Climate Change Community

Community Update
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FROM THE RESOURCE PERSON

Dear Members,

We are delighted to present the 63rd Edition of the Community Update, today.

We thank you for your continued cooperation and support to this unique knowledge sharing platform facilitated by UNDP.

The compendium on Easy (not so easy) Solutions to tackle climate change launched in January, 2015 is the first step to document a range of technologies which are simple, low cost, easy to manage locally by community; easy to modify and manage for utilization by the masses to address the adverse impacts of climate change, link communities with the youth in particular to adopt these technologies in their day to day living in both urban and rural areas.

This is an ongoing process and members are requested to add to it based on their experiences and knowledge by writing to us. **Please send details of your technologies to Prabhjot Sodhi at: prabhjot.sodhi@ceeindia.org .**

We look forward to your inputs and insights.

Thanks & best regards,
Ramesh Kumar Jalan
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DEVELOPMENT IN THE SECTOR

Not a dream budget for solar by BRIDGE TO INDIA.

On the 28th of February, India's finance minister has presented the widely anticipated first full budget of the new Modi government. After all the fanfare around growing the Indian solar market including at the recent RE-INVEST, the industry was expecting if not real boost to the sector, at least a clear directional step towards creating a sustainable and fast growing solar market. This expectation was not met.

Just to clarify: we were not expecting industry handouts, such as feed-in-tariffs, subsidies or tax

breaks. They don't work. Instead, we were looking for measures that would create a sustainable solar market, one that allows professional and household investors an attractive rate of return on solar projects. Such a market can be created by: ensuring sustainable (implying: higher) power tariffs; by drafting reliable and transparent grid access rules; by investing into expanding the power grid and making it "smarter", i.e. future ready; by improving contractual security (clearing up the legal backlogs); by making acquisition of land easier; and by fully opening up India's financial system.

That cannot, of course, be achieved in entirety in just one year's budget. Thus, we would have already considered clear steps in the right direction a 10 out of 10 budget. However, they are missing. At the same time, there are no specific measures for renewables. For instance, there are now tax-free bonds for rail and roads, but not for renewables. In light of the government's earlier emphasis on providing financing solutions to achieve the ambitious renewables targets, this is surprising. Also, there was an expectation that the Minimum Alternate Tax (MAT, at 18%) was to be dropped for renewables projects. This did not happen. An interesting point made by the finance minister was that the government sees a cleaner development as part being pro-poor as environmental degradation hurts the poor most.

Overall, there is little in this budget to suggest how India is to grow to a 10 GW a year solar market, in line with the government's goals, from the current 1 GW per year. This budget, for us, is just a 3 out of 10 – a disappointment, really, especially when measured against the large expectations this government has fuelled over the past months.

What helps

- Overall economic policy seems to be sound and could bring India back to stable, higher growth rates (and hence rising power demand) and improve the business environment. There were no big handouts (subsidies) and the government seems determined to keep the budget (and inflation) under control
- 5% reduction on corporate tax (30% to 25% over a period of 4 years)
- This was not directly part of the budget, but to give the government its due: Instead of subsidizing petroleum products, there is now a duty, an effective "carbon tax" on them. This is hugely helpful. It might incentivize India's 60-90 GW of diesel backup operators to consider solar hybridization or replacement

What seems to help but does not (really)

- The coal cess is to be raised from INR 100 to INR 200 per ton of coal used. This will increase the funds in the National Clean Energy Fund and should lead to an increase in tariff of INR 0.04-0.06. The coal cess sounds like a good idea from the point of view of renewables, but it is worth keeping in mind that (a) domestic coal is given away to power plants at cost (rather than market prices) and that (b) the funds have so far not been spent on green investments. The underlying issues around power pricing remain unresolved
- More public investments is a growth driver, but not really sustainable/relevant to solar
- Less tax exemptions makes the Indian market more transparent, accessible for professional investors
- The government affirmed that it wants to provide power to India's un-electrified villages (it counts 20,000 of them). This is good, but there is no clarity on how it intends to do so. Previous governments have said the same and not delivered. What is different this time?
- Reduction on import duties of materials for solar cells (copper wiring, tin alloy). While this makes sense, it will have a small impact on cell manufacturing costs

What slows down the sector

The only (minor) concern is an increase in service tax to 14%. That will affect all engineering and maintenance services which are crucial to upholding execution quality of solar

What is missing

- No plan! The government wants to see 100 GW of solar and 70 GW of wind built in the next five years. These are very ambitious goals and there is absolutely nothing in the budget to suggest how this might be achieved
- No clear financing plan for renewables – there was much talk before the budget of initiatives such as currency hedging support, interest rate subvention and classification of renewables as priority sector. But none of these measures have been accepted
- No reform of the power markets. There is nothing to suggest how power prices might be rationalized and how
- No grid investment plans. 100 GW of solar would need much more infrastructure. Given that transmission lines take 3 years to build, the government would need to start now.

Indian Renewable Electricity Roadmap 2030 : First Initiative of NITI Aayog

The article is available at : http://www.solarquarter.com/index.php?option=com_k2&view=item&id=953:indian-re-roadmap-2030-niti-aayog-s-first-initiative&Itemid=139 .

The "Report India's Renewable Electricity Roadmap 2030—Toward Accelerated Renewable Electricity Deployment" was released at the Renewable Energy Global Investors Meet & Expo (RE-INVEST 2015) here today. The report was brought out by NITI Aayog with support of CII, Shakti Sustainable Energy Foundation and RAP (Regulatory Assistance Project), a global non-profit group, talks about the current scenario of renewable energy in India and what needs to be done for its accelerated deployment to address energy security concerns.

Shri Piyush Goyal, Union Minister of State (IC) for Coal, Power and New & Renewable Energy, lauded NITI Aayog for the report and said that it has instilled a lot of hope for following more ambitious targets. "We need to create an enabling environment with respect to clearance, land acquisition and other regulatory support." .

The Minister suggested that the land owners, who provide their land for setting up renewable energy projects, could be given a stake in the projects as an incentive. He urged NITI Aayog to help in creating some innovative model for the RE sector. He addressed the panelists while sitting in the audience. .

Commenting on the launch of the report, Smt Sindhushree Khullar, CEO, NITI Aayog- Govt of India stated that this is the first initiative of the Aayog. "Energy and renewable energy is a core area in India. We need to see actual movement on whatever the report suggests about," said Smt Khullar.

Mr Deepak Gupta, Senior Programme Manager- Power, Shakti Sustainable Energy Foundation, said that the report suggests possible roadmap to achieve ambitious targets in the renewable sector after assessing several best practices around the world. .

The panelists were of the opinion that India needs to keep renewable energy as a matter of national importance. They suggested that the need of the hour is to move away from the current practice and make RE as an integral part of the power sector. For this a comprehensive national policy framework would be required for smoother renewable projects development in the country.

Mr Mackay Miller, Technology Innovation Analyst, NREL, congratulated the Indian government for its ambitious RE targets and intent to attain that goal. He suggested that there is need to think about policy and financing mechanism so that investments take place. .

Smt Varsha Joshi, Joint Secretary, Ministry of New and Renewable Energy, lauded the report terming it as a good effort by the compilers. "It's time that India has to look at RE as a resource across the states. There are a lot of things to be learned and a lot to be done," she said. .

Shri Sumant Sinha talked about thinking 'out of the box' to operationalise the issues highlighted in the report. "Why can't we make renewable energy as the backbone of India's electricity generation? We have to re-think our entire reliability on coal. Discoms are reluctant on buying renewable power against highly subsidised conventional power," Shri Sinha noted. .

Getting fund is seen as one of the major challenges. However, Shri Rajat Misra, VP, SBI Capital Markets Ltd is of the opinion that funding is not a constraint if there is good policy in place.

Shri SK Soonee, CEO, POSOCO, raised the issue of grid as one of the major hurdles in increasing renewable potential. The experts stressed that renewable energy could be the backbone of Indian power scenario provided existing issues are addressed. They objected to having coal as the preferred power choice just because it is available beneath the earth. .

Smt Khullar stated that there is misconception in India that renewable energy is for rich. She asked everyone to be a part of this movement in renewable energy. "We are starting this journey with great hope and we should walk together to make it happen," Smt Khullar concluded.

Indian Solar Installations Totalled 883 MW in 2014

The article is available at : http://www.solarquarter.com/index.php?option=com_k2&view=item&id=1014:indian-solar-installations-totaled-883-mw-in-2014&Itemid=139 .

Mercom Capital Group, a global clean energy communications and consulting firm released its quarterly update on the Indian solar market. Indian solar installations in calendar year 2014 totaled 883 MW, down 12 percent compared to 1,004 MW installed in 2013. **Mercom's 2015 forecast is unchanged at approximately 1,800 MW with some upside**.

The Indian solar industry remains positive as solar programs are being announced with increased frequency and the installation goal continues to grow. The 100 GW solar installation goal set recently by the Modi government has thrilled the sector, but the industry is pragmatic and realizes that while 100 GW looks great on paper, the last five years have resulted in only 3,000 MW in solar installations, with last year's installations at less than 1 GW.

"Most of the industry is confused as they are constantly bombarded with new policies, goals, drafts and revisions," commented Raj Prabhu, CEO and Co-Founder of Mercom Capital Group. "The last time the National Solar Mission (NSM) conducted a solar auction was in October 2013 - the industry just wants to see execution."

"The two most impactful steps the government can take to help the solar industry take off and bring substantial investments into the sector would be to: 1) fix the financial health of DISCOM's [utilities] and thereby improve the credit rating of offtakers, and 2) classify 'renewables' as a priority lending sector in India, making more funds available for solar," continued Prabhu.

A large portion of 2015 installations are expected to come from the 700 MW Phase II Batch 1 projects, which are due to be commissioned in May of this year. Also, looking at the timeline for the last Batch, it takes approximately 19 months from RFS (request for submission) approval to the commissioning date, which means that for 2016 to be a big year the next three months will

be crucial for these policies to be finalized and RFS' approved.

Ministry of New and Renewable Energy (MNRE) released another revised draft for Batch 2 for 3,000 MW of PV projects recently, and issued draft guidelines to set up 2,000 MW of grid-connected solar PV power projects under NSM Phase II Batch 3 - "State Specific VGF Scheme."

Other solar programs announced by MNRE include the plan to set up 'Ultra Mega Solar Power Projects' in 25 Solar Parks, each with a capacity of 500 MW or larger, targeting 20,000 MW of installed capacity over a span of five years beginning in FY 2014-15. Under Batch 5 (note: there is no Batch 4) the plan is to set up grid-connected solar PV power projects by the Central Public Sector Undertakings (CPSUs) and Government of India organizations' for self-use or third-party sale, with viability gap funding (VGF) over a span of three years from FYs 2014-15 to 2016-17.

More than 300 MW of grid-connected and off-grid solar PV power projects are proposed to be set up by Defense Establishments with VGF in five years, from 2014-2019. MNRE has also launched a program to develop 100 MW of grid-connected solar PV power projects on canal banks and canal tops.

"The Modi government has brought policy momentum to the solar industry. The sector is now looking for quick implementation, competent execution and actual installations," further commented Prabhu.

Clay based Mitticool Refrigerator : Innovative Earthen Products : Sardar Patel Renewable Energy Research Institute (SPRERI)

Further details regarding SPRERI are available at: http://www.spreri.org/ .

Sardar Patel Renewable Energy Research Institute (SPRERI) was established in January 1979 as a result of the initiative taken by a group of foresighted persons led by Late Dr. H.M. Patel and Late Shri Nanubhai Amin. SPRERI is situated in Vallabh Vidyanagar, a township about 5 km from Anand, the milk capital of India.

SPRERI, a leading organization for research and development of renewable energy (RE) technologies, focuses on sustainable biomass conversion and solar energy based solutions, which are technically efficient, economically viable, environment friendly and which meet the needs of society. Its mission is :

- To set-up a world class "CENTRE FOR ADVANCED RESEARCH IN BIOMASS CONVERSION TECHNOLOGIES"
- To develop environment friendly technologies for conversion of biomass into bio-fuels, energy (including electricity) and useful chemicals
- To develop technologies for utilization of bioconversion waste
- To develop technologies for application of solar energy
- To develop business models for promoting use of RE technologies
- To provide knowledge based insights to influence policies and programmes of the Governments for utilization of biomass and solar energy technologies for meeting energy requirements
- To provide specialized training in RE technologies to engineers and scientists guidance and facilities to research students
- To provide extension support and consultancy to RE programmes
- To test and evaluate RE technologies

Introduction of the Mitticool Refrigerator Technology : The changing time has converted the so called luxury items into necessities. Conventional traditional kitchens are now being replaced to glossy kitchen which houses modern appliances like super cool refrigerators, water purifiers, Teflon coated hot plates and umpteen utensils made of plastic, steel or aluminum. These fancy items have given a glamorous look to kitchens. Modernization has not only discarded the traditional mud vessels, but has also given bad shape to our body and has registered a threat to the environment. The countryside inhabitants often regret that their houses are void of best of amenities like electrified automatic gadgets and modern cooking wares. Urban crowd and bucolic natives are equally ignorant about the positive benefits of simple life and ill effects of modernized life respectively. Time has come to reshape the way of life for our better health and contributing to the cause of conversing nature by using eco-friendly products.

