change and Sustainable Management of Natural Resources” during February 12-14, 2014 at their campus in Gwalior. The scope of the conference includes very pertinent topics like climate change, agriculture, impact of climate change, environment management and Green marketing etc.

The objective of the conference is as under:

- To examine evidences and causes of climate change (natural and anthropogenic)
- Impact of climate change on humans and ecosystems
- Mitigation of climate change through technological, social, ethical and political responses
- Strategies for adaptation to climate change.
- Innovation in renewable energy

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### 4th Asia Energy Security Summit 2014

26<sup>th</sup> - 28<sup>th</sup> Feb 2014

Colombo, Sri Lanka

The **4th Asia Energy Security Summit**, organized by the **Independent Power Producers Association of India (IPPAI)** and scheduled to be held in Colombo, Sri Lanka, from February 26-28, 2014 at Taj Samudra in Colombo. The summit shall discuss trends in the global energy markets, identify prospects and develop solutions along with policy makers, industry captains and academic fore-runners in the energy community. The Summit shall look at answers to questions regarding the impact of emergence of shale gas, long term importers of gas turning self-sufficient or even net exporters while also discussing the geopolitics of energy and security of energy infrastructure. The Summit focuses on Geopolitics of Energy, Energy Security, Transnational Electricity Trade and Security of Energy Infrastructure.

The summit is of interest for Government Authorities, Policymakers, Decision makers, Senior Diplomats, Head of Industries, Technical & Energy Experts and Academicians. The key topics for this summit include viz. The Food, Water and Energy Nexus, Global impact of Shale oil extraction and America's declining oil import appetite, The economic dynamics of China and its impact on China's appetite for energy, Harmonizing institutional and policy framework to address ASEAN energy requirements, Transnational trade of electricity – connecting Tajikistan to Singapore, Central Asia – Energy dynamics of a land locked region, Pipeline and pipelines politics - Role of Russia and its inevitable dominance, Geopolitical developments in 2013 (Syria, Iran, Iraq) and their impact on Asia energy security, Role of coal in Asia's Energy mix, Rising threat of terrorism to Asia's energy assets and Security of Energy Infrastructure & energy transfers through sea lanes

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### International Conference on Environment, Technology and Sustainable Development:

Promises and Challenges in the 21st Century  
(ETSD 2014)

March 2-4, 2014, Gwalior, MP

Atal Bihari Vajpayee - Indian Institute of Information Technology and Management in collaboration with Institute for Social & Economic Change and the University of San Francisco is organizing International Conference on Environment, Technology and Sustainable Development: Promises and Challenges in the 21st Century (ETSD 2014). Among themes of the conference Climate change, Energy, Urban Ecology, Environmental Governance & Policy also feature.

The conference aims to provide a venue for academicians, researchers, scholars, and students, as well as representatives from the NGO and government sectors, to exchange research findings and new ideas on the shifting roles in the 21st century of environment and technology in pursuit of sustainable development. The target audience of the conference includes academicians and students of social sciences (anthropology, sociology, economics, political science, psychology and geography), management studies, natural & environmental sciences and professionals from industry, government and non-government organizations (NGO).

[<Brochure>](#)

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### INDIAN SUSTAINABILITY CONGRESS – 2014

(ISC-2014)

4 - 5 March 2014, BANGALORE

The Indian Sustainability Congress – 2014 (ISC-2014) is being organized from 4<sup>th</sup> & 5<sup>th</sup> March, 2014 in Bangalore. Indian Sustainability Congress intends to engage with the Departments of the Government of India, Government of Karnataka, International Organizations, Research Institutions and Associations working towards growth of Sustainable Technologies and Products. Various Indian and International Enterprises working in building the Sustainable Technologies and Products will exhibit and demonstrate their expertise in the area of Sustainability.

The purpose of the Indian Sustainability Congress is to exchange emerging ideas and explore Technologies towards protecting the environment and optimizing natural resources so as to achieve sustainable development and societal benefits through the generations. The congress will provide a common platform for engineers, researchers, innovators, practitioners, investors to interact and collaborate to achieve overall sustainability from a systems perspective, using engineering & technological innovations. Speakers from corporate sector, Government, academia, are expected to give deliberations.

[<Brochure>](#)

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*Deccan Chronicle, Hyderabad  
dated November 26, 2013*

## GREEN TROUBLE

■ New study says that cutting GHG emission may not be enough

# CO<sub>2</sub> to warm Earth for centuries

Washington, Nov. 25: Even if carbon dioxide emissions came to a sudden halt, the greenhouse gas already present in the Earth's atmosphere could continue to warm our planet for hundreds of years, a new study has found.

The study led by Princeton University researchers suggests that it might take a lot less carbon than previously thought to reach the global temperature scientists deem unsafe.

The researchers simulated an Earth on which, after 1,800 billion tonnes of carbon entered the atmos-

phere, all carbon dioxide emissions suddenly stopped.

Scientists commonly use the scenario of emissions screeching to a stop to gauge the heat-trapping staying power of carbon dioxide.

Within a millennium of this simulated shutoff, the carbon itself faded steadily with 40 per cent absorbed by Earth's oceans and land-masses within 20 years and 80 per cent soaked up at the end of the 1,000 years.

This shows that even if Earth's emissions are cut, the gas will heat up our planet for years. —PTI

## GHGs made water flow in Mars: Experts

Washington, Nov. 25: Presence of molecular hydrogen, carbon dioxide and water on Mars may have created a greenhouse effect that pushed temperatures high enough to allow for liquid water 3.8 billion years ago, scientists have found.

The researchers used a model to show that an atmosphere with sufficient carbon dioxide, water and hydrogen could have made the surface temperatures of Mars warm to above



freezing. Those above-freezing temperatures would allow liquid water to flow across the Martian surface over 3.8 billion years ago and form the ancient valley networks, such as Nanedi Valles,

much the way sections of the Grand Canyon snake across the western US today, researchers said.

"This is exciting because explaining how early Mars could have been warm and wet enough to form the ancient valleys had scientists scratching their heads for the past 30 years," said Ramon M. Ramirez, a doctoral student who worked with James Kasting, Professor of Geosciences, Penn State University. —PTI

*The Times of India, Delhi dated  
November 26, 2013*

# Warsaw meet: Funds to check deforestation

Vishwa Mohan TNN

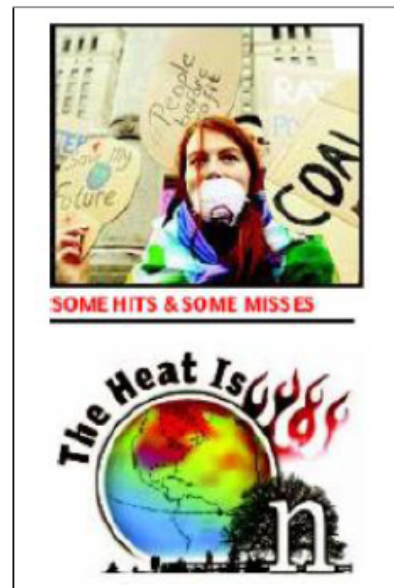
New Delhi: The climate talks in Warsaw may not have met the expectations of developing nations, but the meet ended on a hopeful note on Sunday with negotiators taking a significant step towards reducing greenhouse gas emissions from deforestation. Participants agreed on a result-based payment to developing countries that agree to cut carbon by leaving trees standing. The funds — to be collected through contributions from rich nations — will be used for increasing forest cover.

Dubbed the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) initiative, the move will serve as an incentive for developing countries. The money will be managed by the World Bank's Bio-Carbon Fund. Though only the UK, Norway and the US have so far pledged money — around \$280 million — for the initiative, the move is seen as a step in the right direction as deforestation accounts for nearly 20% of carbon dioxide emissions. The decision to set up a mechanism on 'loss and damage' and a baby step towards capitalization of the Green Climate Fund (GCF) may also be seen

positively.

'Loss and damage' is a mechanism where the poorest and most vulnerable nations may get financial help on the premise that they had to suffer losses due to the damage caused by high greenhouse gas emissions by rich countries over the years. The GCF is a \$100 billion annual kitty meant for adaptation and reduction of emission by poor countries. The GCF will open its headquarters in Incheon, South Korea on December 4 — a beginning of the process in which rich nations have been asked to start their contributions before the next climate conference in Lima, Peru, in December 2014.

The Warsaw outcome, however, failed to impress green groups who wanted a clear roadmap for the GCF so that an atmosphere of trust could be created before a universal agreement is reached in 2015. The Delhi-based Centre for Science and Environment on Monday summed up the concerns of environmentalists who think "India lost its momentum in Warsaw". Though developing countries withstood the rich nations' pressure on ending differentiation between "developed" and "developing" countries, the CSE said developing countries could have



done better. It said differentiation between developed and developing countries only got diluted further.

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



*Deccan Chronicle, Hyderabad  
dated November 27, 2013*

# GREEN TROUBLE

## ■ Man from Kiribati islands denied refuge in New Zealand

# First climate refugee bid dismissed

Wellington, Nov. 26: A Pacific islander whose homeland is threatened by rising seas failed in an attempt to become the world's first climate change refugee on Tuesday, with a New Zealand judge dismissing his case as "novel" but "unconvincing".

Lawyers for Ioane Teitiota, 37, argued that New Zealand should not deport him even though his visa had expired, because climate change was gradually destroying his low-lying home in Kiribati. The difficulties



Mr Teitiota and his family would face in the tiny nation — which consists of about 30 atolls, most only a few metres above sea level — meant they

should be recognised as refugees, the lawyers said.

In a written ruling handed down on Tuesday, High Court judge John Priestley acknowledged that

Kiribati was suffering environmental degradation attributable to climate change, including storm surges, flooding and water contamination.

But he said millions of other people in low-lying countries were in a similar situation and Mr Teitiota did not qualify as a refugee under international law.

Judge Priestley said the UN Refugee Convention stated that a refugee must fear persecution if they returned home, a criteria Teitiota did not meet.

"The economic environ-

ment of Kiribati might certainly not be as attractive to the applicant and his fellow nationals as the economic environment and prospects of Australia and New Zealand," he said. "But... his position does not appear to be different from that of any other Kiribati national."

The judge rejected the argument that Mr Teitiota's was being "persecuted passively" by the environment. Meanwhile, Kiribati's government has raised the prospect of relocating the entire population. — AFP

*Deccan Chronicle, Hyderabad  
dated November 28, 2013*

# No takers for costly solar power pumps

AMRITA DIDYALA | DC  
HYDERABAD, NOV. 27

The move to popularise solar power for the agricultural sector remains only on paper as solar pump sets continue to come at exorbitant rates.

