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Business Sustainability News

International

Barack Obama's carbon cuts plan is a big step in the right direction

Move brings US closer to Europe and improves chances of getting a global agreement at Paris climate talks in 2015

By Fiona Harvey, environment correspondent theguardian.com



President Barack Obama's bold plan to cut carbon emissions in the US will define his climate legacy.

Photograph: Stephen Lam/Getty Images

US president Barack Obama has laid out his legacy on one of the issues that will define the world long after his brief term in power is over. He has been frustrated in several other attempts to bring climate change to the fore of US politics, with the demise of cap and

trade plans a notable failure, but his move to use the Environmental

Protection Agency to cap carbon emissions is his boldest effort yet, trying to circumvent the Congressional stalemate on the issue using his constitutional powers.

Climate change is one of the trickiest issues to face for any leader. A long-term problem manifesting first in the poorest regions of the world, that will only make serious inroads into developed economies long after a current politician's half-life is spent. Vested and highly profitable interests – party donors, indeed, and pension funds – that rely on fossil fuels. Contrarian attacks on the clear science that tells us the world is warming, supported by a sceptic media and believed by millions. No wonder Obama was initially reluctant to take this on.

President Obama has been burned on this issue before – along with dozens of other world leaders, he attended the Copenhagen climate change conference in 2009, but despite reaching the most effective international agreement that the world has yet seen on climate change, that summit was widely jeered in the media. He forged an alliance with developing countries including China and India, but that fell apart in subsequent rounds of fractious talks.

On Monday, the world was finally able to judge where President Obama hopes to take his country. He laid out what was lauded as a "bold" and "historic" vision that – if it is passed – will reduce US greenhouse gas emissions drastically. The response from climate experts was overwhelmingly positive. Lord Stern, author of the 2005 review of the economics of climate change, said: "These new plans should help the US achieve its target of reducing annual emissions of greenhouse gases by 17% by 2020, compared with 2005.

This represents real leadership."

Yvo de Boer, former United Nations climate chief, told the Guardian: "It's essential to get the US and China aligned [on climate change] as that is what will make the real difference." He was hopeful that President Obama's stance would make that a reality. Beijing has not yet officially responded to President Obama's announcement, but has its own plans for cutting emissions, partly in response to the air pollution crisis.

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China to scrap millions of cars to ease pollution

By Jennifer Duggan, theguardian.com

The Chinese government has announced plans to take up to 6 million vehicles that don't meet emission standards off the roads by the end of the year, in a bid to reduce the country's air pollution problems.



The Chinese government has announced plans to scrap up to 6 million vehicles that don't meet emission standards in a bid to reduce the country's air pollution problems. Photograph: Ng Han Guan/AP

The move is part of a plan published by China's cabinet, the State Council, which outlined emission targets for a number

of industries over the next two years. The State Council said

that some pollution targets are not being met for the 2011-2013 period and that action needs to be stepped up.

China is facing a "tough situation" in hitting its targets for energy and emissions for 2015, Xu Shaoshi, Chairman of the National Development and Reform Commission was quoted by state media.

One fifth of the vehicles to be scrapped will be in the northern regions of China, which have been the worst hit with air pollution. Hebei province, where seven of China's smoggiest cities are located, has been ordered to scrap 660,000 cars that don't meet emission standards. Up to 333,000 will be taken off the roads in the capital Beijing and 160,000 in Shanghai.

More vehicles will be scrapped next year with up to 5 million being removed from the roads of highly developed regions including the Yangtze River Delta, the Pearl River Delta and the smog-choked region of Beijing-Tianjin-Hebei.

"Strengthening control on vehicle emissions will be a major agenda item for the country's energy savings, emissions reductions, and low-carbon development during the next two years," the plan said.

According to the state news agency, Xinhua, removing these older vehicles from the roads will help China to meet some of its green targets such as reducing energy consumption, and will also help to reduce emissions of sulfur dioxide by 2% a year and emissions of nitrogen oxides by 5% per year.

The Ministry of Environmental Protection said that 7.8% of cars on China's roads do not meet the minimum national standards. According to figures published by Xinhua, 31.1% of air pollution in Beijing comes from vehicle exhaust emissions.

A number of Chinese cities have started restricting vehicle licenses as a way of reducing car use. The city of Hangzhou recently restricted the number of new car licenses it issues and will only issue new plates via an auction and lottery. The cities of Beijing, Shanghai, Guangzhou, Guiyang and Tianjin also limit the number of new vehicles registered each year.

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Embracing the UN's water goal is smart business

By Peter Lacy and Melissa Barrett



The UN's goal to "secure sustainable water for all" is a laudable one. According to UN Water (PDF), global water demand is projected to increase by some 55 percent by 2050, mainly because of growing demands from manufacturing (400 percent), thermal electricity generation (140 percent) and domestic use (130

percent.) Simply put, access to global freshwater, which makes up only around 2.5 percent of the world's total water, will be increasingly strained.

The goal spelled out by the UN, and the more specific sub-targets surrounding it (PDF), couldn't be more urgent. To us, though, the key questions are ones we ask regularly. What should business be doing to meet these goals? How can current successes be scaled-up? What barriers stand in the way? How can we speed the whole process up?

Whatever the answers, business-as-usual is clearly not one of them.

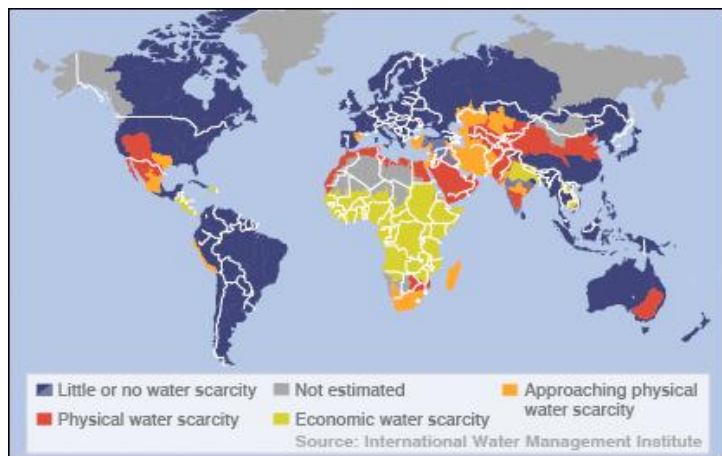
Around the same time UN Water published its most recent thematic report on the water impacts of energy, I was launching the findings of the triennial UN Global Compact and Accenture CEO study on sustainability. Although CEOs recognize fully that the business community isn't doing enough to meet global sustainability challenges, only 14 percent of the 1,000 global CEOs we surveyed stated that water and sanitation were immediate concerns for their business's future. Even though we know that agriculture and industry rely very heavily on a plentiful and secure supply of water, the challenge doesn't seem imminent enough to most of us.

So what's the problem?

In one word, quantification. Businesses are still finding it hard to put a dollar value on the competitiveness and savings benefits that, for example, they will enjoy from acting now on ensuring access to a resilient water supply in more resource-constrained times. Unless CEOs and CFOs can measure this confidently and accurately, they will continue to find it difficult to attract investor buy-in for their sustainability investments (as investments they are).

We argue that there are three steps to putting this right.

First, grasp the value of water and the full cost of doing nothing. Businesses need to quantify the value of reliable access to water and sanitation in their value chains, factoring in the opportunity costs associated with water use, not simply the current market price. We still lack a "common currency" or even "common language" when talking about water and its value.



Map of the global distribution of economic and physical water scarcity as of 2006. (Credit: BBC News)

Second, figure out where the opportunities lie in each sector and develop road-maps. There are clear opportunities for first-movers in a world moving towards water scarcity. Some of the most innovative approaches to conserving water already come from business. The next 10 to 20 years will provide a number of industries with a roadmap for future markets and demand, and a roadmap for innovative products and services.

Third, involve investors, share success and scale up. A major block for business and their partners is how to attract the necessary capital to scale up innovations. The revolution in digital technology is opening up new possibilities for the management of "smart water" and this is showing promising signs by allowing CEOs to focus on what they know best, how to drive competitiveness in their sector.

Tools and benchmarking standards

There is a series of increasingly effective tools and benchmarking standards that can help. In fact, we are already seeing a lot of our clients using them. The World Business Council for Sustainable Development, for example, launched a global water tool in 2007 after extensive industry consultation, with the specific aim of helping companies to answer a set of questions related to their water-use, such as which of their sites were at potential risk. Likewise, the Alliance for Water Stewardship operates an accreditation scheme which allows companies to know which of their suppliers (for example) have met which parts of its specific standard and verification system for freshwater stewardship.

On the level of an individual company, look at Nestlé, one of the world's largest food and drink companies. As part of their campaign to create shared value beyond CSR, they have placed water sustainability, nutrition and rural development squarely at the heart of their corporate strategy, publicly committing, for example, to reducing water consumption by 40 percent across its European production sites by 2020 (on 2010 levels). In 2013, Nestlé became one of the first signatories of WBCSD's pledge that commits businesses to upholding the human right to water and sanitation within their operations.

So yes. Major challenges are ahead. The UN's goal gives us a helpful guideline, but pressure on businesses, governments and — yes — consumers needs to be stepped up

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Now, 'cheap' water-based organic battery that's eco-friendly too

Source Name: Zee News India

Researchers have developed a water-based organic battery that is long lasting, built from cheap, eco-friendly components.

The new battery - which uses no metals or toxic materials - is intended for use in power plants, where it can make the energy grid more resilient and efficient by creating a large-scale means to store energy for use as needed.

Sri Narayan, professor of chemistry at the USC Dornsife College of Letters, Arts and Sciences and corresponding author of the paper, said the batteries last for about 5,000 recharge cycles, giving them an estimated 15-year lifespan, adding that lithium ion batteries degrade after around 1,000 cycles, and cost 10 times more to manufacture.

Narayan collaborated with Surya Prakash, professor of chemistry and director of the USC Loker Hydrocarbon Research Institute, as well as USC's Bo Yang, Lena Hooper-Burkhardt, and Fang Wang.

"Such organic flow batteries will be game-changers for grid electrical energy storage in terms of simplicity, cost, reliability and sustainability," said Prakash.

The batteries could pave the way for renewable energy sources to make up a greater share of the nation's energy generation. Solar panels can only generate power when the sun's shining, and wind turbines can only generate power when the wind blows. That inherent unreliability makes it difficult for power companies to rely on them to meet customer demand.

The new battery is based on a redox flow design - similar in design to a fuel cell, with two tanks of electroactive materials dissolved in water. The solutions are pumped into a cell containing a membrane between the two fluids with electrodes on either side, releasing energy.

The study has been published online in the Journal of the Electrochemical Society.

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US Businesses Knee-Deep in Getting Emissions Down

SustainableBusiness.com News

A few weeks ago we wrote that the world's biggest companies are already seeing negative impacts on their business from climate change, according to a survey by CDP (formerly Climate Disclosure Project).

Now CDP has released a report that shows how businesses are responding on a state-by-state basis. While they certainly view climate change impacts as an increasing cost, they are well along in turning it into a competitive advantage. CDP surveyed 172 companies in 9 states: California, Colorado, Texas, Minnesota, Michigan, Ohio, Pennsylvania, Virginia and North Carolina.

How Companies are Responding

Innovating on Sustainable Products: finally, leading companies are focused on eliminating emissions from their manufacturing lifecycle, which means producing the products we've asked for over decades - cutting energy, waste and material use - from green IT products to laundry detergent, from building insulation to tires for vehicles. They are producing new energy efficiency products to meet rising demand.

Using Renewable Energy: another way companies are reducing emissions and keeping energy costs down in a time of rising prices, is to use and often invest in renewable energy.

Anticipate Carbon Regulations: rather than viewing the inevitable controls as a problem for their business, they see a carbon tax and EPA's power plant regulations, for example, as a way to level the playing field for leaders that are acting now and a way to cut costs over the long-term. In fact, the lack of regulation and uncertainty over when it's coming is impeding their ability to plan and invest further in a low carbon economy.



Google's extensive green roof is a big investment, but will keep energy costs down over the long-run: San Diego utility, Sempra Energy says: "As compared to other energy companies with portfolios that include higher-emissions generating sources, such as coal, and which are just beginning to employ energy efficiency measures, we are well positioned to deal with

regulatory and other low-carbon initiatives. Because we are focused on natural gas and renewable sources of energy, our emissions rate (CO₂ per MW-hour) is well below the US national average."

Levi Strauss says: "If the US Congress passes climate change legislation we will benefit from increased business certainty about energy prices and a leveled playing field for efforts to reduce emissions. We can do more, faster and cheaper with federal legislation that incentivizes utilities to work with us to capture efficiencies and invest in renewable energy."

Investing in Resilience: businesses in every state are investing in measures that make them more resilient to help offset risks and disruptions from climate change, such as interrupted sales and instability in their supply chains.

Supplier Sustainability

Suppliers can account for up to 86% of a company's carbon footprint and they are getting much more attention. Last year, Hewlett-Packard was the first IT company to set emissions reduction targets for suppliers.

Many corporations now audit suppliers especially in countries where regulations and enforcement are weak, such as China. Suppliers that excel tend to receive preferential treatment and more business.

As the dominant food supplier in the US, almost half of Walmart's supply chain emissions come from fertilizer use in farming, much of which leaches into waterways. In partnership with Environmental Defense Fund, they are working with farmers to decrease and optimize the amount of fertilizer used.

Here is CDP's report:

Website: <https://www.cdp.net/CDPResults/CDP-state-by-state-report-2014.pdf>

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Air conditioning raising night-time temperatures in the US

By Tim Radford, for theguardian.com



Air conditioning in Phoenix is now raising night-time temperatures. Photograph: Witold Skrypczak/Alamy

Researchers in the US have identified a way in which city-dwellers are inadvertently stoking up the heat of the night – by installing air conditioners.

Because the cities are getting hotter as the climate changes, residents are increasingly

investing in aircon systems – which discharge heat from offices and apartment blocks straight into the city air. And the vicious circle effect is that cities get still warmer, making air conditioning all the more attractive to residents.

According to scientists at Arizona State University, the air conditioning system is now having a measurable effect. During the days, the systems emit waste heat, but because the days are hot anyway, the difference is negligible. At night, heat from air conditioning systems now raises some urban temperatures by more than 1C, they report in the *Journal of Geophysical Research Atmospheres*.

The team focused on the role of air conditioning systems in the metropolitan area of the city of Phoenix, which is in the Sonora desert in Arizona, and conditions in the summertime are harsh there anyway.

But, worldwide, normally warm countries are experiencing increasing extremes of heat, and conditions in cities have on occasion become lethal.

To cap this, cities are inevitably hotspots – and it's not just because of global warming. The concentration of traffic, commuter systems, street and indoor lighting, central heating, light industry, tarmac, tiles, bricks, building activity and millions of people can raise temperatures as much as 5C above the surrounding countryside.

At present, 87% of US households have air conditioning, and the US – which is not one of the warmer nations – uses more electricity to keep cool than all the other countries of the world combined. To keep the people of Phoenix cool during periods of extreme heat, air conditioning systems can consume more than half of total electricity needs, which puts a strain on power grids.

The Arizona scientists simulated a 10-day period of unusually hot weather between 10 July and 19 July, 2009, and used computer models and detailed readings from weather records to analyse the effect of air conditioning systems on local temperatures. Even though the biggest demand for air conditioning was in the daytime, they found the biggest difference was always at night.

"Our work demonstrates 1C degree local heating of urban atmospheres in hot and dry cities due to air conditioning use at night time," said Francisco Salamanca, the report's lead author. "This increase in outside air temperature in turn results in additional demands for air conditioning."

"Sustainable development and optimisation of electricity consumption would require turning wasted heat from air conditioning into useful energy, which can be used inside houses for various purposes – including, for example, water heaters."

Such actions would reduce local air temperatures: in Phoenix alone, they could directly save more than 1200 Megawatt hours of electricity per day.

In 2012, the US experienced a set of record-breaking temperatures, and the US Department of Energy has warned that days of extreme heat are expected to become more frequent and more intense because of climate change.

But this seems already to be a pattern worldwide, according to recent analyses of climate patterns. And the demand for air conditioning is expected to accelerate in India, China and other emerging economies.

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Green Technology Spotlight: Mobile Solar

SustainableBusiness.com News

We first heard about Ecosphere (OTCBB: ESPH) in 2006 when they raised their first round of funding to develop a portable unit that recycles and cleans wastewater without chemicals - which now travels to and from oil and gas operations, cleaning the water for reuse.

Now, they've come up with another delivery service and this time it's a very cool, mobile solar-powered generator, Ecos PowerCube.



Imagine what mobile solar can mean to people recovering from a disaster, off-grid hospitals and the military. After it arrives by land, air or sea, you might think it's just a small building. But at the touch of a button, flaps on the side and top open and solar panels slide out. Also at the push of a button, they slide back in, protecting them from extreme weather in war zones or disaster relief scenarios. A wind turbine can be assembled Ikea-style and the energy is stored in onboard batteries.

The size of a standard shipping container, PowerCube provides 15 kilowatts of solar energy in the most remote, off-grid locations, providing the basics people need - clean water, Internet and satellite communication, and electricity.

Ecosphere also makes a water filtration and purification technology for mobile delivery systems, which was deployed in the aftermath of Hurricane Katrina.

Although we're against fracking, Ecosphere says its technology has enabled oil and gas customers to recycle and reuse over one billion gallons of water on about 500 oil and natural gas wells in major shale areas across the country.

The company is listed as one of the top innovators in water technologies.

Watch how PowerCube works:

Website: www.ecospheretechnology.com/environmental-engineering-technologies/powercube

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Fuel cells developed to boost plane efficiency

Researchers have developed the first fuel cell that can directly convert fuels, such as jet fuel or gasoline, to electricity, providing a more energy-efficient way to create electric power for planes or cars.

Scientists led by Professor Su Ha and Professor M Grant Norton at Washington State University have made coin-sized fuel cells to prove the concept and plan to scale it up.

About 10 years ago, the researchers began developing a solid-oxide fuel cell to provide electrical power on commercial airplanes.

Fuel cells offer a clean and highly efficient way to convert the chemical energy in fuels into electrical energy.

In addition to increasing fuel efficiency and reducing emissions of harmful pollutants, fuel cells are quiet and would be particularly helpful when a plane is at a gate and the main jet engines are turned off.

A solid-oxide fuel cell is similar to a battery in that it has an anode, cathode, and electrolyte and creates electricity. But it uses fuel to create a continuous flow of electricity.

The process could be approximately four times more efficient than a combustion engine because it is based on an electrochemical reaction.

The solid-oxide fuel cell is different from other fuels cells in that it is made of solid materials, and the electricity is created by oxygen ions traveling through the fuel cell.

To avoid the added weight of a device that converts the complex fuel into simpler components, such as hydrogen and carbon monoxide (a mixture called synthesis gas) the researchers wanted to be able to directly feed the liquid fuel into the fuel cell.

Furthermore, they had to overcome the problems of sulfur poisoning and coking, a process in which a solid product is created from imperfect combustion. Sulfur is present in all fossil-based fuels and can quickly deactivate fuel cells.

Using a unique catalyst material and a novel processing technique, Ha, Norton and collaborators at Kyung Hee University in South Korea and the Boeing Company in Seattle have produced a high-performance fuel cell that operates when directly fed with a jet fuel surrogate.

"The results of this research are a key step in the integration of fuel cell technology in aviation and the development of the more electric airplane," said Joe Breit, associate technical fellow at Boeing and a participating researcher on the project.

The researchers envision integrating their fuel cell with a battery to power auxiliary power units.

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Tips:

As we know, Sustainable Practice is living your life in a way that uses resources in a responsible way. Responsibly because resources are limited and it is our duty to let the future generations have resources to lead quality life. The quantum of resources as well as quality, both are to be conserved if not improved at least prevent from further deterioration. For common man there are mainly three ways by practicing which they can contribute to the sustainability, i.e. reduce, recycle and reuse. We think some behavioral changes may lead us towards the desired goal i.e. sustainability.

A few tips are being given below that you might find handy.

- Cook food only sufficient enough to meet the requirement of the family. The best is there is no left over. But if something is left, either preserve it for using later or give away to poor and hungry people in your vicinity.
- In our society the dinner parties are organized frequently and in most of them huge amount food is left and is thrown away. This is not desirable if there is some food left that must be distributed to some needy people or even could be given to some orphanage immediately so that it is not wasted.
- Take food in small servings to avoid wastage whether at home or in a party. Many of us fill their plates with lot of food and in the end when unable to consume, we throw it in the dustbin. We should keep in mind that there are millions of people who sleep empty stomach.
- People generally buy clothes, slippers, shoes sandals etc much more than required and the result is before they are torn or faded the fashion changes and those items are dumped. So the surplus clothes, foot wears must be given to people who do not have clothes to wear and people who wander here and there bare footed.
- When we or our children go to higher classes their earlier books, note books etc are of no use. Please give away those books to the poor children who need it to study. If there are blank pages in your note books separate them and use them for rough work. The note books that are completely filled may be given for recycling instead going in to the land fill.
- Newspapers are common thing and after they are read it must be kept neatly and given for making envelopes or for recycling.
- For the convenience sake we use various disposable items such items form huge garbage and if thrown away it goes into landfill. Therefore as far as possible avoid use of disposable items. It is always advisable to use such plates, glasses, and other articles that can be reused.
- We have so far not adopted practice of keeping recyclable waste, biodegradable waste separately. This has resulted in failure of many plants that were established to generate power from waste. Though so far the facility of collecting waste separately is not available the municipal corporations should do the needful to develop this habit among citizens.
- If available opt for rerefined lubricating oils for your vehicles. It is a myth that motor oil wears out it just gets dirty and by refining all impurities like dirt, water metals are removed. Thus it saves crude oil, power and also prevents from polluting soil and water.

3 environmental policy initiatives that will help business

By Richard Eidlin



Laws, oversight and guidelines are essential to the success of sustainability initiatives, and responsible business owners can make a big difference by fighting for policies that protect the environment. Here are three pro-sustainable business policy items

the American Sustainable Business Council is working on in conjunction with many other organizations — and information on how you can join the cause.

1. Speak out for clean water

American business depends on clean water, whether it's for manufacturing, food production or the safe drinking water that employees and customers rely on. Unfortunately, past Supreme Court decisions have rendered Environmental Protection Agency's authority of streams and wetlands unclear.



Wetlands in autumn (Credit: JuneJ via Shutterstock)

This is a problem because the health of rivers, lakes, bays and coastal waters depend on the streams and wetlands where they begin. Streams and wetlands also provide many direct benefits to communities — they trap floodwaters, recharge groundwater supplies, remove pollution and provide habitat for fish and wildlife. They are also economic drivers because of their role in fishing, hunting, agriculture, recreation, energy and manufacturing.

The good news is that recently the EPA and the U.S. Army Corps of Engineers proposed a new rule to clarify protection for streams and wetlands. The public comment period is open through July 12.

What's at stake?

One-third of the nation's waters still do not meet fishing and swimming standards. About 117 million customers and employees — one in three Americans — get drinking water from public systems that rely in part on streams. Protecting these waters is especially crucial as the nation's populations grows and as consumers increasingly demand safer products.

What can you do?

Submit a comment in support of the proposed Clean Water Rule

Read about the benefits of the rule

Watch EPA Administrator Gina McCarthy's overview of the Clean Water Rule

2. Stop rising sea levels

Speaking of water, one very real outcome of climate change is rising sea levels that literally could wash away entire coastal economies. Ninety thousand miles of coast surround the U.S., and businesses that depend on it face a dire future if nothing is done.

Leaders in Washington need to take some big policy steps to slow sea level rise. First, they need to control how much carbon is being put into the air. (See carbon pollution standards below.) Carbon pollution is the biggest contributor to climate change, which is responsible for rising sea levels. Second, they need to support investments in solar, wind and biomass energy to help transition our country to a clean energy economy. This investment will reduce carbon pollution and boost the economy with new jobs. We are making some small progress in both these areas, but not fast enough.

What's at stake?

According to the third U.S. National Climate Assessment released in early May, global sea level has risen by about 8 inches since reliable record keeping began in 1880. By 2100, it's projected to rise 1 to 4 feet. Thanks to recent analysis by Climate Central, we no longer have to wonder what our nation would look like if the sea level were to rise as projected.

We need our government to protect our natural resources and the economies that depend on them so that future generations of business owners will have the opportunity to succeed, as their forebears did.

What can you do?

Use this online tool to quickly send a letter to your elected officials to help sustain our coasts for future generations

Read the third U.S. National Climate Assessment

Learn about other ways you can join other business owners and engage in energy and environment policy issues

3. Reduce carbon pollution from power plants

Because 40 percent of all carbon emissions come from electricity generation, working to limit those emissions will be crucial to avoiding the worst effects of climate change. Coal-fired plants are the worst offenders ([PDF](#)). As a group, they are responsible for as much carbon dioxide as the entire transportation sector.

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Scientists warn against China's plan to flatten over 700 mountains

By Stuart Clark, for *theguardian.com*



Scientists have criticised China's bulldozing of hundreds of mountains to provide more building land for cities.

In a paper published in journal *Nature* this week, three Chinese academics say plan to remove over 700 mountains and shovel debris into valleys to create 250 sq km of flat land has not been sufficiently considered "environmentally, technically or economically."

Li Peiyue, Qian Hui and Wu Jianhua, all from the School of Environmental Science and Engineering at Chang'an University, China, write: "There has been too little modelling of the costs and benefits of land creation. Inexperience and technical problems delay projects and add costs, and the environment impacts are not being thoroughly considered."

One of the largest projects began in April 2012 in Yan'an in the Shaanxi province, where the aim was to double the city's area by creating an additional 78.5 sq km of land.

Local officials expect the project to generate billions of yuan from the sale or lease of the new land and spare agriculture land elsewhere in the country, which otherwise may have been used for development.

Soil erosion increases the sediment content of local water sources. In Shiyan, Hubei province, pounding hills into valleys caused landslides, flooding and altered water courses. This had serious implication for the city as it lies close to the headwaters of the South-North Water Transfer project, an endeavour to divert river waters along channels to Beijing.

In Langzhou, Gansu province, work was temporarily halted because of air pollution levels caused by dirt from the excavation. No one had thought to damp the soil to stop it flying in the wind.

Mountain top removal has been performed before, especially in the strip mines of the eastern United States, but nothing has been performed on the scale of the Chinese earthworks.

The authors conclude that full environmental impact reports are needed along with economic assessments of the cost and benefits of the proposed works. They write: "Where there is no profit, governments should be dissuaded from going ahead."

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Climate threat to America's 'king corn'

By Suzanne Goldenberg, for theguardian.com



A decimated corn crop in central Kansas, US. The \$1.7tn corn industry is at grave risk from climate change. Photograph: Jim Reed/Corbis

The days of "king corn" could be numbered as climate change brings higher temperatures and water shortages to America's farmland, a new report warned on Wednesday.

Nearly one-third of US farmland is devoted to raising corn and the country produces about 40% of the world's corn crop. But the \$1.7tn (£1tn) industry – the

equivalent of Australia's GDP – is under threat from water shortages, heatwaves and unpredictable rainfall caused by climate change.

"Corn is an essential input to our economy, and climate change, water scarcity and pollution are a critical threat to that sector going forward," said Brooke Barton, director of the water programme at the Ceres green investor network and author of the report.

The report amplifies warnings earlier this year from United Nations climate scientists and the National Climate Assessment that America's agricultural industry – and specifically its corn crop – was at risk from the high temperatures and water shortages anticipated under climate change.

In the case of corn, however, there are potentially trillions at stake because the industry now touches on almost every aspect of the American economy.

Corn production has doubled over the past 20 years and on its own was worth \$65bn last year. But corn supplies a vast spread of industries. The 45 largest companies in the corn production chain together account for about \$1.7tn in earnings, the report said.

Some 40% of the crop now goes for production of ethanol. Another 35% of the crop is grown for animal feed, but corn is used across the economy.

"It is fed to the cattle that become Big Mac. It is in the ethanol that goes into the gasoline we buy," Barton said. "It's in the snackfoods that we buy, even in some of the plastics in the products we buy. It is in laundry detergents. It's everywhere."

But the crop carries a heavy environmental toll. Corn uses the most water for irrigation of any crop, and accounts for half of all fertiliser use.

Some of that corn is raised in areas experiencing water shortages because of over-use and recurring droughts, such as California's Central Valley or the high plains states of Kansas and Nebraska.

About 20% of corn production is in irrigated areas. Most of those areas, about 87%, are undergoing water shortages. Corn production is threatening dwindling groundwater reserves, the report said.

The heavy use of fertiliser also imposes costs. Fertiliser for corn production is the single largest cause of the dead zone in the Gulf of Mexico.

