Climate Change Community

Community Update
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In this Issue

FROM THE RESOURCE PERSON

Dear Members,

We are presenting the 65th Edition of the Community Update, today.

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

We look forward to your inputs and insights.

Thanks & best regards,
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DEVELOPMENT IN THE SECTOR

Prevention is better than rehabilitation

Commonly understood steps in disaster management are response, relief and rehabilitation but there is no mention of prevention. Awareness and education is the key to bringing about this change.

The article is available at: http://www.indiawaterportal.org/articles/prevention-better-rehabilitation .

The Himalayas were born of continental shift when the Indian subcontinent challenged the larger Asian landmass. This tortured birth still continues making the region susceptible to landslides and earthquakes. In addition to this geological fact, **climate change is altering rainfall patterns and leading to more instances of very intense rainfall, which further increases the problem of landslides.**

Locals have developed an ability to gauge the weather and the land due to years of dealing with such issues. This local knowledge is constantly evolving with continuous observations of changes in weather patterns and local vulnerabilities along with knowledge inputs from the 'outside' such as improved access to weather reporting services.

This is not always foolproof in the case of extreme rainfall or landslides as was proved during the cataclysm of June 2013 when extreme rainfall took 2.5 lakh pilgrims by surprise and led to the death of atleast 6,000. Local knowledge is certainly not efficient in the case of earthquakes, as was tragically demonstrated during the Sikkim earthquake of November 2011. To expect the locals to predict all such disasters is laying too much burden on them.

How can we lessen such loss of life, property and our biodiversity? Commonly understood steps in disaster management are response, relief and rehabilitation but there is no mention of prevention.

This gap in thought process is acknowledged by the National Disaster Management Authority (NDMA). Set up in 2005, its objectives encompass incorporating disaster management principles across all development measures, ensuring compliance with recommended measures, ensuring forecasting and warning, and increasing the efficiency of response.

Efficacy of the present disaster management mission

The recent performance audit by The Comptroller and Auditor General of India indicted disaster preparedness in India at all levels including:

- **The lack of meetings of the National Executive Committee**
- **The absence of a National Plan for Disaster Management**
- **Mismanagement of state disaster response funds**
- **Lack of an efficient communications system despite expenses incurred**
- **Lack of training and capacity building**

as reasons for the increased vulnerability of the nation to disaster.

The report also points out that conditions in the Himalayan states are worse than those in the plains. In Uttarakhand, the state and district authorities were non-functional, with the state executive meeting having never met since its conception while the district disaster management authority had met only twice (in April and May 2011) since it was constituted in 2007.

What explains this negligence?

A passion shared by all the individuals involved, from policy makers to householders, through the entire bureaucracy is necessary to ensure implementation of a nation-wide mission such as that of increasing resilience to disasters.

This 'will' responds to the following incentives: political, economic, legal, administrative and moral/ethical. Each of these influences each other and are influenced by various stakeholders.

For example, the desire of administrative staff to ensure the safety of a state may be undone by a lack of funds. Community-led disaster management for reduced vulnerability in the future may take a back seat to the urgent necessity of securing a livelihood today.

This complex interconnection between stakeholders, their incentives to implement disaster risk reduction measures, and their incentives to ignore these measures makes it difficult to select a single initiative or group of initiatives to ensure compliance.

The solution

Rather than the system of providing incentives, education and awareness raising has the potential to tip the scale in favor of implementing disaster mitigation methods. Lack of incentive to implement disaster mitigation measures can also be read as increased importance being given to some aspect of the present situation. If people disregard laws that prohibit construction on river banks, it is because a certain value is ascribed to a river view; hotel rooms that overlook the river are preferred by tourists.

Hesitation to limit the number of visitors to pilgrimage points indicates a dependence on the income generated from this trade as also a reluctance to anger a voting population. Creating awareness of the risks involved has the potential to increase the 'value' ascribed to disaster management, which is then the incentive required to successfully implement these measures.