Manufacturers say that despite emphasis by the state government and showcasing it in various fairs, there are no takers for the pump. In fact, as per an internal report of the discoms, the huge transmission losses, due to usage of low quality pump sets, have been causing a huge dent in the energy supply, in the key agricultural districts, like Karimnagar, Warangal, Nalgonda, Nizamabad,

Medak, Mahabubnagar, Chittoor and West Godavari, where around 50 per cent of the total pump sets exists.

The main reason behind the energy efficiency plans to have failed in the agricultural sector, believe manufacturers, is that since free power is given to farmers, and at odd times, they are not accountable for wastage and, hence, have no motivation to purchase energy-efficient solar pump sets. "Although some people like the idea of a solar pump set, they back out after seeing the huge price. The usage of solar pump sets needs to be mandated by the government," said Vishwas Rao, a local manufacturer.

As there is absolutely no incentive to the farmers for efficiency, the efficiency of the pump sets is 18 to 20 per cent. With proper use of capacitors, good quality winding and bearings, this efficiency can be increased up to 60 per cent.

Meanwhile, a high-level meeting of the Cabinet sub-committee on solar energy had earlier this year suggested 50 per cent subsidy for solar pump sets in the general category and 100 per cent subsidy for SC and ST categories.

"A minimum of ₹2 lakh is required to generate one horsepower of energy. That's a very costly affair," said Deepak Rao, a professional farmer.



*The Times of India, Delhi dated  
November 26, 2013*

# Green advantage with CNG, Metro lost over the years

Subodh Varma | TIG

After a court order in 2004, Delhi government managed a huge swing away from polluting fuels to the much less polluting compressed natural gas (CNG), at least in vehicular public transport. Levels of poisonous chemicals in the capital's soupy air plummeted and it looked as if Delhi had turned a corner. The spread of Metro too was taking care of an enormous passenger load, reducing dependence on motor vehicles. But everything has been washed away.

In 2011, the level of small particles (called PM2.5) that can go into your lungs when breathing was 700% more than the permissible standard set by the pollution control authorities in India. These particles consist of dust and various chemicals, mainly from vehicles. Regular inhalation causes respiratory problems and allergies. One study said that a quarter of Delhi's population suffers from such problems.

The larger particles (PM10) were found to be 370% more than the standard. These also cause breathing problems but being coarser than PM2.5, they are usually caught up in the nose and throat. Most of this is dust and industrial and exhaust pollutants.

Nitrates, another toxic pollutant, were found to be 143% more than the standard. Sulphur dioxide was the only toxic chemical that was in much lower concentration than the permissible standard.

These are averages for the whole year and for the whole of Delhi. Actually

## POISON IN THE AIR



	Average value	Permitted Level	% of permitted level	1998-99 32lakh No. of Vehicles
PM10	222	60	370	2012-13 77.7lakh
PM2.5	281	40	703	
NO2	57	40	143	
SO2	5	50	10	

All values in  $\mu\text{g}$  per cubic metre; Source: NCRPB

POISONOUS WATER	Average value	Permitted level
BOD (mg/l)	15.5	3
Fecal coliform (MPN/100ml)	21 million	2,500

Data for 2011 at Nizamuddin; Source: NCRPB

there are considerable variations between areas and seasons. For instance on Thursday, levels at Anand Vihar I SBT were going through the roof: PM10 was 1,207 units, compared to the standard of 100 units for a 24 hour period. PM2.5 at Anand Vihar was 238 compared to the standard of 60 units. In RK Puram on the same day, PM10 was 219 units and PM2.5 was 111 units. On Mandir Marg (central Delhi), PM10 was 291 units and PM2.5 was 124 units.

Two factors are responsible for these very high levels of air pollution in the city, say experts. One is the

construction boom and the other is the continuing vehicle boom. The never ending construction activity — both public and private — releases enormous amounts of dust and other particles in the air. And, vehicle population touched a staggering 77.74 lakh in 2012-13, more than double from 32 lakh in 1998.

While there are endless plans being hammered out to introduce monorail, divert goods traffic to peripheral expressways, and there have been a slew of experiments ranging from the controversial BRT corridor to battery vehicles, the single biggest

contributor — private motor vehicles — is yet to be addressed effectively.

What about water pollution? Pollution levels in the Yamuna are off the charts. According to the National Capital Region Planning Board, in 2011, fecal coliform bacteria count at Nizamuddin was 21 million units compared to the permissible standard of 2500 units. This

**Two factors are responsible for high levels of air pollution in the city, say experts. One is the construction boom and the other is the continuing vehicle boom**

microbe originates from human excreta. Biochemical Oxygen Demand (BOD), a measure of organic pollution, was 15.5 units as opposed to the standard of 3 units. This is not surprising considering the amount of raw sewage going into the river daily.

Another source of pollution is industrial effluents. Fifteen common effluent treatment plants (CETPs) for industrial units were to be functional in 1998 as per Supreme Court orders. After delays ranging from 3 to 12 years in completion, 11 are actually working. Out of an installed capacity of 211.8 million litres per day (mld), they clean only 55.48 mld, says a recent CAG report. A huge amount of toxic effluents go straight into the river. According to CAG, 12,769 MT of toxic sludge that remains after treatment was lying in CETP premises as of November 2012.



*The Economic Times, Delhi dated  
December 02, 2013*

# Stricter Emission Norms for Two-Wheelers on the Anvil

Motorcycles, Scooters to get costlier by ₹1,500-10,000

**CHANCHAL PAL CHAUHAN**  
NEW DELHI

The government is set to drive in stricter emission norms for two-wheelers which will make motorcycles and scooters less polluting but costlier by ₹1,500-10,000.

New emission norms for two-wheelers to be sold in the country from 2015 have been finalised and will be notified shortly, a senior government official told ET. "We have carefully scrutinised the requirements for the Indian market. The Indian emission norms for two-wheelers are unique since we don't follow the European Union as we do in the case of bigger vehicles like cars, trucks and buses," said the official, who did not wish to be named.

The new norms are likely to cut down emissions from two-wheelers by about a quarter and are expected to make a significant contribution to containing vehicular pollution since two-wheelers account for more than 75% of the country's automotive market.

Two-wheeler makers will have to go in for engine improvements, after-treatment devices and evaporative emission control to conform to the new norms, experts said. This will lead to an increase of about ₹1,500 in the price of the mass market two-wheelers and about ₹10,000 in the price of superbikes.

The new norms will take vehicular technologies to the next level, an official said, explaining that besides the regular combustion improvements in engines to make them cleaner and an improvised exhaust catalytic converter, all motorcycle manufacturers will also have to



## Parameters Determining Emission from Vehicles

VEHICULAR TECHNOLOGY

DRIVING CYCLE

AFTER-TREATMENT DEVICES LIKE CATALYTIC CONVERTER

FUEL QUALITY

INSPECTION AND MAINTENANCE OF IN-USE VEHICLES

ROAD AND TRAFFIC MANAGEMENT

meet a new evaporative emission regulation. Therefore, all two-wheelers will come with a mandatory evaporative emission control unit.

At present, fuel tanks of motorcycles have a small opening that allows flow of the fuel to the engine from the tank. However, when the motorcycle is parked, especially in hot sum-

mers, a small amount of petrol evaporates and escapes from the opening. This results in evaporative emissions. Under the new norms, this evaporative loss of fuel from two-wheelers in stationary position will be regulated by an evaporative emission control unit. The equipment has been a mandatory requirement in cars since 1996.

A new testing procedure, called Worldwide Harmonised Testing Cycle (WMTC), will also come in force as per the new norms. "Until the last applicable emission norms notified in 2010, we were following our own Indian cycle that was unique and crafted specially for India. Now, we will adopt the global pattern of testing and regulating the emission norms for two-wheelers that will take them closer to the global norms followed in Europe and other markets," the official said.

Emission norms are being gradually made more stringent in the country every five years or so and most companies are prepared for it. Hero MotoCorp, the world's leading two-wheeler manufacturer, has already started the process of upgrading its products to confirm to the upcoming norms. "Hero MotoCorp has always complied with all applicable emission regulations. The new norms, when notified, will also be complied with well ahead of time," said a Hero MotoCorp spokesperson.

Experts said manufacturers would be forced to phase out several models as they move ahead to comply with the new norms.

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*The Times of India, Delhi  
dated December 03, 2013*

# Solar energy from Moon to power Earth?

## Japanese Firm Proposes To Supply 13,000 Terawatts Of Electricity From Lunar Belt

Tokyo: A Japanese firm has proposed an out-of-this-world solution to our planet's power woes — building a solar panel array around the Moon's equator and sending the electricity it collects back to Earth. The project called LUNA RING is being developed by construction firm Shimizu Corporation.

According to the firm, such a system would be capable of sending 13,000 terawatts of power back to Earth and that construction could begin on the project as early as 2035, Phys.org reported.

To ensure continuous generation of power, an array of solar cells will extend like a belt along the entire 11,000km lunar equator. This belt will be built in width from a few kilometres to



Under the proposed project called LUNA RING, the firm will build a solar panel array around the Moon's equator and send the electricity it collects to Earth

400km, the company said on its website. Robots will play a vital role in construction on the lunar

surface. They will be tele-operated 24 hours a day from the Earth. The concrete would be cov-

ered with solar panels, which would be connected via cables to microwave and laser transmission stations. The energy beams sent from the Moon would be directed at receiving stations on Earth, allowing for a round-the-clock source of energy as there are no clouds or other bad weather on the Moon.

The cables will transfer the electric power from the lunar solar cells to the transmission facilities. High-energy-density laser will be beamed to the receiving facilities using 20km-diameter antennas. A guidance beacon (radio beacon) brought from the Earth will be used to ensure accurate transmission.

Materials needed for the construction and maintenance of

the Solar Belt will be transported along this route. Electric power cables will be installed under the transportation route.

The plants will move automatically while producing solar cells from lunar resources and installing them.

Since the earthquake and tsunami that struck Japan in March 2011 — which led to closing the country's nuclear power plants — scientists have been scrambling to find ways to create electricity for the country in other ways. However, the project doesn't address the costs and considerable hurdles it would have to overcome — important among them would be building such a massive structure from such a great distance. **PTI**

*The Economic  
Times, Delhi  
dated  
December 04,  
2013*

## CERC to Review Regulation on Wind Power Cos

SHREYA JAI NEW DELHI

Following opposition from various wind power producers lobbies, Central Electricity Regulatory Commission (CERC), the apex electricity regulator, would review its regulation on day-ahead forecast by wind power producers.