About 10% of fertiliser used on corn ends up as run-off, polluting water supplies across the mid-west, the report said. It estimated some \$420m in fertiliser was washed into the Gulf last year, depleting oxygen levels and killing off marine life.

The report goes on to urge farmers and food producers to work together to reduce those climate-related risks and the environmental costs of growing corn.

Recent studies have found corn at high risk from the higher temperatures, changing rainfall patterns, and water shortages caused by climate change.

Corn plants are especially sensitive to heatwaves and drought. A report in Science last month found that growers were having more trouble than initially expected in adapting to hotter and drier conditions.

Over the years, farmers in the mid-west have taken advantage of new corn varieties that are more resistant to pests and have more water-resistant roots by planting corn plants closer together.

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Japan Pursues Solar Power in Space, But Coal & Nuclear On the Ground

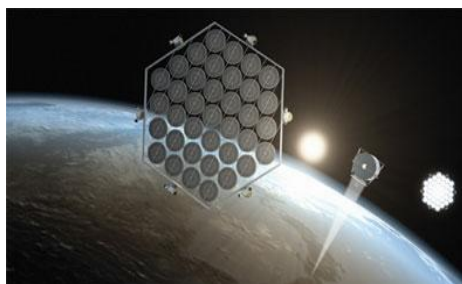
SustainableBusiness.com News

Japan has become a world leader on solar and now it's taking that a big step further - in outer space!

While the country tussles between renewables, coal and nuclear on the ground, it is preparing to put a 1 gigawatt solar array in orbit around 2030 (the size of a nuclear plant). There are many technical challenges to overcome, but the Japan Aerospace Exploration Agency (JAXA) is committed to making it work.

"It would be difficult and expensive, but the payoff would be immense, and not just in economic terms. Throughout human history, the introduction of each new energy source - beginning with firewood, and moving on through coal, oil, gas, and nuclear power-has caused a revolution in our way of living. If humanity truly embraces space-based solar power, a ring of satellites in orbit could provide nearly unlimited energy, ending the biggest conflicts over Earth's energy resources. As we place more of the machinery of daily life in space, we'll begin to create a prosperous and peaceful civilization beyond Earth's surface," says Susumu Sasaki, professor emeritus at JAXA.

Since it was first proposed in 1968, generating solar energy in space has been a dream and JAXA leads the world in pushing it forward. More than many countries, Japan has strong incentives - it has no home-grown fossil fuels and little land for big solar arrays. Thanks to much lower costs and particularly, advances in wireless technology, the concept is finally feasible.



Solar would supply uninterrupted power, collecting sunshine 24/7 from 22,000 miles above the Earth.

Technical issues abound, but JAXA is working through them: how to make the structure light enough; how to send a beam of energy across vast distances and

control where it goes without wasting it; how to keep collectors in position and aimed at the sun; and how to build it in space.

The greatest challenge is accomplishing wireless power transmission - aiming a microwave beam across thousands of miles to hit a receiving antenna on the ground!

JAXA has a road map for how to get there, starting with a demonstration on the ground this year - the world's first high-power, long-range microwave transmission, with all-important beaming control, reports IEEE Spectrum. Next, in 2018, JAXA will demonstrate how to transmit and control those microwaves from space. In 2021 and 2024, it will deploy larger and larger solar collectors into space, culminating with a 1 GW power station in 2031. Later in the decade, they plan to launch a solar station every year.

Advances in wireless power transmission is the game-changing technology that's makes this possible. It allows antennas to coordinate while they are moving, solving the dilemma of how to precisely beam solar energy over long distances to Earth.

The plan is to use microwaves - which easily penetrate cloud cover without losing much energy. Here's how it works: Direct current (DC) energy produced by solar panels in space is converted to microwaves and beamed to ground level power stations - a farm of antennas - which collect the energy and convert it back to DC electricity. JAXA says it can do this with a loss of only 20% of energy. To keep the station consistently oriented toward the sun, it is experimenting with two huge mirrors on both ends of the solar array that continuously reflect sunlight onto them.

At 1 GW size, the structure would be about 2 miles long and weigh over 10,000 metric tons!

Japan Not So Clean On the Ground

For now, however, Japan's government has much less foresight when it comes to the energy used today.

While it was widely expected that Japan's energy strategy - "Basic Energy Plan" - would present a major policy shift toward renewables and away from nuclear, it doesn't.

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GMO labeling laws: The writing is on the wall

By Lyn Meany



A new bill introduced in April has brought the labeling of foods containing genetically modified organisms (GMOs) back into the spotlight. Dubbed the "Safe and Accurate Food Labeling Act," the bill (H.R. 4432), introduced by Mike Pompeo (R-Kan.) and G.K. Butterfield (D-N.C.), would overrule any laws enacted at the state level and put all rulemaking and decisions regarding GMO labeling exclusively into the hands of

the FDA. It also specifically prohibits any mandatory labeling of foods developed using bioengineering.

Although 37 food labeling bills were introduced in 21 states in 2013, so far only three states (Maine, Connecticut and Vermont) actually have enacted laws requiring the labeling of foods made with genetically engineered (GE) ingredients. In Connecticut and Maine, the laws are on hold, pending the adoption of similar laws in neighboring states. Vermont established no such caveats, but food producers have until mid-2016 to comply.

To some, the Safe and Accurate Food Labeling Act would bring order to the potential chaos that might be created from what Pompeo calls "a patchwork quilt" of different requirements that could come to exist on the state level. To others, however, the bill is part of a far-reaching conspiracy and strikes an intolerable blow to Americans' right to know.

Adding to the confusion, another bill on GMO labeling was introduced into the Senate last year by Barbara Boxer (D-Calif.), and it is still in committee. This one (S.809 – Genetically Engineered Food Right-to-Know Act) also sets a federal standard, but in stark contrast to the Pompeo bill, it calls for the FDA to mandate that foods containing GE ingredients be labeled as such.

Notwithstanding the science — or lack thereof — that forms the basis of both sides of the GMO argument or the the likelihood — or lack thereof — of any labeling laws passing and standing up to appeal, it is consumers' perception of GMOs that matters. And that perception is not good. A recent New York Times study showed that Americans strongly support the labeling of genetically modified foods, to the tune of 93 percent of those polled. Shelton Group's 2013 Eco Pulse study also reflects Americans' negative perception of GMOs: The population actively trying to avoid genetically modified foods is now close to 25 percent, and that number has grown for the last three years.

Regardless of legislative activity, food manufacturing companies would do well to heed the message in these studies.

If your company's products are 100 percent organic, which means they cannot contain GE ingredients, or if they can be confirmed as not containing GE ingredients, your labels should clearly state that fact. Beyond merely claiming they are non-GMO, however, you may want to start down the path of certifying them as such.

As of this writing, only a few third-party certifiers exist in the U.S. The not-for-profit Non-GMO Project was the first to offer a Non-GMO Verified certification, and they do so according to standards that closely follow Europe's. Natural Food Certifiers (NFC) now offers certification under somewhat more stringent standards and calls their program "GMO Guard Verification." This is a careful choice of language based on their position that because of wind drift from neighboring farms, "it is impossible to classify anything completely GMO-free."

If your company uses only a limited number and volume of GE ingredients, it is probably time to investigate sources for non-GMO versions of those ingredients; for example, replacing refined beet sugar with cane sugar.

As we suggested last summer, companies that currently depend upon U.S. corn or other crops that are very difficult to source and validate as non-GMO might consider going on the offensive by collaborating on a communications initiative with other manufacturers and reputable scientific groups that have taken a pro-GMO stance, such as the National Academy of Sciences, the World Health Organization and the American Medical Association.

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What kills 3000 Australians per year?

By Alexander White, for *theguardian.com*



Globally, this environmental health risk caused more deaths worldwide than AIDS, diabetes and road injuries combined. Photograph: ChinaFotoPress/Getty Images

There's something that kills 3000 Australians per year. You probably won't have read about this significant danger.

It's not cancer. It's not sharks, or drop bears, or funnel web spiders. And it's not car accidents or heroin overdoses.

It causes serious health problems for even more Australians each year, and for many people there is no "safe" level of exposure.

It also targets disadvantaged (socially and economically) people the most.

What is it?

Air pollution.

A new report from Environment Justice Australia, released on Wednesday 28 May, shows that 3000 people die prematurely from air pollution each year.

According to EJA:

Australia lacks an effective system of regulation for air pollution. The current system is based on a completely unsatisfactory arrangement that leaves important standards to protect health to be set by complex intergovernmental arrangements involving Commonwealth, State and Territory governments. This system is failing to adequately protect public health.

It may be convenient for some to dismiss this as simply concerns from environmental do-gooders. But anti-carbon price crusader and federal environment minister Greg Hunt has acknowledged the problem, saying at a speech in March this year:

At the very highest level, I would like to complete a National Clean Air Agreement by 1 July 2016. The Australian Institute of Health and Welfare estimated that urban air pollution was responsible for more than 3000 early deaths in 2003. This is a critical national issue and I would like it to be a signature objective of my watch.

Particle (as particulate matter) and ozone pollution levels are of particular concern, with peak particulate matter levels frequently exceeding the current national air quality standard in most of Australia's metropolitan areas.

Urbanisation and population growth, and the associated increases in transport demand and energy consumption, will likely result in increased emissions and poorer air quality despite the current air quality management frameworks in place.

This is a remarkable statement, showing that the federal government is not only aware of this problem, but sees the solution as national regulation.

Air pollution in Australia is woefully regulated and the current measures are utterly inadequate.

The road toll in Australia in 2013 was 1193 people. Each state in Australia takes road safety so seriously that they have insurance schemes, who run massive, multi-million dollar safety-awareness campaigns.

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Solving the world's plastic problem

Source Name: MIT News (US)

Plastic is becoming a major problem worldwide: In 2012, the United States alone produced roughly 32 million tons of plastic waste, while only recycling about 9 percent of its plastic, according to the Environmental Protection Agency.

This is because of the growing use of "nonrecycled" plastics, primarily made of polystyrene and polypropylene. Seeing little return value, recyclers toss these plastics into landfills, where they pile up and never decompose. As a result, landfill space is becoming a concern.

But now MIT spinout PK Clean, founded by Priyanka Bakaya MBA '11, aims to end the landfilling of plastic with a cost-effective system that breaks down nonrecycled plastics into oil, while reusing some of the gas it produces to operate.

"Plastic comes from oil to begin with, so it makes sense, instead of landfilling plastic, to convert it back to usable fuel," Bakaya says. "The goal is to end landfilled plastic waste forever — not just domestically, but also globally."

PK Clean's so-called "continuous" system — the first of its kind in the United States, according to Bakaya — runs on a process called catalytic depolymerization, where heat and a catalyst break down plastics into crude oil to sell to refineries.

About 70 to 80 percent of the product comes out as oil. Roughly 10 to 20 percent becomes hydrocarbon gas that heats the system, while the remainder is char residue.

Following a trial in Pune, India, PK Clean last year built and installed its first full-scale commercial plant in Salt Lake City, partnering with Rocky Mountain Recycling, Utah's largest recycler.

Operating continuously, the plant can convert up to 10 tons of plastic per day into 60 barrels of oil, with zero toxic emissions. Produced at around \$35 per barrel, the oil is sold to a nearby refinery for around \$100 per barrel.

After nearly a year of operations in Utah, PK Clean plans to partner with other recyclers across the nation. Eventually, Bakaya says the plan is to move to developing countries, "where plastic waste is even more of an issue."

Pushing the envelope in design

Plastics come in seven categories: Type 1 (such as water bottles and soda bottles) and type 2 (foggy plastics, such as milk cartons) are easily recycled. But types 3 through 7 — including plastic foam, disposable utensils, plastic pipes, food-storage containers, and shampoo bottles — are either not easily recycled or unrecyclable.

To convert these plastics into oil, PK Clean first shreds them. The shreds are then entered into a reactor — which runs at about 400 degrees Celsius — where a catalyst helps degrade the plastics' long carbon chains. This produces a vapor that runs through a condenser, where it's made into oil.

Systems using similar processes have been around for years. But these have been too energy-inefficient and costly for recyclers to adopt. On the other hand, PK Clean's system, Bakaya says, costs a quarter the price of other systems to run, while producing greater yields.

"We had to push the envelope with the design and operating costs to make something that can be adopted and easily used," Bakaya says.

Much of the system's innovation is in its continuous operation. Other systems operate through "batch processing," where reactors heat up and then cool down again before the next batch is ready — wasting significant energy and money. But the hydrocarbon gas produced by PK Clean's system maintains the reactor's heat, avoiding constant rebooting and energy loss.

Additionally, PK Clean adds a catalyst that helps produce greater yields in the conversion process. Automated controls also make the system much easier to use.

Within two years, Bakaya says, PK Clean aims to produce more refined fuel that recyclers can immediately pump back into their recycling trucks, without the need for oil refineries.

"The system is pretty close, but we have to be on the exact specs, so we'd rather let a refinery handle that now," Bakaya says.

Throughout 2011, PK Clean won awards and funding from tech entrepreneurship competitions, including the MIT Clean Energy Prize (track winner), the MassChallenge (winner), the Rice Business Plan Competition (best energy business plan), and the Cleantech Open (runner-up for the national grand prize, and track winner).

Since then, Fortune, Forbes, Inc., and other publications have praised the company for its innovation, and lauded Bakaya as a top entrepreneur in clean energy.

A clean-tech journey

Growing up in Australia, Bakaya was introduced to clean technologies through a close family friend, inventor Percy Kean — the creator of PK Clean's catalytic depolymerization technology, and the "PK" in the company's name.

Kean had spent decades researching and inventing clean technologies in his home, even turning his kitchen into a lab. Bakaya and her family would visit him often. "He'd show me oil samples, light it with a match, and say it came from waste. That sparked my imagination," she says.

Those fond memories lingered during Bakaya's undergraduate years at Stanford University, and during her career forecasting oil prices on Wall Street in the mid-2000s. Oil had then crept up to about \$140 per barrel, ushering in a new demand for clean energy. So when Kean died in 2007, Bakaya set out to commercialize his work.

Visiting a friend who was studying chemical engineering at MIT, Bakaya sat in on an MIT Sloan School of Management class, 15.366 (Energy Ventures) — taught by Bill Aulet, managing director of the Martin Trust Center for MIT Entrepreneurship — where she saw a path forward.

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Innovation in Clothes Dryers? Yes, With Energy Star

SustainableBusiness.com News

For those of us who always buy Energy Star products, it's been frustrating that there are no efficient models for clothes dryers -the biggest energy hog in homes.

That will finally change on January 1, 2015, when Energy Star dryers enter the market that are at least 20% more efficient. Dryers consume about 900 kilowatt-hours a year, twice that of the second biggest hog - refrigerators.

Higher end models will feature a fantastic innovation that's common in Europe - heat pump dryers that capture the hot air and recirculate it. Today's dryers generate a lot of hot air, most of which is wasted and goes out the vent. In this case, the dryer recycles the heat, no vent needed. Less expensive models will likely have better sensors that turn the dryer off when clothes are dry.

Dryers will also be part of the new generation of interactive products that give people feedback on their energy use - in this case, which drying cycles save the most energy. And they will be "Smart Grid-ready."

LG is the first to introduce a heat pump dryer in the US (there are 20 models sold in Europe, where electricity prices are much higher) and will be in stores this summer for about \$1,500. It saves up to 50% of energy.



This year, new standards for refrigerators went into effect, improving efficiency by 25% over previous models and 80% from those sold in the mid-1970s. Other new standards are for dishwashers and clothes washers, and on the commercial side, for motors and walk-in coolers.

"If consumers upgraded to the most efficient products on the market today, we could save as much energy as Argentina uses in an entire year," says Sameer Kwatra at American Council for an Energy-Efficient Economy (ACEEE). Without even considering essential

appliances (refrigerator, lights, HVAC), the

US consumes more than the primary energy use of 200 countries including Mexico, Australia, New Zealand.

By 2030, energy standards will cut US consumption by 15%.

Energy Star labels got their start in 1992 with computers, and are now found on 70 categories of products, from refrigerators, cable boxes and those controversial light bulbs to home construction. Over the past two decades, 4.5 billion products have sold bearing the label, while 1.5 million new homes and 23,000 office buildings, schools and hospitals have earned certification. Los Angeles tops the list for Energy Star buildings.

[<Source>](#)

The fashion brands empowering women in developing countries

From providing jobs for Palestinian refugees in Lebanon to offering business training for emerging artisans in Rwanda, fashion has the power to create positive change



Fashion power: brands have the potential to empower women who use traditional crafts and techniques in their work. Photograph: Alamy

bringing long term positive change and prosperity to communities.

There are numerous fashion brands making a strong social impact but restricted to their local markets. Because I am aware of the role that fashion plays in our lives and the lives of those that create it, I decided to support these brands and bring them to a global mainstream market via the online boutique Fashion ComPassion.

As of April, more than 53,000 Palestine refugees from Syria were seeking safety and shelter from the continuing conflict in Lebanon. One of the first brands Fashion ComPassion partnered was Palestyle, a brand providing jobs and an income to Palestinian refugee women in camps in Lebanon and Jordan.

With a vision of becoming a leading accessory brand in the Middle East, Fashion ComPassion worked as its retailer, agent and distributor, helping to build its market in Pakistan and securing its stock in the British Museum. Palestyle started with a small team of 20 women who used their skills and craftsmanship to add traditional embroidery and designs to fashion pieces, and today works with 100 women, investing in community projects such as the Water Tank Exchange Program, which has provided clean water to over 4,000 refugees.

Rags2Riches is another brand creating positive change through fashion, working with women in Payatas, one of the poorest parts of the Philippine capital. According to the Payatas Poverty Alleviation Foundation, almost 40% of the active population are unemployed and nearly half are earning less than 4,000 Philippine pesos (\$100) a month.

Many women living in Payatas were part of the cottage industry of rug weavers controlled by middle men, leaving them with minimal money for the work they created. Rags2Riches was created to give these skilled women fair access to the market. It has formed a partnership with well known Filipino designers who have transformed the scrap material into high-end fashion accessories. In three years, the brand has supported more than 400 women (pdf), upcycled more than 500 tons of scrap cloth, and increased the earning potential of artisans from less than \$0.02 per day to more than \$10 per day.

In Rwanda, Indego Africa is working with women to support them through economic empowerment and education. This summer it is launching a leadership academy in Kigali that will provide business training for 100 emerging artisan leaders over the next two years. Indego Africa has taken the work of its artisans to a global level by partnering with the likes of J. Crew, Eileen Fisher, TOMS and Nicole Miller.

Another social enterprise, Sougha, was established by the Khalifa Fund in the United Arab Emirates to preserve and promote the traditions of women emirati artisans. Sougha creates economic opportunities for isolated local communities by reviving their skills and connecting them to new markets. Due to religious and cultural restrictions, the women don't have access to the outside work, so the Sougha team visits these artisans, refines their products and sells them to a global market.

As an online retailer the social impact of Fashion ComPassion is not limited to just providing a platform for socially responsible brands. It also creates awareness around sustainability, and supports girls' education through its partnership with the United Nations World Food Program, which provides school meals and take-home rations as an incentive for poor families to send their daughters to school, while giving girls the nutrients they need to focus in class.

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New water-based technology can help curb the impact of drought

By Oliver Balch, for *theguardian.com*

The United Nations, which marked World Day to Combat Desertification on 17 June, describes drought as the "world's costliest natural disaster". When monsoon rains failed to arrive in the Horn of Africa three years ago, for example, an estimated 50,000 people died. The US, Brazil and Sri Lanka are just some of the countries experiencing the impacts of low rainfall.

With climate experts predicting an increase in the frequency of droughts, policymakers and business leaders are searching for innovative ways to cope. One area of hope is water-based technologies, as this selection of prize-winning innovations reveals.

Data-driven diagnostics

Droughts may appear on weather maps as large blotches of red or yellow, depending on their general intensity, but local conditions can vary substantially. In an ideal world, farmers would know the precise water availability field by field.

Smart data-gathering technologies are beginning to make such levels of precision possible. PrecisionHawk in Indiana, for instance, has designed a small drone-like contraption that can map surface water, calculate drainage times and assess plant health from above individual fields. In California, TerrAvion offers a similar aerial mapping service, only in a real plane flown by a contract pilot.

WellIntel looks under the ground rather than above it. Recently shortlisted in the Imagine H2O's Global Water competition, the US start-up uses sonar technology to assess the depth of groundwater in wells on farms and rural houses. Farmers can use the data to assess if their wells and pumps are working efficiently, as well as to decide about appropriate irrigation systems and storage upgrades or crop rotation.

Patching leaks

Up to 30% of water is lost because of leaks or burst water pipes. Such wastage is never good, but it's extra critical in times of drought. Rather than wait for customers to complain about drops in water pressure, data-based analytics are now giving water utilities a heads-up.

One of the companies leading the charge is TaKaDu. The Israeli water tech firm offers what it calls a "software-as-a-service" solution for water utilities. Raw data from across the water distribution network is sent to TaKaDu's secure server, which then pre-processes the information to detect anomalies and send real-time alerts to the relevant water operators. The system's automated algorithms correlate changes in everything from flow and pressure to reservoir levels and water quality.

Another lead detection system winning plaudits is Echologics. Winner of this year's Water Industry Achievement Awards, the Canadian firm has developed a system for detecting water loss based on sound. Developed in conjunction with Severn Trent Water and Loughborough University, the LeakFinderST "correlator" uses acoustic technologies to assess pipe conditions and pinpoint leaks.

From brine to cup

Drought or no drought, the world is not short of water. We have oceans of the stuff. The problem is its high salt content, which renders it useless for agriculture or human consumption. The idea of purifying salt water is as old as the hills, but, to date, attempts to do so have either proved ineffective or prohibitively expensive.

Oasys Water, named Water Technology Idol of the Year at the 2014 Global Water Awards in Paris, could just change that. Using natural, or forward osmosis, the US company uses a membrane-based desalination process that successfully turns salt water with a salinity level five times that of seawater into drinking water.



New water-based technology can help curb the impact of drought. Photograph: Manoj Deka/Demotix/Corbis

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Business and conservationists unite to protect oceans from climate change

It's World Oceans Day and in the central Philippines and Chile, new business models are protecting the marine ecosystem and the communities that depend on it

By Damien Clarkson, *Guardian Professional*



The oceans are in need. For thousands of years they have looked after us; we now need to look after them.

Photograph: Amar and Isabelle Guillen - Guil/Alamy
source and a pharmacopoeia of potential medicines. Also, oceans offer us endless inspiration. Today 95% of oceans remain unexplored. In a world where you can Google everything, oceans remain a rare place of mystery.

The great ocean explorer Jacques Cousteau wrote in his 1980, Bill of rights for future generations; "Why should we preserve a livable planet if not for our children and grandchildren?" Cousteau did more than anyone to bring the beauty of the ocean to our TV screens, raising global awareness about the need to preserve the oceans and inspiring a whole generation of ocean conservationists.

Recently, I was part of a small group of conservationists, academics, authors and communication professionals, who came together for a workshop to discuss creating a new optimistic narrative to inspire the next wave of enthusiasm to protect our oceans.

Our oceans are under huge environmental stresses due to growing world population, overfishing and pollution caused by rampant consumerism. The marine environment faces an unprecedented challenge in withstanding the impacts of climate change. With politicians and major corporations still a long way off tackling the problem, it is falling upon those who will be first affected by these challenges.

Conservationists and communities around the world are working together to not only support the marine environment in recovery, but create livelihoods for those that depend on it for their daily survival.

On the shores of the Danaoj Bank in the central Philippines, one of only six double barrier reefs in the world, the Zoological Society of London (ZSL) has established a project called Net-Works in an innovative cross-sector initiative designed to tackle the growing environmental problem of discarded fishing nets in some of the world's poorest coastal communities. Discarded fishing gear is a major global issue causing damage to marine ecosystems, as well as to the people and industries that depend on healthy seas. ZSL has ambitious goals to become a major supplier of fishing nets for its partner Interface. The company will use the nets as recycled content in its carpet tiles. Last month, Net-Works shipped the first full 40ft container of nets from the Philippines.

The collection and sale of nets provides a valuable additional source of income for community members. The project aims for each collection site to gather 200kg of nets a month. Currently on average a family can collect 2.5kg of nets. With this additional income a family can purchase 1kg of rice, equating to 4,800 extra meals per village annually on the tables of poor families.

Cross the Pacific in Chile, where Bureo design and produce fish shaped skateboards, working with Chile's first fish net collection and recycling programme, Net Positiva, which provides fisherman with environmentally sound disposal points. This enables ethically conscious consumers to support recycling development and job growth for local inhabitants.

These examples demonstrate the increasing collaboration between business and conservation groups to preserve the oceans. By educating local communities on the importance of conservation and providing them with the infrastructure required to preserve their surroundings, communities in the Philippines and Chile are starting to feel the benefits of business, science and local people working together.

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Want a Federal Government Contract? Meet Annual Emissions Targets

SustainableBusiness.com News

United Parcel Service (UPS) and Federal Express have been reducing emissions for years, and that's turned out to be important for their businesses because one of their big customers now requires it - the US General Services Administration.

In order to get a shipping contract with the GSA, companies not only have to compete on price and performance, they also have to meet annual targets for cutting emissions.

They have to provide GSA with annual reports on their greenhouse gas emissions and footprint of their shipping activities. Initial benchmarks and goals for alternative fuel and vehicles are written into the contract.

Vehicles FedEx is experimenting with:



GSA is now applying these benchmarks to all big contracts, starting with those that have the greatest impact on emissions - the \$1.5 billion contract for shipping packages that runs for the next five years. Its part of GSA's plan to push efficiency and emissions reduction through its supply chain, and to stimulate sales of extremely efficient and electric vehicles.

American Clean Skies Foundation has been urging GSA on this, and wants the Department of Defense to do the same. In fact, the government should point the \$150 billion it spends each year on transportation services to advance environmental objectives, they say.

"It's a policy that's long overdue and has huge potential to benefit the environment, but also to promote economic growth for the American engineered, American manufactured and domestically fueled products we can source, and to promote sustainable business practices in the service providers we engage," Jed Ela, Sustainability Coordinator at GSA's Federal Acquisition Service, told *Federal Times*.

The policy stems from President Obama's 2009 Executive Order on Sustainability, which requires the federal government - the biggest energy consumer in the US - to cut emissions 28% by 2020, from 2008 levels. He directed all agencies to adopt sustainability plans with annual targets that include vendors' performance.

As last year ended, Obama issued another Executive Order, directing every federal agency to get 20% of its energy from renewables by 2020.

Federal Times points to other sustainability requirements in GSA contracts:

- Adding language in the OASIS services contract requiring contractors to disclose their sustainability practices through Global Reporting Initiative-based sustainability reports or carbon footprint reports.
- Awarding contracts for managed print and copier services to vendors that complete a greenhouse gas emissions inventory.
- Encouraging contractors on several large blanket contracts, such as for office supplies and janitorial products, to use transportation vendors who are members of EPA's SmartWay Transport Partnership.

[<Source>](#)

SAP extends free sustainability lessons to other businesses

By Ellen Weinreb



There are countless courses in sustainability, but how many are free? SAP recently developed an "open" course pulling together the lessons learned from SAP's own sustainability program as well as its sustainability software. With 14,500 learners enrolled in the first five weeks, openSAP is a whopping success. I talked with Dr. Will Ritzrau, the man responsible for pulling it all together, to learn more about it.

A level playing field

The openSAP "Sustainability and Business Innovation" course is based on the Massive Open Online Courses offered by many universities today. MOOCs feature an interactive community of learners and accessible online learning platform. They aim to level the playing field in education by providing accessibility, affordability and convenience to the public in a multitude of content areas.

While many open SAP courses are geared to IT professionals, Sustainability and Business Innovation is unique in its focus on CSR and its reach for a wider audience. It is taught by Peter Graf, former chief sustainability officer at SAP, who has played a critical role in developing SAP's sustainability practices.

Ritzrau, head of sustainable strategy in the SAP's office of the CSO, designed content for the sustainability course. He said, "Sustainability and Business Innovation is the first MOOC on openSAP which shares best practices regarding how we run our business. Our audience is anyone interested in sustainability, particularly from a business point of view." Learners range from high school and college students to industry experts, as well as the general public.

Course content

The course aims to cover a range of topics within corporate sustainability: the business case for sustainability, sustainable strategies, sustainable business processes, stakeholder engagement and sustainability reporting.

Said Ritzrau, "Our own company changed for the better and we can see clear benefits of implementing a sustainable strategy that is integrated with our business. We wanted to share our experiences and what we've learned along the way. By sharing the message of an integrated sustainability and business strategy to other companies, big or small, we can help them become more sustainable and affect the world in a positive way."