Despite the many adverse impacts, there is a reluctance to limit the number of pilgrims to the mountains as per the carrying capacity of the places visited. This is not an easy task, simply because of the diversity of people that need to be included in this campaign; the list includes politicians, administrative officials, development workers, media personnel, funding organizations, religious leaders, and communities, to name but a few. The positive note is that it has been done before, and on an even larger scale.

The inspiration

India's polio eradication drive is a stunning example of an entire nation working towards a common goal- national campaigns involving 2.3 million health workers, which gave birth to innovative strategies to reach migrant and transit populations. It involved all sections of the community from celebrities to religious leaders in creating awareness, initiated research, and gave birth to a surveillance programme more robust than any seen before.

At its peak, polio affected 1.5 lakh children in the country. **Natural disasters in the Indian Himalayas affect 2 lakh people each year.** Today, India has been polio-free for two years. **It is time to assess whether India can sustain yet another lifesaving campaign- that of a disaster-resilient population.**

Megacity metabolism: What cities are the worst energy hogs?

New York is an energy hog, London and Paris use relatively less resources and Tokyo conserves water like a pro. These are just a few of the findings from a new study on 'megacity metabolism' - the world's first comprehensive survey of resources used and removed in each of the world's 27 largest metropolitan areas.

The article is available at:
http://www.sciencedaily.com/releases/2015/04/150428125353.htm?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+sciencedaily%2Fearth_climate%2Fsustainability+%28Sustainability+News+--+ScienceDaily%29

Led by engineers at the University of Toronto, an international team of researchers examined data on how resources pass through the planet's largest cities, such as burning natural gas for heating, using electricity for public transit or disposing of solid waste and wastewater. Published this week in the journal Proceedings of the National Academy of Sciences, the findings could point the way toward strategies to make cities cleaner, greener and more sustainable--or at least less greedy.

Megacities--metropolitan areas with populations greater than 10 million--continue to grow in size and economic prominence. In 1970, there were only eight megacities across the world. This number grew to 27 in 2010, and it's expected to reach 37 by 2020. These urban areas currently generate 14.6 per cent of the globe's total GDP, but they also consume resources disproportionately.

The study found that today's megacities are home to only 6.7 per cent of the world's population, yet they consume 9.3 per cent of global electricity and produce 12.6 per cent of global waste.

According to U of T civil engineering professor and industrial ecologist Chris Kennedy, some cities are guiltier than others.

"The New York metropolis has 12 million fewer people than Tokyo, yet it uses more energy in total: the equivalent of one oil super tanker every 1.5 days," he said. "When I saw that, I thought it was just incredible."

Kennedy, also a senior fellow at the Global Cities Institute, explained that some of the differences have to do with geography: colder megacities like Moscow and New York use more fuel for heating. Another factor is economic activity.

"Wealthy people consume more stuff and ultimately discard more stuff," he said. The average New Yorker uses 24 times as much energy as a citizen of Kolkata, and produces over 15 times as much solid waste.

Yet as can be seen by comparing New York and Tokyo--both relatively rich megacities in temperate regions--wealth and geography aren't everything. Tokyo's efficient design and vast network of public transit reduces its environmental impact, and demonstrates that in some cases, smart urban policies can reduce resource use, even in the face of rising GDP and exploding populations.

Tokyo has also aggressively addressed leaky pipes, a strategy that has reduced water losses to 3 per cent. This compares to over 50 per cent leakage in cities like Rio de Janiero and Sao Paolo.

"These are places that are really short of water, and yet they're leaking it away," said Kennedy.

In the study, Kennedy and his team shared several other successful policies:

- Moscow has built the largest district heating system in the world, providing combined heat and power to buildings housing 12 million people; this being more efficient that using separate systems for each building.
- Seoul has developed a system for reclaiming used wastewater for secondary uses like flushing toilets, increasing the overall efficiency of water use.
- London has been subject to rising electricity costs and taxes on the disposal of solid waste. It is the only megacity for which per capita electricity use is going down even as GDP goes up.