The CERC order has been challenged in three high courts of the country by three different organisations. Indian wind power association (IWPA) has filed an injunction against the regulation in Delhi High Court, Wind Independent Power Producers' Association (WIPPA) in Madras High Court and a recent addition, Gujarat Mineral Development Corporation (GMDC) in Ahmedabad High Court.

Wind power producers have challenged the regulation on grounds of both feasibility and legality. Some power producers have also questioned the preparedness of the national grid to handle modern data collection technology.

"CERC is of the view that the regulation is not workable in current terms. We would bring about changes

at both legal and engineering level," said a senior CERC official.

He also said that there is a design default in the regulation where an accurate prediction and payment are not in sync.

"New propositions have come in from various stakeholders for some major changes in the regulation which are under review," said the official. Independent wind power producers have also written to the power ministry, requesting better grid infrastructure to implement a program like this.

"The decision is premature. Technical feasibility and the measurement mechanism designs are yet at a stage of hypothesis testing. Hence any implementation must be based on credible data acquired transparently and through a process devised post consultations with industry stakeholders. There is a high probability that it would create a significant financial burden, enough to make projects unviable and turn profit making ventures sick," said the recommendation letter to the ministry of power reviewed by ET.



CERC in August this year asked all the wind power producers to provide a day-ahead forecast of their power production with immediate effect. The move was also aimed at linking wind farms to the national grid. States buying the wind power fed in the grid would also pay 'Renewable Regulatory Fund' to the host state of the wind project.

Wind power producers have been requesting central regulator to postpone this decision, as wind farms are unable to proceed with forecasting and scheduling of wind power.



*The Economic Times, Delhi  
dated December 06, 2013*

At the end of a fortnight's negotiations, the outcome from climate change talks remains fuzzy

# The Warsaw Outcome



**Urmi A Goswami**

**T**yphoon Haiyan ravaged the Philippines four days ahead of the 19th round of the UN climate change negotiations in Warsaw, Poland, setting the stage for countries to take action on climate change. After 14 days of negotiations, representatives of 197 countries simply agreed to carry on talking.

The Warsaw meet, described as a "holding" COP, was to deliver three things: an international mechanism on loss and damage, clarity on climate finance and groundwork for the new agreement to be finalised in 2015 in Paris.

Talks culminated in the Warsaw international mechanism for loss and damage to help vulnerable countries deal with impacts of climate change such as extreme weather events and sea level rise but details have been pushed to 2016; there was a lacklustre commitment of \$72.5 million by six European countries to help countries adapt to climate change. Work on the new agreement was stymied with political questions unanswered.

## India's Goals

Warsaw's achievement was pulling back the talks from the brink of collapse; managing to keep everyone at the table by tip toeing across the non-negotiables of major emitters.

The central issue was how the the

distinction between developed and developing countries, would be reflected in the 2015 agreement.

For India, ensuring that developed and developing countries are treated differently was non-negotiable. With elections barely six months away, environment minister Jayanthi Natarajan couldn't allow any agreement that suggested that India had acquiesced to a system that treats all countries the same. This would have let the Opposition charge the Congress government with caving in to the US.

At Durban, India and China had to concede on differentiation based on the industrialized world's historical responsibility for climate change. In Warsaw, backed by a clutch of developing countries like Venezuela, Saudi Arabia, Philippines and Brazil, they attempted to reinstate a historical responsibility based firewall.

This was opposed by the US and EU, which argued that the differentiation established in the 1990s didn't reflect contemporary global realities. Countries like India, China, South Africa, Brazil and Singapore were now economic powerhouses with high emission profiles.

## What Uncle Sam Wants...

The US stressed that the new regime would be applicable to all. US special envoy Todd Stern said that all countries had to act to tackle climate change, though the level of action would vary. No more specified efforts by industrialised countries and a "do what you can approach" for developing countries.

The US was supported by the EU. Connie Hedegaard, the EU climate commissioner, who had helped cobble the coalition for a new climate agreement in Durban, could not



agree to reinstating the firewall, calling, instead, for a dynamic differentiation.

The compromise plastered over these deep differences, leaving the discussion for when negotiations resume in 2014. Countries would state their "nationally determined contributions," a comedown from "commitments", which puts both Japan and Australia off the hook for backtracking on their commitments. The compromise has changed the nature of the game.

## Who Got What

The devastation of Typhoon Haiyan, Japan's slashing of emission reduction commitments, Australia's backtracking on climate, and Poland's dependence of coal and refusal to agree to higher emission reduction targets for EU reduced the political space of industrialised countries in the talks. This allowed vulnerable countries to push through their demands on loss and damage and finance for adaptation.

Developing countries were unable to secure firm timelines and commitments on finance and technology, both crucial to addressing

climate change. India and China didn't succeed in safeguarding differentiation, but "without prejudice to the legal nature of the contributions" gives a foothold to resume the debate in Lima.

The EU had to relent on its strong review of adequacy of emission efforts in the new regime, and a September 2014 deadline for emission reduction numbers.

The US had to budge a bit on loss and damage, agreeing to the 2016 review. But that concession three years on, was amply compensated. Submitting emission reduction contributions for the new agreement in the first quarter of 2015 protects the Democrats from a backlash on climate issues in the November 2014 midterm elections. With weakened reviews countries can to do what they can without any reference to a global goal.

Intense negotiations will mark the next two years. With key political questions unresolved, countries will have to ensure new red lines or flexibility and maneuverability to safeguard national interests while addressing the larger question of effectively tackling climate change.

Developing countries were unable to secure timelines and commitments on finance and technology, both crucial to addressing climate change



*The Times of India, Delhi dated  
December 07, 2013*

# Smog forces Shanghai kids indoors

## Authorities Halt All Construction Work, Issue Severest Health Warning

Shanghai: Shanghai authorities ordered children indoors and halted all construction on Friday as China's financial hub suffered one of its worst bouts of air pollution, bringing visibility down to a few dozen metres, delaying flights and obscuring the city's skyline.

The Shanghai government issued its severest health warning as the city's pollution index ranged between 23 times and 31 times the levels recommended by international health officials. In the first such advice since a new health warning system was launched in April, authorities urged residents to stay indoors and asked factories to either cut or halt production.

The financial district was shrouded in a yellow haze, and noticeably fewer people walked the city's streets. Vehicle traffic also was thinner, as authorities pulled 30% of government vehicles from the roads.



**SHROUDED IN HAZE:** Workers wear masks in Shanghai on Friday as the Chinese city's pollution index ranged between 23 and 31 times the levels recommended by international health officials

They also banned fireworks and public sporting events. "I feel like I'm living in clouds of

smog," said Zheng Qiaoyun, a local resident who kept her 6-month-old son at home. Most of

the flights leaving Shanghai's Pudong International Airport have been delayed, Pudong

was the world's third busiest cargo airport in 2011.

Shanghai's concentration of tiny, harmful PM 2.5 particles reached 602.5 micrograms per cubic metre on Friday afternoon, an extremely hazardous level that was the highest since the city began recording such data last December. That compares with the World Health Organization's safety guideline of 25 micrograms.

The dirty air that gripped Shanghai and its neighbouring provinces for days is attributed to coal burning, car exhaust, factory pollution and weather patterns, and is a stark reminder that pollution is a serious challenge in China. Beijing has seen extremely heavy smog several times over the past year. As a coastal city, Shanghai usually has mild to modest air pollution, but recent weather patterns have left the city's air stagnant. AGENCIES

*The Times of India, Delhi dated  
December 08, 2013*

# Birds give wasted wetland a miss

## Fumes From Burning Plastic Drive Away Birds From Eco Zone In NE Delh

TIMES NEWS NETWORK

New Delhi: A wetland in northeast Delhi, running along Pushta Road, is being used as a landfill. Heaps of non-biodegradable waste is being dumped into the wetland which supports a variety of migratory and local birds.

This year, birders are witnessing a particularly disturbing trend as migratory birds have not arrived yet and other birds too have deserted the wetland. The wetland, which was formed after the Yamuna flooded in 2008, is an ecologically rich zone as it is adjacent to the Garhi Mandu forest. The forest and wetland are a habitat for around 120 species of birds.

According to T K Roy, ecologist and advisor at Okhla Bird Sanctuary, regular



burning of plastic waste at the wetland has led to the release of toxic fumes, which

may have driven birds away. "Wetland birds need a lot of aquatic plants, insects and

fish to thrive on. But this wetland has lost all that. Extensive fishing and chemicals from burning of non-biodegradable waste has destroyed the habitat," he said.

Roy, who had documented the avian fauna at the wetland, says that he has seen rare species like Oriental Darters or snake birds, Painted Storks, Black Necked Stork and the Ferruginous Pochard, but this year, only Cattle Egrets have been spotted.

"Cattle Egrets are used to living in such conditions. There is a lot of talk about creating man-made wetlands in Delhi but the government is not concerned about such a large natural wetland like this which needs very little maintenance," adds Roy. He feels the 4-kilometre long wetland

should be notified, since it is near a forest, so that wetland and terrestrial activity can be nurtured together.