He added, "We based [the course] on SAP's own journey towards sustainability. This includes crafting our sustainable strategy from the initial business case, getting top management engaged, our operational set up and target setting. We also describe our path to achieve integrated reporting and how it helped drive integrated thinking. ... The course basically represents SAP's cookbook towards becoming a sustainable organization."

Six weeks to a better understanding of sustainability

The sustainability course — along with most others on openSAP — is free and open to anyone interested in joining.

The course consists of six weeks of lessons and a final exam. Each lesson has a set of educational videos and self-quizzes, allowing participants to interactively learn and test their understanding of the material covered. Learners also complete a weekly assignment. An online course forum is provided for learners to interact virtually with each other and discuss the lessons on an online course forum. Learners typically spend four to six hours weekly completing lessons. Learners who satisfactorily complete the course assignment and final exam by the course deadlines can receive a Record of Achievement.

Although the course officially ended June 17, all lessons and self-tests will be available online after the course concludes. People can continue discussions on the company's community network, SAP Community Network.

Students from around the world participate in SAP's sustainability MOOC. (Credit: xtock via Shutterstock)Thousands have enrolled and actively participate in the course. Many participants are active in the course: more than

2,000 learners have completed a weekly assignment, and there have been over 700 online forum postings. The course also has a global presence, with more than half of learners living in India (27 percent), the United States (15 percent), or Germany (12 percent). And the numbers continue to grow.

Ritzrau attributed the initial success of course enrollment to the effective use of personal networking and social media. He said, "We used multiple channels including Twitter, Facebook and LinkedIn; as well as blogs (written and video) on both SAP and major media sites. Now, viral recommendations from participants spur interest in the course content, and registrations continue increasing."

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Really Small Solar Gaining Traction Around the World

SustainableBusiness.com News

Although the solar industry's phenomenal growth is largely around systems that power homes and businesses, there's a subsector that's also gaining traction, called "pico" solar.



Call it really small-scale solar - at 100 watts or less - used to charge cell phones, power lights and small direct current (DC) appliances. Although, we mostly hear about these systems used in the developing world to provide light, it is increasingly used in industrialized countries to run emergency backup and disaster preparedness equipment, Recreational Vehicles (RVs), boats and even electric fences, in addition to lighting for off-grid homes and communities,

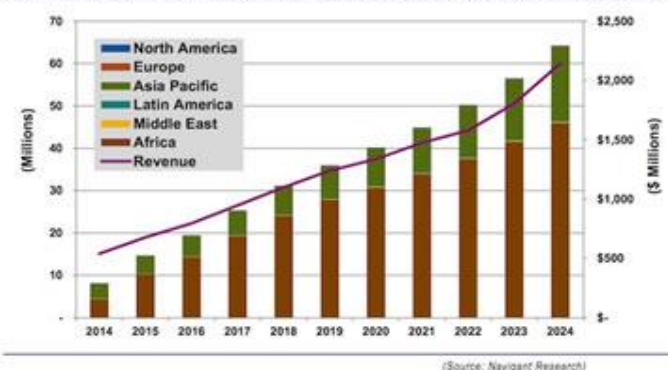
says Navigant Research.

One of Grape Solar's kits:

Worldwide, they expect pico solar products to grow from sales of 8.2 million this year to 64.3 million in 2024, with revenues of \$550.5 million to \$2.4 billion, respectively.

"Solar PV consumer products are rapidly moving from specialized niches for enthusiasts and early adopters into the mainstream," says Dexter Gauntlett, senior research analyst with Navigant Research. "The market for off-grid solar lighting, in particular, has reached a point where there is considerable opportunity around the world and multiple entry points for manufacturers, distributors, service providers, and others."

Chart 1.1 Annual Pico Solar and Solar Home System Unit Sales by Region, World Markets: 2014-2024



(Source: Navigant Research)

Grape Solar sells generators and kits at Home Depot, Sam's Club, and elsewhere, and there will products from a growing list of companies on retail shelves over the coming year.

[<Source>](#)

How prepaying for energy could change consumer behavior

By Jim Lyza



When it comes to energy efficiency, it's apparent that one size does not fit all. Shelton Group's recent Energy Pulse study finds that different groups respond best to different messages about saving energy. A message crafted for a True Believer won't resonate with a Cautious Conservative, for instance, even though both consumers may be interested in saving

energy. They tend to participate in different types of energy efficiency activities, as well.

But there has been a particularly tough segment to crack when it comes to energy efficiency: Working Class Realists. This group is least active when it comes to energy efficiency activities, in part due to its demographic profile: younger, often single, not as educated as other groups and often struggling with less income. Exacerbating the problem is that Working Class Realists are often renters unwilling or unable to invest in energy-efficient upgrades, yet many live in older buildings that have higher relative energy costs. So the question is, "How do we get them more engaged in their energy consumption?"

The answer may be prepaid energy service. When we think of prepaid services, often the first thing that comes to mind is cellular phones. Prepaid energy service works in a similar fashion: You pay up front for the energy you will use during the coming month.

Prepaid cellular phone plans initially were directed toward those with lower income who had a credit history that prevented them from qualifying for a two-year contract — a profile similar to Working Class Realists. While the appeal for prepaid cellular phone service has grown beyond that segment, it still offers a sense of financial control to those with erratic incomes.

It's already working on a small scale

Prepaid electric isn't new to utilities. While offered most frequently by cooperatives, some larger, investor-owned utilities such as Westar seek to implement this payment option.

A recent study may have some bearing on the increased interest in such programs. Prepared by Distributed Energy Financial Group for the Northwest Energy Efficiency Alliance, it suggests that participation in prepaid energy services may reduce energy usage. By analyzing data through regression analysis, the authors found that energy consumption at two electric cooperatives dropped (-5.5 percent for Peninsula Light's pilot program and -14 percent for Glacier Electric). A telephone survey with a sample of participants indicated an increased number of self-reported efficiency activities.

These programs offer huge potential to help meet the needs of a struggling segment of the population. But it's important to market and support them properly. You must laser-target and use the right messaging, emphasizing the potential for more financial control and better bill management. Communicating tips or suggestions for energy-saving behaviors is vital as well.

This kind of program needs to be developed holistically. It's not just a billing option — it should be thought of as an engagement program. You must educate participants and give them the tools they need to help them succeed on the plan. For example, the right incentives both could encourage participation and help ensure success. You could offer free CFLs for enrollment, or provide participants with a programmable thermostat to help them better control their usage.

With the right messaging, tips and incentives, prepay could be a way to get the toughest segment of customers on board with energy efficiency.

Top image of light switches by Travis Limon via Flickr. This article first appeared at Shelton Group.

[<Source>](#)

Insecticides put world food supplies at risk, say scientists

By Damian Carrington, for *The Guardian*

The world's most widely used insecticides have contaminated the environment across the planet so pervasively that global food production is at risk, according to a comprehensive scientific assessment of the chemicals' impacts.

The researchers compare their impact with that reported in *Silent Spring*, the landmark 1962 book by Rachel Carson that revealed the decimation of birds and insects by the blanket use of DDT and other pesticides and led to

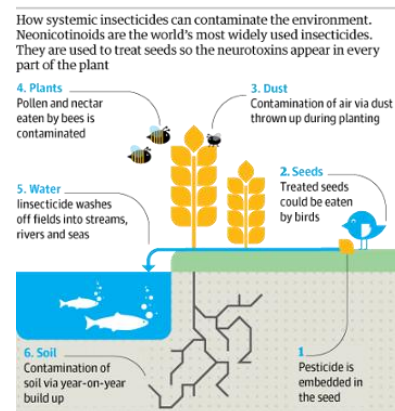
the modern environmental movement.

Billions of dollars' worth of the potent and long-lasting neurotoxins are sold every year but regulations have failed to prevent the poisoning of almost all habitats, the international team of scientists concluded in the most detailed study yet. As a result, they say, creatures essential to global food production — from bees to earthworms — are likely to be suffering grave harm and the chemicals must be phased out.

The new assessment analysed the risks associated with neonicotinoids, a class of insecticides on which farmers spend \$2.6bn (£1.53bn) a year. Neonicotinoids are applied routinely rather than in response to pest attacks but the scientists highlight the "striking" lack of evidence that this leads to increased crop yields.

"The evidence is very clear. We are witnessing a threat to the productivity of our natural and farmed environment equivalent to that posed by organophosphates or DDT," said Jean-Marc Bonmatin, of the National Centre for Scientific Research (CNRS) in France, one of the 29 international researchers who conducted the four-year assessment. "Far from protecting food production, the use of neonicotinoid insecticides is threatening the very infrastructure which enables it." He said the chemicals imperilled food supplies by harming bees and other pollinators, which fertilise about three-quarters of the world's crops, and the organisms that create the healthy soils which the world's food requires in order to grow.

Systemic insecticides



Systemic insecticides. Photograph: Guim

alongside the loss of flower-rich habitats meadows and disease. The insecticides harm bees' ability to navigate and learn, damage their immune systems and cut colony growth. In worms, which provide a critical role in aerating soil, exposure to the chemicals affects their ability to tunnel.

Dragonflies, which eat mosquitoes, and other creatures that live in water are also suffering, with some studies showing that ditchwater has become so contaminated it could be used directly as a lice-control pesticide.

The report warned that loss of insects may be linked to major declines in the birds that feed on them, though it also notes that eating just a few insecticide-treated seeds would kill birds directly.

[<Source>](#)

How Coca-Cola taps into next-generation energy management

By Michael Bendewald and Douglas Miller



Next-generation energy management and performance is an emerging corporate best practice that offers multiple benefits to an organization's bottom line. By transforming its corporate real estate portfolio energy use through measures such as deep energy retrofits, an organization can, in addition to energy cost savings, reap other — and more financially valuable — benefits.

These surprising advantages include greater employee

productivity and engagement, reduced absenteeism and improved employee retention and attraction.

In other words, energy efficiency is not just about energy.

Rocky Mountain Institute and CoreNet Global recently announced a new multi-phased research and industry-engagement collaboration to further corporate next-generation energy management. "We believe that with a unified voice, CoreNet Global and RMI are well-positioned to have a significant impact on the ways that corporations think about energy use," says Angela Cain, CEO of CoreNet Global. "Energy management is not just a sustainable business practice, it is fiscally advantageous."

The many benefits of energy management and performance

To bring to life the idea of superior energy performance providing multiple benefits, let's take a look at Coca-Cola moving its Canadian headquarters from the suburbs to downtown Toronto.

This move, while not a project that fits squarely into an energy management program per se, helps the company reduce its energy use and resulting carbon footprint in several ways. Coca-Cola's work-from-home policy and offering of hoteling stations help reduce the amount of square feet needed in the office and emissions from employees' commutes. For those who come to the office, the location of the office in an urban setting presents employees with greater access to alternative means of transportation.

The office space uses daylighting from floor-to-ceiling windows and an open layout, complemented by low-wattage lighting equipped with motion sensors, which contribute to an expected LEED Silver certification. Moreover, renovating an existing building rather than building a new one reduced the amount of raw materials and embodied energy of those materials needed to accommodate this move.

This new office that saves energy in multiple ways will help the company meet the demands of its emerging young workforce, the Millennial generation who represent one-third of today's workforce and will represent about three-fourths of the workforce by 2025. Deloitte's Millennial Survey 2013 found that millennials want to work for companies that — more than anything else, including profit generation — help improve society, citing environmental challenges as the most important issue demanding business attention.

An office building that has a lower carbon footprint can thus be a selling point for Millennials. Furthermore, they believe that a better physical office workplace environment with daylighting and other features affects their ability to think creatively and collaborate. Millennials also tend to live in cities.

To attract and retain talent, it is therefore becoming increasingly important for businesses to signal a commitment to address the challenges that will improve society and offer office spaces that millennials seek.

Stakeholder demand for sustainability and trends in workplace transformation each contributed to Coca-Cola's thoughtful move to downtown Toronto. These among other market drivers are making robust and integrative plans for enhancing sustainability and energy performance of greater importance and value.

As part of our first phase of research, RMI and CoreNet Global identified nine key drivers — highlighted in the April 2014 report *Next Generation Energy Management: A Roadmap to the Next Level of Performance* — that enable and create an increasing demand for next-generation energy management and performance: energy cost savings, sustainability measurement, stakeholder demand for sustainability, capital availability, risk mitigation and management, workplace transformation, smart building technology, healthy buildings and



Coca-Cola's Toronto headquarters make use of natural light. (Credit: Steve Tsai Photography)

electricity grid evolution.

During RMI and CoreNet's next phase of research, to be completed later this year, we will expand our assessment of key drivers of energy efficiency and renewable energy investment, clarify obstacles to market and organizational change, and develop a refined and expanded set of corporate energy management solutions.

Significant business value left on the table

Corporations have made progress in energy management and performance

since 2007, when RMI and CoreNet Global published *The Energy Challenge: A New Agenda for Corporate Real Estate*. However, research presented in

the RMI-CoreNet April 2014 report suggests that many corporate executives believe sustainability efforts have reached a plateau, with efforts creating incremental impact and little change to sustainability metrics.

Top image of Coca-Cola bottles by Mike Mozart via Flickr.

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261 Miles Per Gallon! Volkswagen Introduces Most Efficient Car Ever

SustainableBusiness.com News

Demonstrating that it's possible to produce really high mileage cars, Volkswagen has produced a diesel-electric plug-in hybrid that gets 261 miles per gallon (mpg) - the most efficient car ever made.

The 2-seater can make it from NY to Washington DC on just one gallon of gas, while emitting a tiny fraction of the greenhouse gases of the average US car. It spews out 34 grams of carbon for every mile driven, compared to 340 grams for a conventional car. And even the average all-electric car gets about half the mileage.



New fuel economy standards in the US that require 54 mpg by 2025 will cut those emissions in half. Europe has an even higher goal of 65 mpg.

Volkswagen's XL 1 is now at car dealers

in Germany and Austria, but only in a limited edition run of 250 vehicles. About 50 have sold so far for a pricey \$150,000.

Giving us a glimpse of the car of the future, XL 1 combines a very light, aerodynamic body that weighs half of a typical car with smaller tires and a turbo-charged, smaller engine. It can travel 31 miles in all-electric mode.

Although diesel cars haven't taken off in the US, they are a third more efficient and release much less carbon emissions. Until recently, however, they did emit high levels of nitrogen oxides - which cause smog - but that's been cleaned up to meet air standards in the US and Europe. While it costs more to fill up with diesel gas in the US, it costs less in Europe.

40 diesels models are available in the US and more are coming, according to the Diesel Technology Forum. The market will double and could even triple, Allen Schaeffer, executive director, told *InsideClimate News*.

Volkswagen's first all-electric cars are the e-Up! and an electric Golf. 14 electric models go on sale this year and if demand is strong, VW says it will roll out as many as 40 hybrids and electrics.

Last year, Volkswagen led the auto industry on the Dow Jones Sustainability Index, which evaluates companies based on social and environmental criteria. Its Chattanooga Solar Park is the only LEED-Platinum auto factory.

Here's a description of the Volkswagen's XL 1 from the company:

Website: www.volkswagen.co.uk/about-us/futures/xl1

[<Source>](#)

Tackling climate change would grow global economy, World Bank says

By Suzanne Goldenberg, for theguardian.com



Canadian Prime Minister Stephen Harper (R) and his Australian counterpart Tony Abbott attend a joint press conference at Parliament Hill in Ottawa, Canada, on June 9, 2014. Photograph: David Kawai/Corbis

Fighting climate change would help grow the world economy, according to the World Bank, adding up to \$2.6tn (£1.5tn) a year to global GDP in the coming decades.

The findings, made available in a report on Tuesday, offer a sharp contrast with claims by the Australian government that fighting climate change would "clobber" the economy.

The report also advances on the work of economists who have argued that it will be far more costly in the long run to delay action on climate change.

Instead, Tuesday's report found a number of key policies – none of which included putting an economy-wide price on carbon – would lead to global GDP gains of between \$1.8tn and \$2.6tn a year by 2030, in terms of new jobs, increased crop productivity and public health benefits.

The pro-climate regulations and tax incentives would also on their own deliver nearly a third of the reductions in greenhouse gas emissions needed to keep warming below the 2C threshold for dangerous climate change, the bank said.

The World Bank president, Jim Yong Kim, said the findings put to rest claims that the world could not afford to act on climate change.

"These policies make economic sense," Kim said in a conference call with reporters. "This report removes another false barrier, another false argument not to take action against climate change."

Australia's prime minister, Tony Abbott, said during a visit to Canada earlier this month that it was too costly to fight climate change. "What we are not going to do is clobber our economy and cost jobs with things like a job-killing carbon tax," he said.

Kim did not comment directly on Abbott's remarks but he said pointedly that the World Bank study provided solid data on the effects of pro-climate policies, in contrast to "opining" about their costs.

"This modelling shows that smart choices that will also improve local and global economies," Kim said.

The findings are also a step forward from the work of economists such as Lord Stern who have focused on the costs of delaying action on climate change.

The World Bank report was the first off the blocks of a number of economic studies meant to further the case for taking action on climate change ahead of a critical meeting at the United Nations in September.

The UN secretary general, Ban Ki-moon, has invited world leaders to the UN to try to build momentum in the negotiations for a global climate change deal.

American financial leaders have also been making the case that it makes sense to act now on climate change.

In an article in the New York Times, Henry Paulson, secretary of treasury under George Bush, called for a carbon tax and said it would be folly for America to remain heavily invested in a carbon-intensive economy.

"We're staring down a climate bubble that poses enormous risks to both our environment and economy. The warning signs are clear and growing more

urgent as the risks go unchecked," he wrote. "I feel as if I'm watching as we fly in slow motion on a collision course toward a giant mountain. We can see the crash coming, and yet we're sitting on our hands rather than altering course."

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Oil-rich United Arab Emirates aims to be a sustainable energy pioneer

One of the world's richest oil-based economies is embracing sustainable technologies, and making a surprise bid to become a clean energy leader

By Andrew Winston, Guardian Professional

Imagine if you and your extended family were digging in the backyard and found something valuable like, say, 10% of the world's oil reserves. That's the story of the United Arab Emirates (UAE), a small country with big assets and bigger ambitions.

UAE should be a powerful defender of the status quo on energy use. Denying climate change would also make tremendous sense. But this country is attempting a pivot of historic proportions, trying to build a oil-free future in the desert. UAE has become a major player in clean technologies, funding large-scale renewable energy projects around the world, and investing millions in fundamental research (in partnership with MIT) in energy, water, microelectronics, advanced materials, and transportation systems.

Earlier this year, I spent a few days in Abu Dhabi (on a press trip with travel paid for by the PR firm that represents Masdar and the UAE), attending the city's annual World Future of Energy summit and spoke with key executives from the country's clean energy business arm. In recent weeks, I was struck by the difference between the UAE's approach and that of a similar sized entity, ExxonMobil. The oil company released a long statement on the risk of its oil and gas assets being "stranded" (that is, made worthless) by the world's potential pivot away from fossil fuels.



Masdar City aims to show how clean technologies can work in practice. Photograph: Ali Haide/epa/Corbis

Not surprisingly, Exxon said there was no real risk to its investors – it would burn all the fuel it has in reserve, climate change be damned, because a) the world's poor and growing middle classes need energy and b) the world's governments would not take strong

enough policy action to seriously reduce carbon emissions. On the latter point, sadly, the company may be right. On the first, though, it was top-notch propaganda to conflate the need for energy to a need for their form of carbon-based energy. We can provide carbon-free energy to the world, with or without Exxon.

In comparison to Exxon's backward-looking position, the UAE seems positively progressive on clean energy. At the Future of Energy Summit, UAE leaders announced a partnership with Denmark, and with Vestas Wind in particular, to tackle energy poverty in the developing world. The Wind for Prosperity project will offer carbon-free electricity to those who mostly use very expensive diesel generators for power. This partnership is only one example of the UAE's strategy to help bring about a clean economy future, which, according to Bader Al Lamki, the director of Masdar Clean Energy, has two major elements.

First, the country is helping build the global supply of clean energy, recognising that, as Al Lamki told me, "conventional forms of energy are going to decline" (a statement in direct opposition to Exxon's projections). Al Lamki runs a couple of funds investing hundreds of millions of dollars in some of the largest utility scale solar and wind projects in the world, as well as water desalination, energy storage, and energy efficiency.

Second, UAE built Masdar City, a demonstration project and research facility, to show how clean technologies could work in practice. Assessing the progress of Masdar City (which I visited), is a longer conversation. But the research going on there is real. UAE partnered with Massachusetts Institute of Technology (MIT) to build a graduate degree programme and research facility to patent and leverage new technologies.

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Taming the floods, Dutch-style

By Damian Carrington, for *theguardian.com*



A De Dommel water board project shows how reclaimed land polders are being given back to rivers and meanders are cut into flood plains, as part of Netherland's back-to-nature approach. Photograph: Courtesy De Dommel Waterboard

It is 100 days since David Cameron visited the submerged Somerset levels at the peak of the winter floods that devastated swathes of England and hundreds of broken flood defences have now been repaired thanks to £270m of emergency funding from government. But in the Netherlands, also battered by the record deluge but relatively unscathed, an ongoing multibillion-euro programme continues to reshape the watery nation, with none of the political storm whipped up in the UK.

Hard-won reclaimed land – polders – are being given back to rivers and meanders are being cut back into flood plains, all as part of a back-to-nature approach that is reversing centuries of battling against water, in favour of finding ways to live with it.

The Netherlands is a land of waterways and a quarter is below sea level, with 60% of its people in flood-risk areas. There is deep experience of what it takes to deal with flooding, in both financial and human terms.



The Noordwaard polder in Werkendam is one of the key areas of the national Room for the River project. Photograph: Courtesy Werry Crone / Noordwaardpolder RR project

Jan Kant is the fourth generation of his family to farm the Noordwaard polder in the heart of the giant four-river delta that dominates the south of the Netherlands. "I am attached to this area," he says simply. But, with his sons who now run the business, he is about to move away. The dykes

protecting Kant's low-lying fields are about to be broken and the area flooded, to take 30cm off

the river level that threatens the nearby town of Gorinchem.

The intensification of downpours by climate change is the underlying reason and Kant is now philosophical about losing his farm: "Living in an area like this, we may have had to move someday anyway."

Another 10 farmers and 24 other families are having to make way as the river takes possession of its flood plain once more. The project is the biggest of 34 "Room for the River" (RR) projects across the Netherlands, costing €2.3bn (£1.9bn) and set to finish in 2015.

But discussions with the locals began more than a decade ago, led by Raalf Gaastra, the stakeholder manager for the Noordwaard polder RR project.

"People have made their own choices: they can stay in an area that could now be flooded tomorrow, because they like the area, or they can leave," he says. Those who stay are helped to build new homes, raised on high mounds, those who don't are bought out at market rates. "The first discussion is not easy, but once one house has decided to go people start to follow," says Gaastra.

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The UK powered on 90% renewables by 2030? A bold future for energy

By Simon Birch, for *theguardian.com*



Europe could meet 80% of its energy needs from renewables such as hydropower by 2050 at the same cost. Photograph: Walter Geiersperger/Corbis

The latest dire warnings from the UN's intergovernmental panel on climate change again conclude that if the world is going to avoid meltdown then we need to move to renewable energy sources pretty sharpish.

Here in the UK, with less than 5% of our energy needs met by renewables, we're still a long way from the official target of producing even 15% of our energy from renewable sources by 2020. The good news is that there's an increasing number of reports, roadmaps and studies which all share the vision that the UK can obtain the majority of its energy from renewables.

WWF-UK, for example, concludes that by 2030 up to 90% of our electricity could come from a combination of solar, tidal, wind and other sustainable sources, with the rest supplied via an international supergrid and gas power stations.

It's not just the UK that could look forward to a low-carbon future; Europe could meet at least 80% of its energy needs from renewables by 2050 without paying more for electricity than it would under the current fossil fuel based infrastructure, according to the European Climate Foundation. But just how realistic are these targets and, crucially, will they ever attract the support of both government and industry?

"These goals are most definitely achievable," concludes Paul Ekins, a member of the energy systems team at the UK Energy Research Centre. "The technologies are there, and enough of them have already been rolled out at scale in different countries for us to be clear that they work and that they can generate the power that we need."

Alistair Cameron, renewable energy campaigner at Friends Of the Earth, agrees: "We can definitely do this. We're on the verge of a massive technological transformation in the renewable energy sector, and the costs of solar and other renewable technologies are already rapidly falling."

Despite the positive attitudes, a voice of caution comes from an unexpected corner. "Although future scoping is helpful for showing what's technically possible," says Nina Skorupska, chief executive of the Renewable Energy Association, the trade body for the UK's renewables industry, "100% renewables by 2050 is not something we are calling for. Expanding renewable energy is very important, but calling for too much, too soon, when governments have so many other priorities, will not get you very far. The key thing is to keep the momentum going and the industry growing."

So though a low carbon future looks technically possible, could it ever receive the necessary political support to make it a reality? With senior Tories muttering about a possible moratorium on onshore windfarms, it looks unlikely. "The single biggest block to rolling out renewables is a lack of political will. The renewable industry needs a strong signal that we're serious about a low-carbon future," says Professor Ekins.

According to Cameron, we have neither the necessary ambition nor vision as a nation to make renewable technologies mainstream. "We need to make a strong case for a renewable future in terms of clean air, carbon reduction and green jobs to people, communities and the UK as a whole," he says.

But reading the government's support for renewables can be a tricky business. Skorupska describes the "renewable heat incentive" – a world first – as a "terrific work", but warns that the same administration is also undermining its own work.

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Harley-Davidson Shows Off Electric Motorcycle In US Tour

SustainableBusiness.com News

While Tesla is working to get electric cars widely accepted, Harley-Davidson could do the same for electric motorcycles.

This coming Monday, June 24, Harley-Davidson sets off on a 30-city US tour to show off its concept electric motorcycle and get feedback from customers. The tour - with stops at Harley dealerships across the country - continues until the end of this year, and next year travels through Canada and Europe.



Called "Project LiveWire," Harley describes the motorcycle as akin to the first electric guitar, rather than an electric car. "It's an expression of individuality and iconic style that just happens to be electric; it's a bold statement for us as a company and a brand," explains Mark-Hans Richer, Senior Vice President and

Chief Marketing Officer.

Harley says the bike "offers a visceral riding experience with tire-shredding acceleration and an unmistakable sound that's a distinct part of the thrill. Think fighter jet on an aircraft carrier. It's designed to differentiate it from internal combustion and other electric motorcycles on the market," says Richer.

The motorcycle accelerates from zero to 60 miles per hour (mph) in just four seconds and can reach speeds of 92 mph, with an all-electric range of 130 miles.

Since all their products are designed based on what customers say matter to them most, it will be interesting to hear their reactions to a super-quiet electric motorcycle.

Harley has the market muscle to gain widespread interest in electric motorcycles and it wants to be a leader as part of its sustainability mission - in developing standards, charging infrastructure and the technology. They say they are less interested in short term sales than building long-term demand.

As part of the fiscal cliff deal (remember that?) there's a federal tax credit for people that buy electric motorcycles. Senator Wyden (D-OR) got the credit extended to help the emerging electric motorcycle industry, which could create 16,000 jobs over five years.

A few companies make electric motorcycles right now: Brammo, which is in some 80 dealers, Arcimoto and Zero Motorcycles. The market for electric bicycles is strong and growing worldwide, especially in China where most are sold.

[<Source>](#)

The Canadian firm transforming your sofa into biofuels

By Elisabeth Braw, for *theguardian.com*

In Edmonton, Canada, something as mundane as municipal waste treatment is attracting worldwide attention. The waste is the same as at municipal waste plants around the world – shoes, sofas and other items that can't be recycled and are destined for landfills or incinerators – but the fate that awaits Alberta's garbage is different: as of this month, it's being turned into biofuels.

"We use heat and pressure to break down the materials that usually end up in the landfill," explains Vincent Chornet, chief executive of Enerkem, the company behind the technology. "We then turn it into methanol and ethanol. In total, the process from waste to final product takes about four minutes."

Enerkem's technology, performed on 15 different categories of rubbish at extremely high temperatures, produces renewable electricity, chemicals for plastic and of course, ethanol for cars.

Renewable energy from non-recyclable rubbish, all in a matter of several minutes? It sounds too good to be true. "It's a game-changer", says Chornet. "Waste is now an opportunity." Montreal-based Enerkem's contract with the city of Edmonton includes treatment of 100,000 tonnes of garbage annually for 25 years. That, reports Enerkem, will yield 138m litres of ethanol per year, enough to fuel 400,000 cars driving on a 5% ethanol blend.