While Kennedy and other researchers have studied resource use in big cities before, they have often been limited either by a small sample size or by a definition which did not include the entire metropolitan region. This new study is the first to capture detailed information from these 27 megacities.
This research contributes to an increased understanding of the growing complexity of cities. "A megacity is not a politically defined region," said Kennedy. "It's a commuter-shed. The people who live there have a common labour and housing market, and they travel throughout the region for daily work or leisure."

Across the world, megacities are seeing massive increases in population, but the findings show that they are growing even faster in terms of energy use and GDP. In the developing world--especially China, home to more megacities than any other country--the combination of more people and more consumption per capita is putting an enormous strain on the planet's resources.

Yet the study suggests that megacities proliferate, smart policy decisions can make a difference. "What we're talking about are not short-term, one-election issues, but long-term policies on infrastructure that shape cities over years or decades," said Kennedy.

"The evidence is that megacities can make some progress in reducing overall resource use, and I think that's encouraging."

Road Construction: A Sustainable Use for Trash Ash?

The article is available at: http://sustainablecitiescollective.com/jeffmcintirestrasbu/1069081/road-construction-sustainable-use-trash-ash?utm_source=feedburner&utm_medium=email&utm_campaign=Sustainable+Cities+Collective+%28all+posts%29

We still struggle with burning trash as a form of "renewable" energy. While this approach does reduce landfill waste, and extracts energy without drilling or mining, it does create its own by-products. While we tend to focus on emissions (which can be controlled), ash is another resulting material that – you guessed it – usually ends up in landfills. And while this ash takes up less landfill space than the original materials, we're still talking about tons: **the waste-to-energy system in Pasco County, Florida, for instance, dumps around 200 tons of ash a day**.

Pasco County is also trying to find a use for this material, though, and may have stumbled across something good: road construction material. According to the Tampa Bay Times, the county has been testing the material for road building for the past 2 years. **Now they've received the first permit for road construction using ash from trash.**

The Times article notes that the ash has three possible uses: "It can replace lime rock, the typical material for a road base layer, which is then topped with asphalt to create a road. **Or the ash can be mixed with concrete or asphalt to create the top layer of a road**." A test road that's been monitored for the past few years has performed well: "**The road hasn't affected groundwater or other facets of the environment. And it has been holding up well under heavy traffic**."

This isn't a new concept: other countries have been using ash from waste-to-energy furnaces for road construction. **Perhaps it will catch on in the United States and elsewhere now that Pasco County has figured out that using this material saves them about $100,000 per mile of road**.

Among other benefits, this concept reduces the amount of limestone needed to be mined for roads. What other benefits can you see from using this material for road construction? What potential downsides exist?

Going solar for irrigation would have many benefits

The complete article is available at : http://www.solarquarter.com/index.php?option=com_k2&view=item&id=1117:going-solar-for-irrigation-would-have-many-benefits&Itemid=177

After decades of subsidies and sops, Indian agriculture still remains the parking lot for poor people for whom non-farm jobs remain a distant dream. The Prime Minister's concept of 'acche din' would remain a dream unless his government works on some formula of how to quickly raise farm incomes.

Similarly one such formula remains hidden in the solar mission. The initiative by SPARC is helping farmers to make money by 'growing' solar power as Remunerative Crop. Farmers need to be given solar irrigation pumps with a power-purchase guarantee that megawatt scale generators get. This scheme is already being examined by Karnataka's Surya Raitha Scheme.

Growing solar power needs land and farmers own half of India's land. A one-hectare farm can generate annual gross revenue of Rs 50000 from field but if under solar PV arrays, one hectare can generate over Rs1 crore/year from solar power.

The National solar Mission to install 100GW by 2020 will only be successful when 10 million farmers would be operating a 10-kilowatt solar pump each. In this way these 10 million solar farmers can generate 130 billion units of solar power and earn upto Rs 65000 crore/year net of input costs.