The eco-friendly product made out of mud is a boon to the people who always crave for metro luxuries but the tight string of purse does not permit them to spend lavishly on the products. Usage of non-conventional products in houses contributes in promoting fashion of traditional products, preserves the trend of using organic product and adds value to save environment. Saving environment can be treated as an act of social responsibility.

Features of the Mitticool Refrigerator : A Mitticool fridge is a one piece unit made from molding clay in a rectangular shape having one box type chamber on top and two shelves below it. It works on the principle of evaporation. Water from the upper chambers drips down the side, and gets evaporated taking away heat from inside, leaving the chambers cool. The top upper chamber is used to store water. A small lid made out of clay is provided on the top. A small faucet tap is also provided at the front lower end of chamber to tap out the water for drinking use. In the lower chamber, two shelves are provided to store the food material. The first shelf can be used for storing vegetables, fruits etc. and the second shelf can be used for storing milk etc.

Innovator's Robustness : Pottery was the traditional and ancestral business of innovator's family. Pottery was in his blood and product making out of clay was his innate dexterity. Real passion of working with clay motivated him to settle in his family profession and carve a niche by inventing innovated clay products. Innovator's biggest strength was his father who based on his experience often gave useful tips to him. Innovator is a strong self believer who remained stable on his initiative (of venturing in pottery business) despite of profound opposition from community to start the business. Pottery business is innovator's passion and to give best product to the bottom of the pyramid is his ultimate goal. Innovator did not hesitate to learn the process of nonstick coating from other manufacturers. He constantly targeted improvement in product, by contemplating of small 'Minute Mitticools', which can cool the water in no time. Innovator was highly addicted to innovation, he had borrowed money from moneylenders to fund his experiments and make the product.

How to Make a Recycled Bottle Broom : Three Steps : Preparation, Cutting the Soda Bottles, Assembling the Broom

Further details are available at: http://www.wikihow.com/Make-a-Recycled-Bottle-Broom .

Wash out the soda bottles with hot soapy water. Remove any labels. Allow for ample drying time before constructing the broom.

Cutting the Soda Bottles

Slice the bottom off each soda bottle. Use the Exacto knife to complete this task.

Cut thin strips along the bottom of the first bottle. Use the scissors to cut strips that are approximately 1/2 inch/1cm long. The thinner the strips, the better. Leave approximately 2 inches/5cm of bottle between the bottle neck and the strip top.

Remove the bottom of the next soda bottle using the Exacto knife. Be sure you cut the bottle using the same measurements as you did the first bottle; the broom bottom must line up once it's assembled.

Cut the same sized strips up the sides of the bottle, leaving enough room between the top strips and the bottle neck.

Slice the top off the second bottle. Use the Exacto knife to remove the very top portion of the bottle. Be careful not to cut too closely to the top strips, or else the bottle will fall apart.

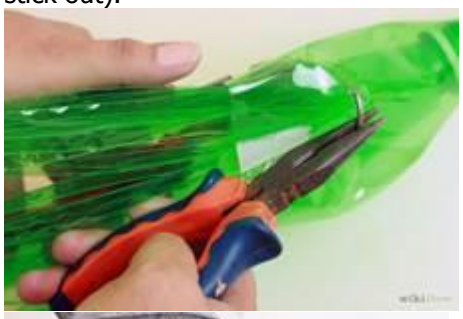
Slide the first bottle underneath the second bottle so they are joined as one. The first bottle neck should fit nicely through the cut hole you created in the second bottle.

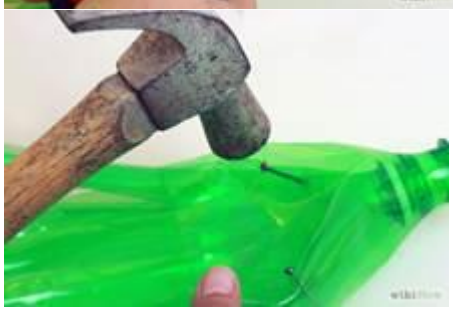
Slice the top off the third bottle. The top for your broom will be made from the third bottle. Cut the bottle using the Exacto knife two-thirds of the way up from the bottom of the bottle. Leave enough space to hold the other two bottles in place.

Assembling the Broom

Slide the cut bottle top from the third bottle over the two previously joined, shredded bottles. Be sure the bottle tops are aligned and check that the fit is snug.

Pound one nail into the right side of the third bottle. The nail must penetrate through the third bottle plastic and also pierce the other two bottles. Tap the nail backing off to the side (to avoid having it stick out).





Pound another nail into the left side of the third bottle. Space the nails evenly, leaving enough room in the middle to slide the stick or broom handle through the bottle opening.

Slide the stick or broom handle through the opening of the bottle until a third of the handle is through. The handle mustn't go all the way through, as only the "broom" area should show.

 **Tap the third nail through the stick/broom handle to secure it in place.** If any excess nail comes through the other end, tap the end sideways with the hammer to secure the back.

 **Done.**

A Brief Information & Technological Insight on India's 1st Floating Solar Power Plant

The article is available at :
http://www.solarquarter.com/index.php?option=com_k2&view=item&id=867:a-brief-information-technological-insight-on-india-s-1st-floating-solar-power-plant&Itemid=176 .

PV module manufacturer and Solar EPC Project Developer Vikram Solar has successfully completed the designing, installation & commissioning of India's first floating solar power plant at Smritiban, New Town, Kolkata. The 10kWp installation is the first of its kind in India and is part of a R&D project jointly done with Arka Renewable Energy College in Kolkata & NKDA. The project was funded by MNRE-Govt. of India.

This R&D installation is part of a test project for Vikram Solar's new floating module technology in

cooperation with Arka Renewable Energy College in Kolkata. Vikram Solar invests heavily in R&D to develop efficient & innovative systems and products to harness solar energy. This recent development is also a part of this programme. The project aims to create a system suitable for any type of water body with the possibility of being scaled up for use in any other given environment.

The installation is completely flexible, and consists of ten 1kW fibre glass modules, which make up the floating pontoon itself. This pontoon is designed from the inception to guarantee a reliable platform supporting the photovoltaic modules, inverter, connection boxes, lighting arrestor and O&M activities. The system is firmly anchored to the bottom of the lake and is connected to the grid by using a submersible cable. The overall system is designed to last for 25 years and produce a minimum generation of 14 MWh/year.

Solar Panels installed on the floating platform anchored by a suitable anchoring mechanism are naturally cooled, resulting in improved power production. The floating platform is modular in nature and made out of Fibreglass Reinforced Plastic (FRP) with Polyurethane (PU) foam filled up to make it non sinkable.

Here, the Solar Photovoltaic power generator consists of PID free solar modules in series and parallel connections; which convert solar radiations into DC electrical power at the pre-determined range of voltages. The individual solar cells are connected in a module (in series connection), which are hermetically sealed to survive in rugged weather conditions and ensures optimum performance.

The modules are installed on corrosion proof hot dip galvanised structures at an optimum tilt angle. The power from the solar modules are routed to the outdoor inverters through an array junction box.

The solar inverter converts DC power generated by a PV module to AC power. This AC power is transmitted through a submersible cable to the shore and exported to the grid. Proper protections are provided for isolating the inverter in case of grid failure. The inverter's inbuilt data logger is used for remote monitoring via GSM modem. A bi-directional meter is installed to monitor the NET Export.

UNESCO Conference Focuses on Interaction between Biodiversity and Climate Change

The article is available at: http://biodiversity-l.iisd.org/news/unesco-conference-focuses-on-interaction-between-biodiversity-and-climate-change/ .

Participants explored the scientific community's approaches to climate change, including its links to biodiversity, at a conference on the theme 'Assises du Vivant 2015 - Biodiversity and Climate Change in Interaction: Creating new life possibilities.' The UN Educational, Scientific and Cultural Organization (UNESCO) organized the conference as part of preparations for the 21st session of the Conference of the Parties (COP 21) to the UNFCCC.

The conference focused on three main themes: Rethinking conservation: towards 'no regrets' strategies; Developing ecological solidarity and environmental justice: teaming up with the rest of the living world; and Doing business differently: articulating performance and resilience. Participants also created networks focusing on the interaction between biodiversity and climate change, which will be mobilized throughout 2015 in the run-up to COP 21.

On conservation, participants highlighted the need to re-think both conservation strategies and

the spaces in which these strategies are applied. On ecological solidarity and environmental justice, participants underlined the importance of repositioning humans in their environment by dropping the pyramid-like conception of the cosmos in favor of a horizontal one. On doing business differently, participants indicated readiness to transform the "compromise of sustainable development" into social, environmental and economic co-development.

The conference concluded that researchers' creative and innovative potential needs to be protected and stimulated, particularly given societal transformations brought on by global environmental change. Participants highlighted the need for: a new logic for action in uncertainty, where "ignorance no longer permits immobility;" and a systemic approach where "the performance of a system depends more on the quality of the interaction between its parts than on the performance of these parts."

The conference brought together scientists, academics, and representatives of civil society, the private sector and the arts. The conference took place at UNESCO headquarters in Paris, France, from 9-10 February 2015

Magical Bucket: Helping to Create a Clean, Green City

Surabaya, one of the major cities in Indonesia is being transformed from a city surrounded by garbage into a beautiful green city through citizens' efforts. This transformation started from the advent of a magical technology.

The article is available at: http://miracle-kids.net/en/report/2015/rpt_id000242.html .

Waste is normally considered bothersome. However, the volume of waste from households can be reduced with simple ideas. For example, organic waste can be used as compost when segregated from non-biodegradable or inorganic waste.

Surabaya has a population of over 3 million, wherein citizens used to be annoyed by a large volume of waste generated from households. To solve this problem, a local environmental group, Pusdakota, launched a project to compost watermelon rind, mango peel, and banana peel, which account for half of the total volume of household wastes. The segregated wastes are then decomposed by bacteria and turned into an organic fertilizer. With this method, however, it takes several weeks to degrade the waste. In warm or hot climate countries like Indonesia, garbage easily gets spoiled, emitting bad odor and becoming a breeding site for pests.

In order to overcome this disadvantage, a Japanese researcher has introduced a new composting method to Surabaya in cooperation with its citizens and Pusdakota members. The new method uses the functions of fermentative bacteria. To carry out this method, ordinary bacteria, which can be seen in every field, are collected and proliferated. The bacteria proliferated in this way are treated with high temperature, so that spoilage bacteria are killed while fermentative bacteria survive. Using the fermentative bacteria, organic waste placed in a container is completely decomposed in a couple of days. For this reason, this container is often called "magical bucket."

In the magical bucket, organic waste is gone before being spoiled and generates compost instead. This bucket has become popular among households in the city. Citizens began to actively separate organic waste from other waste, which has resulted in reducing the total volume of garbage in the city.

The appearance of Surabaya has now changed. The city became greener than before, because the composts generated through this method is used to fertilize trees and other plants in the

city's parks, streets, and gardens. Indeed, new ideas can help transform problems into useful things.

Announcements

Industrial Areas: Planning for Sustainability". This article is an extract from "Sustainability: At the core of IGEP", A magazine of the Indo-German Environment Partnership Programme (IGEP), March 2015 .

Industrial development is one of the major drivers of economic growth in India. India is targeting industrial growth rate of 12% to 14% in the medium run, and contribution of industrial sector to national GDP by 25%. Creation of 100 million additional jobs by 2022 is also a key aim. India seeks to create a strong economic base with a globally competitive environment and state-of-the-art infrastructure to activate local commerce, enhance investments and attain sustainable development.

Today, the industrial development in India is seen in the form of industrial estates, special economic zones, specialized industrial parks, investment zones, NIMZs (National Investment and Manufacturing Zones), special investment regions, PCPIRs (petroleum, chemicals and petro-chemical investment regions) and industrial corridors. India is planning to build a pentagon of industrial corridors across the country to boost manufacturing and to project India as a global manufacturing destination of the world. The Delhi Mumbai Industrial Corridor (DMIC) is the first of its kind covering an overall length of 1,483 km and passing through the States of Uttar Pradesh, Haryana, Rajasthan, Madhya Pradesh, Gujarat and Maharashtra and the National Capital Region of Delhi, and will have 24 identified Industrial Areas and Investment Regions. Further, to facilitate investments, foster innovation, build best-in-class manufacturing infrastructure and enhance skills development, India has launched a major new national programme called "Make in India".