But what seems like a magic wand for garbage and renewable fuels is the result of 10 years of experimentation by Enerkem, which holds the patents behind the technology. And, everything that helps us to reduce garbage is good, says Dr Olle Olsson, a research fellow at the Stockholm Environment Institute who specialises in renewable energy markets. "In garbage treatment, there's a hierarchy", he explains. "At the top is reuse, which means the garbage doesn't enter the garbage stream. Then comes recycling, and then comes burning the garbage to get energy."

Sweden is a leading practitioner of the fast-growing sector of garbage to energy. According to Avfall Sverige, the association of waste management companies and agencies, environmentally friendly energy from garbage heats 810,000 Swedish households. Not only that: the lowly rubbish also produces enough electricity for 240,000 Swedish family homes. That's the equivalent of more than 1m litres of oil per year. The average Swede produces 237.6kg of non-recyclable garbage each year, according to the association, of which 49% is burned and used as energy.

But that's not enough. Sweden's rubbish to energy market is so hot that the country's 30 rubbish-based power plants have to import waste from other countries, including Britain. "Garbage from England keeps us warm during the winter", says Olsson. Sweden now has to import some 750,000 tonnes of garbage each year, and it's an unorthodox form of import, where Swedish waste to energy companies don't have to pay for their goods. Instead they're paid around £40 per tonne for taking care of other countries' refuse.

According to energy and development consulting firm Coffey, Sweden is the EU's second-ranked waste to energy nation, topped only by Denmark, which burns 54% of its waste for energy production. France has more waste to energy plants than any other country in the world – 127 in total – while the US operates 86. Austria and Germany are the EU's top recyclers at 69% and 65%, respectively.

Thanks to Enerkem's renewable fuel technology, that waste to energy ratio may well increase. Chornet won't reveal which cities will next introduce its technology, but says the company is actively interested in the UK thanks to the country's biofuel legislation. The EU has set a target of 10% biofuels (as a share of all fuel consumption) by 2020, which its member states are obliged to follow. Britain currently imports nearly 80% of its biofuels and is working to increase production within the UK.

"What we're seeing with the plant in Edmonton is a first step towards a large-scale waste to renewable fuels technology", says Olsson. "But we mustn't forget that these are complicated chemical processes. It's not easy to get ethanol out of nappies."

Still, getting ethanol from waste rather than importing the energy is a positive development, he adds, "but by itself it will never replace imports."

If garbage is so useful as a source of biofuels, especially at a time when rising food prices are forcing countries to reconsider food-based ethanol, isn't there a risk that consumers start producing voluminous amounts, knowing that doing so may even lessen their country's dependence on foreign oil and gas? Yes, says Olsson: "In an ideal world we should reduce our garbage, but turning it into energy reduces the customer's incitement to do so."

Still, even Chornet agrees that recycling beats rubbish-based biofuels.

The Circular Economy Hub is funded by Philips. All content is editorially independent except for pieces labelled advertisement feature.

[<Source>](#)



New technology is breaking down waste to produce renewable technology, plastic chemicals and ethanol.
Photograph: Romeo Ranoco/Reuters

Prashant Mehra's igotgarbage.com brings cloud-based technology for waste disposal in Bangalore

How do you ensure a better life for thousands of garbage pickers, including the ones who gather hazardous waste, live on streets and are largely illiterate? Software executive Prashant Mehra may have the answer.

On the third floor of a well-lit, airy room at the headquarters of Bangalore-based MindtreeBSE 2.14 %, Mehra is tackling this problem through a cloud-based technology network that he says will improve the lives of thousands of garbage-pickers and make waste disposal and recycling more efficient. On Tuesday, Mehra, 40, launched 'igotgarbage.com,' a technology platform that connects the city's residents, garbage contractors, rag-pickers and suppliers through a centralised network.

Mehra is among a growing group of techies seeking to find a solution to Bangalore's garbage crisis as India's garden city drowns in piles of stinking trash. In recent months, the issue has led to protests in Mandur village, where authorities dump mountains of garbage, and several business leaders, including the billionaire-chairman of WiproBSE -1.04 % Azim Premji, have called for citizens' movement against the non-clearance of waste.

"Solutions to many social problems lie in technology systems that we have been creating for years for our customers. So, we decided to use it for rag-pickers," says Mehra, Mindtree's social inclusion head, who previously headed the company's business technology division in London.

Mehra's technology platform, which many saw with scepticism when he first approached them, has enrolled over 5,000 rag-pickers in Bangalore into a structured, uniformed workforce with identity tags. It then connects them with NGOs who provide training in segregating dry and recyclable waste and taking that to garbage collection centres where they would sell it.

"About 1,050 tonne of garbage gets recycled each day. The idea is to make the rag-picker, who collects this, part of an organised group," said Mehra, who returned to India in 2012 and took a year-long sabbatical to spend time with farmers in Bihar.

Igotgarbage.com, which aims to turn all 20,000 waste-pickers in Bangalore city into a structured workforce, also monitors the amount of garbage collected from each locality and the number of rag-pickers on the job.

Mehra said the initiative helps them earn more as they are more likely to find recyclable dry waste when they work as an organised group. They also earn a part of the fee that NGOs charge houses for collecting trash.

"The average monthly earning of a rag-picker is currently around Rs 4,800. Our target is to raise this to Rs 8,800 once they are part of the project."

But as Bangalore, the capital of India's \$108-billion software industry and home to software engineers from across the country, grows, the city would need more initiatives like igotgarbage.com to cope with rising population, said experts. Non-clearance of garbage is also an issue in cities like Mumbai and Delhi, where huge landfills are a common sight in the suburbs. On Tuesday, the Bangalore municipal corporation said it has identified alternative garbage disposal sites after it came under pres ..

[<Source>](#)

IWAI explores inland water transport facility from Norway

Source Name: India Blooms

The above declaration was made by Jayashree Mukherjee, Vice-Chairperson, AIWI at an interactive session organized by the Indian Chamber of Commerce (ICC) and the IWAI held here on Jun 12.

Representatives of the Royal Norwegian Embassy in New Delhi, delegates from reputed Norwegian firms like Rolls Royce and TTS Group of companies along with a financial institution, discussed the subject with some of the prominent stake holders at Kolkata from among the ship builders, and barge operating firms in India.

The prime issues identified for discussion during the meet included identification of cargo for IWT and assessment of the requirement of the operators, ship builders and Industry demand for adoption of Inland Water Transport for efficient vessel construction.

During the interaction with Norwegian team on related issues, like shallow draft vessel design optimization, vessel maintenance & operational requirements

were discussed.

According to the officials, the IWAI is currently engaged in working on various measures to promote India's water transport system on the National Waterways with the objective of exploring the requisite fairway, terminal infrastructure and 24-hr navigational aids to ensure a complimentary, if not entirely alternative, navigation system on a large stretch of the country's waterways.

The participants were of the opinion that while some of the agencies are already availing the facilities, much more is still to be done.

In its endeavors to promote IWT as a viable, alternative mode of transport to decongest the already saturated Rail & Road transport sectors in the Eastern Region, the government is engaged in technology transfer from developed countries, the officials said.

As a part of these Technology Transfer agreements, the government of India has initiated bilateral assistance programmes in the Maritime sector with countries like Netherlands and Norway.

A Joint Working Group has already been set up by India and Norway for Maritime development in India with a specific subgroup for IWT related activities, the officials informed.

The longest among the waterways in India, National Waterway-1, (Ganga-Hooghly- Bhagirathi river system) between Sagar(Haldia) and Allahabad (1640 Km) traverses through the states of West Bengal, Jharkand, Bihar and UttarPradesh.

The National Waterway-2 (River Brahmaputra) between Dhubri and Sadia (840 Km) traverses through the NE state of Assam, and the National Waterway-3 (West Coast Canal System) between Kottapuram and Kollkam including Champakkara canal and Udyogamandal canals (205 Km) passes through Kerala.

The officials further said that in addition, the IWAI also develops and maintains Indo-Bangladesh Protocol routes through Sunderban waterways.

Protocol routes (1-4) connect National Waterway-1 and National Waterway-2 through cross border waterways in Bangladesh.

Movement of cargo through these National waterways and Protocol Routes is already in vogue.

Besides these, development of two more National waterways (NW4 in Andhra Pradesh and Tamilnadu and NW5 in Odisha) are in progress.

[<Source>](#)

Japan, India near carbon offset deal to cut greenhouse gas emissions

Japan plans to agree a carbon offset deal with India, Japanese media reported, citing unnamed government sources, potentially making the south Asian country the largest economy yet to sign up to cut greenhouse gas emissions under a Japanese scheme.

The two are expected to announce plans to accelerate negotiations over Japan's bilateral carbon offset mechanism when Japanese Prime Minister Shinzo Abe welcomes Indian Prime Minister Narendra Modi to Tokyo in early July for annual talks, the Nikkei news agency reported on Monday.

A deal would allow Japanese companies to install carbon-cutting technology in India and in return receive carbon credits under the Joint Crediting Mechanism (JCM) that can be used to offset their own carbon footprint under the country's emissions target or be sold to the Japanese government.

Japan has already signed bilateral agreements with 11 countries including Costa Rica, Vietnam, Ethiopia, Indonesia, Kenya and Mongolia, effectively allowing Japan to outsource its emissions cuts to countries where reducing greenhouse gases is cheaper.

Japan has been increasingly relying on fossil fuels to generate electricity after idling all 48 of its nuclear plants in the aftermath of the 2011 Fukushima disaster, and has found it hard to rein in its carbon emissions.

As a result, Tokyo last year watered down its 2020 emissions target, saying it would allow its greenhouse gas output to grow 3 percent from 1990 levels by the end of the decade, instead of cutting them by a quarter during that period.

[<Source>](#)

Rooftop solar power generation projects to ease Delhi's power burden

Residential colonies and commercial establishments could reduce the burden of their electricity bills if a study currently being carried out by Tata PowerBSE - 2.34 % Delhi Distribution finds rooftop solar power generation projects feasible and the city joins the club of such power producers that includes Gujarat.

According to estimates, 33 km of Delhi's total area of 1,483 sq km can be used for rooftop solar photovoltaic projects to install 2,557 mw of capacity. However, Delhi's potential to produce solar power has not been exploited yet, even as power demand touches new heights almost every successive summer, which is the most productive season for solar power installations.

Tata Power Delhi Distribution - which has already installed capacity of 1.8 mw of rooftop solar power generation at its establishments - has said that due to dust across the city the performance of the set-up is about 15%, compared with 20-25% in large-scale projects that have come up on wasteland in Gujarat and Rajasthan.

The power distributor, armed with financial assistance of \$459,238 from US Trade and Development Agency, will prepare a business case to utilise rooftops in the city to procure solar power. It will explore viability of putting up its own rooftop projects or buying power generated from the installations owned by residential colonies or bring in third parties to own and operate these projects. "We have tied up for 1,600 mw of power to meet the peak demand of our close to 14 lakh consumers in our d ..

According to projections, the same will go up by 1,900 mw in 2017 and 2,300 mw in 2020.

Tata Power Delhi is confident that with the gradual decline in cost of generation, solar power is expected to become a viable source of electricity soon.

Gujarat has already experimented with solar projects in its capital city Gandhinagar by installing 5 mw of capacity on the rooftop of government buildings and plans to replicate this model in five more cities in the state.

It will also assess technical aspects of metering the establishments engaged in both electricity consumption and solar power generation

[<Source>](#)

Green energy to power over 50% homes in big cities

The Narendra Modi-led government has started work on a plan to ensure half of all homes in major cities receive some power from solar or wind energy sources by 2019.

The plan includes fresh incentives to encourage companies and individuals to invest in renewable energy sources and setting up giant solar plants in states such as Rajasthan and Gujarat.

New plans for renewable energy are also in the pipeline for the Capital. Following a visit by a team to Gujarat — one of the top-performing states in green energy — Delhi government is looking at additional incentives to citizens for installing roof-top solar systems with grid connectivity.

The Centre plans a similar model for other cities, emulating Germany where half of the homes have roof-top solar power systems. India is the world's third-largest solar energy generating country but gets enough sunshine to top the list.

At the national level, ministry officials said, people will have an option to sell the excess power to the electricity grid for which a policy initiative will be revived. "Some income every month will be an additional incentive for switching to green energy," said an official at the ministry of new and renewable energy.

The decision to give a big push to renewable power sources was behind the Prime Minister's decision to bring the ministries of conventional and renewable power under Piyush Goyal. Sources told HT that Modi asked Goyal to go big on renewable energy.

This is keeping in line with the progress made in generating green energy by Gujarat during Modi's tenure as chief minister. Gujarat implemented the Jyotigram Yojana that provided 24/7 power to each household. The scheme depended on solar, wind, biomass and waste as energy sources to generate about 25,000 MW annually.

Goyal has promised to replicate this Yojana and was in the state to study Gandhinagar's success story. After meeting the PM, lieutenant governor of Delhi Najeeb Jung also sent a team to study the Gujarat model this week that resulted in fresh power proposals for the Capital.

Gujarat initiated work on building the world's biggest solar park of 4,000 MW spread over 20,000 hectares of salt land in Kutch. The state also installed solar panels over a water canal to ensure both power generation and saving water lost to evaporation. Previous governments have tried to popularise renewable energy with a subsidy scheme for installing solar installations including roof-top power standalone generation systems. But the schemes didn't have desired impact as the required political push was absent.

[<ReadMore>](#)

Clean Energy Ministerial highlights major impact of EVs in India

The report by Clean Energy Ministerial's Electric Vehicles Initiative (EVI) reveals that the benefits of widespread EV deployment in India are greater than expected when real world driving conditions are taken into account.

The analysis was conducted by the US Department of Energy's Lawrence Berkeley National Laboratory (LBNL) and supported by EVI. It is helping to inform the Government of India's National Mission on Electric Mobility which has set deployment targets of 5 to 7 million hybrid and electric vehicles in the country by 2020. The report demonstrated that real-world driving conditions amplify the benefits of EVs in India due to the superior ability of electric powertrains to maintain high efficiency in highly transient operation. The country could potentially save 4.8 million barrels of oil and 270 million tons of carbon dioxide emissions by 2030 if the passenger car EV adoption rates necessitated by the government targets continue into the decade beyond 2020.

"Electric vehicles are one of the most promising technology pathways to reducing greenhouse gas emissions and oil consumption around the world" said lead researcher Anand Gopal of LBNL. "As vehicle ownership in India is set to rise substantially, this new study underscores the important opportunity that exists to diversify India's transportation fuel mix and reduce CO2 emissions."

The research also found that EVs could be manufactured for the Indian market at lower costs due to the much lower range requirements for urban car users. For example, an EV with a 100-kilometer range is sufficient for more than 99 percent of journeys made in the country. When factoring in fuel cost savings from switching to electricity, 100 km EVs could become cheaper than conventional vehicles on a life cycle cost basis prior to 2030.

[<Source>](#)

Vodafone India and Grow-Trees.com to partner for planting 3 lakh trees

LUCKNOW: On the occasion of the World Environment Day, leading telecom service provider, Vodafone India has partnered with 'Grow-Trees.com', the exclusive Indian planting partner for United Nation's 'Environment Program's Billion Tree Campaign' to announce a private initiative to benefit wildlife corridor between Kanha-Pench wildlife reserves by planting 3,00,000 trees over 3 years. The tree planting activities will be spread out over 100 hectares of forest land between the two reserves.

Handing over the first sapling to Pradip Shah, co-founder and chairman of Grow-Trees.com, to formally launch the project, Marten Pieters, MD and CEO Vodafone India, said, "As a responsible corporate, Vodafone India is committed to initiatives that protect our environment and benefit the community. With this unique project, we will be able to offset the 33 million kg of carbon footprint generated by our offices every year for 3 years. In addition, we will be able to support livelihood opportunities, enable reforestation and facilitate habitat connectivity in tiger breeding areas." This is a win-win-win proposition for all - the organisation, the community and the environment, exemplifying the true spirit of sustainability., he added.

This project will create about 25,000 workdays of direct jobs mainly for women and tribals inhabiting the area in addition to supporting several allied livelihood generating activities such as farming, fruit and honey gathering etc on a sustained basis. The site is in Sihora Range and would be jointly protected by three villages - Majhipur, Jogisoda and Chandiya. A variety of trees, including Karani, Harra, Baheda, Bamboo, Khamer, Ladiya, Mango and Amla, that are local to the region will be planted. Saplings of these are already being grown in the special nurseries funded by Grow-Trees.com.

Speaking on the occasion, Pradip Shah said, "Approximately 45% of India's land is degraded primarily due to deforestation, unsustainable agricultural practices, mining and excessive groundwater extraction. More than two thirds of this can be regenerated and our endeavour is to facilitate this by providing planting opportunities to individual and corporate customers."

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Forthcoming Events

Just Sustainability:

Hope for the Commons

August 7, 8, 9, 2014

The conference titled Just Sustainability: Hope for the Commons is being organized by the Seattle University Center for Environmental Justice and Sustainability, between 7th and 8th August 2014 in USA. This conference will focus on the intimate connections between environmental justice and sustainability. Attendees will have a unique opportunity to connect with researchers, businesses, and communities that are bringing Environmental Justice and Sustainability (EJS) issues to the fore of public discourse. The conference goals are to: Emphasize EJS research in a wide variety of disciplines, Build an EJS network of Jesuit institutions, Inspire EJS work through the arts, Highlight work being done by nonprofit and government agencies and Foster interdisciplinary conversations, research, and teaching.

[<ReadMore>](#)

"International Conference on Energy, Colombo (ICOE 2014)"

12-13 August 2014
SRI LANKA

The 1st INTERNATIONAL CONFERENCE ON ENERGY 2014, themed "Energy Crisis and Future of Energy" will be organized on 12th and 13th August, 2014. The conference is being organized by The International Institute of Knowledge Management (TIKM), Sri Lanka. The main objective of the conference is to discuss and debate on the existing energy usage, energy crisis and future forms of energy which contribute to build a forum, and to create a dialogue among scientist, researchers, energy expertise in the industry, energy managers and manufacturers with the main aim of promoting more renewable and green energy to achieve sustainable energy targets in the future. The conference will explore problems of existing energy usage, green energy and renewable energy sources, energy and politics, energy management, new forms of energy and sustainability of that type of energy and more energy related themes.

Also the conference will be providing opportunity to network with each other and share their knowledge by setting up series of activities including cultural show, networking dinner, post conference tour, discussions and one to one meetings.

[<ReadMore>](#)



The conference "Solar Power Asia 2014" is being organized at Grand Copthorne Waterfront Hotel, Singapore. This conference will focus on the increasing investment opportunities in Asia's solar power sector. It will bring together regulatory bodies, financial institutions, solar developers and IPPs from ASEAN, China, Japan, India and Australia to discuss business opportunities and challenges. Regulation framework, government incentives and financing will be emphasized in the conference as the key drivers of solar investment.

Key note speakers include eminent personalities from Germany, Japan, Singapore, Thailand, Philippines and Indonesia.

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2014 Global Conference on Resource Conservation and Sustainability (CRCS 2014)

26th to 27th August 2014
Singapore

The 2014 Global Conference on Resource Conservation and Sustainability (CRCS) will be held on 26th and 27th August 2014. The conference aims to bring together researchers, academics, scientists and conservation practitioner communities to discuss the implications of how a rapidly growing global economy is straining the Earth's natural resources and exchange pointers on new strategies and technologies on resource conservation.

General chair of the conference will be Prof. Dan Levin, Ph.D, Wharton Business School, University of Pennsylvania, Director (Academic Affairs) Graduate Programs Aventis School of Management and Program chair will be Dr. Radhakrishna, Associate Dean- Department of Civil Engineering, R V College of Engineering, INDIA

The conference takes a broad interest in the area of resources, development and conservation, including but not limited to: renewable energy, environmental quality, management of ecosystems, environment and water resources, pollution in the atmosphere and environmental assessments. The conference also focuses on the implementation and integration of biodiversity and sustainability and protection of the ecosystems into international, national, corporate planning and reporting practices, policies and programs.

[<ReadMore>](#)

"International Conference on Water, Informatics, Sustainability and Environment: iWISE 2014"

Aug 26 – 28, 2014

Ottawa, Canada

"International Conference on Water, Informatics, Sustainability and Environment: iWISE 2014" is being organized between 26th and 28th August 2014. The main aim of this conference is to integrate research, technology and expertise in fields of water, informatics, sustainability and environment. This will be complemented through focused workshops and panel discussions on important and timely topics to allow for a lively exchange of ideas as well as contributions from highly selective keynote speakers from well-known leaders in the field.

The topics include Ocean Energy, Wastewater Treatment and Management, Biofuels and Biopower, E-Wastes, Geothermal Energy, Global Warming and Climate Change, Solar Energy, Sustainable Supply Chain, Sustainable Use of Natural Resources and Wind Energy

Among the renowned speakers are **Prof. Farouk El-Baz**, Director of the Center for Remote Sensing and Research Professor at the Departments of Archaeology and Electrical & Computer Engineering, and Associated Faculty at the Department of Earth and Environment, Boston University, Boston, **Prof. Antje Danielson**, Administrative Director at TIE as well as the graduate interdisciplinary Water: Systems, Science and Society (WSSS) program and **Prof. Elena Naumova** The Director of Tufts University Initiative for the Forecasting and Modeling of Infectious Disease and Professor at Tufts University School of Engineering.

iWISE 2014 provides opportunities for scientists, practitioners and leaders from around the world to share their knowledge, skills and expertise in, but are not limited to: climate change, sustainable land use and eco-cities, integrated resources management, green economy, cleaner production, disaster management, environmental education, water research, etc. The topics of interest include

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The Economic Times, Delhi dated May 28, 2014

Algae biofuel may solve energy crisis

Its Fuel Yield Is Much Higher Than Traditional Feed-Stocks: Experts

Washington: Micro-algae-based biofuel has the potential to quench a sizeable chunk of the world's energy demands, scientists say.

According to Utah State University mechanical engineering graduate student Jeff Moody, micro-algae produces much higher yields of fuel-producing biomass than other traditional fuel feed-stocks and it doesn't compete with food crops. "Our aim wasn't to debunk existing literature, but to produce a more exhaustive, accurate and realistic assessment of the current global yield of micro-algae biomass and lipids," Moody said.

Moody and colleagues Chris McGinty and Jason Quinn leveraged a large-scale, outdoor micro-algae growth model. Using meteorological data from 4,388 global locations, the team determined the current global productivity potential of micro-algae, 'Phys.org' reported. "Our results were much more conservative than those found in the current literature. Even so, the numbers are impressive," Quinn said.

Algae yields about 2,500 gallons of biofuel per acre per year. In contrast, soybeans yield approximately 48 gallons; corn about 18 gallons, researchers said. "In addition, soybeans and corn require arable land that detracts from food production. Micro-algae can be produced in non-arable areas unsuitable for agriculture," Quinn said. Researchers estimate untillable land in Brazil, Canada, China and the US could be used to produce



GREEN BLOOM: Researchers estimate untillable land in Brazil, Canada, China and the US could be used to produce enough algal biofuel to supplement more than 30% of those countries' fuel consumption

enough algal biofuel to supplement more than 30% of those countries' fuel consumption. ■

'Environment, growth to go hand in hand'

Vishwa Mohan | TNN

New Delhi: India has never been on a denial mode over the effects of climate change and always called for steps to deal with global warming. This stand will now get new impetus under the new government — evident from the new nomenclature that the green ministry has got.

The ministry of 'environment and forests' is now ministry of 'environment, forests and climate change', signalling the importance of the issue at the time when India is expected to play a key role in reaching a global climate deal in Paris next year.

BJP leader Prakash Javadekar will formally take charge of the ministry this week as a minister of state (independent charge).

Javadekar's past association with GLOBE India (Global Legislators' Organisation for Balanced Environment) is likely to be handy for him while dealing with the issue of climate change in the ministry. GLOBE India — country chapter of GLOBE International — is a cross-party group of legislators, working to play critical role in



Prakash Javadekar on his first day in office on Tuesday

guiding public policy on environment and develop laws on climate change. Javadekar's task is cut out as the new government is expected to bring in second-generation reforms which may take care of environment without compromising on development and rights of local communities. The ministry will have to immediately come out with an institutional set-up — national environment regulator — to streamline regulatory procedures as desired by the SC.

At present, green issues are being handled by many authorities at the Centre and state levels which are separately responsible for many types of clearances — environmental, forest, wildlife, coastal, air/water pollution.

'Homemade' electricity creates a buzz in Germany

Berlin: Klaus Meier lists three reasons for generating his own electricity in his family hotel in Germany's southern city of Freiburg — "cost savings, energy efficiency, climate protection". Like a growing number of German small businesses, home-owners, schools, hospitals and industrial plants, Meier has opted for energy self-sufficiency.

Of the about 600 terawatt hours Germany consumes each year, 50 TWh are self-produced — about 8% of the total — in a trend that has seen solar panels installed on home roofs and gas plants set up in factories. In industry, the share is around 20% according to business and energy consumers groups. Their main goal: cost savings. Homemade power in Germany, which has among Europe's highest electricity bills, is not taxed unlike conventional electricity where one third of the customer's bill goes into the public coffers. And neither are the do-it-yourselfers subject to the duties used to subsidize the country's wider "energy transition" away from fossil



SELF-SUFFICIENT: About 8% of the total electricity consumed by Germany is homemade. This trend has seen solar panels installed on home roofs and gas plants set up in factories

fuels and nuclear power and towards clean energy.

Ten years ago Meier fitted his four-star hotel, the 45-room Park Hotel Post, set in a 19th century building, with a gas-fuelled power-and-heat cogeneration unit. It cost him nearly \$68,000, but Meier said "the investment paid for itself even faster than I had expected". It's a trend adopted long ago by German big business, who value both the self-sufficiency and the lower cost. "If the power

we produce ourselves in Ludwigshafen was taxed, it would cost half a million euros," said Kurt Bock, head of chemical giant BASF, which runs three gas power plants on its site in southwestern Germany. According to a survey of some 2,400 companies conducted last year by the German Chamber of Commerce, nearly half have either made, initiated or are planning measures to provide themselves with electricity. AFP

The Economic Times, Delhi dated May 29, 2014

Look Ma, No Brakes or Steering Wheel

Google experiments with a new phase of cars: electric-powered vehicles that will dispense with all the standard controls found in modern automobiles and take the driver out of driving

John Markoff

Humans might be the one problem Google can't solve. For the past four years, Google has been working on self-driving cars with a mechanism to return control of the steering wheel to the driver in case of emergency. But Google's brightest minds now say they can't make that handoff work anytime soon. Their answer? Take the driver completely out of the driving.

The company has begun building a fleet of 100 experimental electric-powered vehicles that will dispense with all the standard controls found in modern automobiles. The two-seat vehicle looks a bit like the ultracompact Fiat 500 or the Mercedes-Benz Smart car if you take out the steering wheel, gas pedal, brake and gear shift. The only thing the driver controls is a red "e-stop" button for panic stops and a separate start button.

The car would be summoned with a smartphone application. It would pick up a passenger and automatically drive to a destination selected on a smartphone app without any human intervention.

Google won't say if it intends to get into the car manufacturing business or simply supply technology to car makers, but it says there are plenty of possibilities if it can persuade regulators to allow cars with no drivers. One potential use: driverless taxis.

In an interview at Google's headquarters here, Sergey Brin, a Google co-founder who is actively involved in the research programme, said the company decided to change the car project more than a year ago after an experiment in which Google employees used autonomous vehicles

for their normal commutes to work. There were no crashes. But Google engineers realised that asking a human passenger—who could be reading or daydreaming or even sleeping—to take over in an emergency won't work. "We saw stuff that made us a little nervous," said Christopher Urmson, a former Carnegie Mellon roboticist who directs the car project at Google.

The new vehicles will have electronic sensors that can see about 600 feet in all directions. Despite that, they will have rearview mirrors because they are required by California's vehicle code, Urmson said. The front of the car will be made from a foamlike material in case the computer fails and it hits a pedestrian. It looks like a bubble car from the future, streamlined to run by itself—a big change from the boxy Lexus SUV Google has been retrofitting the last few years with self-driving technology.

The new Google strategy for autonomous cars is a break from many competing vehicle projects. Mercedes, BMW and Volvo have introduced cars that have the ability to travel without driver intervention in limited circumstances—though none completely eliminate the driver.

In the Mercedes version, the system disengages itself if the driver takes his hands off the steering wheel for more than 10 seconds.

By 2017, Volvo plans to have the cars in the hands of ordinary consumers for testing in the streets of Gothenburg, Sweden, where the company has its headquarters.

In the interview, Brin acknowledged those advances, but said they were incremental. "That stuff seems not entirely in keeping with our mission of being transformative," he said.

Google's prototype for its new cars

will limit them to a top speed of 25 miles per hour. The cars are intended for driving in urban and suburban settings, not on highways. The low speed will probably keep the cars out of more restrictive regulatory categories for vehicles, giving them more design flexibility.