Every solar pump replacing a grid-connected pump saves the utility over 12000 units of grid power at generating stations, saving subsidies and freeing up grid capacity for the non-farm sector. The country can save Rs60000 crore/year in subsidies by going solar for all 11 million electric pumps.

What to Do Before an Earthquake?

The details are available at: http://www.ndma.gov.in/en/do-s-don-ts .

The following precautions and activities must be undertaken before an earthquake:

- Repair deep plaster cracks in ceilings and foundations. Get expert advice if there are signs of structural defects.
- Anchor overhead lighting fixtures to the ceiling.
- Follow BIS codes relevant to your area for building standards
- Fasten shelves securely to walls.
- Place large or heavy objects on lower shelves.
- Store breakable items such as bottled foods, glass, and china in low, closed cabinets with latches.
- Hang heavy items such as pictures and mirrors away from beds, settees, and anywhere that people sit.
- Brace overhead light and fan fixtures.
- Repair defective electrical wiring and leaky gas connections. These are potential fire risks.
- Secure water heaters, LPG cylinders etc., by strapping them to the walls or bolting to the floor.
- Store weed killers, pesticides, and flammable products securely in closed cabinets with latches and on bottom shelves.
- Identify safe places indoors and outdoors, for e.g. :
    - Under strong dining table, bed
    - Against an inside wall
    - Away from where glass could shatter around windows, mirrors, pictures, or where heavy bookcases or other heavy furniture could fall over
    - In the open, away from buildings, trees, telephone and electrical lines, flyovers and bridges
- Know emergency telephone numbers (such as those of doctors, hospitals, the police, etc.)
- Educate yourself and family members through :
    - ✓ Awareness Generation Resources for Earthquake Disaster Management
    - ✓ Disaster(Earthquake) Resistant Construction Practice
    - ✓ Techno Legal Regime for Safe Construction Practice (Model Amendment in Town & Country Planning Legislations, Regulation for Land Use Zoning and Building Byelaws for Structural Safety)

- ✓ Past Programmes/Projects, Resource Materials on Earthquake Risk Management.

Announcements

Request for Proposal (RFP) on "Preparation of Preliminary Reports on possible installation of CST based projects in selected States

The Last date for submission of bids: 8th June, 2015.

The United Nations Development Programme (UNDP) hereby invites you to submit a Proposal to this Request for Proposal (RFP) for the above-referenced subject.

India has a good solar energy potential of around 5-7kWh/m^2/day. A significant part of India's low-medium temperature process heat need can be met by concentrating solar heat (CSH) technology systems –alongside process integrating and suitable heat storage. This would reduce global CO_2 emissions, air pollution, and India's growing dependence on expensive and insecure imported oil. The abundant solar radiation, clean character of solar energy, high cost of fossil fuels and negative emission consequences along with large requirements for process heat below 250°C are the key drivers of the strong focus on the development of solar thermal applications in India. The use of solar concentrator to meet the process heat requirement of industrial and commercial establishments is an emerging and exciting market opportunity in India.

The Ministry of New and Renewable Energy is implementing a National Programme on Solar Thermal aimed at peak shaving, conservation of electricity and fossil fuels and providing a clean, non-polluting solution to meet the process heat requirement in industrial sectors. Various promotional incentives in the form of capital subsidy or soft loan are available for solar concentrator projects under the Jawaharlal Nehru National Solar Mission (JNNSM). The web-site of the Ministry www.mnre.gov.in may be visited for information about the National Programme and the Guidelines for Off-Grid and Decentralized Solar Applications under JNNSM.