Industrial development, if not properly planned, has the potential to pose tremendous risks on natural resources, environment and the people. The key issues of concern are social conflicts due to the sites chosen for industrial development, environmental conflicts and negative impacts due to pollution and resources consumption (energy, water, materials), impacts on biodiversity (loss of ecosystem services, loss of species, changes in biodiversity etc.), and issues of climate change. Also, an industrial area that does not have a proper site master plan is likely to face serious problems due to lack of provisions for environmental and other related infrastructure. Such problems include traffic congestions and accidental risks due to lack of parking provisions for the hundreds of trucks entering the industrial areas, lack of land provisions for waste and waste water management, lack of buffer zones and lack of social infrastructure for workers, including eco-efficient transportation.

A well planned and organized industrial area, defined by set of quality parameters such as economic efficiency, environmental quality and social quality could be an answer to sustainability. Also, such areas could support sustainability of individual industries housed in them with high performance workplaces so as to enable industries strive for efficiencies and profitability, reduced environmental litigation risks and improved market image as well as public image.

Under the Indo-German Environment Partnership (IGEP) Programme, a pilot activity was taken up for developing environment friendly site master plans for industrial areas. On the lines of the DNGNB (Germany) standards, selected quality parameters were customized and put to testing for the pilot sites taken up under the IGEP Programme. These quality parameters are related to:

- Economic quality, e.g., cost effectiveness for the industrial plots, high investments in the industrial estate and high tax revenues investments, tax revenues.

- Technical quality, e.g., eco- efficient transportation, business infrastructure, energy efficiency and renewable energy provisions, green factory buildings, business infrastructure, combined services. Environmental quality, e.g., pollution control (wastes, wastewater, emissions, noise), climate change, resource efficiency, disaster risks, plantation & landscaping.

- Social quality, e.g., employment, gender aspects, social infrastructure.

- Process quality, e.g., management structures, service delivery, Public Private Partnership.

The pilot work taken up under IGEP programme for preparation of environment friendly site master plans includes:

- Green Industrial Park (GRIP), Nandigama (Telangana)
- Green Industrial Park, Jadcherla (Telangana)

The Green Industrial Park at Nandigama near Hyderabad caters to women entrepreneurs of the Association of Lady Entrepreneurs of Andhra Pradesh (ALEAP). The Green Industrial Park extends to about 85 acres and has about 140 plots for catering to non- polluting industries including sectors like herbal products, food and juice, paper and packaging, textiles, engineering etc.

The major highlights of the site master plan are:

- Green buildings for factory sheds
- Green energy applications – Photo Voltaic roof tops, solar street lamps
- Pollution control – waste water treatment recycle/ reuse; waste treatment and reuse; rainwater harvesting
- Green spines, ecological landscaping, organic farms.
- Women friendly: provisions for crèche, toilets, guest house for extended
- Work, first aid, canteens, internal shuttle service (battery operated), external connection to public transport, ladies room etc.
- Safety & security measures including fencing of the industrial park, access control for vehicles, Closed Circuit Television (CCTV) cameras, fire alarms & fighting systems etc.
- Cost effective common infrastructure, e.g., Common Effluent Treatment Plant, Vermi-Composting Plant (for organic waste), Handmade Paper Unit (for paper waste), Incubator facilities etc.

The Green Industrial Park at Jadcherla near Hyderabad, that extends over 954.23 acres, caters mainly to the non- polluting industries.

The main highlights of the site master plan are:

- Zoning of industries
- Exclusive zone for women entrepreneurs
- Hierarchy of roads with standardized road cross sections with provisions of infrastructure, drains, greenery etc.
- Decentralized storm water management system as per drainage and topography.
- Decentralized wastewater treatment and recycle/reuse provisions.
- Eco-efficient transportation and eco-friendly mobility, including bicycle tracks, pedestrian pathways along landscaped stretches.
- Provision for access control for vehicles, truck parking, truck service stations, rest house for drivers.
- Caters to about 300 industries and provides direct employment to about 20,000 people.

The site master plans have undergone preliminary assessment for DGNB certification and have given promising results. The learnings are being replicated into site master plans of Andhra Pradesh Special Economic Zone at Visakhapatnam and Multi Product Special Economic Zone at Naidupeta in Andhra Pradesh. Also, the learnings are planned to be integrated to the retrofitting site master plan of the existing industrial estate of the Gujarat Industrial Development Corporation at Vapi.

Everything You Need to Know About Global Warming in 5 Minutes

The article is available at: http://www.ritholtz.com/blog/2010/07/grantham-everything-you-need-to-know-about-global-warming-in-5-minutes/ .

1) The amount of carbon dioxide (CO2) in the atmosphere, after at least several hundred thousand years of remaining within a constant range, started to rise with the advent of the Industrial Revolution. It has increased by almost 40% and is rising each year. This is certain and straightforward.

2) One of the properties of CO2 is that it creates a greenhouse effect and, all other things being equal, an increase in its concentration in the atmosphere causes the Earth's temperature to rise. This is just physics. (The amount of other greenhouse gases in the atmosphere, such as methane, has also risen steeply since industrialization, which has added to the impact of higher CO2 levels.)

3) Several other factors, like changes in solar output, have major influences on climate over millennia, but these effects have been observed and measured. They alone cannot explain the rise in the global temperature over the past 50 years.

4) The uncertainties arise when it comes to the interaction between greenhouse gases and other factors in the complicated climate system. It is impossible to be sure exactly how quickly or how much the temperature will rise. But, the past can be measured. The temperature has indeed steadily risen over the past century while greenhouse gas levels have increased. But the forecasts still range very widely for what will happen in the future, ranging from a small but still potentially harmful rise of 1 to 2 degrees Fahrenheit to a potentially disastrous level of +6 to +10 degrees Fahrenheit within this century. A warmer atmosphere melts glaciers and ice sheets, and causes global sea levels to rise. A warmer atmosphere also contains more energy and holds more water, changing the global occurrences of storms, floods, and other extreme weather events.

5) Skeptics argue that this wide range of uncertainty about future temperature changes lowers the need to act: "Why spend money when you're not certain?" But since the penalties can rise at an accelerating rate at the tail, a wider range implies a greater risk (and a greater expected value of the costs.) This is logically and mathematically rigorous and yet is still argued.

6) Pascal asks the question: What is the expected value of a very small chance of an infinite loss? And, he answers, "Infinite." In this example, what is the cost of lowering CO2 output and having the long-term effect of increasing CO2 turn out to be nominal? The cost appears to be equal to foregoing, once in your life, six months' to one year's global growth – 2% to 4% or less. The benefits, even with no warming, include: energy independence from the Middle East; more jobs, since wind and solar power and increased efficiency are more labor-intensive than another coal-fired power plant; less pollution of streams and air; and an early leadership role for the U.S. in industries that will inevitably become important. Conversely, what are the costs of not acting on prevention when the results turn out to be serious: costs that may dwarf those for prevention;

and probable political destabilization from droughts, famine, mass migrations, and even war. And, to Pascal's real point, what might be the cost at the very extreme end of the distribution: Definitely life changing, possibly life threatening.

7) The biggest cost of all from global warming is likely to be the accumulated loss of biodiversity. This features nowhere in economic cost-benefit analysis because, not surprisingly, it is hard to put a price on that which is priceless.

8) A special word on the right-leaning think tanks: As libertarians, they abhor the need for government spending or even governmental leadership, which in their opinion is best left to private enterprise. In general, this may be an excellent idea. But global warming is a classic tragedy of the commons – seeking your own individual advantage, for once, does not lead to the common good, and the problem desperately needs government leadership and regulation.

9) The two most prestigious bastions of hard science are the National Academy in the U.S. and the Royal Society in the U.K., to which Isaac Newton and the rest of that huge 18th century cohort of brilliant scientists belonged. The presidents of both societies wrote a note recently, emphasizing the seriousness of the climate problem and that it was man-made. Both societies have also made full reports on behalf of their membership stating the same. Do we believe the whole elite of science is in a conspiracy?

10) Why are we arguing the issue? Challenging vested interests as powerful as the oil and coal lobbies was never going to be easy. Scientists are not naturally aggressive defenders of arguments. In short, they are conservatives by training: never, ever risk overstating your ideas.

11) Almost no one wants to change. The long-established status quo is very comfortable, and we are used to its deficiencies. But for this problem we must change. This is never easy.

Global warming will be the most important investment issue for the foreseeable future. But how to make money around this issue in the next few years is not yet clear to me. In a fast-moving field rife with treacherous politics, there will be many failures. Marketing a "climate" fund would be much easier than outperforming with it.

Stockholm Power Goes Green as Biomass Ousts Coal

The article is available at : http://www.renewableenergyworld.com/rea/news/article/2015/02/stockholm-power-goes-green-as-biomass-ousts-coal?cmpid=BioNL-Tuesday-February17-2015 .

For a lesson in global energy history, look no further than Stockholm's oldest power plant. Since 1903, Fortum Oyj's Vaerta harbor site has generated power using coal, oil, natural gas and even considered nuclear. Now it's **phasing out the last coal furnace and replacing it with the world's largest combined heat and power generator that will burn just wood chips and timber scraps by next year.**

"It's like looking at the growth rings of Swedish energy policy," Ulf Wikstroem, an environmental manager at Fortum, said by phone Jan. 13 from Stockholm. "We plan to have the whole plant running on biomass by 2030 at the latest."

Fortum's $530 million project is part of the region's push toward green energy. Biomass, which can include everything from waste and residue from wood to leftover food and cow dung, is poised to supplant fossil fuels as early as 2018, according to Markedskraft ASA, an energy adviser

in Arendal, Norway.

Denmark's Dong Energy A/S is switching half of its coal generators to biomass by 2020. Sweden's Vattenfall AB is also increasing biomass use, while limiting output at fossil-fuel units, the main source of global carbon-dioxide emissions.

While not the cleanest form of energy, burning wood has little impact on the climate because it has already soaked up from the atmosphere during its lifetime as much carbon dioxide as it releases as a fuel.

Sweden, the Nordic region's biggest economy, surpassed its 2020 European Union target of 49 percent renewable energy in 2012. The share will reach 57 percent by 2030 with current policies, according to the Swedish Energy Agency.

Global Push : The EU's target is 20 percent renewable energy by 2020, from 14 percent in 2012. In the U.S., President Barack Obama has ordered the federal government to get 10 percent of its energy from renewables this year. **China, the world's biggest energy user, plans to generate 15 percent of its needs from non-fossil sources by 2020.**

Envoys from 190 nations will meet at United Nations- sponsored talks in Paris in December to draw up carbon-dioxide emission limits. The current goal calls for policy makers to keep global warming increases to 2 degrees Celsius (3.6 degrees Fahrenheit) by the end of the century.

Across Sweden, facilities burning biomass to generate electricity increased 26 percent since 2009 to 201, according to a report in September by Svebio, a Stockholm-based group lobbying for biomass. Output was 10.4 terawatt-hours in 2013, according to Entso-E, a regional grid lobby group. That compares with 9.2 terawatt-hours of electricity from Oskarshamn-3, the nation's biggest reactor, last year.

Dong, Vattenfall : As much as 6 percent of the Nordic region's power was generated by burning biomass in 2013, compared with 3 percent in Europe, Entso-E data show. Dong, based in Copenhagen, plans to boost biofuel use at 10 power plants to 50 percent in the next five years, from 18 percent now, said Jens Price Wolf, the director of asset management for the utility's thermal units.

Vattenfall has sold two of its three Danish coal-fired plants "and is looking to divest the last one," Chief Executive Officer Magnus Hall told reporters and analysts on Thursday. The company also has plans to convert the 610-megawatt coal- and oil-fired plant to run on biomass, according to its website.

When Finland's 1,600-megawatt Olkiluoto-3 nuclear reactor starts in about four years, most of the Nordic fossil-fuel generators will be too expensive, according to Olav Botnen, an analyst at Markedskraft. This means power output from burning biomass will surpass coal for the first time, he said.

Rainy Morning : Amid the smell of wood chips on a rainy December morning, the rounded exterior of Fortum's new boiler sits under towers of scaffolding. It stands in contrast to the 28-acre (11.5-hectare) site's older, high-ceilinged brick structures, with tiled walls and ornamental cast-iron railings.

"The new plant has a more ambitious form, with a proper outside and not just a concrete box," Anders Johnson, an industrial economist and author of Norra Djurgaardsstaden, a history of the area, said in a Jan. 27 interview. It's a step back to the designs of public buildings a century ago,

he said.