Google is having 100 cars built by a manufacturer in the Detroit area, which it declined to name. Nor would it say how much the prototype vehicles cost. They will have a range of about 100 miles, powered by an electric motor that is roughly equivalent

to the one used by Fiat's 500e, Urmson said. They should be road-ready by early next year, Google said. The current plan is to conduct pilot tests in California, starting with ferrying Google employees between buildings around its sprawling

corporate campus in California. Laws permit autonomous vehicles in California, Nevada and Florida. But those laws have been written with the expectation that a human driver would be able to take control in emergencies.

Google executives said the initial prototypes would comply with current California automated-driving regulations.

In the future, Google hopes to persuade regulators that the cars can operate safely without driver, steering wheel, brake or accelerator pedal. Those cars would rely entirely on Google sensors and software to control them.

So where might the driverless cars be used besides at Google's offices?

Last year, Lawrence D. Burns, former vice president for research and development at General Motors and now a Google consultant, led a study at the Earth Institute at Columbia University on transforming personal mobility. The researchers found that Manhattan's 13,000 taxis made 470,000 trips a day. Their average speed was 10 to 11 mph, carrying an average of 1.4 passengers per trip with an average wait time of five minutes.

In comparison, the report said, it is possible for a futuristic robot fleet of 9,000 shared automated vehicles hailed by smartphone to match that capacity with a wait time of less than one minute. Assuming a 15% profit, the current cost of taxi service would be about \$4 per trip mile, while in contrast, it was estimated, a Manhattan-based driverless vehicle fleet would cost about 50 cents per mile.

Google is one of the few companies that could take on a challenge like that, said John J. Leonard, a roboticist in MIT. But he added: "I do not expect there to be driverless taxis in Manhattan in my lifetime."

Brin said the change in Google's car strategy did not mean that the company was giving up on its ultimate goal of transforming modern transportation. "Obviously it will take time, a long time, but I think it has a lot of potential," he said. "Self-driving cars have the potential to drive in trains much closer together and, in theory, in the future at much higher speeds."

"There is nothing to say that once you demonstrate the safety, why can't you go 100 miles per hour?"

The New York Times

The New Google Drive

Google is building a fleet of 100 experimental cars that do not require a driver

What's Special About the Car?

IT HAS

- ▶ No brakes
- ▶ No steering wheel
- ▶ No gear shift
- ▶ No accelerator pedal

FOR CITY ROADS

- ▶ The car will have a top speed of 25 miles per hour

X FACTORS

- ▶ The front of the car will be made from a foamlike material so that it won't hurt if car hits a passenger
- ▶ Car could be summoned with a smartphone app
- ▶ It could drive to a destination selected on the app
- ▶ It will have electronic sensors that can see about 600 feet in all directions

WHAT'S IN IT?

- ▶ It has two seats
- ▶ It has two buttons: a start button and a red button for panic stops

WHEN WILL IT ROLL OUT?

- ▶ It should be road-ready by early 2015

Self-driving cars have the potential to drive much closer together and in the future at much higher speeds."

SERGEY BRIN, cofounder, Google



Deccan Chronicle, Hyderabad
dated May 30, 2014

Popular lake becomes cesspool

COREENA SUARES | DC
HYDERABAD, MAY 30

The Jalagam Vengal Rao park, located in the heart of the city, which attracts hundreds of visitors, has now become a cesspool. Sewer water from the Devarakonda slum flows into the lake inside the park. Several attempts to stop the sewage from flowing into the lake have failed.

The lake emanates a foul smell and has become a mosquito breeding ground. Walkers can be seen strolling with their noses covered with cloth. In fact, doctors have advised walkers to avoid the Jalagam Vengal Rao park.

TD media committee chairman L.V.S.R. Prasad, a regular walker, said, "In 2003, the park was inaugurated and it was allotted ₹1 crore as funds towards beautification and maintenance. Retired judges, IPS officers and even doctors are regular walkers here. However,



The lake in the Jalagam Vengal Rao Park has turned green due to pollution
— DECCAN CHRONICLE

due to the foul smell, several elderly people have been advised to avoid the park. The lake water has turned green and the plastic and solid waste floats on the surface."

"Several letters were written to the authorities. The problem became intense during the rains," added Mohan Rao, another park walk-

er.

Meanwhile N. Chandra Mohan Reddy, additional commissioner Urban Biodiversity (GHMC), said, "It is a civil engineering problem. The issue lies with the water pipeline that passes through the Road No. 1 Banjara Hills. Using pumps, the drainage water is being diverted.

However, whenever the city gets heavy showers the sewer water overflows and enters the lake. For the works to be carried out, commercial building must be demolished and the entire road will be blocked for a month. The commissioner has asked the engineering wing to prepare an action plan."

The Times of India, Delhi dated June 01, 2014

Glacier feeding Indus tributary melting fast, says JNU study

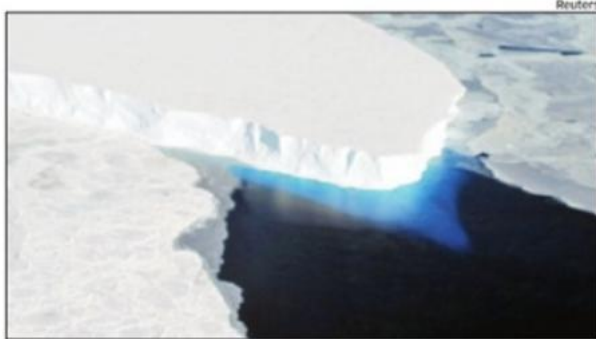
Maximum Loss Of Ice Mass In Last 10 Yrs

Jayashree Nandi | TNN

New Delhi: This could be worrisome for Himalayan glaciers. A team from Jawaharlal Nehru University has found significantly accelerated ice melting on Chhota Shigri glacier in Lahaul and Spiti over the last 10 years.

Chhota Shigri feeds Chandra river, one of the tributaries of the Indus river system.

The JNU team, which has been studying the glacier for several years to understand the impact of climate change, has used meteorological data of 40 years to extrapolate the pace of ice-melt on the glacier. This is the first scientific study to have monitored a Himalayan glacier for four decades which, according to scientists, is enough time to understand the trend of glacial melt. While the Chhota Shigri glacier may give clues to gla-



This is the first scientific study to have monitored a Himalayan glacier for four decades, which is enough time to understand the trend of glacial melt

cial melt in other Himalayan glaciers, scientists say topography and micro-climatic factors for each glacier is different.

The team from the School of Environmental Sciences, JNU, has focused on mass balance—difference of ice accumulated and lost to melting since 1969. It has divided the span of 43 years into three periods. In period I (1969-85) there was a negative mass balance and ice mass loss of 5.76 metres (water equivalent) in 16 years, in period II (1986-2000)

there was status quo, but in period III (2001-12) a massive 6 metres (water equivalent) was lost in just 10 years. Over the whole modeling period the specific annual MB has been negative 60% of the time.

"This acceleration in ice melt in the Chhota Shigri glacier can surely be attributed to temperature rise. But the acceleration has not yet reached dangerous levels. Also, topographical factors influence glacial melt, so we cannot just say that the only reason for this kind of loss is climate change.

Glaciers have their own way of balancing mass," said A L Ramanathan, one of the authors of the study. The JNU team has its own weather station on Chhota Shigri glacier which has been recording weather parameters since 2009. But for this study, published in *Annals of Glaciology* journal recently, the team has used weather data from Bhuntar airport's observatory close by. Chhota Shigri is at a slightly higher elevation than the airport but it can reflect the status of the glacier with a minor error margin, Ramanathan said.

The steady loss of ice mass in last 10 years was further corroborated by the team by conducting studies on ground and manually measuring ice loss annually. A team of PhD researchers from JNU visits Chhota Shigri every October.

"If most of the glacial mass melts, there will be more water in the rivers for a few years but later the perennial nature of rivers will be affected. For Chhota Shigri, the entire mass or what we can call the foxed deposit has not eroded yet. But melting has accelerated," Ramanathan added.

Deccan Chronicle, Hyderabad
dated June 03, 2014

Ride Go Green bike sans driver's licence

DEBANTI ROY | DC
BENGALURU, JUNE 2

That there is no government support in India, in terms of subsidies or infrastructure, for eco-friendly vehicles did not stop Dhivik Reddy from venturing into making electric two-wheelers.

Dhivik, 30, started out with a green initiative called Go Green Battery Operated Vehicle (GoGreen BOV) in 2007, bringing in a range of E-bikes. Now, his company has a footprint spanning Karnataka, Tamil Nadu, Andhra Pradesh, Kerala and Goa.

"When we started, there was virtually no market for electric bikes in India. Many players in the industry could not succeed mainly because their product was not made for Indian conditions and mindset. We were able to gain a foothold in the market by designing India's first e-bike with a range of 120 km per charge."

Last year, his company had a turnover



of ₹33 crore, enough to let himself zip around in a BMW. He hopes to break even this year.

Dhivik got his first taste of the eco-friendly vehicle business from his father Ashok Reddy who, in 1996, introduced in the country the Landi kit, which helped convert petrol cars to run on LPG.

"We were the first to introduce the kit in India, importing it from Italy. My father was the inspiration for me to start GoGreen BOV."



Dhivik Reddy rides a Go Green bike. Till now, some 14,000 vehicles have been sold so far.

Dhivik said.

It was not easy business to get into. "We had initial failures. The first 11 customers demanded their money back because their bikes broke down. But my team and I did not give up the hope of being able to create a better vehicle", he added.

Earlier this month, GoGreen BOV launched four new models — Kohra, Kimaya, Kavach and Sunnoti, priced between ₹28,000 and ₹59,500, and with range between 60 km to 120 km on a full charge. To be sure, these are not meant for the thrill of speed. Rather, with a top speed of 25 kmph, they fall into the category of cycles under current government regulation. But that's an advantage — you don't need to have a driver's licence to ride one of these.

Not surprisingly, therefore, about half his customers are small traders and kirana store owners.

"These people are small businessmen, who need either to travel distances or carry goods for their businesses and are looking to cut their rising expenses on transport fuel. Then there are restaurants that provide home delivery service. The rest are students, housewives, senior citizens and some office workers," Dhivik said.

GREEN CONCERN

US to cut power plant pollution

■ US plans to cut carbon dioxide emissions by nearly a third in 15 years

Washington, June 2: The Obama administration unveiled a plan on Monday to cut carbon dioxide emissions from power plants by nearly a third over the next 15 years, in a sweeping initiative to curb pollutants blamed for global warming. However, the regulation pushes the deadline for some states to comply until long after President Barack Obama leaves office in early 2017. That means even if the rules survive legal and other challenges, the dust won't likely settle on this transformation until well into the next presidential



Under the plan, expected to be finalised next year, carbon emissions would be reduced 30 percent by 2030, compared to 2005 levels. It is a centerpiece of Mr Obama's plans to tackle climate change and aims to give the US more leverage.

administration, raising the possibility that political dynamics in either Congress or the White House could alter the rule's course.

Under the plan, expected to be finalised next year, carbon emissions would be reduced 30 percent by 2030, compared to

2005 levels. It is a centerpiece of Mr Obama's plans to tackle climate change and aims to give the US more leverage to prod other countries to act when negotiations on a new international treaty resume next year.

But the proposal sets off a complex regulatory

process, steeped in politics, in which the 50 states will each determine how to meet customised targets set by the Environmental Protection Agency.

The policy change, which will further diminish the role of coal in US electrical production, carries significant political and legal risks.

Although Mr Obama doesn't need a vote in Congress to approve his plans, lawmakers in both the House and Senate have already vowed to try to block them — including one Democratic lawmaker who faces a diffi-

cult re-election this year in coal-dependent West Virginia.

Scuttling the rules could be easier if Republicans, who already control the House, take the Senate in November and then the White House in 2016. Another potential flash point: The plan relies heavily on governors agreeing to develop plans to meet the federal standard. If Republican governors refuse to go along, the EPA can create its own plan for a state. But the specifics of how EPA could force a state to comply with that plan remain murky. — AP

The Times of India, Delhi dated June 03, 2014

Govt asks tubewell owners to own up

No Penalty If Groundwater Used For Drinking, But Commercial Use An Offence

Jayashree Nandi | TNN

New Delhi: The alarming rate of groundwater depletion in the city has prompted the government to track down illegal borewells and tubewells in the city but not through inspections or surveys.

This time, the environment department is banking on residents and establishments to reveal voluntarily details of how much groundwater they are extracting. Over 500 individuals and establishments have so far submitted disclosure forms. The actual number of defaulters could be in lakhs but officials say that such a voluntary scheme will at least give them clues into the size of the problem.

The department is considering penalizing those who don't

TRACKING CAPITAL'S GROUNDWATER

Over **500** have voluntarily disclosed ownership of borewells and tubewells

Groundwater level in Delhi is plunging at an **alarming rate**



20 out of 27 tehsils in Delhi are in the 'overexploited' zone

Pushp Vihar has the lowest water table at 60 metres



Environment dpt has asked citizens to disclose bore wells within 3 months

Application form can be downloaded from the environment dpt or Delhi Jal Board website

report their borewells. It is also currently working out a strategy to penalize commercial establishments and those in the

business of selling groundwater. "We have decided not to be harsh on residents who are extracting groundwater only for

drinking because in some areas of the city there is no DJB supply. But action will be taken against those who sell groundwater and extract it in bulk," additional secretary, environment, Sandeep Mishra, said.

The department must act against illegal groundwater extraction after Central Groundwater Board data revealed that most of Delhi is in the 'over-exploited' zone and the National Green Tribunal directed it to come clean on what action it has taken against illegal borewells.

But surveying was "impossible", claim officials. "We had to rely on voluntary disclosure because any other method is impossible to adopt considering the huge population and area involved. Also, we cannot enter people's houses to inspect

whether or not they are extracting water," Mishra said.

A period of three months has been given to residents to disclose the number of their tubewells and borewells. In the form to be submitted, one has to mention how many borewells they are using and of what capacity and whether the purpose of the borewell is domestic, commercial, agricultural or industrial.

CGWB had communicated the guidelines for evaluation of proposals for groundwater extraction to the environment department in 2012. These guidelines say "full utilization of recycled water and reuse of water should be mandatory" for those in the over-exploited zone. As per CGWB's 2009 report, 20 out of 27 tehsils in Delhi are in the over-exploited zone.

The Times of India, Delhi dated June 04, 2014

Babus to study waste treatment in Gujarat

TIMES NEWS NETWORK

New Delhi: A team of bureaucrats from the environment department and office-bearers of Delhi Pollution Control Committee will soon visit Gujarat to study common effluent treatment plants there and explore the "feasibility of implementing systems adopted in the state" in checking hazardous sludge generated from industrial units, a statement from the department said on Monday. It's not clear, however, as to why they chose Gujarat for the visit or if there are any best practices to be replicated from there.

The statement also said that DPCC will soon be hiring a consultant to prepare a plan to deal with generation and treatment of hazardous waste in Delhi. The city is undergoing a massive crisis with no space to build a hazardous waste treatment plant. Delhi government had requested neighboring states earlier if they could provide land for the purpose but got no response. Delhi generates about 5,000 tonnes of hazardous waste annually which, in the absence of a treatment facility, is being sealed and stored by industries generating it. But this cannot continue for long.

In fact, hazardous waste management rules say "operators may store the hazardous wastes for a period not exceeding 90 days and shall maintain a record of sale, transfer, storage, recycling and reprocessing of such wastes".

Two industrial areas in the capital have maximum concentration of hazardous sludge generating units but their CETP is underutilized. All water polluting units generating hazardous waste will be using this CETP so that treatment of waste water from industries is maximized in phased manner. According to the statement, no new Consent to Establish (CTE) and no new Consent to operate (CTO) shall be granted to hazardous waste (ETP sludge) generating units except in two industrial areas to be identified. Renewal of CTO shall be considered only by a committee headed by the chairman, DPCC, and the consent shall be considered for a period not exceeding two years in all industrial areas except in the two identified areas.

Sanjiv Kumar, secretary, environment department, said in the absence of treatment facility in Delhi, CETP societies are storing the hazardous sludge. "Most of the CETPs do not have space for storage of sludge," he said.

Delhi generates about 5,000 tonnes of hazardous waste annually which, in the absence of a treatment facility, is being sealed and stored by industries generating it

The Times of India, Delhi dated
June 04, 2014

'Delhi picks environment over growth'

Survey Says Delhiites More Green Conscious Than Mumbai, Pune Residents

Vishwa Mohan | TNN

New Delhi: Delhi appears to be more environment conscious than Mumbai and Pune as Delhiites largely would like the government to prioritize environmental protection over its development objectives.

An environment survey, conducted by The Energy and Resources Institute (TERI) across eight cities, on Tuesday revealed that over 50% of respondents in the national capital favour prioritizing environment over development as against 44% of their counterparts in Mumbai and 19% in Pune.

More people in Mumbai and Pune feel that environment and development can go hand in hand.

TERI, an independent research institute, had conducted the survey through interviews of 11,214 respon-

CLIMATE CONCERN

ENVIRONMENT PROTECTION OVER DEVELOPMENT OBJECTIVES

50% respondents in Delhi favour prioritizing environment over development as against 44% in Mumbai and 19% in Pune

Indore tops in this category where **65%** feel the government should prioritize environment over development

45% in Kanpur fall in this category

Across eight cities, 30% respondents want government to prioritize environment over development



dents across Delhi, Mumbai, Pune, Kanpur, Indore, Jamshedpur, Guwahati and Coimbatore between December 2013 and February 2014.

The findings of the survey — released two days ahead of World Environment Day — may take this 'environment and develop-

ENVIRONMENT AND DEVELOPMENT CAN GO HAND IN HAND

45% Jamshedpur | **44%** Pune | **32%** Mumbai | **17%** Kanpur

All respondents in Coimbatore and Guwahati

40% across eight cities

OTHER KEY FINDINGS OF THE SURVEY

(11,214 respondents across eight cities — Delhi, Mumbai, Pune, Indore, Coimbatore, Guwahati, Jamshedpur & Kanpur)



ment' debate further, specifically when new environment minister Prakash Javadekar has pitched for carrying forward both envi-

ronmental protection and development goals simultaneously.

Immediately after taking charge, Javadekar had on May 29 articulated his government's priority saying, "The government believes in 'environment and development' and not 'environment versus development'... Both the objectives can go hand in hand."

Interestingly, TERI's survey echoes what the new minister feels. It found that 40% of respondents felt environment and development could go "hand in hand" with no apparent trade-off. However, a significant 30% thought the "government should prioritize environment over development" with the remaining 30% weighing more in favour of development.

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

Waste segregation not a hot idea in Delhi

Only 6% Of Respondents In A Survey For It; But Most Believe In Generating Less Waste

TIMES NEWS NETWORK

New Delhi: While landfills overflow, few seem to consider household waste segregation as an option. Though segregation at source is being seen as a way out of the waste crisis facing the capital, a study found that only 6% of respondents looked at it as a possible solution. The survey carried out by The Energy and Resources Institute (TERI) was released on Tuesday.

The survey, with a sample size of 1,500 people, looks at people's perceptions of environmental issues. It found 75% of respondents considered generating less waste to be the most efficient way of managing the crisis, while only 5% felt levying a user

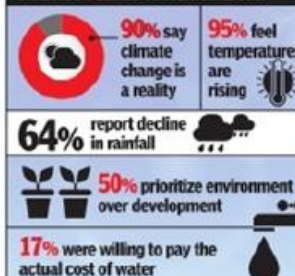
charge could help.

The survey looks at various issues like water, waste management, air quality, green cover and climate change covers respondents from various socio-economic backgrounds. A majority of the respondents (32%) are between 25 and 34 years, followed by those between 18 and 24 (28%); about 19% are in 35-44 age-group while 20% are between 45 and 65 years. Most respondents are from a low-income background (55%).

Respondents who didn't support segregation at source cited a number of reasons—about 25% found cumbersome, 23% felt it took more space, about 40% believed it's the responsibility of the corporation and 12%

MAPPING CITY'S GREEN VIEWS

What are Delhiites concerned about?



found it futile as the contractor mixes it up.

Among those willing to segregate, 53% were already

segregating at home; 25% thought biodegradable waste could be used as compost, and 22% were willing to

do so for the environment.

More people opted for recycling because landfills were saturated or the law required them to segregate. Only 2% of respondents in Delhi felt it's the responsibility of citizens to deal with waste. In contrast, 66% considered it a shared responsibility of citizens, municipality and private firms.

The Teri survey has also studied people's views on issues like water, air pollution and tree cover.

Surprisingly, a majority of respondents felt that the availability and quality of drinking water in Delhi had improved in the past five years. About 70% of the respondents believed that the consumption pattern among residents to be a major cause

of wastage; they were also aware of the subsidized cost of water but 76% didn't want to pay the actual price of water. Gender and income levels also influenced opinions.

About 34% of men, as opposed to 24% women, identified bottled water as a vital source of drinking water.

Or, when asked what is more important, development or environment, more people from middle-income group (41%) compared to high-income (24%) or low-income (26%) ones said development should be prioritized over development.

Only 4% from the middle-income localities felt that environmental protection and development could go hand in hand.

tbireporter@timesgroup.com

Deccan Chronicle, Hyderabad
dated June 05, 2014

Citizens choke as air quality worsens

KRUTHI GONWAR | DC
HYDERABAD, JUNE 4

The deteriorating quality of air due to rising pollution is a major cause for respiratory illness and cardiovascular diseases, said experts on World Environment Day which will be observed on June 5.

While the World Health Organisation has severely criticised the levels of pollution in Indian cities, doctors say that the number of diseases in otherwise healthy adults and children has seen a tremendous rise.

Dr Dinesh Chirra, paediatrician and director at Rainbow Children's Hospital, said, "We have seen a significant rise in the number of respiratory diseases and incidence of asthma in children. This was not there a decade ago. We often find that when these children go to their native villages or abroad, they come back feeling better. This shows that there is something definitely wrong in the air."

The pollution levels, which are monitored on a daily basis, have seen a sharp rise in the city. During March and April, the levels have increased to two times higher than the national standards prescribed by the Central Pollution Control Board.

Paradise recorded the

highest value of 160 micrograms/m³, while the permissible level is just 60.

In places like Paradise and Punjagutta, the readings were 160 and 120, whereas the permissible limits as per the Central Pollution Control Board is just 60 micrograms/m³ for particulate matter of size less than 10 micrometers.

In Abids, the Respirable Suspended Particulate Matter (RSPM) levels increased to 134 in April as compared to 93 in March; it rose from 102 to 130 in Charminar, from 93 to 120 in Punjagutta, from 115 to 160 near Paradise and from 55 to 66 near KBR Park.

Doctors claim that while children are suffering, adults who travel to and fro everyday are also exposing themselves to the risk of stroke, heart disease, lung cancer and also chronic and acute respiratory diseases including asthma.

Pulmonologist Dr V.

DIFFICULT BREATHING

Permissible RSPM level:
60 micrograms/m³

Paradise: 160 micrograms/m³

Punjagutta: 120 micrograms/m³

Abids: 134 micrograms/m³

Charminar: 130 micrograms/m³

KBR Park: 66 micrograms/m³



Kumar said, "It affects the lungs and airways and also the functioning of heart and blood circulation. This in turn leads to the advent of diseases. Those who are traveling in highly congested areas for too long hours need to take precautionary measures."

There is a strong need for the government to shift to non-polluting agents for vehicles and also control the number of vehicles in the city. Enforcement is the need of the hour say experts.

Weak monsoon could be linked to air pollution

AMAR TEJASWI | DC
HYDERABAD, JUNE 4

Excessive aerosol concentration in the Bay of Bengal between March and May could be affecting the Southwest monsoon, according to meteorological scientists.

Experts say data over the past decade and half shows that years with higher concentrations of aerosols have been deficient monsoon years.

Aerosols are suspended particulate matter that could consist of particles such as dust, soot or sulphates from industrial and vehicular emissions that together form a mist in the higher atmosphere. Black

carbon aerosols consist of suspended carbon in various forms and are an urban phenomenon. The Asian Brown Cloud is a much studied phenomenon occurring from November to March every year after which it is washed away by rain caused by the southwest monsoon. It even appears in satellite images as a black mark over parts of India.

Scientists from the Indian Institute of Tropical Meteorology (IITM) have studied the correlation between aerosol haze formation over the Bay and Bengal in the pre-monsoon months and subsequent intensity

of the southwest monsoon. "A significant negative relationship between aerosol loading over the Bay of Bengal region in the pre-monsoon months i.e. March to May and the forthcoming monsoon rainfall has been observed through analysis of 15 years," said Dr S.D. Patil, a retired scientist from IITM. Scientists explain that aerosol loading occurs every year, in varying proportions.

In years with higher levels of aerosol concentration there was a weaker southwest monsoon. Those years with lower concentrations of aerosols in the atmosphere had a stronger monsoon.

The Times of India, Delhi
dated June 05, 2014



'River needs more water, not STPs'

TIMES NEWS NETWORK

New Delhi: Environmentalist Sunita Narain has called for a radical change in the approach to cleaning rivers. While presenting an environmental agenda for the new government on the eve of World Environment Day, Narain said the focus should shift from pumping money into sewage treatment plants (STPs) because the discharge is very high and any further increase will be unmanageable. Instead, the solution can lie in maintaining an ecological flow in the river that will help dilute the pollution.

This "ecological flow" of water should be 10 times more than the pollution level or the biochemical oxygen demand (BOD).

If the biochemical oxygen demand of a stretch is say 30 milligrams per litre, then 10 times more water needs to be added to bring the level down to 3mg/l, which is the standard for bathing water quality. Ensuring so much water would

MPs to get saplings

New Delhi: The forest department is sending a sapling to the bungalows of all MPs in Lutyens' Delhi, giving them a message to keep their surroundings green on the World Environment Day. "The new environment minister, Prakash Javadekar, wanted to make sure that each one of them gets the message. It's a small gesture but the message is important," said chief wildlife warden, A.K. Shukla. TNN

mean cutting into the share extracted for irrigation, drinking and other purposes. Narain suggested a complete overhaul of the current method of treating a river.

"Don't expect the states upstream to release more water. The state has to deal with its own problem by investing in sewage purification. If you take away water for irrigation, industry and other uses, forget about cleaning the river," she said. Narain said if states can't ensure the flow, then all the drains flowing into the river should be blocked so that the state has no option but to deal with its own sewage.

Giving the example of Yamuna, Narain said Delhiites should be extracting water downstream in Okhla—the river collects a lot of sewage and waste before reaching the area—instead of extracting water upstream of Wazirabad, where the river is comparatively cleaner.

"We have to think of the river first. If you can't then all the drains leading up to Yamuna should be blocked with a cork until the city finds a way to manage its sewage," she said.

"The strategy of cleaning a river by building sewage treatment plants has proved to be inadequate. The Ganga revival programme will only work if we learn to control pollution differently. Reinventing the strategy for curbing river pollution is the agenda," the CSE statement said.

Roof tiles to help fight air pollution

New Coating On Tile Removes 97% Of Smog-Causing Nitrogen Oxides



Washington: An innovative and inexpensive way to fight air pollution has been developed — a roof tile coating that removes up to 97% of smog-causing nitrogen oxides.

A team of University of California, Riverside's Bourns College of Engineering students created a new titanium dioxide roof tile coating that when applied to an average-sized residential roof breaks down the same amount of smog-causing nitrogen oxides per year as a car driven 17,703 km.

They calculated 21 tonnes of nitrogen oxides would be eliminated daily if tiles on one million roofs were coated with their titanium dioxide mixture. They also found it would cost only about \$5 for enough titanium dioxide to coat an average-sized residential roof.

Nitrogen oxides are formed when certain fuels are burned at high temperatures. Nitrogen oxides then react with volatile organic compounds in the presence of sunlight to create smog. Currently, there are other roofing tiles on the market that help re-

GASPING FOR BREATH: Researchers said that 21 tonnes of nitrogen oxides would be eliminated daily if tiles on one million roofs were coated with titanium dioxide mixture

duce pollution from nitrogen oxides. However, there is little data about claims that they reduce smog.

The students set out to change that. They coated two identical off-the-shelf clay tiles with different amounts of titanium dioxide, a common compound found in everything from paint to food to cosmetics. The tiles were then placed inside a miniature atmospheric chamber that the students built out of wood, Teflon and PVC piping.