To boost the use of Concentrating Solar Technologies, the Ministry is also implementing a UNDP-GEF supported project on "Market Development & Promotion of Solar Concentrator based Process Heat Applications in India". The objective of the project is to promote and commercialize Concentrating Solar Technologies for industrial process heat applications in India and facilitating the installation of 45,000 m^2 of installed solar collector area by March 2017 through demonstration and replicated projects. Direct emission reduction from these projects during its 5 years period will be 39,200 tonnes of CO_2.

Proposals are invited under the UNDP/GEF CSH project for **"Preparation of Preliminary Reports on possible installation of CST based projects in selected States of Country"** as per below

(i) This Bid document contains Terms of Reference and Instructions to Bidders for formulation and submission of proposals.

(ii) The PMU reserves the right to alter any or all terms and conditions specified in this Bid Document. The terms and conditions governing the proposed assignment are not exhaustive and additional conditions, as may be mutually accepted, will be included in the Work Order / Contract Agreement. These conditions are also subject to modifications or deletion listed herein and clearly indicates specific deviations, if any, considered absolutely necessary.

(iii) The Bidders are free to make suggestions in their offer, in addition to the

specified Scope of Work or Methodology, to meet the objectives of the proposed assignment.

(iv) No Pre-bid meeting will be convened. Queries, if any, will be responded to by the PMU up to 5 P.M on May 27, 2015.

(v) At any time before the submission of proposals, the PMU may, for any reason, whether at its own initiative, or in response to a clarification requested by the bidder, carry out amendment(s) to the Documents. The amendment will be notified in writing or by Email or Fax to all Bidders and will be binding on them. The PMU may at its discretion extend the deadline for the submission of proposals. The contractual obligations shall be as per the terms and conditions in the Work Order issued to the successful bidder at a later stage.

(vi) The PMU reserves the right to reject all or any of the proposals without assigning any reason thereof.

(vii) It may be noted that the costs of preparing the proposal and of negotiating the contract, including visits to the PMU for Presentation, are not reimbursable, and the PMU is not bound to accept any of the proposals that may be submitted.

(viii) The selected Bidder is expected to commence the assignment on the date specified in the Work Order.

Proposals in sealed cover may be submitted to **National Project Manager, Project Management Unit, Concentrated Solar Heat Project, Ministry of New & Renewable Energy, Block 3, CGO Complex, Lodi Road, New Delhi – 110003. Telefax: 011-24363638, E-mail:** singhalak@nic.in **and** pankaj.kumar74@nic.in. For details, please see Section-3 on "Instructions to Bidders". Please download the complete RFP at : http://www.in.undp.org/content/india/en/home/operations/procurement.html **.**

Electric vehicle projects receive fine tuning under Kyoto Protocol's Clean Development Mechanism

The article is available at: http://cdm.unfccc.int/press/newsroom/latestnews/releases/2015/1604_index.html .

Projects that encourage transition to electric vehicles will receive further incentive when they get their charge from renewable energy sources thanks to rule changes adopted this week by the Board that oversees the Kyoto Protocol's Clean Development Mechanism (CDM).

The Board changed the small-scale CDM transport methodology used to calculate baseline emissions and measure ongoing emissions to take into account and credit the reduced emissions from renewable energy sources.

The CDM provides incentive to projects that cause a switch to electric vehicles away from fossil fuel powered vehicles. Now those projects have a higher incentive to get their charge from renewable sources.

"Powering electric vehicles from new renewable energy sources can make an important contribution to the response to climate change," said CDM Executive Board Chair Lambert

Schneider.

Road transport accounts for about 14 per cent of CO2 emissions from fuel combustion in developing countries, according to the International Energy Agency. Along with contributing to climate change, vehicle tailpipe emissions contribute to illness and death.

"This is part of the Board's efforts to make the CDM even better, to broaden its usefulness in the international response to climate change," said Mr. Schneider.

The CDM rewards with saleable credits – certified emission reductions (CERs) – projects that reduce or avoid greenhouse gas emissions and contribute to sustainable development. The incentive has led to registration of 7,906 projects and programmes in 107 developing countries.