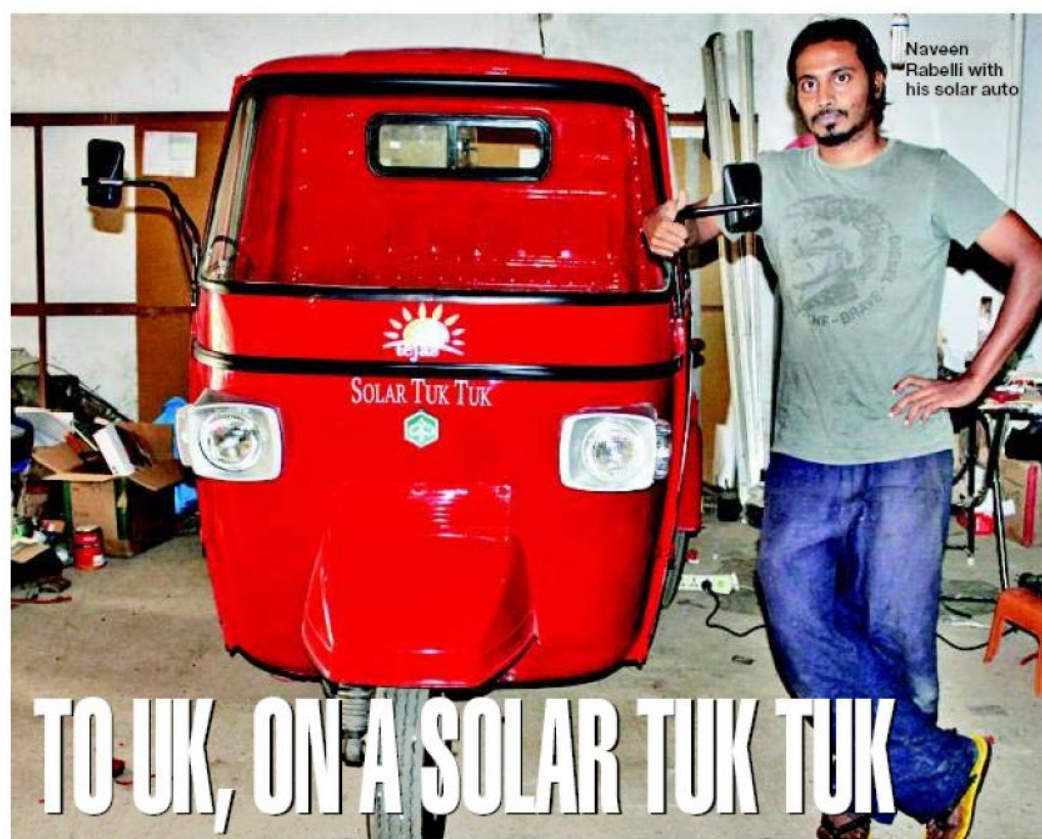
Ritu Singh, a scientist with Indian National Trust for Art and Cultural Heritage (INTACH), says hundreds of wetlands have died a similar death in Delhi. According to her, there is no space for creating man-made wetlands in the capital. "The issue is not just ecological. It also severely affects water quality. It is from waste end up polluting groundwater. Soon, the wetland will become a cesspool too," she said.

Garhi Mandu forest spread over 894.73 acres is located on the east bank of Yamuna. It has been notified as protected under Section 29 of the Indian Forest Act, 1927.

to: lreporter@timesgroup.in



*The Times of India, Hyderabad  
dated December 08, 2013*



Naveen Rabelli, a Hyderabad who built his own solar auto, plans to drive down to the UK in it next year. In a chat with Hyderabad Times, the electrical engineer speaks about his creation, goals and more

Karthik Pasupulate

**T**he initial plan was to drive down to UK by road from Bangalore in an eco-friendly auto rickshaw he's engineered. He calls it the 'Solar Tuk Tuk'. However, putting together the solar-electric auto rickshaw from scratch took Naveen Rabelli a lot longer than expected. "The plan was to drive down in time for the London Olympics to raise awareness about the feasibility of the auto. Unfortunately, it wasn't ready. But it will be ready for the journey by next year," remarks Naveen.

A Hyderabad currently living in Bangalore, Naveen has "clocked 1,200 kilometres in and around Bangalore," and is pleased with the results of his *tuk tuk*. "Per charge, it is averaging 100 kilometres — 80 km electric and 20 km solar. One charge costs ₹40. Compare that to a regular diesel auto rickshaw which costs ₹250 worth of diesel," explains Naveen, throwing light on the effectiveness of the technology. "Not only is it much cheaper, it cuts down the emissions to almost zero," he quips.

There, however, is one glitch. The auto weighs 700 kgs and can accommodate five passengers. "We are trying to bring down the weight of the solar panels to increase the range up to 120 km per charge. The solar batteries are very heavy and we are looking at devising ways of bringing down the weight and add more loading capacity," quips Naveen, who was in Hyderabad recently to engineer a data acquisition system at his dad's workshop. His dad is an Electronics Instrumentation engineer based in Tarnaka. "We never got along too well, but he was only too happy to help me build an automated system that displays temperature, voltage, etc. It sure did help break the ice," he says with a smile.

How he landed in Bangalore itself makes for an interesting story. A qualified electrical engineer, he'd settled down in Australia after completing his MS. "I quit my job in 2011 and was on a backpacking tour across New Zealand, South East Asia and made a pit stop in Hyderabad, before heading to Europe. Instead, I landed a job



in Bangalore and stayed back," he recalls.

Naveen hit upon the idea of an eco-friendly auto rickshaw in a local bar enroute Mysore Road. "I was going to attend a kite festival along with my friends and we were stuck in traffic. Instead we went and got a drink. Looking at the number of autos on the roads, we got talking about how much pollution could be reduced if we could make them eco-friendly," he shares.

A couple of days later, he met global environmental adventurer Louis Palmer who travelled 50,000 km around the world in a solar-powered car he built. "Louis was invit-

ed for a company seminar. I was inspired by his story," adds Naveen, who quit his job and got working on his auto.

Naveen admits to have "spent a little over ₹3 lakh" on the auto. A friend offered him a place to stay and set up his garage and he began working on it all by himself. "I taught myself automobile engineering, connected with local mechanics and fabricators Moula, Pasha and Santosh, who offered to work for free to help me build it. So a lot of people chipped in," says Naveen, who works as a part time badminton coach to make some extra money.

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*The Times of India, Lucknow  
dated December 09, 2013*

# Waste to energy project stuck at proposal stage

US Firm Says UP Indifferent; Govt Finds Plan Not Viable

Pankaj Shah | TNN

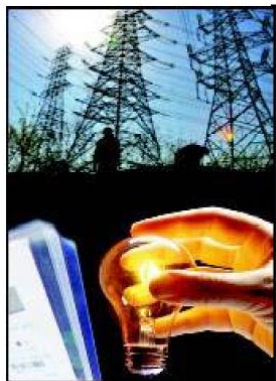
Lucknow: Inordinate delay on the part of UP government in allowing it to set up a multi-crore-rupee waste to energy (WTE) project in the state has left a US based company completely frustrated. The company, which has evinced interest in setting up the ambitious project six months ago, now says that it is deeply hurt by the UP government's indifference towards the project. The state government on the other hand argues that the project is exorbitant and the efficiency of the technology proposed has not been proved by precedence.

In an email response to TOI, president of the American company Renewable Energy Alternatives, Bernard Schmidt, said, "despite our offer to bring in 100% financing and operation and maintenance of the plant for the first 5 to 10 years, the UP government has been continually preoccupied with other issues. Our people have been frustrated with this result."

Schmidt added the company had recently offered to handle the entire process and start developing a smaller pilot plant of 25MW that could be up and running by the end of 2014. "Even such a generous offer has met with indifference," he rued.

"I believe the government led by chief minister Akhilesh Yadav is interested in this project. But I also believe the government is overwhelmed at times and does not see the advantage of delegating tasks to the private sector to ensure progress and completion of these projects while they need to spend time on political matters their office demands," he said in the email.

When contacted, special secre-



In an email response to TOI, president of the American company Renewable Energy Alternatives, Bernard Schmidt, said, "despite our offer to bring in 100% financing and operation and maintenance of the plant for the first 5 to 10 years, the UP government has been continually preoccupied with other issues. Our people have been frustrated with this result."

tary, urban development, Sri Parakash Singh said the company did not coordinate with the state government properly. "The technology the company claims has not been proven worthy yet. Also, the cost of the project the company has been citing is exorbitant," Singh said.

In June, the company made a presentation before urban development minister Azam Khan. The company had then said that the state government was convinced with the project and may allow it to survey the various sites in UP for setting up a plant. Things changed with the passage of time for reasons better known to the state government.

The company had proposed to adopt a technique by which garbage is used to produce synthetic gas, also referred to as 'sin gas', which further leads to production of power. Urban development department officials said the technique highlighted that it does not leave any wastage of byproducts

like ash after garbage is treated. The quality of the ash is well suited for use in laying roads and construction purposes as well.

The project was proposed to be at least 10 times bigger than what was conceptualised by the previous Samajwadi Party government for Hardoi road in Lucknow. Though a plant started functioning in 2003, it was abandoned a year later due to absence of proper solid-waste management and segregation module.

Holding the portfolio of power, CM Akhilesh Yadav, a graduate in environmental engineering, has been showing keen interest in encouraging production and use of alternate energy sources in Uttar Pradesh.

In January, government approved UP's first-ever solar energy policy. Under this policy, a target of producing 500 mega watts (MW) electricity through solar energy by March 2017 has been set. The fate of the implementation of the policy now appears to hang in balance.

*The Times of India, Ahmedabad  
dated December 10, 2013*

# State scientists' solar power plan to lift cost cloud

TIMES NEWS NETWORK

Ahmedabad: Researchers here claimed to have developed a simple way of making graphene-based solar cell, whose use may reduce the cost of producing solar power considerably.

"A simple and economical way of processing to fabricate graphene-based solar cell has been developed by our scientists," Gujarat Energy and Research Management Institute (GERMI) director T Harinarayana said.

"Graphene, a single layer of carbon atoms arranged in a hexagonal lattice, has many novel properties that attracted researchers around the world. High electrical conductivity (better than copper) and very high (90%) transparency makes graphene an ideal material for fabrication of transparent and current spreading electrodes," GERMI said in a research paper.

The research was undertaken by Sanjay Behura, Sasmita Nayak and Omkar Jani of GERMI and Indrajit Mukhopadhyay of Pandit Deendayal Petroleum University (PDPU), Gandhinagar. The paper detailing the new research is expected to appear in journal 'Carbon' in February.

These researchers have demonstrated the possibility of using graphene as a

The paper detailing the new research is expected to appear in journal 'Carbon' in February

component of solar cells, which is expected to reduce manufacture cost by 10-15 per cent.

At present, silicon is being used for making these cells (also called photovoltaic cells) as it is considered energy efficient. However, this material is expensive, and squeezing higher efficiencies out of silicon-based solar cells has proved a challenge. The simple fabrication technique of graphene and silicon can be exploited for other applications also.

Various forms of conventional silicon are currently used in solar power plants. However, if graphene can be used to produce low-cost solar cells, the cost of setting up such plants will come down substantially, the paper said.

Currently, setting up a solar power plant is very costly. The scientific breakthrough, researchers said, can give impetus to solar energy, a clean and environment-friendly form of power.

A solar cell is an electrical device that converts the energy of light directly into electricity. TNN AND AGENCIES

*Deccan Chronicle,  
Hyderabad dated  
December 11, 2013*



# New man-made GHG to impact climate

Toronto, Dec. 10: Scientists have discovered a long-lived man-made greenhouse gas that appears to have the highest global-warming impact of any compound to date.

The chemical — perfluorotributylamine (PFTBA) — is the most radiatively efficient chemical found to date, breaking all other chemical records for its potential to impact climate,



said researchers from University of Toronto's Department of Chemistry. Radiative efficiency

describes how effectively a molecule can affect climate. This value is then multiplied by its atmospheric concentration to determine the total climate impact.