The chamber was connected to a source of nitrogen oxides and a device that reads concentrations of nitrogen oxides. They used ultraviolet light to simulate sunlight, which activates the titanium dioxide and allows it to break down the nitrogen oxides. They found the titanium dioxide coated tiles removed between 88% and 97% of the nitrogen oxides. AP

The Economic Times, Delhi dated June 05, 2014

Tackling Air Pollution in Our Cities: Getting Started

In today's growth driven world, clean air is a public good that must rely on good governance to persist; the air we breathe needs to be treated as a resource that we value



KUNAL SHARMA

I vividly recall how in the mid 1990s my eyes would

often water while travelling by three-wheeler in Delhi. Such was the severity of air pollution in those days that you inevitably shed a tear or two every time you went up a flyover. That's the height at which it seemed the plume of air pollutants hung over Delhi, causing irritation to the eyes as you came in contact with it.

In contrast, Delhi's air seems cleaner today and I expect that many who have lived in the city during the last two decades will agree with me. Starting in the mid nineties, a substantial improvement in the quality of Delhi's air took place due to several measures taken by the government. These included

conversion of the public transport fleet to CNG, introduction of cleaner automotive fuels and relocation of polluting industries to outside city limits.

However, air quality data indicates that much of the gains achieved through such measures have now eroded. To blame are rapid urban development and a booming number of vehicles. The situation is similar in most other Indian cities; only a handful of cities currently achieve the National Ambient Air Quality Standards (NAAQS) for pollutants like PM10 and PM2.5, while NO2 and Ozone pollution levels are areas of growing concern. A World Health Organisation (WHO) air quality database released earlier this year reveals that 13 Indian cities feature among the top 20 in the world on monitored levels of PM2.5. Delhi occupied the top

spot, while Patna, Gwalior, Ahmedabad, Lucknow, Kanpur, Amritsar and Ludhiana, all made the list.

A vast body of scientific research confirms that inhalation of Particulate Matter (PM) leads to health effects like asthma, lung cancer, cardiovascular and

the lungs. Fine particulates like PM2.5, which are particles of size 2.5 microns (10-6 meters) or smaller, are usually emitted from anthropogenic sources like automobiles, industrial boilers and generator sets.

Large emissions coupled with high population exposure levels yield staggering estimates for the loss India suffers due to air pollution. The latest WHO Global Burden of Disease assessment concludes that 627,000 Indians died early in 2010 from exposure to ambient air pollution. A 2013 World Bank study estimates that exposure to air pollution resulted in an annual loss of Rs. 2 trillion, or about 3% of our GDP, due to resultant health impacts.

If these numbers come as a surprise, then here is the kicker: a 2011 Gallup survey spanning 140 countries found 90% of Indians to be satisfied with the quality of air in their city or area where they live. That puts India among the top 10 countries in satisfaction level, and in a group that includes Ireland, New Zealand, Australia, and Germany!

First, our public officials need to acknowledge, publicly, the extent of the problem and begin building the case for measures that need to be introduced to tackle rising air pollution in our cities... Second, public awareness on air pollution needs to vastly increase

respiratory diseases, birth defects, and premature death. The smallest particles are the most dangerous as they are able to penetrate the deepest part of

How can this be? That's where my experience of travelling around Delhi in three-wheelers may provide an answer. Older Indians are seemingly satisfied

because they have seen worse levels of air pollution in the past and feel they are better off today. Younger Indians on the other hand lack a similar point of reference and so are 'satisfied' as they currently suffer a huge knowledge deficit on the threat that air pollution poses to them and society.

Given that air pollution gravely threatens the wellbeing of most Indians and the relative ignorance of the population to this threat, it's the Indian government that must act. Furthermore, in today's growth driven world, clean air is a public good that must rely on good governance to persist; the air we breathe needs to be treated as a resource that we value. But in contrast to the 1990s, where government action came primarily as a reaction to public outcry and court directives, today a more proactive approach on the part of the Indian government is required.

To begin with I believe at least two things need to happen. First, our public officials need to acknowledge, publicly, the extent of the problem and begin building the case for measures that need to be introduced to tackle rising air pollution in our cities. This is important. In recent times releases of major global studies on air pollution have often been met with seeming denial in India, primarily by questioning the validity of data, or led to futile discussions, such as on whether Delhi or Beijing has dirtier air. Rather than be defensive, these moments should be seized as opportunities to build political will for action.

Second, public awareness on air pollution needs to vastly increase. Citizens need to be appropriately informed so that they understand the risks that rising air pollution poses, are willing to support control measures and in specific instances directly bear the costs (such as marginally higher prices for cleaner petrol and diesel) and take precautionary measures when necessary. Many Delhi residents who like to get their daily exercise in the mornings probably do not know that in the winter months the highest concentration of pollutants occurs during the early morning hours as emissions from the thousands of trucks that pass through the city are trapped close to the ground due to thermal inversion.

Providing easy access to reliable air quality monitoring information and issuance of health advisories, as is now available in many countries around the world, is a good place to start. Of course the real work will still be left to be done and it will require time. To clean up the skies of Indian cities, the government will need to draw up and implement a judicious portfolio of control measures. But given where we stand today, if the aforementioned two outcomes are achieved over the next few years, we will be off to a decent start.

The author is a Senior Programme Manager, Shakti Sustainable Energy Foundation, New Delhi. The views expressed are his own, and do not imply endorsement by the Foundation.

The Need for Environmental Governance

Kartikeya V. Sarabhai was awarded the Padma Shri in 2012 for his exceptional and distinguished service in the field of Environmental Education. He is also the Founder Director of the Centre for Environment Education (CEE), established in 1984 as a centre of excellence of the Ministry of Environment and Forest, Government of India. He takes the time today to discuss the environmental future of India



WHAT ARE THE THREATS TO THE INDIAN ENVIRONMENT?

The main threat to the Indian environment comes from the rapid change in lifestyles and the increase in urbanization, industrial growth and consequent need for power, minerals, ports and transportation. A major concern is that global models of development that are at times inappropriate for India are being brought in. A good example would be the Bt technology for food and the rapid replacement of Indian seed varieties and farmers' independence. The loss of wild bio-diversity is also a major threat. Protected areas are a good strategy but by no means sufficient. Many species are intricately connected with what happens outside protected areas and strategies to conserve this need to be rapidly put in place.

Land, which is a critical resource is perhaps the most neglected and taken for granted. In some of our most fertile regions we build factories and try to improve farm productivity in land which is otherwise poor. The threat is the loss of fertile land. The loss of green cover especially on the hill sides further adds to soil erosion which will be very difficult to replace. Similarly, water is the lifeline of our country. Climate change threatens the monsoon pattern. Any change in the water cycle would be quite disastrous. Water, both on surface and ground water is being polluted and aquifers are rapidly deteriorating.

WHAT ARE IMMEDIATE STEPS THAT NEED TO BE TAKEN FOR BIO-DIVERSITY CONSERVATION?

- Protection of indigenous crop

varieties is important. India is the home to several of plants and animals that it has domesticated and preserved over thousands of years. Special characteristics appropriate for India and the particular environment have led to many varieties such as over 20 breeds of cows or the 2000 plus varieties of brinjals. Use of Bt technologies in varieties which are indigenous to India is very dangerous and the precautionary principle needs to be followed. Without adequate regulatory mechanisms in place or clarity as to whose liability it is, allowing field trials is not a wise step.

● Urgent and new strategies are required for the protection of bio-diversity outside of protected areas. In many cases traditional corridors where animals moved have been blocked not only causing human-animal conflict but also major accidents. Birds like the Harriers, which migrate to grasslands in India but feed in cotton fields around the protected area, are under threat. One needs a multi stakeholder collaboration to develop a conservation strategy. There are good examples of this and the government needs to support such efforts.

● Traditionally much of India's bio-diversity was also linked with livelihood and craft traditions. With the erosion of bio-diversity the impact has been on both these. Crafts person have often switched to chemicals or other substitutes. Such non-agricultural plant material needs to be carefully put into a system of sustainable use and consumption. The same is true of other areas such as



traditional fishing. The threat of industrialized operations not only destroys the fish stock but also kills local traditions and destroys local livelihoods. An initiative on sustainable use of bio-diversity has been taken and needs to be made into a full fledged program.

● Key species which are under threat need individual strategies as the threat or reason for decline in each case is different. In many cases such as protecting the Tiger, Elephant or Rhino, an effective conservation strategy might suddenly collapse as a result of new threats and new technologies. These need to be monitored and new solutions found. In many other cases such as the Gangetic Dolphin, the success of the species is also the success of the efforts to clean the Ganga. This requires careful strategy and public support.

● Ultimately in a democracy it is only as a result of wide public support and awareness that conservation will be possible. India has been able to protect its bio-diversity to a large extent due to the deeply entrenched belief system and practices. But these are rapidly changing. We need to bring more understanding

India has been able to protect its bio-diversity to a large extent due to the deeply entrenched belief system and practices. But these are rapidly changing... The proposed national nature camping program wherein every child who goes to school will attend at least one certified Nature Education Camp is a step in that direction

and reach out to the young. The proposed national nature camping program wherein every child who goes to school will attend at least one certified Nature Education Camp is a step in that direction. Programmes such as these will need the necessary resource to make them possible. The Science Express Biodiversity Special which took a biodiversity exhibition around the country on a train is another example.

WHAT, ACCORDING TO YOU, WILL BE THE NEW GOVERNMENT'S ENVIRONMENTAL POLICY?

What is the policy of the government of India? In the past I have often been asked this question at international forums. Unfortunately, there was never a single answer to such a question but multiple ones. Each ministry would have its own policy often contradicting another. The key to success lies in being able to blend environmental concerns with development, and to develop a sustainable development pathway for this country. The new government, with its clear and strong leadership, will be better able to bring a common vision on sustainable development to all the ministries and end what often looked like a set of disjointed policies made by individual ministries. Key areas which need to be addressed include agriculture, energy, urbanization, mining, water supply and the use of schemes such as the MGNREGA. While it is too early to say what the precise view of the new government will be on individual environmental issues, the pronouncement and the actions and new initiatives at co-ordination have been positive signs.

India's legislation has shown a lot of foresight in many areas. However, there has been a major gap between legislation and implementation. The current government's emphasis on better delivery, more transparency and speed will go a long way in ensuring that the environmental initiatives taken actually lead to protection of the environment. The current government seems likely to improve the quality of implementation in the field.

—As told to Nilakshi Sharma

The Times of India, Delhi dated June 05, 2014

Rain can't restore water table, experts worried

Jayashree Nandi | TNN

New Delhi: Experts are worried that many parts of the capital have reached a point of no return in terms of losing groundwater. At several places in south Delhi, it may take years to replenish this water but if and only if there is an immediate end to further extraction.

For the last few years, Central Ground Water Board has been seeing no improvement in water level in the wells under its watch even after the monsoon. TOI has accessed post-monsoon and pre-monsoon data of the wells. CGWB officials say it is a sign of how critical groundwater levels are in the city.

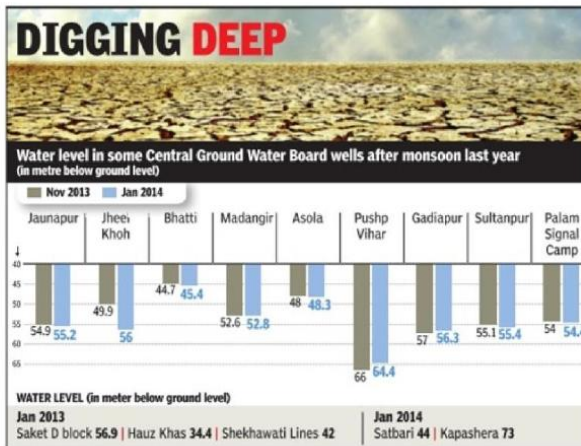
CGWB has just completed recording the water levels (pre-monsoon) in its 120 wells and found these to be between three and 75 metres below ground level (mbgl). The levels were similar in November 2013 and January 2014, which shows that the post-monsoon levels are no better. When com-

pared to 2007 data, water levels in most south Delhi wells have fallen by more than a metre.

"We are not seeing much change in depth of water post-monsoon. We are also noticing a steady decline in depth of wells in south Delhi and Ridge area which can be clearly attributed to unsustainable extraction," says a CGWB official.

Wells located near Yamuna floodplains are in the safe zone because of the river in their vicinity but those in south and southwest Delhi are in critical condition with groundwater levels at 40-72mbgl. "As soon as we start digging below 40 metres, we are entering a danger zone. If we go below 50 metres it's an emergency situation. Because after that we have very little exploitable water left and replenishing the aquifer is going to take years. It's like a disease. If not controlled now will lead to severe complications," says Shashank Shekhar, assistant professor, department of earth sciences, DU.

In his recent study on



'groundwater management in Delhi', Shekhar found the rate of decline in water levels is as high as 1.7-2m/year in some

areas of south and southwest Delhi. In fact, CGWB's groundwater year book of 2012-13 stated that a fall of more than

2m had been noticed in some areas between August 2011 and August 2012. A comparison of pre-monsoon water lev-

els in 2012 with August 2012 revealed there is rise in the water level in almost the entire country except in Delhi, Punjab, Haryana, Rajasthan, Gujarat, Karnataka and Tamil Nadu.

Pace of recharge is far slower than the pace of depletion. Vikram Soni, water expert and professor at Jamia Millia University, said, "The water table can be recharged by a metre every year if there is no withdrawal. As soon as we go beyond 30 metres we have to harvest water. It is important that we stop withdrawing when we are about to reach half the depth of the aquifer."

He added, "We are running out of time. Delhi needs to act now to deal with this crisis".

The Delhi environment department has directed people and establishments to voluntarily disclose if they have borewells or tubewells. About 500 people have submitted data on their borewells, but the total number of users could be more than 4.5 lakhs.

MAKING IT FLOW



CSE'S SUGGESTIONS TO MODI ON RIVERS

- Make ecological flow mandatory in all stretches of a river
- Accept that urban areas cannot build conventional sewage networks at a required pace
- Ensure treated effluent is reused or discharged directly into rivers for dilution
- Go for affordable water and sanitation solutions
- Design a garbage disposal system to segregate waste and make a resource out of it
- Effective enforcement of environmental laws against pollution by industries
- Aggressively implement the national sanitation programme—make it top priority

The Times of India, Delhi dated June 05, 2014

'India over-reporting green cover'

Study Faults Method Of Calculation

Jayashree Nandi | TNN

New Delhi: On World Environment Day, this could be worrying news for the new environment minister. A study by forest researchers from the Indian Institute of Science (IISc) has concluded that India could be grossly "over-reporting" its forest cover.

The researchers say that the existing forest cover, in reality, may be what the Forest Survey of India had reported back in 1997. This is because, they say, a large area that the government has been including under the forest category actually comprises commercial plantations, including those for coffee, arecanut, cashew, rubber, fruit orchards, parks and gardens.

The reason behind this, the study claims, is that India's ambiguous definition of the word 'forest' which doesn't differentiate between tree cover on agricultural land and natural forests.

The Forest Survey of India (FSI) defines forest cover to be "all lands more than one hectare in area, with tree canopy density of more than 10%, irrespective of ownership and legal status". This definition could well mean that man-made forests or monocultures (farmland used to grow only one type of crop) are being considered forests. "If plantations are being included in forest area, it has huge implications for biodiversity and may even change the way we look

BURSTING THE BUBBLE

69 mha Total forest cover	63 mha Forest cover in 1997	Plantation	Land (in hectares)
	8.79 mha under plantations and orchards	Tea	579.4
		Coffee	409.6
		Arecanut	463.9
		Coconut	1894.6
		Rubber	734.8
		Citrus	846.5
		Mango	2297.0
		Saffron	2.9
		Oil palm	164.0
		Almond & walnut	137.0
FSI DEFINITION OF FORESTS All lands more than one hectare in area, with a tree canopy density of more than 10%, irrespective of ownership and legal status		Apple	282.9
		Cashewnut	978.8
		Total	8791.4

at forests," said NH Ravindranath, lead author of the study.

The FSI has been reporting a steady increase in forest cover — from 63 million hectares (mha) in 1997 to 69mha in 2011. But to verify the exact area under natural forests which can represent biodiversity, the team of researchers gathered data of area under various plantations from the agriculture ministry. It put together all probable monocultures that may be being reported as forests and found this to together measure 8.79mha or 12.7% of our total forest area. They also calculated the year-wise increase in the area under plantations, which also showed a steady increase. The increase in plantation area may be even masking deforestation in India. "Inclusions of plantations of eucalyptus, casuarina and poplar under forest area is questionable from a conservation perspective. India could be potentially under-reporting deforestation by reporting only

gross forest area," the study concludes.

"Our afforestation rates could be higher than deforestation rates, showing a continuous increase in forest cover," the study points. TOI had earlier reported about a study by Ravindranath on April 19, 2012, that found that FSI's method of reporting forest cover was masking deforestation to a large extent.

The current study raises doubts about India's tall claims about afforesting 1 mha every year.

"India has been implementing one of the largest afforestation programmes in the world and annually between 1 and 1.5 mha has been afforested since 1960. Large investment is going into afforestation programmes in India and it is not clear how much of the planted area has survived and matured into forests," Ravindranath said. The team suggests the government modify the current forest area reporting format.

The Economic Times, Delhi dated June 05, 2014

GLOBAL SCIENCE

Sun is Shining on Energy Sector

Solar energy leaves utility companies powerless



Hari Pulakatt

Last week, the financial services company Barclays made a surprising announcement: it downgraded the US electric sector from market weight to underweight. Operating in regulated markets with little competition, American utilities have had a wonderful run for the last few decades, making handsome profits every year. Now Barclays thinks the game is up, as it has competition from an outsider: solar energy. It is worth examining this issue on World Environment Day, as India too will reach this milestone in the near future.

Greatest Enemy of Coal

The real problem is not that solar energy can match coal in large power plants. It is that distributed solar power is disrupting the business model of utility companies. This trend is most pronounced in Europe, where utilities have lost more value since the recession than the banks have. Renewables now account for more than two-thirds of new capacity added in Europe every year. Not all of the troubles of utilities are due to renewable energy, but solar power is taking away demand when it matters most: during peak hours in the afternoon. No wonder many European utilities were downgraded in the last two years.

The US is now seeing the acceleration of this trend, as hundreds of thousands of people put up solar arrays on their rooftops. In the last quarter alone, 1.33 gigawatts of solar panels were put up in the US. It is creating what author Jeremy Rifkin calls the zero marginal cost society — or near-zero, to be precise. Once you pay for the capital costs of your solar panels, your operational costs are near zero for a long time. This is not what the utility companies want. Consumers sell excess solar power to the utility companies, but they don't like it. They have made large capital investments, and so expect to charge the consumer continually. Net metering is not

their idea of business. Now look to the future and you see further disruptions, driven by large adoption, relentless decline of prices and improvements in technology. President Barack Obama is striving for a 30% cut in US greenhouse gas emissions by 2030, a goal that has not found favour in the coal belt. Coal use is declining in the US, the prime reason being the increased use of natural gas. Solar energy will play an increasing role too in the future. Yet, the greatest enemy of coal is not climate change policy but adoption of distributed solar.

Scientists keep advancing solar technology, and these advances will keep bringing the prices down. The advances are coming in every conceivable aspect of solar technology. They are giving us 3D solar cells, new high-efficiency cells, better thin-film cells, better manufacturing techniques and so on. Storage technologies



are improving too. One day, probably in a decade, artificial photosynthesis could combine generation and storage in one neat trick. Many of the new ideas seem like fantasies at the moment. For example, an engineering couple in Idaho has designed an intelligent "solar roadway" that can generate power as well as communicate with the drivers, apart from doing many other wonderful things.

In Sweden, Volvo is testing an electric road that can charge cars as they move along. These concepts do not need technology breakthroughs but are still revolutionary. There are enough roads in the world that can generate all the power that automobiles need. Imagine what will happen if we combine high-tech and energy-generating roads with driverless cars. The world is at the beginning of a revolution, not different from the development of the internal combustion engine in the late 19th century.

This column looks at global science from an Indian perspective

*The Times of India, Delhi dated
June 05, 2014*

Think of growth keeping in mind environment: CSE

Vishwa Mohan | TNN

New Delhi: With the new government seeking to simultaneously pursue its twin goals of 'environmental protection and development objective', the Centre for Science and Environment (CSE) — among the country's leading think-tanks — brought out a 'green' agenda for it on Wednesday, suggesting ways and means of achieving inclusive and sustainable growth. It also urged the government to look "beyond clearance of projects" and "get million buses on roads and billion solar panels on rooftops".

The CSE has mooted "a million buses" for the public transport system to reduce commuters' dependence on private vehicles and help the government in reducing air pollution while the "billion solar panels" on rooftops will help people get clean power by using renewable energy.

The agenda comprises of a number of measures which may well set the tone for the government's pledge for a 'clean and green India' on the occasion of World Environment Day on Thursday.

As the focus of the environment ministry has, of late, been shifted to pending clearances, the CSE also sought to remove the "misconception" that pending clearances were hindrances to growth and requested the government to rather focus on "monitoring".

"The industry lobby portrays green clearances as impediments to growth. But facts tell a different story. If you look at official data, over 99% of projects manage to get environmental clearances and 94% get forest clearances," CSE director general Sunita Narain said.

Pitching for "inclusive and sustainable" growth, the CSE listed the existing problems and maintained that urgent steps were required to tackle issues such as air and water pollution, regeneration of forests and water bodies and provision of clean energy to all. It also urged the government to revamp the ways green clearances were currently managed so that they can be monitored properly.

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

The CSE has urged the govt to look 'beyond project clearances' and 'get a million buses on roads and a billion solar panels on rooftops'

City eyes rooftop solar power

Gujarat Model Can Deliver 50-100MW, Say Delhi Officials

TNN NEWS NETWORK

New Delhi: Delhi is trying to draw a few lessons from Prime Minister Narendra Modi's Gujarat model. Gandhinagar's rent-a-roof project may help Delhi supplement the power supply in the capital with solar energy. If the model is replicated in Delhi, according to official sources, it has the potential to deliver 50-100 MW. This was discussed by the capital's top bureaucrats with their Gujarat counterparts on Thursday.

On the direction of LG Najeeb Jung, three teams of senior officials have gone to the state to study the Gujarat model.

The two-day visit ends on Friday. Among the other things they are looking at are Ahmedabad's Sabarmati riverfront project and the CCTV-based city surveillance system in Surat. On Thursday, the teams visited the river and several solar power projects.

Senior officials told TOI that under the rent-a-roof project, residents give their rooftops on hire to private so-



SILICON VALLEY: Solar panels on the Narmada canal in Gujarat generate power while reducing evaporative loss of water

lar energy companies who in turn pay them Rs 3 for every unit of energy produced. Similarly, rooftops of government buildings like schools and hospitals are also leased out for solar panels.

A team, headed by Delhi's principal secretary (power), visited several solar power projects, including the ones at Gandhinagar secretariat, fly ash dyke and houses where solar power is being generated on terraces. The team also met Mr. D.J. Pandeyan, additional chief secretary (energy).

The installed capacity of solar photovoltaic (PV) in Delhi till 2013 was only 2.5 MW compared to over 1000 MW in Gujarat. "A supposed lack of available space for solar PV in a highly urbanized and congested city like Delhi is often considered to be a key barrier," says a report by Greenpeace India on Delhi's solar rooftop potential. The same report estimates that of 700 sq km which is Delhi's total built-up space, 31 sq km is available roof space that can be utilized for the solar rooftop project and that has a po-

tential to generate 2,557 MW, much higher than what Gujarat is generating currently.

According to a statement issued by the LG's office, Delhi government has sent three teams of senior officers from the government, power distribution companies and experts to Gujarat. "Gujarat has done pioneering work in solar power generation. Therefore, a team has been sent to Gujarat to study solar power projects and see the possibility of taking up such power projects and promoting solar power in Delhi."

Another team spent the day at Ahmedabad studying the municipal corporation's Sabarmati riverfront project which is an environmental improvement, social upliftment and urban rejuvenation project. The secretary (environment & forest) and CEO, Delhi Jal Board, are part of this team.

A third team comprising senior Delhi Police officers has been sent to Surat to study the CCTV network there. The system has been helpful in prevention and detection of crime.

Green clearances go online with time limits for approvals

Govt Looking To Clear Projects Within 60 Days

Vishwa Mohan | TNN

New Delhi: The government on Thursday kicked off online environment clearances for industrial and infrastructure projects which have for long been hobbled by the slow pace of green approvals.

While the original plan was to have a common platform for state as well as central clearances, in the initial phase, the online mechanism will deal with approvals given by the Union environment ministry and its related offices.

For the next three weeks, project developers will be required to submit a hard copy

ENVIRONMENT FOR BUSINESS

- E-window for green clearances set up. **Time limit for entire approval and stage-wise timelines** soon
- For next 3 weeks, applicants to submit hard copy of application as well. **Process entirely online from July 1**
- Centre looking to work with states to ensure **projects can be cleared in a maximum 60 days**

- Keen to fix **penalties** if delay at any stage remains unexplained
- **Forest clearances and mining-related approvals** to also go online soon
- **Deemed approval** for projects — clearances granted if no objection raised with stipulated timeframe — to be in place in **coming months**

of the application as well. From July 1, the system will be fully online, environment and forests minister Prakash Javadekar said. There will be a time limit for the entire approval process, with stage-wise timelines. "Efforts will be made to bring down the

timelines for each stage," the minister said.

The Centre is looking to work with states to ensure that the process at their end is completed on time so that the environment ministry can grant clearance within a maximum of 60 days, an official said.

There will also be a penalty provision if a delay at any stage remains unexplained. Though this provision is yet to be codified, the ministry appears firm on introducing the clause as early as possible.

➤ Mining & forest nod, P 21

The Times of India, Delhi
dated June 06, 2014

Mining nod, forest clearances to go online too

Vishwa Mohan | TNN

New Delhi: The e-clearance mechanism for environment clearances is the first in a series of online approvals that the government proposes to put in place. In the next stage, forest clearances will be made online and work has begun to give mining-related approvals as well through the same route.

"This step is a beginning of transparency in governance and better functioning of the ministry. One need not visit the office but submit their proposals online," environment minister Prakash Javadekar said on Thursday while addressing an event to celebrate World Environment Day.

The e-window made operational on Thursday will not just remove physical interface but also enable the government to track an application more effectively and identify "tables" on which proposals are held up. The new system, which monitors stage-wise approval and compliance mechanism, will ensure security of information while simultaneously maintaining transparency in dealings between the ministry and the applicant.

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

Environment Ministry Reworking Yardsticks for Giving Mining Nod

New norms, expected to be finalised in a month's time, may open up larger sections of forest areas for mining

URMIA GOSWAMI
NEW DELHI

Large portions of forests could be opened up for mining as the environment ministry is reworking the yardsticks used to identify forest areas where mining is forbidden, or comes under a "no-go" area.

The environment ministry is diluting the current system of using six indicators — forest type, biological richness, wildlife value, density of forest cover, integrity of landscape, and hydrological value — to decide on forest areas where mining will not be permitted. It is working on a system of identifying forests on the basis of four parameters instead of six, official sources said.

It is now keen to have only four indicators: wildlife value, forest cover, forest type, and integrity of landscape. The proposed system will drop biological richness arguing that it is accounted for under wildlife value and combines hydrological value with forest cover, sources said.

The new system is expected to be finalised in a month's time. Sources indicated that under the proposed system larger sections of forest areas will be opened up for mining.

The six indicators being revised were suggested by a committee set up in March 2012 under the then environment secretary, Tishyarakshit Chatterjee. It was set up by a ministerial panel headed by Pranab Mukherjee, which was set up after infrastructure ministries felt that the "no-go/go" formulated by then environment minister Jairam Ramesh to demarcate forest was un-mindful of the needs of economic growth and unscientific. The infrastructure ministers were unhappy with the Chatterjee committee also but it was decided to use the six parameters until a compromise is worked out.

The Chatterjee Committee was asked to suggest scientific and objective ways to



REMOVING MINING HURDLES

identify forest areas where no mining would be permitted, and it recommended the six factors that would be used to identify "invio-late" forest areas. Coastal areas, the north-eastern area and the Himalayan areas could well be out of bounds for like mining.

The "Report of the Committee to Formulate Objective Parameters for Identifying Inviolable Forest Areas" was submitted to the ministry in July 2012, however it was made public only in January 2013. The ministerial group, by that time headed by then agriculture minister Sharad Pawar, was not keen to accept the six indicators identified by the Committee fearing that vast swathes of the forest areas will be out of reach.

Infrastructure ministries had blamed the procedure of environmental clearances as a huge obstacle in increasing coal production, building highways, constructing ports and setting up power stations. The environment ministry, on the other hand, had argued that it was not blocking investments, but simply implementing laws enacted by Parliament to protect the environment.

Proposed system will drop biological richness arguing it is accounted for under wildlife value and combines hydrological value with forest cover

Renewable Energy Ministry Aims at Higher Solar Power Targets

Plans four solar power plants of 1,000 Mw each likely to be set up in Rajasthan, Gujarat, J&K and Ladakh

MITUL THAKKAR & SHREYA JAI
NEW DELHI

The government is aggressively accelerating the solar energy programme, and aiming for four giant plants of 1,000 Mw each. It also wants to bundle solar and conventional power to make renewable energy more affordable.