Also at its 83rd meeting, the Board improved a methodology for projects that create clean drinking water.

Prices paid for CERs have plunged with falling demand. Thus, the incentive to create new projects, and even continue existing projects, has diminished. **The Board's approach is to continue improving the CDM and expanding its usefulness, including for use for results-based finance.**

Compendium of Case Studies on Climate and Disaster Resilient Development

The article is available at: http://www.pacificdisaster.net/dox/case_studies_pacific.pdf .

This compendium showcases programmes and projects from across the Pacific region that address climate change and disaster risks, through climate change adaptation (CCA), disaster risk management (DRM) and/or greenhouse gas emissions reduction.

These forty case studies cover different topics across Pacific Island countries and territories (PICTs) and showcase significant work undertaken by the region to address climate and disaster related challenges and to build resilience.

These actions have occurred while the regional policy frameworks on climate change (Pacific Islands Framework for Action on Climate Change 2006-2015) and DRM (Disaster Risk Reduction and Disaster Management: A Framework for Action 2005–2015) have been in effect. Both frameworks expire in 2015 and are superseded by the Strategy for Climate and Disaster Resilient Development in the Pacific (SRDP).

Trends, challenges, solutions and lessons are drawn from these case studies, which may serve as a guide for the design of future initiatives to be implemented under the SRDP and provide a reference for the Pacific and other regions of the world.

Below is a summary of key lessons learnt including trends from this compendium:

- Responses at a programme and project level should therefore be multidisciplinary and cross sectoral. The programme, network or consortium approaches can provide a shared framework for multiple agencies and governments working within one location.

- Prior to decision-making, assessments should be undertaken to identify the most appropriate and cost effective solution, tailored to the local context. Sound vulnerability assessments of areas and populations, robust scientific assessments and modelling of

hazards and risks, and cost benefit and economic analysis of options should be undertaken.

- When renewable energy is used, it not only supports access to energy services, but also improved energy security, energy independence, and economic resilience, as communities will be less affected by price fluctuations, costs and availability of imported fossil fuel.

- In order to enhance sustainability it is important to continually engage with stakeholders such as grass root community and women's groups, private sector stakeholders, national and provincial governments, regional technical agencies, non – government organisations (NGOs) and international development partners.

- Addressing gender equality will increase effectiveness and success of these initiatives. For example, gender responsive community facilitation can assist in developing effective community Disaster Risk Reduction (DRR) plans.

- Children and youth can build climate and disaster resilience when empowered to take on these roles. They can lead through initiating actions, raising awareness, and planning for resilience. Avenues such as media can also engage youth in climate and disaster issues, as well as raise awareness for the wider community.

- Many case studies show that only when contributions are there from the most vulnerable, including but not limited to persons with disabilities, children and the elderly, yield more effective and equitable results.

- When communicating about climate change and disasters, use of non-technical language (preferably in local language), that explains scientific concepts in a local context is essential. When communicating to children, the focus should be on local impacts to which they can relate, rather than complex climate science.

- It is crucial design effective and resilient climate and disaster risk policies, strategies, methods and tools. It is important to note that the perceived level of threat from climate change and disasters is not the same across regions and is not always in line with actual threats.

- Public and private partnerships can lead to economic outcomes for local communities by creating jobs, developing skills, and building enterprises. For example, creating an enterprise to manufacture products locally for project activities, rather than importing products from overseas.

- Ownership by communities can be increased through actions such as training for ongoing maintenance of assets (e.g. early warning systems and solar panels) and also by supporting strong communication and engagement of communities with local, regional and national governments.

- Linking national policies and community based actions can enhance effectiveness and sustainability of activities to build climate and disaster resilience.