The 330-megawatt Austrian-made boiler adds to Vaerta's production capacity that includes oil and biofuel-fed burners, as well as one of Sweden's last coal-fired generators, modified in 2010 to run partly on olive pits.

The complex will generate enough heat to warm 30 percent of Stockholm's 900,000 homes as well as meet as much as 8 percent of the city's electricity consumption, according to data from Fortum and Statistics Sweden.

The city, which controls 49.5 percent of the site, wants Vaerta's coal plant shut before the end of the decade and replaced with the new boiler, according to Katarina Luhr, the vice mayor overseeing environmental issues. Burning biomass will help the Nordic area's biggest metropolis meet its goal to be fossil-fuel free by 2040, she said.

"It's unacceptable having a coal plant in the city of Stockholm," Luhr said in a Jan. 23 interview. "It's important for our brand to show other cities we can do this. We have been able to do it, you can also do it."

Technologies to support climate change adaptation in developing Asia; Produced by: Asian Development Bank Institute (2014)

The report is available at: http://www.eldis.org/cf/rdr/?doc=70971 .

Asian Development Bank (ADB) report highlighting the climate adaptation needs among its developing member states, and assessing sector-relevant technological solutions.

According to the latest report from the Intergovernmental Panel on Climate Change, Asia could see decreases in water supply and food production in many areas, increased risks to coastal areas, and increased exposure to more intense extreme events due to climate change.

The region also contains seven of the world's ten most vulnerable countries, and the resulting economic impacts could be huge. Given this clear need to adapt to changing climates, technology must be explored and utilised as a key component to improving productivity, increasing efficiencies, and ameliorating climate change impacts.

This report discusses specific climate change impacts and vulnerabilities across the developing member countries of the ADB, and identifies some of the technologies needed to help reduce those vulnerabilities. It then presents examples such technologies required across six key sectors: agriculture, coastal resources, human health, transportation, water resources, and disaster risk management.

For the purposes of this report, the technology review deals mainly with emerging hard technologies, i.e. equipment and infrastructure. Some are very specific technologies, such as floating agriculture, whereas others are broader technology categories, such as crop breeding. The intent is to provide a representative overview of the wide diversity of technological approaches to adaptation that can be supported in a developing country.

Each chapter presents a comprehensive discussion of technologies that can meet the needs highlighted, with the authors assessing numerous criteria including effectiveness, relative costs, co-benefits, barriers to and feasibility of implementation, and the potential for financing, amongst others. Each chapter concludes with a synthesis summary, and table that combines the needs and

technology assessments, and identifies existing gaps in available technologies.

Global Risks 2015, 10th Edition; Produced by: World Economic Forum (2015)

The report is available at: http://www.eldis.org/cf/rdr/?doc=70990 .

The 2015 edition of the World Economic Forum's Global Risks report completes a decade of highlighting the most significant long-term risks worldwide, drawing on the perspectives of experts and global decision-makers this year's report underscores potential causes as well as solutions to global risks.

The report sets out a view on 28 global risks in the traditional categories (economic, environmental, societal, geopolitical, and technological), and also considers the numerous trends driving these threats, including increases in urbanization, connectivity, mobility, and ageing demographics. In addition, the report selects initiatives for addressing significant challenges, which it is hoped will inspire collaboration among business, government and civil society communities.

The first part of the report explores the results of the Global Risks Perception Survey 2014. It explains the distinction between risks and trends, visualizes the likelihood of interconnections between risks, and analyses the difference in risk perceptions over different time horizons.

The second part of the report goes in-depth into three topics that emerged strongly from the interconnections between risks and trends:

- the interplay between geopolitics and economics, including the risk to supply lines;
- rapid urbanization in developing countries and the resulting increased threat of global pandemics;
- emerging technologies such as synthetic biology and artificial intelligence.

The final section discusses risk management and risk resilience, presenting survey respondents' views on which risks have most successfully been addressed over the past 10 years and sharing practices from the public and private sectors that offer ways forward to address global risks.

The report then concludes with a summary, highlighting that threats have emerged rapidly over the last ten years as the world has become massively interconnected. This is evidenced by the use of social media during the Arab Spring, the contagion of the global economic crisis, and the rise in the threat of cyber-attacks.

Four Cities' Solutions to Sustainable Garbage Processing : Green cities must address garbage and trash with effective waste management strategies

Creative waste management strategies can play a critical role in helping cities improve their energy efficiency and become more sustainable in the long-term.

The article is available at: http://sustainablecitiescollective.com/embarq/1050616/friday-fun-how-create-tomorrow-s-green-cities-today-s-garbage?utm_source=feedburner&utm_medium=email&utm_campaign=Sustainable+Cities+Collective+%28all+posts%29

Cities around the world face many challenges to their cleanliness and environmental sustainability, including rising greenhouse gas emissions, unsanitary public spaces, foul odors, growing energy demand, low recycling rates, and limited space.

Most people wouldn't think of trash as a major root of these problems. Despite this, utilizing innovative waste management strategies can be a surprisingly effective way to address these complex issues all at once. Most solutions aren't as straightforward as San Francisco's efforts to boost recycling, for example, but they represent exciting opportunities to deal with an often-overlooked aspect of everyday city life.

Here are four cities that are reducing, reusing, and recycling their way to a more sustainable urban future:

Singapore's waste management
Singapore's robust recycle and reuse programs allow the city to generate energy from waste, fueling almost 1,000 homes a day. Singapore has a population of almost 5.5 million people and sits on roughly 700 square kilometers of land surrounded by water. Due to land constraints, Singapore's National Environment Agency understands the importance of waste reuse and disposal. To extend landfill life, Singapore actually incinerates about 8,200 tons of garbage per day, which reduces waste volume by 90 percent. That's like turning a twin mattress into a small microwave! In addition, these incineration plants produce over 2,500 MWh of energy each day, enough power to support roughly 900 homes daily. Singapore has also recently amplified its recycling programs. Burning trash allows Singapore to recover reusable metals, which can then be sold for a modest profit. In addition, the city recently began a pilot program that gives households utility rebates for reducing waste production.

Songdo's (South Korea), waste management
Songdo, one of South Korea's new "smart cities," uses incineration as a tool for dealing with the city's waste. Songdo is a privately built "smart city" about 40 miles from South Korea's capital and largest city, Seoul. The city hopes to conjure images of a science fiction movie in order to attract people and businesses. For example, Songdo's population of roughly 70,000 will never see garbage trucks on its streets. How is that possible? The city's trash gets sucked into the Third Zone Automated Waste Collection Plant using underground pipes. Once trash reaches the facility, the garbage is automatically recycled, burned for energy, or buried deep underground. Even though the facility is still not fully operational and Songdo is still struggling to attract residents, the city's futuristic systems present a different model to achieving unprecedented levels of waste reuse.

Mangalore's (India), waste management
While Mangalore, India has historically struggled to achieve good public sanitation, the city is now working with private contractors to clean up trash in the streets and storm drains. With a population of about half a million people, Mangalore has historically struggled to provide residents with good waste management. In 2012, the city also faced a serious problem due to uncollected, smelly garbage. To fix this, the Mangalore City Corporation (MCC) contracted its trash collection duties to a private company that will increase sanitation by cleaning walkways and removing sand that clogs storm drains. MCC then contracted its composting facility to a second company. The facility already uses Mangalore's trash to produce and sell up to 20 tons of compost daily. The company is also installing a machine this month that will sort waste before it decomposes. The machine allows waste in sealed plastic bags to decompose, reducing odor and increasing compost quality. Several challenges remain as stakeholders continue to learn about changing trash pickup policies, but the ambition demonstrated by these new efforts at waste management is a sign of progress.

Fortaleza's (Brazil) , waste management
Waste is a major contributor to greenhouse gas emissions in Fortaleza, and the city is looking to reduce its carbon footprint by investing in new recycling programs. In 2012, Fortaleza began

tracking its greenhouse gas emissions and found that 25 percent of its greenhouse gas emissions come from waste.

In fact, the city produces more than 10,000 pounds of waste every day. To reduce emissions from waste, Fortaleza has developed a Municipal Integrated Waste Management Plan and is investing over $300,000 in recycling. The city also developed a plan to capture and refine methane from its landfill to use as energy, which curbs its reliance on natural gas. Still early in the implementation stage, these ideas lay the foundation for a more sustainable, low-carbon city.

Turning the corner on toxic pollution : Today pollution kills nearly 9 million people while more than 200 million people worldwide suffer from ailments, diseases, sicknesses

The article is available at : http://www.indiaenvironmentportal.org.in/media/iep/infographics/toxic%20pollution/index.html

The fact that more than one in seven deaths in the world is pollution-related is just a glimpse into the incredible health and economic toll of toxic pollution. Mostly people do not die. Instead, an estimated 200 million people's bodies and brains may be damaged. Pollution kills people before their time. And along the way it damages both their bodies and their minds. It causes unnecessary misery. It destroys those who cannot get away.

For fifty-eight years, an oil refinery in Mexico City's urban core spewed lead, benzene, and heavy metals into the air, contributing to the capital's former reputation as the most polluted city on the planet. The grounds of the refinery were saturated with toxins meters below surface and the groundwater was contaminated. Working with the corporate sector, universities and industry, the Government of Mexico successfully remediated the area and today, the site is one of Mexico City's most beloved parks.

Dong Mai, Vietnam : 20 per Person Ends Dangerous Lead Poisoning of an Entire Village
At one time the people of Dong Mai were artisans, but in recent decades they turned to battery recycling and small-scale lead smelting to survive. Dong Mais 2,600 villagers paid a heavy price for this toxic work with high levels of respiratory diseases, and mental illness in the community. Thanks to a technical collaboration and a targeted clean up, the situation is rapidly beginning to turn around. Levels of lead in the villagers have dropped by 30% for an investment of just $20 a person.

Montevideo, Uruguay : Reclaiming Neighborhoods by Cleaning Up Electronic Waste Toxic Hot Spots Low-income earners in Montevideo burn electronic trash and electrical cables to obtain copper for resale. By burning e-waste over open pit fires they created toxic hotspots in their own communities, sites where contamination from heavy metals and other toxins are so high, it is a danger to human health. The Global Alliance on Health and Pollution teamed up with the City of Montevideo and successfully identified and remediated some of the worst toxic hotspots of the city.

Mailuu-Suu, Kyrgyzstan : Filters Improve Safety of Water Contaminated by Radionuclides while Children Create an Education Campaign Long defunct uranium mining operations have left a dangerous legacy in the town of Mailuu-Suu; one of many similar communities across the region. Heavy metals and radionuclides from 23 nearby tailing dumps have migrated into the towns crumbling water system. Immune system disorders have been found in nearly one in five adolescents. A project to install water filters in schools and kindergartens; measure radiation levels in houses including where needed installation of radiation shields and in very rare cases resettlement of inhabitants

Hunting down hundreds of thousands of tons of old but still toxic pesticides
Following the collapse of the Soviet Union hundreds of thousands of tons of toxic pesticides were discarded and forgotten. DDT, lindane and other organochlorine-based pesticides were buried at hundreds of largely unrecorded burial sites or left in thousands of abandoned warehouses throughout the region. The pesticides have been leaching toxins into nearby waterways and soil over the last twenty years. A broad partnership including FAO, Green Cross Switzerland and the Tomsk-based NGO Siberian Environmental Agency, WHO, UNEP, and Blacksmith Institute for a Pure Earth, are working with a local group in Siberia to uncover these toxic sites for remediation

China, India, and Madagascar
For China and India, the world's two largest emerging economies, environmental degradation and compromised public health have been the dark side of breakneck economic development. China has recently put in place a strict set of ambitious legal measures to reduce pollution. Meanwhile surveys completed in India with the assistance of Blacksmith Institute for a Pure Earth have helped map the pollution hotspots providing vital information for policy makers and the public.

China : Booming Economies : For China the world's largest emerging economies, environmental degradation and compromised public health have been the dark side of breakneck economic development. China has recently put in place a strict set of ambitious legal measures to reduce pollution. Meanwhile surveys completed in India with the assistance of Blacksmith Institute for a Pure Earth have helped map the pollution hotspots providing vital information for policy makers and the public. The Malagasy government recently approached GAHP asking for assistance dealing with sites of contamination scattered throughout the island. Over the last two decades this extremely sensitive environment has come under attack by toxins from activities that include pesticides stockpiling, illegal mining and crude battery recycling.