Giant solar projects may be put up quickly in Rajasthan, Gujarat, Jammu & Kashmir and Ladakh as the new government is keen to promote this source of renewable energy. To achieve the target of commissioning of 20,000 Mw of solar power generation capacity ahead of targeted 2022, the government may redesign Jawaharlal Nehru National Solar Mission while the scope of the Electricity Act 2003 may also be expanded to push for higher utilisation of renewable energy.

India has commissioned 2,650 Mw of solar power generation capacity, which is dominated by Gujarat with close to 1,000 Mw. Besides promoting four large projects with over 500 Mw of installed capacity each, the government wants to move forward to eliminate bottlenecks for ongoing capacity addition programme for solar power.

To deal with delays in larger projects, the government has surveyed several sites and cities to assess the potential and viability of solar power in the country that receives adequate radiation during its 300 days of sunny days a year.

Piyush Goyal, minister responsible for three key energy portfolios — power, renewable energy and coal — held meetings with officers from the relevant departments and institutions recently. He assessed the progress of solar power projects and directed officers to facilitate the development to set and achieve higher targets in next phases of the Mission. Goyal did not rule out possibility of setting higher targets or advancing the timeline of the Mission during his initial meets with the concerned government officials.

"Now that MNRE is under the same minister as power, synchronising of common issues such as grid connectivity and sale of power would be better. Policy delays ham-



There is an opinion in the ministry that the scope of Electricity Act should be expanded to empower renewable energy. It is believed that cost of solar power can be brought down by increasing the scale of demands for panels and equipment in the country

SENIOR OFFICIAL

Ministry of New and Renewable Energy

per the investment, both domestic and foreign. With the clean energy sector receiving \$7 billion worth of investment last year, about 70% of which came from private players, we are hoping that it would double up by the end of the second phase in 2017," said a senior MNRE official requesting anonymity.

In its election manifesto, BJP promised to introduce a comprehensive national energy policy that will also expand and strengthen the national solar mission. Soon after tak-

ing over his office, Goyal expressed his desire to learn from 'Gujarat model'.

The status of compliance under the renewable purchase obligations (RPO) determined by respective state electricity regulatory commission was also discussed during the meetings, according to one of the government officers close to the developments. "The Electricity Act 2003 does not deal extensively with renewable energy and state utilities cannot be compelled to procure expensive solar power through policies and regulations alone. There is an opinion in the ministry that the scope of Electricity Act should be expanded to empower renewable energy. It is believed that cost of solar power can be brought down by increasing the scale of demands for panels and equipment in the country," he said.

mitul.thakkar@timesgroup.com

The Times of India, Delhi dated
June 06, 2014

The Times of India, Delhi dated
June 07, 2014

Delhi neglects solar power, ignores potential

Jayashree Nandl | TNN

New Delhi: Gujarat had land to develop solar farms and plan innovative projects like solar panels on the Narmada canal; land-starved Delhi cannot afford all that. The least it can do is to replicate Gandhinagar's solar rooftop project that started as a pilot for government buildings but now provides to private properties as well. In contrast, Delhi has hardly moved on the solar front. It has small projects with a negligible output. The Delhi government had prepared a solar policy in 2013 but it's still stuck between various departments.

The installed capacity of solar photovoltaic (PV) cells in Delhi till 2013 was only 2.5 MW compared to over 1000 MW in Gujarat. "The overall cost besides an acute shortage of land is what kept Delhi waiting. Which is why we too advised them to look at rooftop systems instead of ground-mounted ones," says Abhishek Pratap, renewable energy campaigner for Greenpeace India. "Even if Delhi chooses to replicate the Gandhinagar model, determining the preferential tariff for those who rent their roof out to utilities is crucial. Without an attractive incentive for them, the scheme will just fall

flat." That's the feedback they have got from RWAs.

Under the rent-a-roof scheme in Gandhinagar, residents give out their rooftops on hire to private solar energy

companies who in turn pay them Rs 3 for every unit of energy produced.

Delhi has also been slow in executing the net-metering technology that is crucial for

producers of roof-top solar power to be able to supply to the grid and gain benefits from it. Net metering is a mechanism that credits customers who generate solar energy to add to

Photos: Anrit Mewada and Dhaval Bharwad

WHAT CAPITAL CAN REPLICATE

Gandhinagar (Solar) Photovoltaic Rooftop Programme

Capacity target — 2MW

How it is done

Consists of solar panels installed on rooftop made out of crystalline silicon. When Sun hits the panels, radiation gets converted to direct current (DC) electricity. An inverter that is connected to the panels converts DC electricity into alternate current. Electric power generated is then fed into conventional or public grid. Any property within city limits with a permanent structure and terrace is suitable to apply in Gandhinagar, such systems have been installed on a pilot basis in various government buildings like New Sachivalaya, Udyog Bhavan, houses of some ministers, bureaucrats, and on Pandit Deendayal Petroleum University



SOLAR
INSTALLED
CAPACITY IN
DELHI: 3MW
GUJARAT: OVER
1,000MW

OTHER IMPORTANT PROJECTS IN GUJARAT

Charanka Solar Park The 600MW plant, located at Charanka village in Patan on 5,384 acres of unused land, is said to be Asia's largest



Narmada Canal Rooftop Project Power plant located at Chandrasan village near Mehsana, 45km from Ahmedabad, will generate 1.6 million units of electricity per year. Panels are built over the canal to prevent evaporation of river water

the grid. The utility pays the customer for the extra or unused units of solar energy, which automatically go back to the grid. Delhi Electricity Regulatory Commission (DERC) had recently invited comments from stakeholders on a proposal to introduce net metering for rooftop solar power generation according to the guidelines laid down by the ministry of new and renewable energy. But that hasn't been finalized either. DERC hasn't fixed a tariff yet because the projects in Delhi are too small. "We will do that only when there is a very big project. It doesn't make sense otherwise," says PD Sudhakar, chairman of DERC.

Delhi met 0% of its renewable purchase obligation (RPO) in 2012 while Meghalaya, Tamil Nadu, Nagaland, Uttarakhand and Karnataka overshot their targets. RPO is a government regulation that makes it obligatory for state electricity regulatory commissions to buy a certain percentage of electricity generated from renewable sources. These targets were set by different states in 2010 to achieve the National Action Plan on Climate Change (NAPCC) requirement of 15% renewable energy supply in India by 2020.

Environment secretary Sanjiv Kumar and director, environment, Anil Kumar, had visited Gujarat last September to see their projects. The two are currently in Gandhinagar. "We are trying to understand the feasibility of the solar rooftop project but can't say if anything will be replicated for sure," said Anil Kumar.

Experts say the rooftop model is the only scheme that is replicable. Anand Prabhu Pathanjali, energy campaigner with Greenpeace India, said the rooftop model is a micro-utility concept or one that can also work in a mini-grid and that it is well-established in parts of United States and Germany. "It's an established concept for any land-starved city. I think Delhi can try the canal project too where panels are laid on a Narmada canal in Gujarat. It may be costly on the Yamuna though because of the size."

'Rooftop Revolution', a report by Greenpeace, has estimated that of 700 sq km, which is Delhi's total built-up space, about 31 sq km is the "available roof space" that can be utilized for the solar project and that it has a potential to generate 2,557 MW, much higher than what Gujarat is generating currently.

*The Times of India, Delhi
dated June 10, 2014*

Law on climate change need of hour: Summit

Narayani Ganesh | TNN

Mexico City: In the Mexican Congress at the 2nd World Summit of Legislators (WSL) 2014 organized by the London-based GLOBE International—nearly 300 senior legislators and scientists from more than 70 countries, including Speakers of Parliaments and Presidents of Congress, brainstormed to formulate a resolution on climate change legislation.

With international governmental negotiations failing to deliver, a new generation of international agreement is needed that harnesses the

GREEN TALKS

power of legislators, say summit conveners. With poverty alleviation and sustainable use of natural resources topping the agenda, the thrust of the summit's resolution is for urgent action via legislators and parliaments. GLOBE's recently released 4th Climate Legislation Study of laws in 66 nations clearly highlights this trend. In 1997, at the time when the Kyoto Protocol was agreed upon, there were only 47 laws in the 66 countries studied. At the end of 2013, those same countries had 487 climate-related laws.

While extremely vulnerable countries like Bangla-

desh and island nations like the Marshall Islands and Micronesia understandably made a plea for earliest action, others like oil-rich Saudi Arabia asked why only petroleum and gas are being singled out as fossil fuels and not others.

Bhutan, having taken to the exalted path of finding gross national happiness, recommended that, "Since natural disasters and sustainable development issues affect neighbouring countries, perhaps countries in a region ought to be clubbed together when char-

ting plans of action." The summit concluded on Sunday with a ground-breaking Legislators' Resolution that commits lawmakers to review and strengthen their national climate laws and help prepare the ground for a 2015 climate agreement in Paris. The resolution commits to undertake a comprehensive assessment of existing legislative responses to address and prepare for the impacts of climate change to ensure that they are consistent with the international goal of limiting global average temperature to 2 degrees Celsius.

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

*The Times of India, Delhi dated
June 11, 2014*

Domestic Solar Cell Makers Clear Air Around Use of Indigenous Products

Say cost of solar power could fall & remain at ₹7.5 a unit by 2020 if indigenous solar cells are used

SHREYA JAI
NEW DELHI

Domestic manufacturers of solar cells have said that use of indigenous products can help keep cost of solar power low, countering the government's claim that it will escalate after imposition of dumping duty.

"The fact is that cost of power will remain exactly the same or lesser than what was discovered through an extremely transparent bidding process of Jawaharlal Nehru National Solar Mission (JNNSM) Phase 2 Batch 1," a senior executive of a large Indian solar cell manufacturing company said. "From public interest perspective, it is the cost of overall energy mix which is important. Change in that will be negligible at less than 2 paise per Kwhr due to anti-dumping duty."

According to domestic manufacturers, the cost of solar power could fall and remain at ₹7.5 per unit by 2020 if indigenous solar cells are used, compared with the ₹6.5-8 per unit at present.

The Ministry of New and Renewable Energy (MNRE) and power producers had expressed concern that the cost of solar power would double after the commerce department said it was considering imposing high dumping duty on imports of solar cells, the bulk of which comes from the US, China, Malaysia and Taiwan.

Officials also fear that a large number of projects will get stuck



due to price escalation. More than 70% of the projects across the country are built on imported solar cells and around 4,000 Mw was tendered recently. This includes 375 Mw tendered out in the second phase of the National Solar Mission in January this year.

The Jawaharlal Nehru National Solar Mission (JNNSM), announced in 2009, targets 20 gigawatts of energy generation by 2022 in three phases.

In its finding, the commerce department had indicated that im-

position of dumping duty could see foreign players setting up manufacturing facilities in the country in order to capture the growing sector.

"In fact, once it is provided a level playing field, India will have a thriving domestic manufacturing industry with its entire supply chain, bringing in FDI, saving Forex, driving employment, and above all, ensure India's energy security with a far superior energy mix," Moser Baer Solar's chief marketing officer Vivek Chaturvedi said, adding

that this could push up India's solar cell manufacturing capacity to 4-5 gw in two-three years.

The government, however, is not relying completely on the domestic industry because of insufficient capacity. Against India's annual requirement of 3,000 Mw of solar cells, the country's installed capacity is 1,260 Mw, of which only 240 Mw is operational, according to the MNRE.

"In the last bidding for solar power projects under the second phase of the National Solar Mission, the price of domestic content based projects was double of the ones based on imported solar cells. This is the reason we offered a mix of both to optimise the cost of solar power," said a senior MNRE official.

The second phase of JNNSM was bifurcated into one based on domestically-manufactured solar cells and the other based on imported content.

The official said that in their previous presentations to the government, the domestic manufacturers have always cited the high cost of financing and solar power to gain subsidy benefits.

"But if they are able to provide cheaper solar cells, what is better than that. Our aim is to bring down the cost of solar power and also bolster the domestic manufacturing," the official added.

shreya.jai@timesgroup.com

*The Economic Times, Delhi dated
June 13, 2014*

Delhiites May Turn on the Sun Too

City could follow Gujarat in rooftop solar power generation if a study being conducted by Tata Power finds it viable

OUR BUREAU
NEW DELHI

Residential colonies and commercial establishments could reduce the burden of their electricity bills if a study currently being carried out by Tata Power Delhi Distribution finds rooftop solar power generation projects feasible and the city joins the club of such power producers that includes Gujarat.

According to estimates, 33 km of Delhi's total area of 1,483 sq km can be used for rooftop solar photovoltaic projects to install 2,557 mw of capacity. However, Delhi's potential to produce solar power has not been exploited yet, even as power demand touches new heights almost every successive summer, which is the most pro-

ductive season for solar power installations.

Tata Power Delhi Distribution—which has already installed capacity of 1.8 mw of rooftop solar power generation at its establishments—has said that due to dust across the city the performance of the set-up is about 15%, compared with 20-25% in large-scale projects that have come up on wasteland in Gujarat and Rajasthan.

The power distributor, armed with financial assistance of \$459,238 from US Trade and Development Agency, will prepare a business case to utilise rooftops in the city to procure solar power. It will explore viability of putting up its own rooftop projects or buying power generated from the installations owned by residential colonies or bring in third parties

to own and operate these projects. "We have tied up for 1,600 mw of power to meet the peak demand of our close to 14 lakh consumers in our distribution area for this year.

According to projections, the same will go up by 1,900 mw in 2017 and 2,300 mw in 2020. We wish to utilise 100-200 mw of grid integrated renewables power projects and meet the balance requirements through the demand side management," said Tata Power Delhi CEO Praveer Sinha, adding that the study would also come up with a business model to partner with residents of Del-

hi. Tata Power Delhi is confident that with the gradual decline in cost of generation, solar power is expected to become a viable source of electricity soon.

Gujarat has already experimented with solar projects in its capital city Gandhinagar by installing 5 mw of capacity on the rooftop of government buildings and plans to replicate this model in five more cities in the state.

Tata Power Delhi wants to assess rooftop solar power generation in the light of the existing policy framework and gap between grid tariff and solar tariff, among other parameters.

It will also assess technical aspects of metering the establishments engaged in both electricity consumption and solar power generation.



33 km of Delhi's total area of 1,483 sq km can be used for rooftop solar photovoltaic projects to install 2,557 MW of capacity

The Economic Times, Delhi dated June 13, 2014

Of ₹40k-crore National Clean Energy Fund, only ₹1.6 Cr Spent on Projects

SHREYA JAI & GANGADHAR S PATIL
NEW DELHI

The government has collected ₹40,000 crore as cess on coal through the National Clean Energy Fund, but even as intended beneficiaries continue to wait for disbursement, it has allocated just over 1% of this amount to the ministry of new and renewable energy (MNRE), the nodal department for developing clean energy in the country.

Worse, of the ₹500 crore of the NCEF amount disbursed to it, the ministry has spent just ₹1.6 crore on clean energy projects over the past three years. Replying to an application filed by ET under the Right to Information Act, the ministry further disclosed that it had spent just ₹57 lakh since 2011 on grid-connected projects that are supposed to be priority for the government's clean energy initiatives.

The NCEF was set up in 2010-11 for promoting clean energy in the country. The lack of inter-ministerial coordination and delay in allocation have resulted in stalling of projects worth ₹10,000 crore for want of allocation of funds from the NCEF, the ministry officials said.

The government had decided to levy a cess of ₹50 per tonne on both domestically produced and imported coal to build up the NCEF, and fund research and innovative projects in clean energy technology. The finance ministry accumulates this fund and it is disbursed in consultation with the Planning Commission.

The MNRE has been complaining to the central government that the amount allocated under the NCEF is not being disbursed regularly. "Our annual allocation should be ₹3,500 crore, but we have

Money Unspent

₹40,000 CRORE Total collection via National Clean Energy Fund

₹3,500 CRORE Amount needed by renewable energy ministry p.a.

₹1,500 CRORE Amount received by the ministry in 2013-14

₹10,000 CRORE PROJECTS/SCHEMES IN WAITING: Green Corridors, viability gap funding to solar power project developers, off-grid solar systems, National Wind Energy Mission, generation-based incentive to wind power producers

never received it. Last year, ₹1,500 crore was disbursed from the NCEF for ministry's budget. This clogs the projects selected to be funded through the NCEF," said a senior MNRE official.

Funding of the ambitious 'Green Corridors' project, alternative transmission infrastructure for renewable power; subsidy amount to off-grid renewable solution providers and viability funding to the solar power project developers under the National Solar Mission are all dependent on the NCEF, government officials said. The recently-announced Wind Energy Mission has also pinned its hopes on the NCEF for potential funding. The unpaid amount to the off-grid solar solution providers has grown to ₹1,100 crore.

RENEWABLE ENERGY

Push Clean Energy with Innovation, Technology



Anil Sardana

At the end of January this year, a group of MPs submitted an expert report on renewable energy to the Prime Minister. According to the report, India today has 75 million households without access to electricity. Per-capita consumption in rural households stood at only 8 units per month compared to 24 units in urban households. In 2001-02, the government pledged to provide "electricity for all by 2012", a target that was later deferred to 2017.

We need to meet our energy demand, while focusing on reduction in emissions. This must be achieved by planning power generation on a fuel mix while improving efficiency and controlling emissions through use of technology and clean sources of energy.

The last few years have seen an increasing thrust on renewable energy generation. While the total medium-term potential, say, by 2032, for power generation from renewable energy sources in India is about 1,83,000 MW, the 12th and 13th Five-Year Plans have envisaged an additional capacity of 18,500 MW and 30,500 MW from renewable sources respectively. The government has also offered various incentives to help the sector, but there are challenges to be dealt with.

The National Action Plan on Climate Change has set a renewable purchase obligations (RPO) target of 15% by 2020. The RPO is the minimum percentage of the total power that electricity distribution companies and some large power consumers need to purchase from renewable energy (RE)

sources. RPO creates a minimum market for renewables in the absence of pricing externalities of conventional power generation.

However, the state electricity regulatory commissions set year-wise targets. Though most states have set RPO targets for solar and non-solar renewable energy, compliance is low. To address the mismatch between availability of RE resources in the state and the requirement of the obligated entities to meet the RPO, the government introduced the Renewable Energy Certificate (REC) mechanism.

The REC programme is a good initiative and encourages the optimum use of renewable energy sources. In wind energy, Tamil Nadu, Karnataka, Maharashtra, Gujarat, Rajasthan and some parts of Andhra Pradesh and Madhya Pradesh are resource-rich. While the discoms can meet their RPO in these states by buying wind power, another state that does not have wind or solar generation or potential can trade through the REC mechanism.

Under the REC mechanism, projects are set up in the vicinity of potential sources and developers are given a

choice to either sell this power at the feed-in tariffs or sell it to the state at the average procurement price, comprising all sources of energy.

There are various challenges related to the infrastructure of renewable energy generation and transmission. Wind and solar power require land. Land acquisition is getting more and more difficult and one needs to be close to the evacuation point. Due to the short gestation period of RE plants, the transmission has to lead generation and needs upfront investment.

The basic technical challenge comes from the variability of wind and solar power that affects the load balance, varying demand for reactive power and impact on voltage stability. The Indian grid suffers due to lack of adequate infrastructure for transmission and distribution. The condition is even worse for the southern region that has seen limited capacity additions and is connected asynchronously to the rest of the grid.

Adoption of automation and monitoring systems in transmission and distribution systems is essential. There is also a need to focus on smart infrastructure to reduce energy deficit. In addition to the lack of infrastructure to evacuate renewable energy power, there is also lack of communication systems to capture real-time RE generation data.

Analysts suggest that India's energy demand is expected to double by 2035. With the need for power coupled with the requirement to meet emission reduction targets, it is imperative to increase the fuel mix in the country. Renewables contribute only 17% to our power requirements against 59% generated through coal. Despite the challenges, there is immense potential for the renewable sector in India.

The writer is managing director, Tata Power



The Times of India, Delhi dated June 13, 2014

Now, personalized climates to save energy

New System Developed To Target The Space Around An Individual & Keep Him Comfortable

Washington: MIT researchers have developed a system that creates personalized climates around individuals, providing an alternative to heating entire buildings. The project, called 'Local Warming', uses WiFi-based motion tracking and ceiling-mounted dynamic heating elements to target a single person and create a precise personal climate around occupants of a building. As a result, each person is kept comfortable while the space around them is maintained at a lower temperature — saving energy, the researchers said.

"Today, a huge amount of energy is wasted on heating



PERSONAL CARE

empty offices, homes, and partially occupied buildings," said professor Carlo Ratti, director of the Massachusetts Institute of Technology (MIT) Senseable City Lab, which led the project. "The technologies underlying Local Warming could address this by synchronising climate control with human presence, vastly improving the energy efficiency of buildings," Ratti said.

As a visitor enters a room, the person's location and trajectory are spotted using a new WiFi-based location tracking technology developed by professor Dina Katabi and her team in the MIT Center for Wireless Net-

works and Mobile Computing, housed in MIT's Computer Science and Artificial Intelligence Laboratory. This information is then transmitted in real time to an array of dynamic heating elements positioned in a grid near the ceiling.

Each element is composed of a servo-motor that changes direction, a bulb to generate infrared radiation, a cold mirror and other optics to create focused beams.

"Infrared heat is emitted to generate what are essentially spotlights of warmth centered on people a few metres away. This ensures ultimate comfort, while improving the overall energy

efficiency," said Leigh Christie, the project engineer. Miriam Roure, the lead researcher on the project and a research fellow in the Senseable City Lab, noted that the first commercial application of this technology might be responsive outdoor heaters that warm people as they move through exterior or semi-covered spaces.

Local Warming systems could then be installed in large lobbies or industrial lofts — spaces that are often sparsely occupied. As the technology further develops, it could allow each person to define the specific temperature they prefer via smartphone, experts said.

The Times of India, Delhi dated June 13, 2014

Tata Power weighs solar energy option

TIMES NEWS NETWORK

New Delhi: Tata Power Delhi Distribution Limited has started a feasibility study on rooftop solar power generation.

According to TPDDL, of the 510 sq km distribution network it serves, there is around 10.71 sq km (2.1%—considering suburban open area) suitable rooftop space which is sufficient to generate 883 MW of power.

"Delhi has a geographical area of 1,483 square kilometres and approximately 31 square kilometres of rooftop space. If

utilized properly, it can generate over 2500 MW of power through solar energy. We need to overcome constraints like policy uncertainty (subsidy and interest rate, for example), source of finance, business model and the gap between grid tariff and solar tariff for that," said a senior official.

Praveer Sinha, CEO and executive director of TPDDL, said the study is being done in association with Energy and Environmental Economics, USA. The company received a grant of USD 459,238 from the



US agency roped in for study

US Trade and Development Agency for the study, which will be done in a year. USDTA is an independent US government foreign assistance agency funded by the US Congress.

The feasibility study is in

line with the government's National Solar Mission, which envisages establishing India as a global leader in solar energy. "National Solar Mission also aims to promote ecologically sustainable growth. Few states have pursued the policy and today, Gujarat alone has 1,000 MW of installed solar capacity. Delhi too has immense potential," said Sinha. He added, "This is the first time that such a study is being undertaken on such a large-scale. We will submit the final report to the power regulator for their approval."

The Times of India, Delhi dated June 14, 2014

Clean fuel panel for 75p cess on petrol, diesel

Wants BS-V Norms By 2020, BS-IV By 2017

TIMES NEWS NETWORK

New Delhi: A panel tasked with laying a roadmap for upgrading fuel quality has suggested applying BS-V (Bharat Stage-V) vehicular emission norm throughout the country by 2020, but much would depend on the government accepting the recommendation to raise petrol and diesel prices by 75 paise a litre to fund the transition.

The panel under former Planning Commission member Saumitra Chaudhuri suggests the amount can be charged as a special cess to help provide Rs 80,000 crore, or \$13 billion, that the state refineries would have to spend to upgrade their plants or add new units for producing conforming to Euro-V standard fuels. The panel's recommendation comes in the backdrop of a recent World Health Organization study terming air pollution in Delhi as the worst anywhere and listing 13 Indian cities among the world's 20 dirtiest. Vehicular emissions along with industrial exhausts are primarily blamed for air pollution.

In its report, Auto Fuel Vision & Policy 2025, the panel reckons the cess would raise Rs 64,000 crore over the seven years from 2014-15 to



₹80000 CRORE UPDATE

2021-22, assuming a modest growth in sales volumes.

In the run-up to the report, refineries had indicated a cost differential of 91 paise a litre for petrol and Rs 2.20 for a litre of diesel. The refineries have spent Rs 35,000 crore for the ongoing fuel upgrade plan (BS-II/III and BS-III/IV) and claim to incur an incremental operating cost of Rs 2.64 per litre for petrol and Rs 1.43 a litre for diesel.

The report suggests rolling out BS-IV standard fuels all over the country by 2017 before starting migration to BS-V by 2020. By April 2014, the country is expected to move to BS-VI norm.

It also recommends complete deregulation of diesel-petrol pricing is technically free of government control—so that the operational and recurring costs incurred on servicing capital and equipment do not become a bur-

den on the state refineries.

"When the reality is that there is regulation, sometimes explicit, sometimes informal, it is essential to reiterate and particularly when regulatory mandates make companies incur expenditure, the additional cost cannot be ignored and must be allowed to be fully reflected in the retail selling price," says the report. At present, 26 cities run on Euro-IV fuels. These include Delhi, Mumbai, Chennai, Ahmedabad and Lucknow. The rest of the country uses BS-III fuels.

The panel suggested introducing BS-IV fuel by 2015 in entire north—Jammu and Kashmir, Punjab, Haryana, Himachal Pradesh, Uttarakhand, Delhi and a part of Rajasthan and western Uttar Pradesh. By 2016, south as well as parts of Maharashtra, Goa, Gujarat and Rajasthan is to be covered and the rest of the country should get Euro-IV supplies by 2017.

The report suggests BS-V fuel rollout should be kicked off with the northern region and part of Gujarat and Rajasthan from 2019 as proposed for BS-IV and all of Gujarat and Rajasthan if logistics and supply conditions permit, before covering the entire country by April 2020.

The Times of India, Delhi dated June 14, 2014

Tough pollution regimen on cards

LG Panel Proposes Euro V Fuel, Linking Of PUC And Vehicle Databases

Jayashree Nandi & Ambika Pandit | TNN

New Delhi: A high-powered committee set up by the LG recently has listed a slew of measures to counter air pollution in the city. Key recommendations include linking the pollution under control (PUC) and vehicle registration databases so that notices are issued automatically to violators, upgrading the PUC system to track polluting vehicles and directing the traffic department to crack the whip on visibly polluting vehicles.

Among long-term plans are a parking policy and higher parking fees as a disincentive to car users. "People are not using parking lots as surface parking is much cheaper. This is leading to traffic congestion," said a senior official from the environment department. Sources who attended the meeting said there were recommendations to treble or double the current surface parking rates. The committee has also recommended advancing the implementation of Euro V fuel standards in Delhi.

STEPS FOR CLEANER AIR

Some short and long-term measures suggested by the LG's committee

- Traffic police and transport department to issue challans to visibly polluting vehicles
- PUC data to be integrated with vehicle registration data so that notices go out to violators automatically
- Pollution control norms to be made more stringent for old vehicles
- Civil supplies department to implement PUC as a precondition for buying petrol or diesel at pumps
- Existing bus depots may be



considered for conversion into multilevel parking lots

- Route plan to be made for optimum utilization of public transport
- Transport department to introduce more 10-15-seater minibuses for Metro users
- Introduce eight coaches in

all Metro trains

- Railways to explore revival of existing ring railway network and its integration with Metro
- Parking policy to be prepared
- Introduction of economic disincentive to be explored for private vehicle parking
- Motor Vehicles Act to be amended for reduction of fitness age of private vehicles from 15 years to 10 years
- Mechanical sweeping of dust on traffic-heavy main roads
- Greening Delhi action plan to be enforced by environment and forest department

will not help as the devil lies in the detail.

Anumita Roychowdhury, head of CSE's air pollution programme who was present in the meeting, said, "They have made a list of what needs to be done. But to make sure that it has some impact, there needs to be a very strong monitoring mechanism". She added

that continuous adjustments and deeper structural reforms are needed.

The plan seems to have many loose ends. It stresses on the existing mechanism of PUC certificates. Macro solutions were not discussed despite the presence of the Union ministries of earth sciences and petroleum and natural gas

in the meetings. Neither was the plan to introduce an air quality index and a health alert system. The draft second-generation air pollution action plan that was prepared to deal with the post-CNG air pollution issues in Delhi was also not included in the discussions. "The current listing is more of an improvement of all the mechanisms that exist. But no broad long-term plans have been discussed yet," said an official who was part of the meeting.