- **Tool: Climate Change and Environmental Education MODULE** by UNICEF. **It is available at :** http://www.unicef.org/publications/files/CFS_Climate_E_web.pdf

- **Tool: Climate Change Adaptation and Disaster Risk Reduction in the Education Sector RESOURCE MANUAL** by UNICEF. **It is available at** : http://www.unicef.org/cfs/files/UNICEF-ClimateChange-ResourceManual-lores-c.pdf

- **Tool: Youth in action on climate change: inspirations from around the world by UNICEF** . **Available :** http://www.unicef.org/education/files/Publication_Youth_in_Action_on_Climate_Change_Inspirations_from_Around_the_World_English.pdf

- **Tool: Climate Change and Children by UNICEF** . **It is available at** : http://www.unicef.org/publications/files/Climate_Change_and_Children.pdf

- **Tool: Child-Friendly Education: Transforming the lives of children affected by climate change by UNICEF** . **It is available at** : http://www.unicef.org/education/files/UNICEF-ClimateChange-E-panelformat1.pdf

- **Tool:** Climate Change Take Action Now: A guide to supporting the local actions of children and young people, with special emphasis on girls and young women by UNICEF **It is available** at : http://www.ifrc.org/Global/Publications/youth/AYCEOs_climate-change_take-action-now_EN.pdf

- **Tool:** Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries by UNICEF **It is available** at : http://www.unicef.org/education/files/DRRinCurricula-Mapping30countriesFINAL.pdf

- **Tool:** Exploring the Impact of Climate Change on Children in South Africa by UNICEF **It is available at** : http://www.unicef.org/environment/files/SA_Climate_change_and_children_final.pdf

- **Tool:** The benefits of a child-centered approach to eliminate change adaptation by UNICEF **It is available** at : i http://www.unicef.org.uk/Latest/Publications/Climate-adaptation/

- **Tool:** Climate Change and Children: A Human Security Challenge by UNICEF **It is available** at : http://www.unicef-irc.org/publications/pdf/climate_change.pdf

- **Tool:** Children's Vulnerability to Climate Change and Disaster Impacts in East Asia and the Pacific by UNICEF **It is available** at: http://www.unicef.org/environment/files/Climate_Change_Regional_Report_14_Nov_final.pdf

- **Tool:** Climate proof children: Putting the child first in climate finance by UNICEF **It is available** at: http://www.unicef.org/environment/files/climateproof_web.pdf

- **Tool:** The impacts of climate change on nutrition and migration affecting children in Indonesia by UNICEF **It is available** at: http://www.unicef.org/environment/files/Final_advocacy_paper_Indonesia_15_Sept.pdf

- **Tool:** Children and Climate Change in Mongolia: Children's Increasing Vulnerability and their Capacity as Agents for Community Based Adaptation by UNICEF

It is available at:
http://www.unicef.org/environment/files/Mongolia_Advocacy_Paper.pdf

- **Tool:** Global Climate Change and Child Health: A review of pathways, impacts and measures to improve the evidence base by UNICEF
  It is available at: http://www.unicef-irc.org/publications/pdf/idp_2009_03.pdf

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Key links between the MDGs, climate change and disasters and education

The following excerpt is available at : http://www.unicef.org/publications/files/CFS_Climate_E_web.pdf .

Goal 1: Eradicate extreme poverty and hunger: Climate change and disasters are projected to reduce poor people's livelihood assets, including health, access to water, homes and infrastructure. Climate change, including chronic disasters, will likely alter the path and rate of economic growth due to changes in natural systems and resources, infrastructure and labour productivity. A reduction in economic growth directly impacts poverty through reduced income opportunities. Particularly in Africa, food security is expected to worsen. Out-of-school youth and women benefit from vocational education on alternative livelihoods, small-scale entrepreneurship and other 'green' job skills related to the environment and disaster risks. This training increases resilience and sustainability and ensures future employability. Access and completion of quality education have a direct impact on development and poverty reduction. School gardening programmes support nutrition.