Agbogbloshie, Ghana : Dangerous Burning of Electronic Waste Replaced by Mechanized Recycling Informal e-waste recycling is an important source of income for the thousands in Agbogbloshie, in the heart of Accra, a city of 2 million. Burning the electronic scrap to recover prized metals, particularly copper, has taken a dreadful toll on the health of recyclers and on the environment. Now wire-stripping machines offer a safer and better way to extract the metals. Plans are already underway to make Agbogbloshie a model for sustainable e-waste recycling in Ghana and Africa.

Thiaroye-Sur- Mer, Senegal : replacing deadly lead recycling with profitable hydroponic gardens Young children in Thiaroye-Sur-Mer began mysteriously dying between November 2007 and March 2008. Acute lead poisoning was later determined as the cause of death, three thousand cubic meters of contaminated soil had to be removed. Technical advisors trained government workers and local contractors on how to adequately and safely remove the contamination. Presently, lead concentration in the soil in Thiaroye- Sur-Mer is at a level considered safe in the U.S. This remarkable turnaround was achieved not only through education and the cleanup, but by also providing alternative livelihoods for the women hydroponic agriculture.

WHAT WE CAN DO?
It need not be like this. We know this can be changed because we have done it. The richer countries no longer have these problems. Since the 1950s and 60s, in the U.S. and Europe, a consistent and steady effort has eradicated the worst of our toxic nightmares. Places like Kabwe no longer exist in the North thanks to awareness, regulations, remediation programs, careful controls on industry and mining. In wealthy countries the air is (mostly) clean, the water drinkable, and the soil around us free of toxins. We are all safer for it. Now is our chance to replicate this success in the rest of the world. Some work has been done, and much more is

needed.

These are stories proving we are on the right track, and moving forward. But we need to do more with industrialization in full swing around the world. We know how to solve the problem. It is simply a matter of providing communities and governments with the tools to get the job done now.

Climate Change and the Syrian Conflict : Researchers link climate to drought that affected Syria nearly a decade ago and helped spark country's conflict

This article was produced by the Climate News Network. The article is available at: https://undp.unteamworks.org/node/483020 .

In a dire chain of cause and effect, the drought that devastated parts of Syria from 2006 to 2010 was probably the result of climate change driven by human activities, a new study says. And the study's authors think that the drought may also have contributed to the outbreak of Syria's uprising in 2011.

The drought, which was the worst ever recorded in the region, ravaged agriculture in the breadbasket region of northern Syria, driving dispossessed farmers to the cities where poverty, government mismanagement and other factors created the unrest that exploded four years ago. The conflict has left at least 200,000 people dead, and has displaced millions of others.

The study, by scientists from Lamont-Doherty Earth Observatory at Columbia University, US, is published in the Proceedings of the National Academy of Sciences. The authors are quite clear that the climatic changes were human-driven (anthropogenic) and cannot be attributed simply to natural variability, but are careful to stress that their findings are tentative.

"We're not saying the drought caused the war," says Richard Seager, one of the co-authors. "We're saying that, added to all the other stressors, it helped kick things over the threshold into open conflict. "And a drought of that severity was made much more likely by the ongoing human-driven drying of that region."

Link with violence : Their study, although it contains new material, is not the first to suggest a possible link between extreme weather and the likelihood of violence. Some researchers have investigated whether there may be a link between El Niño and La Niña – the periodic Pacific weather disruptions – and outbreaks of unrest. Syria was not the only country affected by the drought. It struck the Fertile Crescent, linking Turkey, Syria and Iraq, where agriculture and animal herding are believed to have started around 12,000 years ago.

Suggestions of a global connection between climate change and political instability is being taken seriously by two influential groups – insurers and military planners. The Levant has always seen natural weather swings. Other research has suggested that the Akkadian empire, spanning much of the Fertile Crescent about 4,000 years ago, probably collapsed during a long drought.

But the authors of the Lamont-Doherty study, using existing studies and their own research, showed that the area has warmed by between 1°C and 1.2°C since 1900, and has undergone a 10% reduction in wet-season precipitation. They say this trend is a neat match for models of human-influenced global warming, and so cannot be attributed to natural variability. Global warming has had two effects, they say.

First, it appears to have indirectly weakened wind patterns that bring rain-laden air from the

Mediterranean, reducing precipitation during the usual November-April wet season. And higher temperatures have increased the evaporation of moisture from soils during the hot summers. The authors say an episode of this severity and length would have been unlikely without the long-term changes.

Other researchers have observed the long-term drying trend across the Mediterranean region, and have attributed at least part of it to anthropogenic warming. The researchers say Syria was especially vulnerable because of other factors – including a huge increase in population from four million in the 1950s to 22 million in recent years.

Water-intensive crops : The government has also encouraged water-intensive export crops such as cotton, while illegal drilling of irrigation wells depleted groundwater, says co-author Shahrzad Mohtadi, an international affairs consultant at the US Department of State. The drought's effects were immediate and overwhelming. Agricultural production – typically, a quarter of Syria's gross domestic product – fell by a third. In the northeast, livestock was practically wiped out, cereal prices doubled, and nutrition-related diseases among children increased steeply.

As many as 1.5 million people fled from the countryside to cities already strained by waves of refugees from the war in neighbouring Iraq. "Rapid demographic change encourages instability," the authors say. "Whether it was a primary or substantial factor is impossible to know, but drought can lead to devastating consequences when coupled with pre-existing acute vulnerability." Solomon Hsiang, professor of public policy at the University of California, Berkeley, says the study is "the first scientific paper to make the case that human-caused climate change is already altering the risk of large-scale social unrest and violence".

As part of the efforts to improve science-policy interface in the political decision-making processes at the United Nations on sustainable development, the Global Sustainable Development Report posted an open call to the scientific community around the world, to submit briefs, highlighting specific issues, findings, or researches with a bearing on sustainable development in its three dimensions – economic, social and environment – or their inter-linkages.

In the spirit of transparency, all published briefs are open for public review on the UN website: gsdr2015.wordpress.com . Comments on these crowd sourced briefs will be taken into consideration when the editors decide which topics to feature in the relevant chapters of the 2015 Global Sustainable Development Report, which will be reviewed by policy makers at the High-Level Political Forum on Sustainable Development (HLPF) in June 2015.

Two scientific briefs submitted by Development Alternatives (DA) are given below (brief abstract and links). We invite you to pick a topic of your interest and comment on the same (https://gsdr2015.wordpress.com/).

BRIEF 1: Decoupling Growth from Resource Generation

Global development over the last two centuries has been largely achieved through intensive, inefficient and unsustainable use of the earth's finite resources. It is likely that demand for natural resources will continue to increase, given the growing population and especially the rapidly growing global "middle class". The world also faces the challenge of lifting around one billion people out of poverty. All of this will have to be done keeping climate change, biodiversity loss and health threats within acceptable limits ("planetary boundaries").

The Scientific brief, "Decoupling Growth from Resource Generation" by Development Alternatives submitted for the Global Sustainable Development Report sees decoupling as an instrumental

ingredient for development processes ahead. It looks at the challenges and suggests core strategy in moving forward with growth decoupling.

BRIEF 2: Resilience Framework for Measuring Development

The "business as usual" development models are clearly showing incapability to face the challenges of within the capacity of the environment and natural resource base. Emerging recognition is also of the fact that social, economic, environmental and governance systems cannot be treated in isolation. Sustainable development which embeds social, economic, environmental and governance aspects of development is critical for people and planetary well-being. Resilience, of the social and ecological systems is a fundamental measure of sustainable development. The capacities of the systems and response to change and to create lasting well-being for people and place are some features that closely define resilience.

The Scientific brief, "Resilience Framework For Measuring Development" by Development Alternatives submitted for the Global Sustainable Development Report elaborates on a set of indicators that can measure the resilient nature of development. This shall lead to an understanding of what the real risks are, and facilitate development action in accordance to the needs of the case.

Inaugural Newsletter : Knowledge Exchange Platform : Promoting Energy Efficiency through Best Practices in Industries covered under the Perform Achieve & Trade (PAT) Scheme

" **India now produces 1 lakh crore units of electricity: if a 10% saving is made that can save 10,000 crore units, which is equivalent to Rs 50,000 crore savings which can be utilized for lighting the homes of 5 crore people of the country of who are deprived of electricity**" according to Minister of State (Independent Charge) for Power, Coal and New & Renewable Energy, Shri Piyush Goyal

BEE has increasingly come to realize the fact that 'knowledge' is a significant driving force for promoting growth and development. In this context, the promotion of knowledge transfer for accelerating industrial energy efficiency through the Knowledge Exchange Platform initiative assumes significance. At the heart of this initiative is promoting collaborations among industries to bring about an exchange of learning's with their peers and build partnerships that will bring in international best practices and technologies. It intends to use this newsletter as a tool to promote this agenda by providing a Forum for sharing industry's experience, bringing reviews on new technologies and linking up with important stakeholders in the energy efficiency space.

Significant work has been done by the industry and BEE wants to add momentum to this effort by teaming up with industry leaders and outstanding performers to create a knowledge community. The recently concluded National Energy Conservation Day on 14th December, 2014, where the Hon'ble Union Minister of State (Independent Charge) for Power, Coal and New & Renewable Energy, Shri Piyush Goyal, handed over prizes to the National Energy Conservation Award winners is evidence of the fact that there are large numbers of such energy leaders within the Indian industry.

This newsletter covers success stories, which have been carefully selected from two sectors and represent the best examples of energy efficiency projects. By presenting them the potential for gains in energy efficiency and their impact over a range of applications across sectors will be demonstrated. To accelerate the move towards an increase in energy efficiency in the country, these projects have to be scaled up and integrated into the mainstream development strategy of the industry.

This newsletter also bring to you the experience of leading industries in implementing energy management approaches under ISO 50001, as well as the voices of some industry leaders who have benefitted from it. In this inaugural issue, views of Fertilizer Association of India have been covered.

BEE will continue its effort to connect the industry partners with best available technologies, practices and knowledge through this newsletter, and other activities forming part of the Knowledge Exchange Platform. However, to be effective and to make this platform responsive to industry needs, it also requires participation and support from industry. KEP needs to develop into an influential and vibrant platform for promoting energy management system in the industry sector.

Climate change, migration burdening urban areas in Bay of Bengal

Rising urban population following forced migration from rural areas is a result of climate change and poses a burden upon urban risk-reduction efforts.

The article is available at: http://timesofindia.indiatimes.com/home/environment/developmental-issues/Climate-change-migration-burdening-urban-areas-in-Bay-of-Bengal/articleshow/46596396.cms .

Rising urban population following forced migration from rural areas is a result of climate change and poses a burden upon urban risk-reduction efforts, aver experts from Bay of Bengal countries.

Participating in a sub-regional workshop here last week, the experts adopted a 'Charter for Disaster Risk Reduction' with key policy recommendations for the ongoing World Conference on Disaster Risk Reduction (WCDRR) in Sendai, Japan. The document also brought to the fore the need to localize disaster risk-reduction (DRR) approaches, said a statement made available on Tuesday.

The charter was adopted at the third sub-regional workshop on "Community resilience to climate change in Bay of Bengal" with more than 120 representatives, including members of parliaments and legislative bodies, from India, Bangladesh, Sri Lanka and Nepal participating.

"The trend of rising urban population with continuous and large inflow of migrants from rural to urban areas is creating several challenges in both rural and urban areas. The forced migration as a result of climate impact is adding burden to manage urban risk reduction efforts," said the charter.

The charter said: "Urban centers must have the plan to address the issues for migrants to the cities and develop a comprehensive strategy to promote resilience with necessary skills to address their vulnerabilities."

The document also emphasized the necessity to strengthen institutional instruments to support data management, habitat planning and capacity building.

"Weak resource management as well as faulty development design and initiatives have created several challenges in urban areas such as flood, health related problems," the statement said citing the charter.

Other key recommendations in the charter focused on the importance of inclusion of social parameters in the "implementation and monitoring frameworks, with focus on impacts and not

only activities".

"A highly pertinent response needs specific attention to engage with youth and children to facilitate a safe school model and ensure the sustenance of the child friendly environment in disaster context," said the charter.

The charter also called for strengthening the linkages between science, policy and practice for a comprehensive engagement finally resulting in policies and strategies that lead to benefits for the communities at risk.

Spearheaded by global agencies such as Concern Worldwide and BCAS-Bangladesh, SEEDS Asia and others, the workshop and the subsequent charter also advocated the evolution and establishment of monitoring mechanisms for "rigorously keeping track of impact on community level, besides conduct of activities".

China is the largest contributor to annual growth in natural resource demand

The article is available at : http://www.footprintnetwork.org/en/index.php/newsletter/w/nfa_2015_release2#new .

China is the world's largest contributor to annual growth in the demand for ecological resources and services, and has been for the last five years for which data is available, according to Global Footprint Network.