Researchers used the radiative efficiency of CO<sub>2</sub> as a baseline for their comparison. Carbon dioxide (CO<sub>2</sub>) is used as the baseline for comparison since it is the most important greenhouse gas responsible for

human-induced climate change. "PFTBA is extremely long-lived in the atmosphere and it has a very high radiative efficiency; the result of this is a very high global warming potential. Calculated over a 100-year timeframe, a single molecule of PFTBA has the equivalent climate impact as 7,100 molecules of CO<sub>2</sub>," said researcher Angela Hong. — PTI



*The Times of India, Delhi  
dated December 12, 2013*

## A cycle that purifies air while you ride?

New York: Researchers have designed an eco-friendly bicycle that cleans polluted air while cruising down the street.

The air-purifier bike designed by Bangkok's Lightfog Creative & Design Company currently exists only in concept. In theory, its aluminum frame would run on a "photosynthesis system" that generates oxygen through a reaction between water and electric power from a lithium-ion battery.

"We want to design products which can reduce the air pollution in the city. So we de-

cided to design a bike because we thought that bicycles are environmentally friendly vehicles for transportation," creative director Silawat Virakul told FastCoExist.

"Riding a bicycle can reduce traffic jams in a city. Moreover, we wanted to add more value to a bicycle by adding its ability to reduce the pollution," Virakul said.

No prototype of the bike has been developed so far and how the air purifier bike would work is yet to be determined. **PTI**

### GREEN MISSION

*The Times of India, Delhi  
dated December 13, 2013*

## Pollution affects aquatic life in 150 river stretches

Vishwa Mohan | TNN

New Delhi: Discharge of untreated water into rivers has left 150 river stretches across the country completely polluted. The level of contamination is so high that they cannot support any aquatic life.

These stretches are found in almost all parts of the country except J&K, a couple of Union Territories and northeastern states, including Arunachal Pradesh and Mizoram.

The stretches are identified by the Central Pollution Control Board through monitoring of water quality of 293 rivers. Details of the findings — shared by the Union environment ministry in response to a Parliament question in the Rajya Sabha on Thursday — show that the maximum number of such polluted river stretches (28) are located in Maharashtra, followed by Gujarat (19).

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

*Deccan Chronicle, Hyderabad  
dated December 14, 2013*

## SEA LEVEL MAY RISE BY 2.5 METRES BY 2200, SAYS STUDY

London, Dec. 13: Sea-level rise since the Industrial Revolution has been faster by natural standards, and — at current rates — may reach 80cm above the modern level by 2100 and 2.5 metres by 2200, a new study has warned.

The researchers used geological evidence of the past few million years to derive a background pattern of natural sea-level rise. "Historical observations show a rising sea level from about 1800 as sea water warmed up and melt water from glaciers and ice fields flowed into the oceans. Around 2000, sea level was rising by about 3 mm per year. That may sound slow, but it produces a significant change over time," a researcher said. — PTI

*The Times of India, Delhi  
dated December 14, 2013*

## NGT bans burning of plastic in open

TIMES NEWS NETWORK

New Delhi: The National Green Tribunal (NGT) has banned "unregulated open burning" of plastic, rubber and other polyvinyl chloride (PVC) materials across the country. It directed all municipal authorities on Friday to strictly enforce the plastic waste (management and handling) rules 2011.

The bench was hearing a plea on alleged illegal burning of plastic, rubber and related waste in various villages in north and northwest Delhi. The matter was initially heard by Delhi high court, which transferred it to NGT in 2011.

"All plastic waste or scrap dealers and recyclers, including members of



**STRICT ENFORCEMENT ORDERED**

the PVC and plastic waste dealers' association shall be restrained from carrying on their business of segregation of plastic waste and its transfer to recyclers or disposal contrary to

and without registration under the plastic waste (management and handling) rules, 2011," a bench headed by NGT chairman Justice Swatanter Kumar said.

"There is a need to totally ban unregulated handling of plastic waste and to issue incidental directions for its regulation and restoration of environment in some measure," the bench observed. The bench asked all municipal authorities to set up, operationalize and coordinate the waste management systems within their limits, work out and set up systems for use of plastic waste in road construction and in co-incineration plants for generation of energy.

*The Times of India, Delhi  
dated December 16, 2013*

## 'India could be dumping ground of US e-waste'

Kounteya Sinha | TNN

London: An average American generated 29.8kg of hi-tech trash in 2012 — six times higher than China's per capita figure of 5.4kg. The UN's first e-waste world map released on Saturday says that almost 48.9 million metric tons of used electrical and electronic products was produced last year — an average of 7kg for each of the world's 7 billion people.

A Briton produced nearly 22kg of e-waste by dumping his or her TV, computer or mobile phone — seven times higher than an average Indian, who generated nearly 3kg of electronic trash last year.

India generated 4362 metric kilo tonnes of electrical and electronic equipment (EEE). This included 2751 metric kilo tonnes of e-waste containing toxic substances such as lead, mercury, cadmium, arsenic and flame retardants. The UN has warned that it is likely that future US exports of e-waste will end up in India as the only other glass-to-glass furnaces in the world (in China and Malaysia) are scheduled to close by 2013.

Mobile phones constitute the biggest component in



**TOXIC TROUBLE**

units, with an estimated 120 million collected. TVs and computer monitors made up a major proportion of the total weight.

Based on current trends, the UN has now predicted that by 2017, the total annual volume of e-waste will be 33% higher at 65.4 million tonnes — the weight equivalent of almost 200 Empire State Buildings or 11 Great Pyramids of Giza.

The most worrying trend involves developing countries becoming fertile dumping grounds of e-waste for developed nations. Every day, an estimated 123,000 metric tonnes of EEE is discarded and become e-waste.

*The Times of India, Delhi*  
dated December 16, 2013

## Super-fast computer, touted as world's greenest, unveiled

Kounteya Sinha | TNN

London: A super energy-efficient high-performance computer, with a capacity equivalent to that of 4,000 desktop PCs running at once, has been unveiled in the UK. Touted as one of the world's greenest supercomputers, it was unveiled by the High Performance Computing Service at the University of Cambridge. Named 'Wilkes' after the Cambridge pioneer Maurice Wilkes who built one of the first-ever programmable computers in 1949, the new system, with a design to support the world's largest telescope, has been rated second in the 'Green 500' – a ranking of the most efficient supercomputers worldwide.

But it is the most efficient air-cooled supercomputer in the world as the first-placed machine used an oil-cooled system, making it the greenest machine of its kind. Designed and built by the in-house engineering team of the Cambridge High Performance Computing Service (CHPCS), Wilkes' energy efficiency has been pegged at 3,361 mega-flops per watt. 'Flops' (floating point operations per second) are a standard measure of computing performance.

Paul Calleja, director of the CHPCS, said, "Energy efficiency is the biggest single challenge in supercomputing today and our new system makes an important step forward in this regard."

One of the primary uses of Wilkes is as a test bed for the development of a computing platform for the Square Kilometre Array, which is a major international effort to build the world's largest telescope.

*The Times of India, Delhi*  
dated December 17, 2013

## IIT against storm drain covers

Green Tribunal Forms Panel To Submit Report In 10 Days

Jayashree Nandi | TNN

New Delhi: Scientists from Indian Institute of Technology-Delhi working on city's drainage master plan don't think it's a good idea to cover storm water drains.

While there may not be any harm in covering drains carrying only storm water, most of Delhi's storm water drains carry sewage water that emanates noxious gases and can cause severe groundwater pollution if trapped. A team from IIT is studying the impact of covering drains along with other aspects of the drainage system.

Prof. AK Gosain of the department of civil engineering at IIT Delhi, who is head-

**South Corporation has admitted to NGT it did not do an environment impact assessment before starting the Kushak Nala covering project**

ing the study, told TOI, "The impact of covering drains depends on many issues, especially the cleanliness of these drains. Our storm water drains carry a lot of sewage and stagnating this could lead to chemical reactions and noxious gases trapped inside. It's not a good idea to

### LID ON THESE DRAINS

Kushak nullah in south Delhi (10km long)

Shahdara link drain in east Delhi (to make Dilli Haat over it)

Drain from Naoroji Nagar-Africa Avenue to Ring Road (1.6km long)



National Green Tribunal is hearing a petition against covering of Kushak nullah and Shahdara link drain. It has questioned South Corporation's claim that it conducted an environmental impact study prior to undertaking the work

shove this under the carpet by covering it," he said.

Gosain added that the fumes could be so toxic that people who go down to de-silt the sewers can die from inhaling them.

Concerned about the impact of closing drains to make space for parking lots and other projects, members of Yamuna Jiye Abhiyan had written to the lieutenant governor, Najeeb Jung, last week demanding that closing of drains be put on hold until IIT submits its study.

Through an RTI enquiry dated December 6, they have

found that the city's drainage plan hasn't been revised since 1976 and IIT has been awarded a contract to study the drainage system within a time frame of 18 months from August 1, 2012. The team will identify and study revival of natural drainage courses, ponds and baolis and examine the issue of covering storm water drains.

Manoj Misra, convener of Yamuna Jiye Abhiyan, also a former forest officer, adds that covering of drains can lead to massive urban flooding as the concrete covering will obstruct groundwater

recharge. In fact, the RTI enquiry revealed that major flooding at the new airport terminal (T3) on September 16, 2011, came as a wake-up call for the city planners who soon gave the study contract to IIT.

A petition against covering of drains is also being heard by National Green Tribunal which had asked South Corporation if it had conducted any environmental impact assessment before starting the Kushak Nala covering project.

The corporation, on Monday, admitted before the tribunal that it had not conducted any environment impact assessment.

The tribunal directed all civic authorities to hold a meeting to suggest if it is appropriate to provide lining to and cover the storm water drains.

It constituted a committee comprising representatives from Delhi Jal Board, Delhi Development Authority, all municipal corporations, Public Works Department and Prof. Gosain which will prepare and submit their report within a period of 10 days.

The National Green Tribunal has also directed that "no authority or agency will carry out any work of construction, sealing of drainage, particularly Kushak Nala" in the meantime.



*The Times of India, Kochi dated  
December 17, 2013*

## Intelligent inverters to ease peak hour power consumption

BS Anilkumar | TNN

Thiruvananthapuram: In a bid to manage the ever increasing power demand, the Kerala State Electricity Board (KSEB) is planning to try out intelligent solar-powered inverters that would automatically discharge power to electric equipment during peak hours.