The LG had set up the high-powered committee chaired by the chief secretary with special CP (traffic), Delhi Police; secretary (environment); commissioner (transport) and additional secretary (DPCC) as its members after a WHO air quality database last month showed Delhi is the most polluted among 1,600 global cities. The concentration of PM2.5 (fine, respirable particles) was said to be the highest in Delhi at 153 micrograms per cubic metre while the WHO standard is 10 micrograms per cubic metre. In Beijing, the level was 56 micrograms.

Deccan Chronicle, Hyderabad dated June 15, 2014

RIVER | WOES

Sewerage treatment plants not very effective, drains continue to dump pollutants in river

Musi beautification project fails to take off

BHAGYASHREE TARKE | DC
HYDERABAD, JUNE 14

The ₹722-crore Musi Front project that promised to breathe new life into the river, seems to have been just on paper, as no major development has taken place yet.

Among the five STPs that were to be installed, the three major ones at Attapur, Nagole and Amberpet are not functioning effectively. As a result, untreated sewage is still entering the river.

Commissioning of the STPs at different areas by the Water Board was supposed to improve the water quality. However, the STPs have not been very effective. The one at Amberpet is dysfunctional. The other two — at Nagole and Attapur — have lesser capacity.

All this has given a boost to the usual skepticism among bureaucratic circles, as even the river front development



done by the GHMC in front of the High Court was not a big success.

"There are about 18 major drains and a few local drains

from various colonies that directly discharge raw sewage into the Musi," said a senior GHMC official who did not want to be named. Although

last year, the Andhra Pradesh High Court had directed the state government to make alternative arrangements to check direct discharge of

Commissioning of the STPs at different areas was supposed to improve the water quality. However, the STPs have not been very effective.

Grass cultivation on the river bed is another stumbling block. About 68,924 square yards is patta land and there are disputes as the agriculturists claim that patta was given to them by the Nizam

sewage water into the river till the completion of the beautification project, no such work has been done by the sewage board.

"Grass cultivation on the river bed is another stumbling block. About 68,924 square yards is patta land and there are disputes as the agriculturists claim that the agriculture patta was given to them by the Nizam," the official added.

According to the GHMC official, the project could not successfully take off because of the patta land issues.

The revenue department is working on it.

"This has been the issue since years. To solve the problem, there should be a powerful and dedicated team. The team should speak to all the stakeholders of the river in a convincing manner. Once this happens, other things will fall in place," said Anant Maringanti, an environmentalist.

The Times of India, Delhi dated June 15, 2014

Polluted air killed 3,700, says study

DC CORRESPONDENT
HYDERABAD, JUNE 14

Air pollution can be linked to nearly 3700 premature deaths and 2.8 lakh asthma attacks in Hyderabad city in one year, claimed a new study. Researchers assessed that amount of pollution load in the city in one year and estimated the death toll due to it.

The World Health Organisation had, earlier this year, said that air pollution exposure resulted in as many as 70 lakh premature deaths.

Air pollution is thought to be a real threat and WHO has said that it is the single largest environmental risk. Reducing air pollution could save millions of lives, WHO said. Studies pertaining to air pollution have been ongoing in the city to calculate the amount of air pollution. A new study conducted by environmentalist Dr Sarath K. Guttikunda, affiliate associate research professor, Desert Research Institute, USA, with data from the AP Pollution Control Board, claims that particulate matter of size less than 10 micrometers and 2.5 micrometers resulted in the pre-

As per the study, vehicular and industrial emissions in the city had about 252 lakh tonnes of carbon dioxide, 4.31 lakh tonnes of carbon monoxide, 1.13 lakh tonnes of non-methane volatile organic compounds, 1.27 tonnes of nitrogen oxides and 11,000 tonnes of sulphur dioxides. Emissions also accounted for 42,000 tonnes of particulate matter of size less than 10 micrometres



mature deaths of 3,700 persons and about 2.8 lakh asthma attacks in the year 2010-11 in the GHMC area.

"The source apportionment study in Hyderabad listed transportation, industries, and waste burning as critical sources of particulate matter (PM) pollution in the city," the study said.

Dr Guttikunda's study was published in *Air Quality, Atmosphere and Health* in its June 2014 issue.

City not equipped to tap rainwater

Most Harvesting Pits With Govt Agencies Unused; New Designs Floated

TIMES NEWS NETWORK

New Delhi: All indications are that this monsoon, Delhi will again fail to tap the rainwater needed for its parched areas. This is when the capital has the potential to store a quantity equal to Delhi Jal Board's entire supply for a fortnight.

Things have not moved since last year. In fact, the scenario seems even bleaker after a recent Delhi Pollution Control Committee's inspection report to National Green Tribunal revealed that most rainwater harvesting structures under government agencies like DJB, the Metro, public works department and prominent hospitals are defunct. Either they are not designed well or have silt; some had garbage dumped in the harvesting pits.

The environment department recently asked Central Ground Water Board to submit a new set of simple harvesting structure designs for houses and other properties. It was found that many people were seeking permission for storing rainwater but would actually dig up borewells to extract groundwater. Agencies are concerned that an effort to conserve water may lead to the reverse. They are now looking at a robust design that can be used only for harvesting rainwater.

"We have received new designs meant to prevent misuse of the rainwater collection pits. But, they have to be implemented on a large scale," said a senior environment official. There is no official record of the quantity of rainwater harvested so far, nor is there any clarity on the agency monitoring these structures. The environment department had recently informed NGT that it doesn't have the "technical expertise" to monitor such structures. "The responsibility lies

DON'T LET IT FLOW DOWN THE DRAIN

Rainwater harvesting potential in Delhi:
60 million cubic metres*
(1m³=1,000 litres)

That's **3,500 litres or 13 days*** average water availability per person

But hardly any rainwater is saved. Delhi Metro has water harvesting systems at **63 stations**

*Source: Groundwater recharge strategy for Delhi submitted to DIB

What residents can do

Collect rainwater in plastic tank through terrace/balcony chute

This water can be used for household cleaning, washing & watering of plants

At Rs 4 per litre (approx), it's the cheapest rainwater harvesting system

Underground recharge wells or pits can be developed in areas where groundwater is scarce. Rainwater from roof will flow directly into this pit. Drilling a 2-3m² well will cost Rs 50,000-75,000. A smaller pit of about 2-3ft² will cost Rs 8,000-10,000

with the corporations if installing such structures is part of the building bylaws. We clearly don't have the expertise or the manpower to monitor so many structures. We inspected some government structures this year because of

an NGT order," he added.

Delhi has no policy for rainwater harvesting. The urban development ministry had in its 2001 notification made an addition to the building bylaws of 1983, making rainwater harvesting manda-

Let nature work



The best way to harvest rainwater is to rejuvenate dead wetlands, storm water drains and irrigation canals. Conservation body Intach claims Hauz Khas Lake has recharged 800 million litres of groundwater in nine years

Maintenance

➤ Keep all catchments neat and clean

➤ Don't allow contaminated water to flow into system

➤ Put iron, nylon mesh or fine cloth on inlet/outlet pipes and chambers to prevent debris from getting into system

➤ Clean open drains regularly by removing deposits of sand and gravel

➤ Drain and clean storage tanks thoroughly before every monsoon

➤ Change filter media every year

➤ Remove algae from roof tiles and asbestos sheets before monsoon

➤ Do not let water stagnate in the collection chamber as this will slow down recharge

raising the limit to over 200 sq m. People often get their plans sanctioned with such a provision but never use it. I think Delhi needs a well-thought-out policy," said a South Corporation official.

He clarified that the corporation doesn't monitor RWH structures once the plan is sanctioned. "More than 40,000 new buildings with RWH structures may have been sanctioned in the past 13 years. We don't know if they are conserving water," he added.

Meanwhile, private RWH agencies have been getting many queries and requests with the approach of monsoon. Between April and May, Centre for Science and Envi-

It was found that many people were seeking permission for storing rainwater but would dig up borewells. Agencies are looking at a robust design to curb misuse

ronment's RWH cell has received 18 queries. The Gurgaon municipality has sought suggestions for rejuvenating wetlands, said Sumit Sengupta of CSE.

Intach has a different approach. Manu Bhattacharya of the natural heritage division doesn't believe in pushing for micro structures as they are costlier and difficult to maintain. He advocates a mix of individual efforts; colony-level exercises; macro RWH projects on irrigation canals, storm-water drains, 200 ponds, and rejuvenating depressions which used to be wetlands. He has proposed such a system for northwest and southwest Delhi, where Yamuna monsoon flood water and tertiary treated sewage will be used to replenish the aquifer for regular use and for drought years.

*The Economic Times, Delhi dated
June 17, 2014*

INDUSTRY LEADERS SHOWCASE POWER SOLUTION

Infy Takes a Green Turn

Co has proposed a 50 mw solar park to meet power needs in Karnataka offices

KR BALASUBRAMANYAM
BANGALORE

In 2006, soaring hotel costs and traffic snarls led Infosys to build Le Terrace, a four-star hotel with 500 rooms for its employees and overseas clients in its campus in Bangalore's Electronics City.

Eight years on, the software industry posterchild is about to embark on generating its own power, in the process saving costs, getting clean reliable power for its operations and fulfilling its broader obligations to society.

Infosys has proposed a 50 mw solar park in Karnataka, becoming the first software company in India to think of generating its own power that will meet a bulk of the electricity needs of its offices in Bangalore, Mysore and Mangalore.

Karnataka's Energy Minister DK Shivakumar told ET on Monday that Infosys had held one round of talks with the state government in which it had expressed keenness to build the solar power facility. "The company will buy land on its own," he said.

Infosys confirmed the intent and said it will submit a formal proposal to the government once they finalise the land. "We hope to commission the park in about a year," said Infosys Executive Vice President Ramadas Kamath told ET.

Asked why Infosys is entering captive generation, he said that his company wanted to be self-sufficient in energy. "We want to promote use of clean energy and reduce carbon emission. Solar is the best option. Several parts of Karnataka have good solar intensity. We now have solar technologies wherein you recover your investment in eight years. It has less of maintenance hassle, and easy to build," said Kamath, who heads facilities, administration, security and sustainability at Infosys.

Kamath said the idea to build a solar park had been mooted a year ago by Infosys' Head of Green Initiative Rohan Parekh, and had won the support of the company's board of directors.

"Narayana Murthy and the Board have been very keen that we do this," Kamath said.

The company has already started looking for some 300 acres of land in regions of Karnataka where solar intensity is high. The company expects project cost, including land, to be about ₹360-380 crore, small change for a company that is sitting on a cash pile of ₹30,000 crore. Infosys estimates that it would require about five acres of land to generate one megawatt of solar power and excluding land costs, each MW of capacity will require its shell out around ₹6.5 crore.

All the Infosys offices in Karnataka, which between them have around 65,000 seats, consume about 95 million units a year. The proposed 50

350 homes in cities such as Delhi, Mumbai or Bangalore.

"We will buy the balance from the grid," Kamath said, adding that the company would consider scaling up its generation capacity based on its experience with the 50 MW initially planned.

Grid power presently costs the company, which has managed to halve its per capita consumption of power between 2007 and 2013, about ₹5.65 per unit, while its own solar power would cost about ₹3 per unit after factoring in depreciation. Barring a few states, grid power is unreliable in most parts of India, forcing companies to also have diesel-operated generators for back-up power and raising their overall power costs. Companies such as Infosys, which carry out mission-critical operations for mostly overseas clients, need uninterrupted power and its solar experiment, if successful, could lead to other firms to think along similar lines.



1 MW will generate about 84 million units, nearly 90% of Infosys present energy needs. 1 MW capacity equals 1000 kilowatts or 1.67 million units of energy a year and is enough to light up anywhere between 300 and

SOLAR MISSION

We want to promote use of clean energy and reduce carbon emission. Solar is the best option. Several parts of Karnataka have good solar intensity. We now have solar technologies wherein you recover your investment in eight years.

RAMADAS KAMATH
Executive Vice President, Infosys

The Economic Times, Delhi dated June 17, 2014

Deccan Chronicle, Hyderabad dated June 18, 2014

DLF Follows Gujarat Model, to Install Solar Panel on Commercial Buildings

Realtor inks pact with UK-based Aniron Solatricity and Azure Power India

RAVI TEJA SHARMA
NEW DELHI

DLF has become the first real estate developer in the country to generate power by installing solar panels on top of its office buildings, a move similar to the experiment in Gujarat, where the state government has installed such panels on top of government buildings in capital city Gandhinagar. The developer has signed a build-and-operate agreement with UK-based Aniron Solatricity and Azure Power India to install solar panels on top of commercial buildings owned by DLF as an initial pilot project to produce 3 mw of power. The solar power generated will be routed to the buildings and combined with the main power source. "It will help us use the unused terrace spaces of our buildings for generating power from environment friendly sources," said Amit Grover, national director-offices business at



DLF. The developer's office buildings in Gurgaon, Delhi, Kolkata and Chennai are being used for this project. DLF had earlier installed a 100 mw captive power plant in its DLF Cybercity in Gurgaon that runs on gas. This plant provides an uninterrupted power supply to offices in Cybercity. While no other private company has so far installed solar projects on its rooftops, Gujarat government has installed solar panels to generate 5mw of power on the roofs of government buildings and has plans to replicate this in five more cities in the state. In

Delhi too, Tata Power Delhi Distribution has installed solar panels to generate 1.8mw of power on the roofs of its establishments. According to estimates, 33 km of Delhi's total area of 1,483 square km can be used for rooftop solar photovoltaic projects to install 2,557 mw of capacity. "At the moment rooftop solar power is still more expensive than grid power. Grid parity is a few years away but it is catching up," said Amit Kumar, executive director at consulting firm PricewaterhouseCoopers. DLF's Grover said the solar initiative is not only an alternative source of power alongside grid power, but like the company's gas-based captive plant at Cybercity in Gurgaon it would also provide higher quality of power to help protect high-end equipment installed by many of its multinational tenants in their offices. DLF has an office portfolio of 26 million sq ft spread across India.

India hints at increase of its carbon emission

Growth vs environment

New Delhi, June 17: Sending out a signal to the developed world on the issue of climate change, India on Tuesday said that developing nations have "a right to grow" and hence the net emission may increase. Environment minister Prakash Javadekar underlined that the problem of carbon emission has not been created by the developing nations and hence responsibility for addressing it should not be solely put on them. "We have to reduce our carbon emissions. But I have not created the emission problems. It has been done by others. But I am not into any blame game. India and developing countries have the right to grow," the minister said while addressing a function here. His statement assumes significance in the light of a meeting of



● Environment minister Prakash Javadekar underlined that the carbon emission problem has not been created by the developing nations and hence responsibility for addressing it should not be solely put on them. He also said that India has right to grow. Hence emission may grow.

"governments, leaders from finance, business, local government and civil society" in New York in September this year to bring bold and new announcements and action to keep the earth below the globally agreed two degree temperature rise. Noting that poverty is an "environmental disaster", Mr Javadekar said "unless we wipe out poverty, we can't address climate change." "To that end, we need to grow. Our net emis-

sion may increase," he said while speaking as the chief guest on the occasion of "World day to combat desertification" organised by the environment ministry and Indian Council for Forestry Research and Education. The statement is expected to further strengthen the BASIC group of nations on climate — a bloc of four biggest emerging countries Brazil, South Africa, India and China formed in November 2009. — PTI

The Times of India, Lucknow dated June 19, 2014

City headed towards a water crisis

Ground Water Sees Alarming Drop In 2014

Arvind Chauhan | TNN

Lucknow: The groundwater level of Lucknow continues to deplete at an alarming rate due to unregulated and excessive extraction and relentless concretization of green zones. According to a latest report from the groundwater department, the average drop in the past year was around 94cm in comparison to 73cm in 2013-14.

Of the 35 observation points set up by the department in different parts of the city, the highest drop in groundwater level was recorded in Lalbagh. It was followed by Aurangabad locality near Ashiana. HAL on Faizabad Road and Amraigao in Chhatat.

In 2013, the groundwater level of Lalbagh was 31.4 metre below the surface, which in 2014 was 34.45 metres—a drop of 3.05 metres. The drop in Ashiana was 2.85 metre. HAL recorded drop of 1.65 metre and Amraigao, 1.60 metre. Other areas which recorded a significant drop include Alambagh, Jankipuram and Mahanagar. Jail road, Airport, Cantonment, Victoria Park and Kukrail forest recorded the lowest depletion. "Due to illegal boring for tube wells, installation of submersible pumps in households, deforestation, lack of rain water harvesting measures and concretization of parks and green zones of

GROUND REALITY

Groundwater level depletion in Lucknow as of May-June 2014

Pre-monsoon water level	2013	2014	Difference
LDA Lalbagh	31.40	34.45	-3.05
HAL	29.30	30.95	-1.65
Alambagh	33.20	34.75	-1.55
Mahanagar Post Office	27.67	28.82	-1.15
Jail Road	36.15	36.25	-0.10
Cantonment Sadar	42.55	42.80	-0.25
Kukrail Forest	19.55	19.85	-0.30



Dependence on groundwater has increased

More than 40% of city's population depends on groundwater drawing it from tube-wells and hand pumps. There are around 609 tube-wells across the city and the entire Trans-Gomti area is dependant on them for water. The localities gradually heading towards 'no water zone' include Mahanagar, Indiranagar, Aliganj, Sitapur Road, Jankipuram, Alambagh, South City, Vrindavan Vojna, Sharda Nagar Vojna, etc. Jal Nigam sources say every year about 20% tube-wells have to be re-bored due to depleting ground water level. A hydro-geologist said "in 1976, water level in Amlinabad was 6 metre which has now gone below 30 metres. One can imagine uncontrolled extraction of groundwater." This year, Jal Nigam had to re-bore around 24 tube-wells. The ground water department said coordination between various government agencies is lacking on this issue. Installing rain water harvesting projects in houses is just one component of the entire planning. "Builders are bringing up structures everywhere leaving little scope for rainwater to penetrate inside the ground. The city has concretised to the extent that very little water can recharge the ground. There has to be a check on rapid real estate development," said the department. TNN

the city, the groundwater level has come to such a level," said senior hydrologist Ravi Kant. "If depletion continues at the present rate, the water crisis in the city would deepen further," he said. Already, many areas in the city are getting only one to two hours of water supply daily. People also complain that pressure of supply is so low that they have

to use water suction or lift pumps to draw water. The majority of population stores water in overhead tanks on the roof. Jal Sansthan secretary Raghuvendra Kumar said, "The state capital is losing 7,00,000 litre of groundwater reserves daily because of indiscriminate extraction". The Jal Sansthan supplies over 600 million litre water daily

(MLD) to a population of around 15 lakh in the urban areas of the district. Of the 609 MLD, nearly 50% is through tube wells. Jal Sansthan has 613 tube wells across the city. A similar number of private tube wells and borings in the city extract more than 300 MLD water from the ground. Many of such private borings are illegal.

LMC for rain water harvesting

Priyanka Singh | TNN

Lucknow: Alarmed by reports that ground water is depleting rapidly, LMC has suggested that 5% of all Central funds be allocated for water conservation projects in the city.

LMC will shortly be putting up this suggestion before Lucknow Development Authority to make rain water harvesting projects a precondition before approving maps of houses. Mayor Dinesh Sharma told TOI, "We suggest allocating 5% of all Central funds under JNNURM scheme towards installation of rain water harvesting projects in houses in the next executive body meeting."

Though similar efforts have been made in the past by LMC, Jal Nigam and the state ground water department, all went in vain because of poor management and lack of will. The rule exists of mandating rain water harvesting projects in houses measuring 300 square metres and above in the building by-laws, one rarely finds these in newly constructed buildings. "Though people mention them in the map, they are never actually constructed. Even LDA never bothers to check ground situation after construction," said an official. It is estimated that every year, ground water level is de-

pleting by about 60cms in all localities. The UP ground water department said "situation is grim. Though ground water recharge policy has been approved by the government in



2013, no concrete action has been taken till date. The policy suggests integrated planning of groundwater conservation in city where all departments like LMC, LDA, Jal Nigam, Jal Sansthan and groundwater department should work in coordination, but nothing of that sort exists."

LMC house had approved proposal of installing rain water harvesting projects in houses above 300 square metre last year, but it could not be implemented as the map approving powers exists with LDA. Since there is no coordination between the two agencies, the plan fell flat. Besides, there have been many government orders on this issue from time to time, yet departments are not adopting a holistic approach to solve the problem.

The Times of India, Lucknow dated June 19, 2014

SP govt to distribute 10,000 free e-rickshaws to registered pullers

Priyanka Singh | TNN

Lucknow: After distributing about 15 lakh laptops in the state, Samajwadi party is set to distribute around 10,000 battery operated 'electronic rickshaws' as freebies to registered three-wheeler cycle-rickshaw pullers in cities of Uttar Pradesh. Tenders of the project were issued in February but due to technical limitations, they could not get approval from certification agencies.

With Union transport minister Nitin Gadkari announcing that e-rickshaws don't come under the purview of Motor Vehicles Act, the UP government is ready to initiate retendering of the project. Officials said "this is a pet project of UP urban development minister Azam Khan who took active lead in proposing the concept to the Centre."

The idea was mooted around a year ago to reduce

E-ADVANTAGE

- Environment-friendly
- More sturdy and durable
- No traffic chaos because of reasonable speed
- Safe for passengers and drivers
- Fast and comfortable



pollution levels in cities caused due to emissions from motorised public transport vehicles. It was also felt that pulling a rickshaw manually in extreme weather conditions creates severe health and even mental problems to the pullers. To enable easy and safe driving, urban development department proposed launching e-rickshaws with UP Industrial Consultant Ltd

appointed consultant for the project.

UPICO's managing director Praveen Singh said "with the new government approving technical specifications recommended by UP government, we have permission to go ahead with the project. If retendering is done successfully, about 10000 e-rickshaws will be doled out to manual rickshaw pullers registered

within municipal limits over the next two months." An e-rickshaw comes in the range of Rs 75,000 to Rs 1,50,000.

These vehicles can be operated within municipal limits in inner lanes and alleys within colonies.

They won't be allowed on arterial roads of the city. Keeping e-rickshaws out of Motor Vehicles Act means their drivers will not need driving license, nor will the specifications need approval of certifying agencies. Any rickshaw puller can drive it freely on inner lanes of the city.

Officials said Gadkari approved the technical specifications recommended by state government for 'e-rickshaws'.

They said UP should take credit for initiating the idea as it is only after UP government officials met with the Union minister last week that he approved the proposal.

IIT-B tech to get water from sewage in Dwarka

TIMES NEWS NETWORK

New Delhi: Water-deficient Dwarka will get an additional 1.1 million gallons a day by January next year through a technology developed by IIT-Bombay students that will purify sewage to provide potable water.

Delhi Development Authority has decided to test the technology being

The mechanism, which its inventors call the 'soil bio technology', will increase the 4MGD supply to the area to 5.1MGD. The peak demand of the sub-city is 12MGD

used by Brihanmumbai Municipal Corporation (BMC) for Dwarka. "We will be keenly watching the project's development. If the project turns out to be successful in handling huge amounts of water, this could solve a lot of issues related to potable water across the capital," said vice-chairman Balvinder Kumar.

The mechanism, which its inventors call the "soil bio technology", will increase the 4MGD supply to the area to 5.1MGD. The peak demand of the

sub-city is 12MGD. The source of the supply will be the Palam drain, which will be "bioremediated"—biologically treated with the use of organisms to remove or neutralize pollutants—to make the drain water, high in biochemical oxygen demand (BoD), hygienic.

"BoD is the amount of dissolved oxygen needed by aerobic biological organisms in water to break down the organic material in a sample at a certain temperature over a given period," said an official.

A DDA official said the pilot project, on 5,000 sq m, would cost Rs 3.75 crore. By January, 5 million litres daily will be available which is equivalent to the supply from 50 tubewells.

"Kumar, along with a team of engineers and senior officers, assessed the proposal. The soil bio-technology is already being used by BMC and in other places," said a DDA official.

DDA will implement the project jointly with Intach and Vision Earthcare, a company of the Society for Innovation and Entrepreneurship at IIT-Bombay. A tri-partite agreement will be inked to formalize the project.

DDA officials will visit the sites in Mumbai. The facility would be developed underground so the top layer of the soil can be landscaped and developed as a green area.

The Times of India, Delhi dated June 22, 2014

The Times of India, Delhi dated June 20, 2014

Sunny Delhi not cut out to be solar city

Building Design, Space Crunch Are Hurdles

Jayashree Nandi | TNN

New Delhi: The world may be going solar but the capital isn't designed to harness the sun's energy optimally. That's the crux of an environment department report on the lessons Delhi can learn from Gujarat's solar power projects.

The report that will be submitted to the LG soon says Delhi can replicate Gandhinagar's "rent a roof" model, but it will be limited to government buildings like offices, schools and hospitals as most private properties are not suitably aligned or are haphazardly built.

Although the capital's solar power potential has not been assessed yet, a senior official from the department said, "Delhi is very different from other cities. The buildings are of uneven height. There are unauthorized colonies and various constructions on roofs". As a result, the rooftop area available for solar generation in Delhi may be much less than that in Gandhinagar, which is a planned city with buildings of similar height and size. "We have to assess the potential with bidders for this project. First, let's find out how much roof space is available," the officer said.



Rent a roof model will be limited only to government buildings

Solar panels work best on south-facing buildings, so initially, the project will be confined to government buildings that meet this requirement. Also, large-scale projects like solar parks that Gujarat has implemented will

GREEN POWER

not be feasible here because of the space crunch. "We have prepared a report only on the Gandhinagar rooftop project," said the official.

The project is likely to use a 'gross metering' system—one in which all the power generated goes to the grid, as opposed to the 'net metering' system in which the producer uses some of the power and

transfers the surplus to the grid. Rooftop owners will be compensated according to the Gandhinagar model. "If the cost of solar power is Rs 12 per unit, the property owner will get Rs 3 per unit."

Delhi's solar policy is still at a draft stage as power regulator DERC has not finalized metering guidelines. No time-lines have been set for the project. "We will know how much time the project will take after bidding starts," said the official.

Delhi's draft solar policy promotes a "production-based subsidy" under which the government pays the producer for the units of conventional energy saved by using renewable energy.

Ethanol-run bus to ply on Nagpur roads

Dipak Kumar Dash | TNN

New Delhi: Nagpur is set to be the first city in the country where a 100% ethanol-fuelled-bus would ply on pilot basis. Sources said the bus, which has already reached the port, would be launched in the next two-three weeks.

Nagpur is the home town of road transport and highways minister Nitin Gadkari, who had pushed the need for importing engines that can run on 85% of ethanol blended with 15% of other fuel.

Sources said the Scandinavian commercial vehicle manufacturer Scania had recently made a presentation in the ministry to explore the possibility of plying such buses. The company had said that two more such buses would soon reach India from Stockholm, officials said.

This project will pave way for pushing more such eco-friendly buses at a time when India is focusing on reducing its dependence on crude oil.

Since such buses can ply only in areas where enough ethanol is available, government will explore to start such services in manageable areas. Towns and cities in major sugar producing states such as Maharashtra, Uttar Pradesh, Karnataka and Punjab can be the options for starting such experiments.

Metro stations to be rated on green building standards

TIMES NEWS NETWORK

New Delhi: Stations of Delhi Metro's upcoming Phase III, along with other stations across the country, will be rated to judge their compatibility with green building norms, said Delhi Metro Rail Corporation (DMRC) on Friday.

"This will help the metro systems design their stations as eco-friendly structures and utilise natural resources such as sunlight more effectively," said the Delhi Metro spokesman, Anuj Dayal. According to the Delhi Metro, the rating process will help the upcoming Metro projects design their stations according to green building norms. They can later apply for the Leadership in Energy and Environmental Design, which is a globally accepted green building certification programme that recognizes the best in class building strategies and practices. DMRC has already announced that all the stations

ECO INITIATIVE

in its third phase of expansion along with 12 receiving sub-stations and residential quarters will be designed as green buildings.

"Green buildings help in better preservation of the environment as in such structures there are provisions for better saving of energy, water and CO2. Such buildings also have better waste management arrangements," added Dayal.

"The Indian Green Building Council (IGBC), a body involved in promoting the Green Building concept in India, will be conducting this rating process. They will also issue guidelines for designing the station structures as green buildings," he added.

Apart from Kolkata and Delhi, metro systems are also operational at Bengaluru and Mumbai. "Many other cities such as Jaipur, Kochi, Chennai, Hyderabad, Lucknow, Pune etc will also have metro corridors in the years to come. So, this initiative is expected to prove very beneficial for the better preservation of the environment," said a Delhi Metro official.

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