The Ecological Footprint of the world – a measure of people's demand on nature – has begun climbing again after experiencing a 2.1 percent decline in 2009 during the recession, according to Global Footprint Network's 2015 Edition of the National Footprint Accounts, released today. The world's Ecological Footprint increased nearly 4 percent in 2010 and nearly 1.7 percent in 2011 (the latest year data is available).

However, excluding China, the world's Ecological Footprint increased far less in 2011: 0.9 percent. The Ecological Footprint of China climbed 3.6% in 2010 and 5.2% in 2011.

While the Ecological Footprints of many countries declined during the recession, including the United States and Germany, the Ecological Footprints of China and India, the world's two most populous countries, continued to rise and now comprise about one quarter of the Ecological Footprint of the entire world.

Still, the Ecological Footprints per person of both China and India remain far lower than that of many high-income countries. For example, the Ecological Footprint per person of the United States is more than seven times higher than that of India and nearly three times that of China.

In the past six months, both China and India have announced steps to reduce dependence on fossil fuels, which would decrease their Ecological Footprints. China, in particular, has invested substantially in renewable energy, and its decades-long focus on reducing fertility has also helped preserve its biocapacity per person. But more recent news that China's annual GDP growth should remain at 7 percent for the years to come suggests its Ecological Footprint will continue on an upward trajectory.

"In addition to recognizing the importance of indicators like GDP, unemployment or inflation, we look forward to the day when national decision-makers around the world also track their resource dependence. I hope they recognize that natural resources are a fundamental asset for any economy. They should be measured and managed wisely," says Global Footprint Network

President Mathis Wackernagel. "We believe it is not only critical but also possible to live within the means of nature.-It can be achieved without sacrificing current human well-being."

"This is a particularly important year for looking more closely at the planet's resource budget, first in September with the new Sustainable Development Goals and then in December in Paris for the climate talks," Wackernagel adds. "What is becoming clear is that living within nature's budget is vital for each and every nation's economic strength and the well-being of its citizens. Working with, rather than against, nature's budget is not only important for our planet as a whole but also for the health and resilience of each individual nation."

The 2015 National Footprint Accounts compare what people demand against what nature can provide. The accounts simply add together all of the human demands that compete for our planet's biologically productive surface (Ecological Footprint). This demand then can be compared to all of the planet's productive surfaces (biocapacity), including cropland, forests, pastures and fishing grounds. Using United Nations data sets, these accounts are calculated for approximately 200 nations.

Overall, approximately 71 percent of the world's population lives in nations with a double challenge: They earn below world-average income (based on Gross National Income) and are running a biocapacity deficit. This means that by 2011, they were using more resources and services from nature than the ecosystems within their respective borders regenerated, based on calculations from the 2015 National Footprint Accounts.

Global Footprint Network's annual update of the National Footprint Accounts shows that each country's performance varies year to year, but over the last decades, global ecological overshoot – humanity living beyond the budget of nature – has climbed substantially.
Ecological overshoot now stands at 54 percent above the planet's biocapacity. This means humanity demands biocapacity 54 percent faster than what our planet can renew in one year. By contrast, our planet had 30 percent more biocapacity than what humanity used in 1961, the first year for which consistent data sets are available.

The carbon Footprint continues to be the largest driver of today's overall Ecological Footprint, and is also the leading driver of climate change. The world's carbon Footprint increased almost 1.9 percent in 2011. That's down slightly from an average annual growth of 2.5 percent from 1961 to 2011.

When used in Ecological Footprint accounting, the carbon Footprint represents the land area required to sequester carbon dioxide emissions from fossil fuel use. This demand on nature competes for other land uses, including food, feed for animals, fiber for clothes and paper, and timber for construction. All those demands are tracked in the Footprint accounts.

The 2015 National Footprint Accounts cover five decades of data. This year's update is based on more than 6,000 data points per country per year, includes several methodological improvements and is being offered under a new, more open licensing program. More than 300 organizations and individuals around the world license Global Footprint Network's National Footprint Accounts each year, including universities and financial institutions.

This year, Global Footprint Network is offering the National Footprint Accounts under a more open licensing structure, with a new, improved "Public Data Package" available as a free download from our website. This free download includes the latest results for all countries, country graphics and the number of Earths required if the world's population lived like the average citizen of each country. The free download also offers many new ways to sort data—by region, quality score, GDP, Human Development Index score, and other categories – and data quality scores for the

results.

Since hitting a peak in 2004, the Ecological Footprint per person in the United States has dropped to nearly the same level it was in 1961 (the earliest year data is available). The recent Footprint contraction coincides with the recession. Similarly, several European countries, still struggling to pull out of the recession, continued to see a downward trend in their Ecological Footprints in 2011. That included the United Kingdom, France and Spain.

Germany, widely viewed as the strongest economy in Europe, saw its per person Ecological Footprint remain virtually flat in 2011, in continuation of the last decade, which may be attributed in part to its investment in renewable energy. Sweden was an outlier, with its Ecological Footprint starting to creep up again to about 6.5 global hectares per person, though that was still substantially lower than its all-time high of more than 8 global hectares in 2004.

"With more nations now moving closer toward economic recovery, Ecological Footprints will most likely begin creeping upward," notes Susan Burns, CEO of Global Footprint Network. "However, these recoveries will be fragile and unsustainable in the long run unless we take a more proactive approach to managing our natural resource dependence."

Priority Sector Lending Sector Status For The Renewable Industry In India

The article is available at : http://www.solarquarter.com/index.php?option=com_k2&view=item&id=1020:priority-sector-lending-sector-status-for-the-renewable-industry-in-india&Itemid=177 .

Today, the biggest challenge faced by the Indian solar industry is the high interest rates. During the starting phase of a project, it is burdened with high capital costs of solar energy along with high interest rates which increases the cost of debt. To resolve these issues the solar financing policies are not enough and there is need to ease the finance for the solar industry. A few financial policies adopted by central government have been successful at state level and can help in improving the finance available for India's solar market.

One such policy which has helped improve the growth of new sectors is the Priority Sector Lending (PSL) status. The benefits of priority lending sector is that it can ease access to capital via mainstream banks, and to provide agencies like IREDA, SIDBI and NABARD with clarity on funding in this sector. The PSL will also help to increase employability, create basic infrastructure and improve competitiveness of the economy, thus creating more jobs.

Currently the priority sector is reserved uniformly at 40 per cent of Adjusted Net Bank Credit (ANBC) or Credit Equivalent of Off-Balance Sheet Exposure (CEOBE), whichever is higher, for all scheduled commercial banks. Agriculture has a target of 18 per cent of ANBC retained. More flexibility has been recommended for banks to lend the remaining 10 per cent of the overall agriculture loan target to other farmers, agricultural infrastructure and ancillary activities as defined by the Group.

To give a fillip to agricultural-infrastructure and agricultural-processing, no caps on loan limits have been stipulated. In addition to micro and small enterprises, medium enterprises are included within the ambit of priority sector lending. Other sectors such as sanitation, health care and drinking water facilities and renewable energy will come under the priority sector ambit, as will incremental loans made to exports, with certain ceilings.

Reserve Bank of India working group has now proposed new guidelines for lending to the priority sector with loans to medium enterprises, sanitation and renewable energy sectors coming under the umbrella of the priority sector.

The panel which submitted the report to the RBI on March 1, has said the target for lending to the redefined priority sector should be retained uniformly at 40 per cent of adjusted net bank credit (ANBC) or credit equivalent of off-balance sheet exposure (CEOBE), whichever is higher, for all scheduled commercial banks. However, foreign banks, which will all now come under the norms, have been given time to comply with the target.

One more key are the government needs to target is the evacuation facilities available for the industry. The existing evacuation infrastructure is not capable of evacuating proposed capacity additions. There is a need to integrate of renewable based generation to the existing system. A solution to this can be introduction of Green energy corridor which will evacuate renewable power from renewable rich states to the load centers. This will reduce evacuation losses.

In order to meet the current target, we need rigid policies and proper investments in the coming years to build renewable power capacity up to 200 Gigawatts by the year 2022. With the union budget announced, we hope that the priority lending will boost the renewable industry.

"It's unacceptable having a coal plant in the city of Stockholm," Luhr said in a Jan. 23 interview. "It's important for our brand to show other cities we can do this. We have been able to do it, you can also do it."

Policy options for sustainable urbanization

The article is available at:
http://us4.campaign-archive2.com/?u=f92bd04dfd5b02aa97599ad0d&id=e56a37c569&e=%5bUNIQID

South Asia is undergoing rapid urban transformation. While at present, over 650 million people live in South Asia's cities (nearly one third the Asia-Pacific's total urban population), future projections suggest a highly urbanized subregion by the end of the century. India alone is expected to add another 404 million persons to its cities by 2050. This unfolding urban transformation requires urgent policy response.

The Regional Policy Dialogue on Sustainable Urbanization in South Asia, convened by ESCAP on 17-18 December 2014, in partnership with the Ministry of Urban Development, Government of India and the National Institute of Urban Affairs, considered the pressing demands on infrastructure brought forward by urbanization trends in the subregion and examined ways to realize sustainable and inclusive urban development, that meets the urgent need for accessible and affordable shelter, adequate livelihoods, health and safe environments, and good governance.

The two-day regional meeting brought together over 120 policymakers, representatives from academia, international organizations and civil society from seven countries in the region.

"Projections indicate that over 1.2 billion people will be living in cities by the middle of the century in South Asia, accounting for more than half of the subregion's population," said Shri M. Venkaiah Naidu, Hon'ble Urban Minister for Urban Development, Housing and Urban Poverty Alleviation and Parliamentary Affairs. "This means more than doubling of urban population in the next few decades".

"There is an urgent need to change the unsustainable patterns of urbanization with smarter, more inclusive and sustainable patterns, as we move towards accelerated urbanization in South Asia", H.E. Mr. Naidu stated.

The Policy Dialogue explored various good practices of sustainable urban development from around South Asia; from holistic urban planning and management in Thimpu, to waste, energy and water management schemes in India and Bangladesh.

Housing issues and the extensive challenges of slum areas were central to the discussions, while solutions ranging from public-private partnerships to community-based approaches were also debated. Informality was also referred to by many as an opportunity as much of the economic growth in South Asia's cities has spurred the growth of a sizeable informal workforces. Seeing challenges as opportunities for improving urban life in South Asia was a crucial theme during the Dialogue.

"Sustainable urbanization assumes particular importance at this juncture for several reasons, including the ongoing discussions on the Sustainable Development Goals and the rapid pace of urbanization South Asia will witness over the next few decades", stated Dr. Nagesh Kumar, Head, ESCAP-SSWA.

The outcome of the Policy Dialogue will be used as inputs to the Third United Nations Conference (Habitat III) to be held in 2016. It will help outline a new urban agenda for the region and also provide material for the upcoming Asia-Pacific Urban Forum to be held in Bangkok.

Summarizing key points from the Dialogue, Dr. Donovan Storey, Chief, Sustainable Urban Development Section, Environment and Development Division, ESCAP said: "The meeting highlighted the essential role cities will play in the region's development. However, participants noted the need for a more balanced urbanization, including greater attention to regional and secondary cities, and enhanced rural-urban linkages". "The meeting also noted the significant and persistent role of the urban informal sector... Sanitation and waste management remains at crisis levels in many of the region's cities, and impacts on health and the environment", Dr. Storey stated.

The event was organized by ESCAP (both its Environment and Development Division and South and South-West Asia Office), in collaboration with the Ministry of Urban Development and the National Institute of Urban Affairs of India.

The Policy Dialogue was inaugurated by H.E. Mr. M. Venkaiah Naidu, Minister of Urban Development, Housing and Urban Poverty Alleviation, Government of India, while H.E. Mr. Babul Supriyo, Minister of State for Urban Development and Poverty Alleviation delivered the valedictory address.

Launch of the short film : Changing Climate, Moving People. Venue : Tuesday, 21 April 2015 ; 10.30 am – 1 pm ; UN Conference Hall, 55 Lodhi Estate, New Delhi .

Background and Rationale

Building on the recommendations of the National Workshop on Migration and Global Environmental Change in India, jointly organized by UNESCO and Government Office for Sciences, Foresight (GOS), United Kingdom, in Delhi on 4-5 March 2014, UNESCO commissioned to The Energy and Resource Institute (TERI) the production of a short film on migration and climate change in India.

As per the Intergovernmental Panel on Climate Change (IPCC) reports, India is indeed highly vulnerable to climate change. Livelihoods in coastal zones, mountains and dry lands will be especially adversely affected since vulnerability is there compounded by underdevelopment and a

large population is dependent on climate-sensitive sectors such as agriculture.

The short film: Changing Climate, Moving People
Changing Climate, Moving People is a 35-minute film, which has been produced by Mr Saransh Sugandh from The Energy and Resource Institute (TERI)'s Film and TV Unit.