As many as 18 companies have responded to the board's call for new generation electric inverters that would help the board bring down power consumption from grid lines during peak hours — 6pm to 10pm and 5am to 9am — and also set a technology standard for inverters sold in the Kerala market. The widespread use of substandard inverters has been giving a tough time to the board during crisis period as they not only drew considerable amount of power during peak hours, but also wasted a major share of the same.

The desire for setting a technology standard for the inverters available in the market has led the KSEB to the idea of promoting solar-powered inverters. Such devices would automatically stop drawing power from KSEB lines during peak hours and use line power to charge only 50% of the inverter battery capacity, that too only during off peak hours.

The idea was first discussed in the KSEB innovation zone at the Kochi start-up village. After the device proved successful at places where it was deployed on a pilot basis, the board decided to invited expression of interest for commercial sale of the product at affordable rates.

"As a first step, we called a meeting of the traders who sell inverters in the state market. We asked them if



As many as 18 companies have responded to the board's call for new generation solar electric inverters

they would be able to stick to the technical specifications set for inverters by the KSEB. They agreed to the same. Later, a meeting of inverter manufacturers was called and they also agreed to the board's suggestion for a standardization of inverters. The idea of introducing solar-powered inverters came later," said KSEB chairman M Sivasankar.

According to him, the board hopes to make the intelligent inverters, which would manage the power demands during peak hours and use only minimum power from the grid line for charging, available in the market at rates ranging between Rs 25,000 and Rs 40,000.

The equipment supplied by various companies are currently being tested at the College of Engineering, Thiruvananthapuram. Once the testing is over and the technology is finalized, the board would introduce the same on a pilot basis at Cantonment electric section here. If the equipment proves viable, the same would be introduced across the state. The board plans to introduce the equipment sans subsidy as it would prove financially viable to consumers over a period of time.

*Deccan  
Chronicle,  
Hyderabad  
dated December  
18, 2013*

## 'Balance environment with development'

Popular environmentalist and former head of the Political Science Department, OU, Prof K. Purushotham Reddy, said that urbanisation had no reverse gear. The progress of Hyderabad had nothing to do with the size of the state.

"From being a city of lakes, gardens, pearls and grapes, its march has witnessed several waves of progress. From poultry to pharma, electronics to machine tools, universities to world-class research institutions, Hyderabad now has world class hospitals and is fast becoming the destination for health care. Citizens



Whether the division of the state will happen or not, Hyderabad will progress further

— K. PURUSHOTTAM REDDY, Environmentalist

will have to learn to live with development while protecting the environment. Whether the division of the state will happen or not, Hyderabad will progress further in the years to come," he said.

### POLLUTION ALERT

## 195 factories red-flagged

■ Notices of closure sent to all polluting plants across AP

KRUTHI GONWAR | DC  
HYDERABAD, DEC. 17

### BLACK SMOKE

Majority of the 'red' industries are drugs, plastic, sugar manufacturers

- Industries in "orange" category were ordered a percentage decrease in production or adoption of strict measures.
- A total of 727 APPCB inspections were conducted in 2012. This year, 308 were conducted.
- After the inspections, the industries were categorised into red, orange and green zones wherein green stood for minimal pollution, orange for 30 to 40 per cent pollution



The Andhra Pradesh Pollution Control Board (APPCB) has identified and categorised as "red" 195 factories and small-scale industries (SSIs) across the state, for not complying with the Board's norms in terms of the level of pollution caused by them.

Notices for closure have been sent to all of them. A majority of these industries comprise drug manufacturers, plastic firms, sugar factories etc. that have a huge disposal of byproducts. Others industries in the "orange" category have been ordered a percentage decrease in their production or adoption of strict correctional measures; some of their bank assurances have also been forfeited. A total of 727 inspections were conducted in 2012. This year, 308 were conducted.

After the inspections, the industries were categorised into red, orange and green zones where-

in green stood for minimal pollution, orange for 30 to 40 per cent pollution, which needed to adopt correctional measures, and red for violations.

The inspections were carried out by six task force teams of the PCB placed across the state. "Whenever there are violations, we issue notices and call them for hearings. Sometimes we issue closure notice for a temporary time frame, during which these small scale industries have to adopt correctional measures; sometimes we impose on them to decrease productivity.

"Zonal officers review

this process of closure and yes, most of them fail to comply with the notices. So, we have to go back and make sure they are shut down completely," a PCB official informed.

He added that these figures were not perennial. "If there is negligence or any major fault with the machines, then the pressure for adopting correctional measures varies. Whereas, there are some who will continue to go about with the same process and not adopt any measure to decrease pollution," he said.

After the APPCB reviews the situation, it

issues a revoking order only after which a factory can become functional again. "Once they have everything in place, their representatives will represent the APPCB with a report. We will reevaluate the details and then revoke their closure," another PCB official informed.

Sanjay Kumar, member secretary of APPCB informed, "We have regular task force meetings every month and we regularly inspect these industries. Depending on the nature of the pollution, we decide what kind of correctional measures can be suggested."

*The Economic Times, Delhi  
dated December 18, 2013*

## Buffett Shows Wind Power Rivals Coal

**BLOOMBERG  
NEW YORK**

The decision by Warren Buffett's utility company to order about \$1 billion of wind turbines for projects in Iowa shows how a drop in equipment costs is making renewable energy more competitive with power from fossil fuels. Turbine prices have fallen 26% worldwide since the first half of 2009,

bringing wind power within 5.5% of the cost of electricity from coal, according to data compiled by Bloomberg. MidAmerican Energy Holdings Co, a unit of Buffett's Berkshire Hathaway Inc, yesterday announced an order for 1,050 megawatts of Siemens AG wind turbines in the industry's largest order to date for land-based gear.

Wind is the cheapest source of power in Iowa, and the deal indi-

cates that turbines are becoming profitable without subsidies, according to Tom Kiernan, chief executive officer of the American Wind Energy Association trade group. That's a boost for suppliers including Siemens, General Electric and Vestas Wind Systems A/S, and a threat to coal miners such as Peabody Energy Corp.

"If Congress were to remove all the subsidies from every energy source, the wind industry can compete on its own,"

Kiernan said at a press conference at a Siemens factory in Fort Madison, Iowa, yesterday, when the order was announced.

Other wind-turbine companies are recovering from slumps. The market value of Vestas, Europe's biggest turbine supplier, increased 86 percent in the second half through yesterday and it's expected to report net income in the current quarter for the first time since mid-2011.

Growing demand for

wind power will offset waning use of fossil fuels, said MidAmerican Energy CEO Bill Fehrman. This order for 448 turbines follows a December 2010 agreement to use 258 Siemens turbines for other projects in Iowa. Wind farms provide "a hedge for our customers going forward in an era of reduced coal generation," he said at the event. The projects will qualify for the federal production tax credit for wind power, which is set to expire at the end of the year.

One of the five Iowa wind farms, the 44-megawatt Vienna II project, is already in operation. The company expects another 506 megawatts of turbines to begin producing power next year and the rest will go online in 2015, Fehrman said. The company is investing a total of \$1.9 billion in the five projects. Broadwind Energy Inc. will supply the towers.

MidAmerican expects to close some coal-powered plants in 2015 as the price of wind power continues to slide, said Adam Wright, vice president of wind generation and development for MidAmerican's Iowa utility.

*The Times of India, Delhi  
dated December 20, 2013*



## Life-size Lego car runs on air at 30kmph

New York: An enterprising duo has built a working life-sized car out of Lego bricks that runs on air and can reach speeds up to 30 kilometres per hour. More than 500,000 Lego pieces were used to develop the car. From engine to seats, the vehicle is made completely from the tiny bricks, with the exception of a few structural parts including wheels, tires and gauges.

The car is the brainchild of Melbourne entrepreneur Steve Sammartino and Raul Oaida, a 20-year-old from Romania who Steve met on the internet. The duo's Super Awesome Micro Project, a crowd-funded effort, attracted funding from forty Australian patrons to turn the car into a reality. Sammartino and Oaida estimate they have spent \$60,000 on Lego bricks alone while building the car. 'The Verge' reported. AGENCIES

*The Times of India, Delhi  
dated December 19, 2013*

## Hotel gets 3-mth breather for ₹1.2cr

Jayashree Nandi | TNN

New Delhi: Five-star hotel, The Lalit, which was given a closure order by Delhi Pollution Control Committee in November, has been allowed to remain open against a bank security of Rs 1.2 crore for three months. If the hotel fails to install a sewage treatment plant and rainwater harvesting system within this time, then the total amount will be forfeited.

DPCC officials said the option

of keeping a bank security is applied in cases where there is a major violation of pollution norms. "Usually, we give 45 days to an institution and don't take bank security for it. But in this case, they were warned several times, so we had to be stringent about making sure that they comply. When there is huge money involved, institutions usually conform. If this doesn't work, then the amount will be forfeited and we will prosecute them," said an official.

The bank security amount is usually 10 times the fee for consent to operate. The November 14 closure order quoted violations like not constructing an effluent treatment plant on site and no rainwater harvesting for recharging groundwater. DPCC issued show cause notice in February this year, but in three subsequent inspections, found little progress. "Work for the STP is moving at rapid pace," said spokesperson of The Lalit Suri Hospitality Group.



# Green energy catching on

Increasingly Put To Uses Other Than Generating Power

TIMES NEWS NETWORK

New Delhi: In Ajmer, Rajasthan a solar-powered reverse osmosis (RO) plant provides clean drinking water to 3,000 people in Kotri village that's surrounded by the briny Sambhar Lake. And at a dairy farm in Latur, Maharashtra the sun's heat is used to pasteurize milk. These are among the non-electricity applications of renewable energy featured in a report by World Wide Fund for Nature (WWF) India and Council on Energy, Environment and Water (CEEW) that was released on Thursday.

The report, *RE+ Renewables Beyond Electricity*, focuses on the untapped potential of some of these applications, including solar passive space heating that doesn't require any mechanical equipment since heat gain and distribution happen through natural methods like radiation and convection. In Himachal Pradesh, more than 200 buildings use solar-passive designs.

Another interesting application is the solar box cooker that can cook food for

## DOING WITHOUT ELECTRICITY



### HEATING

Solar water heaters | Solar/wind desalimators | Solar pasteurizer | Solar dryer for food processing | Solar water purifier based on distillation | Solar heating system for buildings

### COOLING

Solar airconditioning | Geo-thermal cooling

### COOKING

Solar cooker | Biomass cook stove

### MECHANICAL

Wind water pump



250 firms in renewable energy sector

200 provide complete systems, not just products like lanterns

50 firms in Delhi, mostly dealing in solar technology

The report focuses on the untapped potential of some of these applications, including solar passive space heating that doesn't require any mechanical equipment since heat gain and distribution happen through natural methods like radiation and convection

4-5 people in about 2.5 hours. It costs Rs 3,500-4,200, de-

pending on features, and food cooked in it retains more nutrients like thiamine and vitamin C because of the lower temperature and slower cooking. Farmers can use solar food dryers to preserve onion, garlic, grapes, fish etc.