The film looks at disaster or climate stress related migration from three different regions in the country – Uttarakhand, Bundelkhand and Odisha. These three states are already amongst the leading sources for internal migration and have been hit by extreme weather events like floods (Uttarakhand), drought (Bundelkhand region) and cyclones (Odisha), which are likely to become more recurrent and stronger as a result of climate change. The film is divided in three parts: "A River Comes Down", "The Dry Heat" and "When a Storm Surges in".

The approach of Changing Climate, Moving People is not limited to understanding migration as a demographic process which may be induced by climate change: the film seeks to show how climate change is and will contribute to the multi-causal nature of migration, and establish the triggers behind migrants' choice to migrate or not to migrate while living in areas affected by environmental change. How do households, communities and individuals decide to migrate? What is the threshold or the build-up of push and pull factors that lead to the decision of migrating? To answer these questions, Changing Climate, Moving People follows the stories of individual case studies (the migrants and their families) to establish the triggers behind their choice to migrate.

The objective is to increase awareness, engagement and advocacy on the intertwined and complex linkages between moving people and changing climate, and facilitate socially inclusive policies.

Launch of Changing Climate, Moving People
On 21 April 2015, on the Eve of Earth Day, UNESCO, UNIC and TERI are jointly organizing the launch of Changing Climate, Moving People. The tentative agenda for the event is as follows:

- Formal launch of Changing Climate, Moving People
- Screening of Changing Climate, Moving People
- Talk with the film maker, and migrants and experts interviewed in the film

Venue : Tuesday, 21 April 2015 ; 10.30 am – 1 pm ; UN Conference Hall, 55 Lodhi Estate, New Delhi

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To commemorate the 45th Anniversary of Earth Day (April 22, 2015) Earth Day Network India announces a 45-city contest titled " शहर GREEN करो - It's Our Turn to Lead "

April 22, 2015 will mark the 45th Anniversary of Earth Day. The international slogan to mark the Day is It's Our Turn to Lead.'

In India, to commemorate Earth Day, we will run a 45-city contest titled: शहर GREEN करो - It's Our Turn to Lead

All the cities chosen (listed below) have populations of over one million.

What is the contest? The pan India contest asks citizens to compete to make their city 'Swachh' and 'Green'. Clean your city, beautify it, manage waste, sustain resources, add to the green cover, reduce carbon emissions from vehicular traffic, shift to renewable energies, direct thoughts

to green buildings...the possibilities are endless!

What do you need to do? Choose a name for your team/individual entry and Register with a photo/video/news clip taken of a spot/something you want to turn environment-friendly in the city. Take up to 45 days to achieve this, and by April 15, 2015 send us a photo/video/news clip that documents what was achieved. REGISTRATION OPENS March 1. Closes April 15.

Who can compete? The contest is open to ALL – individuals or groups

Entries to be submitted by clicking on the Registration Form which is available at : http://www.formpl.us/form/0B3MuSblD69rhYUs3TkdzOFZlczQ/

For queries email us at greencitiesindia@earthday.org or greencitiesindia@gmail.com

Winners will be announced on April 22, 2015, the 45th Anniversary of Earth Day. (Judges' decision final)

Let's reach out to millions in : Agra, Ahmedabad, Allahabad, Amritsar, Asansol, Aurangabad, Bengaluru, Bhopal, Chandigarh, Chennai, Coimbatore, Delhi, Dhanbad, Faridabad, Ghaziabad, Gwalior, Hyderabad, Indore, Jaipur, Jamshedpur, Jodhpur, Kanpur, Kochi, Kolkata, Kota, Kozhikode, Lucknow, Ludhiana, Madurai, Meerut, Mumbai, Nagpur, Nashik, Patna, Pune, Raipur, Rajkot, Ranchi, Srinagar, Surat, Thiruvananthapuram, Vadodara, Varanasi, Vijayawada, Visakhapatnam

Let's make cities more livable….

Integrating Climate Change and Disaster Risk Management CCDRM) into Development Planning

The Consolidated Reply of the above query of the Climate Change & Development (CCD) Community of the Pacific Solution Exchange can be downloaded at : www.solutionexchange-un.net/repository/pc/ccd/cr43-eng-24032015.pdf .

The integration process requires a clear and elaborate system of communication, reporting structure and adequate capacity to absorb reported information and outputs. The first step to this is a participatory process purposed at identifying prioritizing issues in terms of urgency and fund availability; the issues are assessed and matched to the type of response provided by government and funding partners for implementation.

The responses or priorities are absorbed into government ministries' operation plans and funding partners' budgeted programs. Throughout the implementation, monitoring and evaluation reports from line ministries and other agencies are assessed to ascertain the progress of implementing integrated priorities and determine gaps and loopholes. The entire process is designed to match the existing reporting mechanisms and build on existing structures.

The recent creation of a Local Development Planning Framework clearly outlines the processes of developing local, subnational and national plans integrating CCDRM. A well-established planning governance structure ensures best practices in development planning, better coordination of development planning, validates content of development planning, proposed budget, and monitors and evaluates development plans. This mechanism needs to be decentralized to link planning platforms at subnational level. Without it, integration will depend on the goodwill of officers responsible, there will be no sustainability and investors will dictate the work to be done.

Planning policies and frameworks need to support such mechanism to commit and adhere to a common goal.

A multi sectoral governing body, represented by government and nongovernment organizations, using area data that maps out resources is able to design best strategies for development interventions is essential. It is crucial to organize a management system in nested layers across sectors, social systems and habitats because small groups with strong mutual trust are more able to work together on local management issues, which for CCDRM are likely to be different across different locations, depending on exposure, sensitivity and adaptive capacity. A coordinating layer or layers to sit on top of these local groups and provide resources, knowledge and skills, and collate outcomes that report against national and regional plans for CCDRM is a must .

It is important to have Climate Change Department in each state which prioritizes climate change and reflect it in its budget submission to the national government every year for funding. The nongovernment organizations implement the activities and the State Environment and Climate Change Department monitor and receive recommendations to guide policies and source funding from development partners.

Another is the Participatory Scenario Planning that includes teaching communities to understand the science of CCDRM i.e. interpreting different weather patterns, climate variability and trends, to help in their short and long term planning. The approach helps them design and adopt risk management strategies and bring decision making under control and avoid predetermined solutions.

The design particularly of the local planning process needs to consider how it structures and shapes local development processes and mindsets of communities and officials for generations to come. Without a presumption of being complete, it should be firstly, asset based and building on existing capacities; second, it should be holistic and multi-sectoral including projections of climate change impacts, disaster risks and vulnerability assessments; and third, it should be participative, reflective, empowering and intense.

Capacity building for relevant local council officials, ministry project officers, national economic planning officials to allow them to connect their issues with the overall national integration process is of paramount importance. The concerns however, are the lack of tools, human capacity and proper institutional mechanisms required to make the iterative process effective. These concerns result in poor communication and dissemination of products that reflect the progress and trends of integrated priorities and how they are best aligned to subnational, national development planning processes.

Low cost and locally appropriate monitoring systems are easily and quickly communicated up to the Project Management Unit to inform adaptive management and account for how climate change adaptation and disaster risk management is being achieved at a national scale.

Measuring what matters in the Energy SDG

The article is available at:
http://infohub.practicalaction.org/oknowledge/bitstream/11283/347012/1/Energy%20SDG%20Indicators%20briefing%20Mar%202015%20%281%29.pdf

The SDG discussions have recognized that access to sustainable energy is crucial for many areas of development as well as for addressing climate change. Billions of people worldwide still do not have the energy services they need to lift them out of poverty and build sustainable development.

Proposed SDG 7 aims to close this energy gap and "ensure access to affordable, sustainable, reliable, and modern energy services for all", with targets on universal access to energy, increasing the share of renewables in the global energy mix and doubling the annual rate of improvement in energy intensity.

However, these targets must be sufficiently ambitious to bring about meaningful change and their indicators must be robust and fit for purpose. In other words, they must "measure what matters" and ensure that progress can be tracked through clear milestones.

The proposed targets and indicators:

1. Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services

- **Proposed Indicator 1: Percentage of population with electricity access (%).**
- **Proposed Indicator 2: Percentage of population with primary reliance on non-solid fuels (%).**

The inclusion of a target for ensuring universal access to affordable, reliable and modern energy services – though this formulation should include "sustainable" and "safe" services to avoid potential conflict with the aims of the overall Energy SDG or other climate and health-related SDGs and targets is essential.

However, new ways of defining and measuring energy access are crucial if this target is to result in poverty reduction and development benefits. Communities require a range of energy services for their development, from household services, community services such as health clinics and schools and also energy for productive activities such as farming and running micro/small businesses. Current binary definitions of energy access (e.g. having or not having a household electricity connection and cooking with non-solid or solid fuels) do not tell us if communities have energy services that are good quality, reliable, affordable and safe enough to be usable.

The Global Tracking Framework (GTF) developed for the Sustainable for Energy for All (SE4ALL) initiative takes an innovative, "multi-tier" approach to defining access and has been designed to measure progress across the range of attributes of a usable energy service, including quality, affordability, safety and reliability. For this reason, the indicators for target 7.1 should support adoption of the multi-tier approach. This will mean that the equity dimension of access can be tracked, ensuring that "no-one is left behind". In addition, any target for universal access must include a minimum level of meaningful access so that progress can be measured towards this target.

For household, productive and community uses, GTF tier 3 should act as the minimum level of access that can produce real development impact. GTF tier 4 should be the minimum level of access for cooking, given new evidence from the World Health Organisation on the devastating health impacts of indoor air pollution from cooking**.**

Suggestions of indicators for Target 7.1 :

- Indicator 1: Percentage of population (%) with access to electricity of at least Tier 3 of the Global Tracking Framework.
- Indicator 2: Percentage of population (%) with access to clean and efficient cooking fuels and technology of at least Tier 4 of the Global Tracking Framework

2. Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix

- **Proposed Indicator 1: Renewable energy share in the total energy final energy consumption (%).**
- **Proposed Indicator 2: Enabling legislation and framework for renewable energy production established by 2020.**

The renewables and energy efficiency targets must incentivize sufficient action by 2030 on climate change to prevent dangerous global warming, and support the global transition to socially inclusive, low carbon development. Research indicates an annual global rate of improvement in energy intensity (energy/unit GDP) of at least 4.5% is required, along with at least 45% of final energy use globally coming from renewable energy3. Target 7.2 must integrate this level of ambition and there must also be an indicator to track progress on meeting the target.
Suggestions of indicators for Target 7.2 :
- **Indicator 1: Renewable energy share (%) in the total energy final energy consumption.**
- **Indicator 2: % change from last year, collected at national level then aggregated.**

3. Target 7.3: By 2030, double the global rate of improvement in energy efficiency
- **Proposed Indicator 1: Rate of improvement in energy intensity (%) measured in terms of primary energy and GDP.**
- **Proposed Indicator 2: Composite Energy Efficiency Improvement Index built up of sub-indicators measuring transport energy efficiency, industrial energy efficiency, power generation energy efficiency, buildings energy efficiency and agricultural energy efficiency.**

Suggestions of indicators for Target 7.3
- **Indicator 1: Rate of improvement in energy intensity (%) measured in terms of primary energy and GDP.**
- **Indicator 2: % change from last year, collected at national level then aggregated.**

MNRE and industry discuss scaling up of rooftop solar market to 40 GW by 2022 by BRIDGE TO INDIA.

On 19th March 2015, the Ministry for New and Renewable Energy (MNRE) called for a meeting to discuss how to best scale up rooftop installations in India to 40 GW (cumulative) by 2022 . It was chaired by Upendra Tripathi, Secretary MNRE, and Tarun Kapoor, Joint Secretary MNRE, and was attended by approx. 300 representatives from the industry.

Most installers pointed out (and ministry officials conceded) that the lack of funds and sanction delays associated with the subsidy process has been the primary bottleneck for the market segment. The ministry officials informed that, for 358 MW of subsidy applications received till date only 42 MW actually received it.

BRIDGE TO INDIA had previously raised the issue in our analysis with the conclusion that the subsidy mechanism does more harm than good for the market. To close the gap between demand for subsidy and available funds, the government had recently proposed to reduce the subsidy amount to 15% of the capital cost so that more solar can be supported with available funds.

Most stakeholders in the meeting, however, preferred that the subsidy mechanism be scrapped altogether for urban grid-connected solar installations. The ministry officials did not spell out their conclusion.

Another topic of discussion was ensuring the quality of new installations and the role of channel partners. Most stakeholders were of the opinion that the process for becoming a channel partner was costly and time consuming, especially in the context of unavailability of subsidy funds.

While some stakeholders thought that the channel partner route helped ensure quality, most others proposed that instead of the channel partner mechanism, there should just be standardization guidelines for components, installations and grid-interconnectivity that should be followed by all installers. The ministry officials noted the stakeholder suggestions but again did not spell out their conclusions on the subject.

Availability of finance and cost of finance was the third topic discussed. The ministry officials presented the steps taken by the ministry to bring Indian banks on board to provide more finance and how international multilateral financing institutions can help reduce the cost of finance.

On the whole, no out-of-the-box suggestions came up from either the industry or the ministry. This is what makes realizing the 40 GW target for rooftop solar such a daunting task.

BRIDGE TO INDIA believes that direct government incentives can only go so far, especially in light of the limited availability of funds to the sector. The primary objective of the government should be to create a functioning market place, get states and utilities on board and provide a level playing field to the industry.

Net-metering/banking of power with fair compensation to utilities, non-discriminatory quality standards, active collaboration with states and education of end-customers on standards and benefits of solar installations are some of the larger non-incentive ideas that the MNRE could focus on.

An opening up of the REC market to more buyers and sellers, as Mr. Abraham of Arise Solar has suggested in an email to us could also help.

On the fiscal incentive side, based on BRIDGE TO INDIA's analysis, interest rate subvention seems to hold the most promise from both the perspective of cost to government and ease of implementation.

Children must come first in post-2015 disaster framework

Worldwide, approximately 1.24 billion students are enrolled in primary and secondary schools . Yet 875 million school children live in areas of high seismic activity , while hundreds of millions more face danger from regular flooding, landslides, extreme winds caused by the adverse impacts of climate change.

The article is available at:
http://www.preventionweb.net/english/professional/news/v.php?id=42909&a=email&utm_source=pw_email

School children must be protected from disasters and it is imperative students are prioritized in the post-2015 framework on disaster risk reduction, according to child rights organization Plan International.

According to Roger Yates, Humanitarian Director for Plan International: "Millions of children are affected by disasters every year, the frequency and ferocity of which is increasing – and when a disaster strikes, children and young people suffer disproportionately. "One way to prepare communities for a disaster is through young people. It is imperative children are prepared and know what to do in the face of disaster, as they can then pass on the message to their

community. "That's why Plan has put in place a Safe Schools Programme, in 31 disaster-prone countries across the world, which engages partners in the education sector to promote schools as a platform for children and youth to grow up safely."

Worldwide, approximately 1.24 billion students are enrolled in primary and secondary schools . Yet 875 million school children live in areas of high seismic activity , while hundreds of millions more face danger from regular flooding, landslides, extreme winds caused by the adverse impacts of climate change.

One of the most systematic ways to protect children is to protect their education. Children spend up to 50 per cent of the time they are awake in school, so the risk of needing to be prepared to deal with a disaster during school time is very real. School premises should also be safe and able to withstand disaster as otherwise buildings can pose a serious risk to children who are going to school. "If a school is not built and maintained to withstand an earthquake or constructed to tackle a typhoon, it can cause irreplaceable loss to families, communities and countries – not to mention lifelong injuries. It can also have a big impact on a child's education, as it comes under threat during and after a disaster and often education is one of the first activities abandoned when a disaster occurs," says Roger Yates.

"Plan's Safe School Programme seeks to build a culture of safety among children and their communities in areas at a high risk of natural disasters. A safe school provides a learning environment where children's education, health, safety and security are ensured in both normal times and during disasters."

Children are among the most vulnerable in a disaster – typically representing 50 – 60 per cent of those affected – yet are often viewed as powerless victims and excluded from prevention, planning and recovery.

Plan's work shows that children's involvement gives children a sense of control over situations, in which they might otherwise feel helpless.

Investing in disaster preparedness can and will save many lives – and this starts from a young age.

Potential of Renewable Energy in Desert Areas

It is based on the following articles, available at :
http://www.solarquarter.com/index.php?option=com_k2&view=item&id=1050:potential-of-renewable-energy-in-desert-areas&Itemid=139 and http://www.solarquarter.com/index.php/news/asia/india/item/1032-india-may-see-solar-investments-of-up-to-usd-200bn-by-2020 .

The Ministry of New and Renewable Energy (MNRE) had assigned a study to the Power Grid Corporation of India Ltd (PGCIL) to identify likely renewable power potential in desert regions in the states of Rajasthan (Thar), Gujarat (Rann of Kutch), Himachal Pradesh (Lahul&Spiti) and Jammu & Kashmir (Ladakh).

This was stated by Sh. Piyush Goyal, Minister of state for Power, Coal & New and Renewable Energy (IC) in a written reply to a question in the Lok Sabha recently.

The Minister further stated that in December 2013, the PGCIL had submitted a study report titled "Desert Power India- 2050" assessing renewable power potential, transmission infrastructure requirement, balancing reserve etc. in the identified desert regions.

The report has assessed the total available potential of 315.7 GW of solar and wind power in these regions. The report has further estimated that the investment requirement for harnessing the available potential upto 2050 would be Rs 43,74,550 crore.

The investments in renewable energy power projects are mainly by private sector. Government provides some incentives in the forms of generation based incentives, viability gap funding.

Besides, fiscal incentives such as accelerated depreciation, concessional customs duty, excise duty exemption, income tax holiday for 10 years and preferential tariff are provided for renewable energy power projects, the Minister added.

India's solar energy industry may take up some USD 200 billion in investments, the government estimates, based on the huge interest from domestic and international firms.

The country has set a goal to have 100,000 MW of installed solar power capacity by 2022, up from the current 3,000 MW. However, the investment commitments India has received already exceed a capacity of 200,000 MW.

Of this capacity, approximately 40,000 MW of the total solar target will be achieved with the installation of rooftop solar arrays, the minister said. He also mentioned he is talking to seven or eight Indian states with solid solar power potential. The government aims to increase the renewable energy contribution to 12% in the next three years.

Climate modellers take tropical approach : Ten-year US-led project seeks to plug gaps in global-warming simulations

Tropical forests will respond to rising carbon dioxide in ways that are hard to predict with climate models.

The article can be downloaded at : http://www.nature.com/news/climate-modellers-take-tropical-approach-1.17173?WT.ec_id=NATURE-20150326 .

The US Department of Energy has approved a campaign to better understand the response of tropical forests to rising levels of atmospheric carbon dioxide. The experiments are designed to improve global climate simulations and to determine whether the increased tropical-forest growth caused by carbon dioxide enrichment will partially offset global warming.

The US$96-million Next-Generation Ecosystem Experiment for the tropics, NGEE Tropics, builds on an ongoing project in the Arctic that has put climate modellers into the field with ecologists, biologists and hydrologists to improve understanding of the fate of permafrost in a warming world. The department plans to announce the new programme within weeks.

Focusing on the future of tropical forests and their role in regulating the global climate, the ten-year tropical programme will begin with pilot studies at sites in Puerto Rico, Panama and Brazil, and then expand into other areas, including Africa and southeast Asia. Although ecologists have studied tropical ecosystems intensively, the new experiments will be designed to plug specific gaps in climate models.

"The whole point is getting data that is appropriate for working with models," says Richard Norby, an ecologist at the Oak Ridge National Laboratory in Tennessee, who is involved in the project. "I think the days of doing independent experiments and then just publishing data and seeing if

somebody picks it up are over. And they should be over."

Climate models suggest that tropical forests could significantly offset human carbon emissions — or not — depending on whether the forests grow faster as atmospheric carbon dioxide concentrations rise. Experiments in northern temperate forests suggest that the increase will have some growth-stimulating effect as plants take up some of the extra carbon dioxide through photosynthesis and incorporate it into wood and other biomass, but that additional growth may be limited by the availability of other nutrients, such as nitrogen.

In a pilot study in Puerto Rico, ecologists will investigate below-ground biogeochemistry and soil fertility in combination with aerial imaging to see how these processes affect leaf chemistry. A site in Brazil will focus on daily and seasonal soil-moisture changes to better understand how tropical forests respond to droughts. A third pilot project, in Panama, will look at various plant traits and how they are represented in the models.

The tropical campaign follows the launch in 2012 of a similar project in the Arctic designed to determine the extent to which the melting of permafrost due to warming will release vast stores of carbon buried for thousands of years. Most climate models include only a crude representation of the tundra, treating permafrost as a single uniform layer that responds uniformly to increases in temperature. In reality, permafrost is a patchwork of ice wedges and troughs that break up the landscape into countless polygons. As ice melts, the troughs expand and widen and new ones open up, which hastens further melting and decomposition of organic material.

"If it was a simple landscape that was responding linearly, you could get away with those simple representations," says Peter Thornton, a climate modeller at Oak Ridge who heads the modelling component of the Arctic project. "But the distribution of these ice wedges is regularly patterned and that forces dynamics at these fine scales that are completely nonlinear.The whole point is getting data that is appropriate for working with models."

Since the Arctic project began, scientists have drilled boreholes into ice wedges and troughs at the site near Barrow, Alaska, to get a sense of how water and heat penetrate the permafrost layers. The goal is to understand how fast the microbes in thawing permafrost will break down vast stores of organic matter that have been stored in the soil for millennia. That process releases methane, a potent greenhouse gas. Ice cores are being analysed and subjected to heating experiments at the Lawrence Berkeley National Laboratory in Berkeley, California, to uncover how different microbes respond.

In other field experiments, biologist Alistair Rogers at the Brookhaven National Laboratory in New York analysed rates of photosynthesis in a variety of Arctic plants. From these real measures, Rogers found that even the handful of climate models that do include explicit vegetation types underestimate the photosynthetic potential in the Arctic by a factor of three to five.

Modellers and field scientists have gradually grown further apart as the scientific disciplines have become increasingly complex, but this new approach seems to be reversing that trend, says Ted Schuur, an ecologist at the University of Florida in Gainesville, who is a reviewer on the NGEE Arctic programme. Although it is still early in the project, he says, "the way they have organized their pipeline really points toward success".

The challenge for modellers is how to simulate ecological processes that take place at the scale of microbes and plants within global models comprised of grids of squares up to 100 kilometres on a side. Thornton's team is working on new models that bridge the gap between those vastly different scales in the Arctic. These will be integrated into a new climate model under development by the energy department.

Scientists will take a similar approach in the tropics. They have already begun to assess climate models to identify weaknesses and gaps in how they represent tropical ecosystems.

In addition to improving climate models, the effort will produce new advances in basic science, says Jeff Chambers, a tropical ecologist at the Lawrence Berkeley National Laboratory and director of the NGEE Tropics project. "It's a fantastic opportunity, and there's plenty of room for discovery science along the way."

India set to make cine history with 1st carbon-neutral film

It is based on the following article which is available at : http://www.hindustantimes.com/india-news/india-set-to-make-cine-history-with-1st-carbon-neutral-film/article1-1331669.aspx .

Film director Biswajeet Bora, from Assam, and producer Maya Kholie, from Arunachal Pradesh, are yet to make their mark in Bollywood. But they are set to create cinematic history — by making India's first carbon-neutral film. The film, Aisa Yeh Jahaan, is likely to be released in May.

Carbon neutrality means the action taken by individuals, businesses and organisations to achieve a zero carbon footprint. It entails removing as much carbon dioxide from the atmosphere as they produce while going about their work.

A carbon-neutral film compensates for the carbon emitted during its making through eco-friendly activities such as planting trees. Among the few such films produced globally are George Clooney's Syriana and the catastrophic Day the Earth Stood Still and The Day After Tomorrow.

"The making of a film impacts the environment through use of electricity, fuel for travel and generators, plastic and other inorganic substances. We engaged a Mumbai-based NGO to assess the emissions associated with our film and spend as much on plantation," Bora told HT from Mumbai.

The film's crew has already planted some 400 saplings in and around Mumbai, the northeast and elsewhere in the country.

"I wanted the green tag for our film, maybe because I come from a part of the country where nature is worshipped," Kholie said.

Set in Mumbai, Aisa Yeh Jahaan stars Euphoria band helmsman Palash Sen, Ira Dubey, Yashpal Sharma and Tinu Anand. It tells the story of urban families, trapped in concrete jungles, drifting away from nature and gradually forgetting their roots. "The film is in the final stages of production. We hope people relate to it," Bora said.

Having assisted filmmaker Jahnu Barua, Bora has an Assamese film titled Ejak Jonakir Jhilmil to his credit. He had earlier teamed up with Kholie to make Angel of the Aboriginals: Dr Verrier Elwin, a documentary that made it to several international film festivals.

Many thanks to all who contributed to this issue of Update!

If you have items to feature in the Updates, please send it to Solution Exchange for the Climate Change Community at : se-clmt@solutionexchange-un.net.in