At the National Law University in Dwarka, Delhi 16 solar-thermal water heaters meet the needs of about 450 students. They cost Rs 50 lakh to install but are expected to recover the investment in 4-5 years by saving on electricity.

Satish Balam Agnihotri,

secretary, ministry of New and Renewable Energy (MNRE) who launched the report, said, renewable energy is like a tripod with grid-connected power and off-grid renewable energy being two of its legs. Non-electricity applications are the third leg.

"But we haven't managed to scale up these applications. Somebody asked me why we can't have solar cookers for mid-day meals. It can be done, and we have to look at such large-scale expansions," he said.

toireporter@timesgroup.com

The Times of India, Delhi  
dated December 20, 2013

# Fog clears, visibility still low

Pollution Causing Smog; Particulates At 'Very Unhealthy' Level

TIMES NEWS NETWORK

New Delhi: The season's first spell of dense fog cleared up on Thursday, bringing respite from three consecutive days of air and rail traffic disruption. However, poor air quality over Delhi kept visibility low through the day.

The Safar project on air pollution by Indian Institute of Tropical Meteorology showed that levels of PM 10 (particulate matter) were in the 'very unhealthy' category at almost all monitoring stations in the city. "At 7.30pm, CRRI on Mathura Road and IMD office at Ayanagar were the only two stations where level of PM 10 was not very high. Even though the levels here were in the 'poor' category, they were still better as compared to levels recorded elsewhere in Delhi," said a source.

The PM 10 levels in Delhi University at 7.30pm were 440



MORNING HOURS: Dense fog engulfs Delhi early on Thursday

on the air quality index. In Noida, it was 459 while at Lodhi Road and IGI airport, it was 421 and 409 respectively.

"The dense fog that had set in on Monday morning, lifted by Thursday morning but visibility in the city remained poor due to some level of smog. The temperature in the city might be on the higher side but it is still low enough to not allow the air close to the earth's surface to

rise. Because of this, pollutants get trapped in the atmosphere. This phenomenon occurs each winter season when temperature starts falling," said a Met official.

RK Jenamani, director in-charge, IGI Met, said usually when there is a continuous cover of fog over Delhi, the day temperatures fall to 16-17 degrees while the minimum has touched 6 degrees Celsius. "This time, we have not

seen this phenomenon. Even in the absence of sunlight since Monday, the maximum temperature has remained over 20 degrees. This is because this year, the day temperature in the hills has actually been higher than the day temperature in the states of Haryana and Punjab. The night temperatures have also been above normal in several hill stations. This is because in the absence of strong westerly systems, there has been no fresh snowfall in the hills," he said.

"The other reason for the high temperature might be the mixing of fog with greenhouse pollutants. The resultant smog cover traps radiation and further warms the day," Jenamani added.

Delhi's maximum temperature on Thursday was 22.4 degrees Celsius while the minimum temperature was three degrees above normal at 10.8 degrees Celsius.

*The Times of India, Delhi  
dated December 22, 2013*

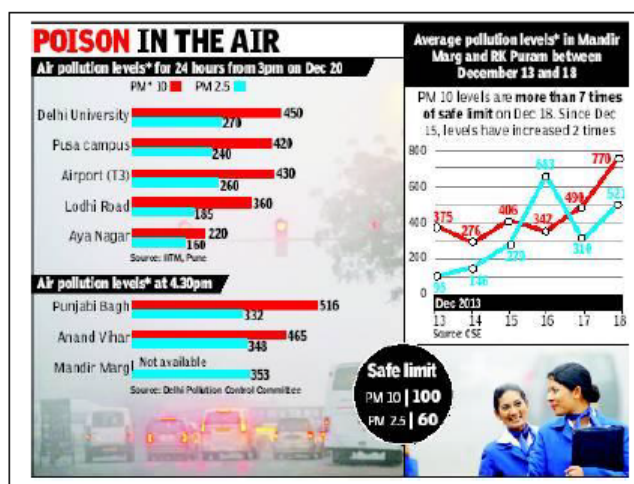
# Thick smog hints at increased air pollution

High Particulate Matter Aggravating Breathing Problems, Fog And Chill Likely To Stay

Jayashree Nandi TNN

New Delhi: It was not just gloomy and cold, but Saturday also saw extremely high levels of air pollution in many parts of the city. Thick smog and haze that enveloped Delhi all day is an indicator of high concentration of pollutants in the air. According to Indian Institute of Tropical Meteorology in Pune, PM 10 (coarse particles) levels increased by about 20% and PM 2.5 (fine respirable particles) increased by 15%, when compared to Friday. In several places, PM 10 levels were four to five times more than the prescribed levels, making people vulnerable to complications associated with respiratory illnesses.

Gufran Beig, program director of System of Air Quality Weather Forecasting and Research (SAFAR) at IITM explained that dense fog was a result of westerly disturbance which has brought a lot of moisture and cold air, thereby lowering the boundary layer (lowest one or two kilometers of the atmosphere). "The boundary layer is like an upper lid. It came down to 700 to 800 meters from 1 km on Friday, leading to a high concentration of pollutants. Fortunately, PM 2.5 levels, which can cause serious



health impacts, were not as high as PM 10. The pollutants will wash away if it rains tomorrow," Beig explained.

Indian Meteorological Department (IMD) scientists believe the next few days will continue to be foggy, cold and NCR may see a light drizzle.

Highest PM 10 levels were recorded from North Campus, which were over four times the standard, while lowest levels were recorded at Lodhi Road and Aya Nagar though they were twice more than normal. However, data

from Delhi Pollution Control Committee indicated PM 10 levels were over five times the standard at many places. At Mandir Marg and RK Puram oxides of nitrogen was about three times the standard.

Centre for Science and Environment analyzed the correlation between dense fog and pollution during December 13 to 18 at Mandir Marg and RK Puram and found that PM 10 levels doubled December 15 onwards. "We wanted to study how the change in weather is linked to air

pollution and found this huge jump in PM 10 levels over just two days," said Anumita Roychowdhury, executive director, research and advocacy, CSE. She added that such peaks in air pollution call for a public information system that can issue health advisories to people.

Meteorologists described it to be a 'cold day' phenomenon, where daytime temperatures fall but nighttime temperature is usually normal or above normal. "Saturday's day time temperature reduced by four degrees compared to Friday because there was no radiation from the sun. We expect similar conditions tomorrow. There may be moderate snowfall in Jammu and Kashmir, light snowfall in Himachal Pradesh and Uttarakhand and light rainfall in Punjab, Haryana and NCR. Saturday may have been the coldest day so far," said BP Yadav, director, IMD.

The minimum and maximum temperature was 12.5 degree and 15.9 degree Celsius, with humidity of 95%. Visibility was less than 200 meters in NCR, Punjab, Haryana and North Rajasthan.



*The Times of India, Delhi  
dated December 23, 2013*

# Encroachments, sewage killing city's water bodies

## SHRINKING PIECES OF HISTORY

Zones	Total	Dry	Encroached/ built-up	Healthy
East	54	18	21	2
West	75	17	31	11
Central	25	5	4	8
South	120	32	44	12



Ferozeshah Kotla Baoli



Sanjay Lake

### Some water bodies that have been developed in 4 zones

Arkpur Bagh Mochi | Arab ki Sarai Baoli | Hazrat Nizamuddin ki Baoli | Lado Sarai F/89 | Gandhak ki Baoli | Rajon ki Baoli | Khooni Jheel | Jharoda Majra | Purana Qila | Firozeshah Kotla Baoli | Neelwal | Tilangpur Kotla | Sanjay Lake

Jayashree Nandi | TNN

New Delhi: A look at the list of water bodies in 10 zones uploaded recently by the Delhi government's Parks and Gardens Society points to the deplorable state of *baolis* and lakes in the city. Most of them have been encroached upon, dried up or concretized. Those that still hold water have sewage flowing into them.

For this report, data from four zones was considered by TOI. Out of 54 water bodies in the east zone, 18 are dry and 21 have been encroached or built up on. In the south zone, 44 out of 120 water bodies have been encroached upon and eight have sewage entering them. Only the central district boasts a high number of water bodies that have been developed and have a permanent flow.

Many water bodies are also "legally built-up", which means their land use has changed over time. For in-

stance, the south zone has 12 such water bodies. The team that inspected these water bodies recommends rainwater harvesting at these sites. However, many have also been "illegally built-up", and the matter is either pending in court or remains in dispute. Over seven water bodies in the east district have been concretized in this way.

Delhi Parks and Gardens Society gathered lists of water bodies under various agencies over two years before holding ground survey for a precise idea of their status. "It was a tough process as we had to gather data from all agencies. But now that we have an overall idea, we can formulate a plan. For instance, those that have run dry need greening around them to rejuvenate them," S D Singh, chief executive officer, Delhi Parks and Gardens Society, said.

Strangely enough, several water bodies in all zones have

simply run dry. "This is because of a low water table along with scanty and erratic rainfall. They will come alive once planting in the catchment area beings and they are freed of encroachments. We have also identified the water bodies needing sewage treatment and how many oxbow lakes have been formed," Singh said.

There are about 1,000 *baolis* and lakes according to the records compiled from different agencies. The northwest zone with 166 water bodies leads the pack, followed by the north at 156 and the south zone which has 120 water bodies.

TOI had earlier reported that 21 lakes had disappeared from Delhi since 1997-98. Most of these lakes, according to Ritu Singh, scientist at Indian National Trust for Art and Cultural Heritage, disappeared because of encroachment by real estate projects. According to the 1997-98 data, there were 44 lakes and 355 ponds in Delhi.



*The Economic Times, Delhi dated December 25, 2013*

**SUNNY DAYS** A range of solar-based products now making a beeline for the farm sector

# Solar Powers Agri Gear Cos' Country Road Ride

## Viable Solutions for the Agri Sector



Products available in the Agri Market	Upcoming Products	How it Can Help	The Challenges
<ul style="list-style-type: none"> <li>Solar water pumping systems</li> <li>Cold storage powered with solar energy</li> <li>Home and farm lighting products</li> </ul>	<ul style="list-style-type: none"> <li>Solar-powered tractors</li> <li>Solar-powered milking machines</li> <li>Mobile solar generators</li> <li>Solar power hydroponics system</li> </ul>	<ul style="list-style-type: none"> <li>Covers over 40 lakh villages with no grid connectivity</li> <li>Escalating diesel price increases operation costs for farmers. Solar power can come to their rescue</li> <li>30% subsidy by ministry of new and renewable energy for solar back up systems</li> </ul>	<ul style="list-style-type: none"> <li>Awareness among the rural folk</li> <li>Delay in subsidy disbursement</li> <li>Bulk solar cost still costlier than diesel price paid per day</li> </ul>

**MADHVI SALLY & SHREYA JAI**  
NEW DELHI

Around 150 km from Lucknow, progressive farmer Atul Singh recently invested in a 5 hp 'Shashwat Green' brand solar pump costing ₹4.25 lakh for irrigation of his banana crop spread across 5-6 acres.

"We expect to recover the cost of investment in a year's time," said Singh who was purchasing over 10,000-12,000 litre of diesel annually.

"Solar powered irrigation system is a strong answer to prevailing energy insecurity and erratic power supply in the farm sector that needs to improve its productivity to beat the inflation," said Shashwat Green Fuels & Technologies business development head Karan Dangayach. Primarily manufacturing solar water pumps, Dangayach said that these pumps have a life of 25 years and are also useful for drip irrigation.

Blessed with solar power in abundance, rural India is now progressively utilising it for irrigation. If manufacturing companies are to be believed, threshing, fodder cutting, tractor, desalination and water purification, all this would soon run on solar power.

Apart from solar equipment makers, rising diesel cost and awareness for solar power has compelled agri-input manufacturers to include solar in their portfolio. In the past 20 months,

diesel prices have shot up by 20% to the current ₹53.78 a litre (in New Delhi). "Solar-based products have a huge market in the remote areas, where they can easily replace costly diesel and kerosene. Apart from irrigation, solar can also help in powering the villages," said Parag Shah, managing partner of Mahindra Partners and head of Mahindra Cleantech division.

Mahindra group recently announced its entry in the solar equipment business with a new division 'Ekosol' with its core market being rural India. The company offers a range of solar products, such as solar lantern, solar water pumping systems, home back up and lightning systems.

SunEdison, a New York Stock Exchange listed manufacturer and supplier of solar technology and energy services, announced customised solar water pumps for Indian rural market. Designed by R&D teams in California, USA and Bangalore, this solar-powered pump offers solution for farmers who need year-round cultivation and predictable daytime irrigation.

In a one of its kind product in Gujarat state, Mumbai-based Waaree Group has come up with a solar powered cold storage for potato near Vadodara district.

"We have the demand with increasing knowledge and interaction amongst farmers. We will keep launching new products and expect sales to increase,"

**Solar powered irrigation system is a strong answer to prevailing energy insecurity and erratic power supply in the farm sector that needs to improve its productivity to beat the inflation**

**KARAN DANGAYACH**  
Biz development head,  
Shashwat Green Fuels & Technologies

said Hitesh Doshi CMD, Waaree Group. Sale of solar agriculture products accounted to 16% of the ₹300-crore turnover for Waaree, which Doshi said they intend to increase to over 20% with a targeted turnover of ₹750 crore in the next fiscal.

"We are working on solar run products for farmers. Within a few months, we will be launching the products in the domestic market," said Lachhman Das Mittal, chairman of Hoshiarpur-headquartered Sonalika Group. The company, which sells 'Sonalika' brand tractors, is one of five largest tractor manufacturers in the country.

In its one year of its operation, Bangalore-based Siddon Biotech has been able to sell 50 odd machines costing ₹70,000 a piece. Sold through 14 milk cooperatives in Karnataka, farmers earned a subsidy in the range of ₹5,000-6,000 per piece.

"We are targeting progressive farmers who can make an initial investment and are aware of its

long term benefits," said Siddaramanna, owner, Siddon Biotech. The company is also working on solar chaff cutter to cut fodder and solar power hydroponics system to grow fodder and vegetables in water.

Delhi-based Jakson Power Solutions manufactures mobile solar generator that is easy to carry and can be used to power homes to farms and even run water pumps. This mobile solar generator runs not only on solar modules but also on battery, grid power and even diesel gen sets.

A rough industry estimates said that over 60 lakh water pumps - submersible and others run on diesel and electricity whereas only 3,000 pumps on solar system. According to one of the green solution providers for agriculture sector, Central government has announced subsidies for solar technology but is not disbursing funds. "Also, state sponsored schemes are centred around the module manufacturers and it limits the solution providers from marketing their products efficiently," he said requesting anonymity.

Adding to this, Doshi said that state governments should subsidise solar powered equipments rather than giving free electricity to farmers.

In Punjab, for instance, the ruling Shiromani Akali Dal-BJP party is giving free power to over 10 lakh farmers in the state, entailing an expenditure of over ₹4,778.13 crore.



*The Economic Times, Delhi  
dated December 25, 2013*

## ECONOMIC GROWTH VS ENVIRONMENT PROTECTION

# Moily Promises to Speed up Green Nod Process

New environment minister insists that ministry's regulatory role will not be compromised

OUR BUREAU  
NEW DELHI

**V**eerappa Moily took over as environment minister on Tuesday, the third in the last four and half years, promising to speed up decision-making without compromising on the ministry's regulatory role.

"There is space for everyone—environment, wildlife and mankind. To think one is against the other is only a mental block. The friction I think has to end up with fusion," Moily said.

One of the complaints against predecessor Jayanthi Natarajan was the slow pace of decision making. Sections of the government and industry maintain that delays in environment and forest clearances have hampered growth. Moily said he would speed up the process.

"I am one who is accustomed to dispose of the files by evening. Not even a single file will be taken home and not even a single file will be pending unless it requires yet another (look)," said Moily, who is also the petroleum and natural gas minister.

The accusation against Natarajan may not be justified. This year alone, she approved 915 proposals for diverting forests while only rejecting or returning 92.

As for industry's hopes that it will now have a more sympathetic ear at

## Forest Clearances in 2013

States	Proposals approved	Proposals rejected
Andhra Pradesh	9	17
Arunachal Pradesh	8	0
Assam	1	0
Bihar	37	1
Chhattisgarh	15	3
Gujarat	220	19
Himachal Pradesh	15	0
Jharkhand	26	1
Karnataka	10	12
Madhya Pradesh	38	4
Maharashtra	82	9
Uttar Pradesh	60	1
Uttarakhand	23	16
All India	915	92



the ministry, Moily said, "Different people have different kinds of expectations," adding that "the environment ministry is a regulator. The rules of the game will strictly followed. As far as possible, there

should be no room for discretion."

Industry and ministers holding infrastructure portfolios, petroleum being one of these, can draw encouragement from his promise of "no pending files". However, Moily

may find it difficult to proceed on many of the 300 or so infrastructure projects that were taken up for facilitation by the Cabinet Committee on Infrastructure.

For instance, the new minister will find it difficult to move ahead on revalidating environmental clearance for Posco's ₹52,813 crore integrated steel plant and port project at Jagatsinghpur in Odisha until the National Green Tribunal revokes the stay on it.

Decisions on many of the projects taken up by CCI could be difficult on account of court cases, such as ITC's ₹3,500 crore paper and pulp project in Andhra Pradesh. The Forest Advisory Committee, the statutory forest clearance body, had in February recommended that the ministry reject the proposal to divert 445 hectares of forests. Not satisfied, the department of industrial policy and promotion approached the CCI in June, which asked the environment ministry to decide in a month's time. However, the Andhra Pradesh government sent a revised proposal only in November. Although the project was taken up once again for consideration by the Forest Advisory Committee at the end of November, a decision was not possible as the Andhra Pradesh High Court passed an order in October asking authorities not to permit the diversion.

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# Large-scale tree felling in Mangar forest

## Activists Send GPS Readings Of Cleared Patches & Photos As Proof, Suspect Developers

Jayashree Nandi | TNN

New Delhi: Hundreds of trees have been reportedly felled in Mangar, a part of the Aravalis off the Gurgaon-Faridabad highway over the past month. Though some trees are cut for fuelwood every winter, this year there has been large-scale felling even in dense parts of the forest. In a complaint to the Haryana forest department on Tuesday, activists have alleged that logs are being transported out for commercial purposes and property owners are helping in clearing the trees to free up the areas for real estate.

The complaint made by RTI activist Sarvadanam Oberoi mentions GPS readings of areas where trees have been felled, and photographs docu-

menting the gradual clearing of forest patches taken by a few villagers and activists.

The environment ministry had in November last year directed the Haryana government to make a geo-referenced map for identifying the forested parts of Mangar. This was after activists campaigned for the protection of a sacred grove 'Mangar Bani'. The Haryana government, however, has made no such efforts or suggested the forest areas that can be notified. Activists claim the large-scale tree felling is meant to keep Mangar or Mangar Bani from being declared a 'deemed forest', which would put an end to extensive construction activity in the area.

"We suspect massive re-



**GREEN CRIME:** Trees have been felled in dense parts of the forest too

duction of trees of any significant size. If unchecked, large-scale felling can be used by real estate forces to claim that the areas should not be treated as forests and ease the change in

land use," the complaint said.

Such clearing of forests in Mangar is worrying especially because of Mangar Bani, a densely forested patch with an old shrine worshipped by vil-

lagers for centuries. Some experts have also documented wildlife around the *bani* and its massive groundwater recharge potential. Snow Leopard Trust had conducted a survey revealing "unmistakable" evidence of wildlife and the presence of leopards. According to the survey, Mangar is important as it's situated just 5km from the Asola Bhatti sanctuary and within 100km of Sariska Tiger Reserve.

"They haven't touched the *bani* yet but there is a lot of felling above the *bani* and around it," said Sunil Harsana, a former secretary of the village development committee. Most villagers, however, oppose Mangar being deemed forest.

Other environment activists like Chetan Agarwal say

the Haryana government's apathy towards protecting Mangar is obvious. An RTI inquiry had revealed that Haryana had tried to remove the 0.5% restriction on construction in the "natural conservation zones", which includes Mangar from the Regional Plan 2021 that is being amended. "Instead of identifying deemed forests and protecting the tree cover in the Aravalis as directed by SC and reiterated by MoEF the government is trying to divide the Mangar hills into zones for commercial, residential, and tourism uses," said Agarwal.

Strangely enough, Bloop Singh Yadav, divisional forest officer, Faridabad, said no tree had been cut in Mangar and patrolling was on.

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