Goal 2: Achieve universal primary education: Natural disasters can cause the loss of livelihood assets (social, natural, physical, human and financial capital), including the destruction of school infrastructures. These losses can reduce opportunities for fulltime education in numerous ways. Natural disasters often reduce children's time for schooling and studies, while displacement and migration can reduce access to education. Schools are constructed to withstand hazards. Environmental education is introduced. Led by youth, communities map risks and disaster preparedness. Schools install early warning systems. Activities increase awareness of climate change and advocacy for response.

Goal 3: Promote gender equality and empower women: Climate change, including chronic disasters, can exacerbate current gender inequalities. Depletion of natural resources and decreasing agricultural productivity may place additional burdens on women's and girls' health and reduce time available to participate in decision-making processes and income-generating activities. Research shows that natural disasters affect female-headed households more harshly and result in increased gender-based violence. Gender-sensitive curricula and pedagogy on climate change, disaster preparedness and risk reduction include girls and women. Safe school environments meet girls' needs with segregated latrines and other adaptations.

Goal 4: Reduce child mortality: Children are especially vulnerable to physical injury and trauma during natural disasters. Direct effects of climate change include increased heat-related mortality and
illnesses. Climate change will likely result in declining quantity and quality of drinking water, a prerequisite for good health. It will exacerbate under-nutrition by reducing natural resources and productivity and threatening food security. Preschool children learn about emergency preparedness, evacuation drills and first aid. Evacuation shelters and hazard-resilient schools are constructed. Schools, particularly preschools, offer access to health services, safe water, improved sanitation and adequate nutrition. Schools impart sanitation and hygiene education. Schools raise

awareness about mosquito breeding sites, eliminating standing water and other practices of deterrence. School gardens and school feeding programmes benefit the young.

Goal 5: Improve maternal health: Children and pregnant women are particularly susceptible to vector-borne and waterborne diseases. Pregnant mothers also need nutritional food, which will become scarcer as a result of climate change and disasters. Schools strengthen health services and distribute malaria pills. Young mothers receive access to education and nutrition through their schools.

Goal 6: Combat HIV/AIDS, malaria and other diseases: Climate change and related disasters may increase the prevalence of some vector-borne diseases and vulnerability to water- or food-borne diseases, or diseases transmitted from person to person. Schools provide health services, safe water, improved sanitation and adequate nutrition. Schools impart sanitation and hygiene education. Schools raise awareness about mosquito breeding sites, eliminating standing water and other practices of deterrence.

Goal 7: Ensure environmental sustainability: Climate change and increasingly chronic disasters will alter or irreversibly damage natural resources and ecosystems, affecting productivity. These changes may also decrease biological diversity and intensify existing environmental degradation. Schools increase access to water, sanitation and hygiene education. Tree-planting campaigns are initiated. Schools plant gardens. CCEE and ESD are provided.

Goal 8: Develop a global partnership for development: Response to the global issue of climate
Change requires cooperation from all countries, especially in helping developing countries to adapt. A global network of experts and stakeholders supports climate change adaptation/disaster risk reduction mainstreaming in education. Partners on all levels discuss the Convention on the Rights of the Child and climate change. Global youth networks and movements for climate justice receive support.

Electricity Use Could Soar as Global Middle Class Embraces Air Conditioning

We need efficient markets if we are going to stay cool without heating up the planet .

The article is available at: http://spectrum.ieee.org/energywise/energy/environment/electricity-consumption-could-soar-as-global-middle-class-embraces-ac/?utm_source=energywise&utm_medium=email&utm_campaign=050615 .

Energy use in U.S. and European homes is predicted to flatten, for the most part. But it will soar in developing and middle-income countries. The main culprit, according to new research from the University of California, Berkley, is air conditioning.

In China, sales of air conditioners have nearly doubled in the last five years, with more than 60 million units sold in 2013 alone.

Using data from Mexico, researchers at UC Berkley's Haas School of Business built a model that took into account the relation between climate, income, and air conditioning.

When accounting for increases in incomes and expected higher temperatures, they found the number of homes with air conditionings would rise from 13 percent today to more than 70 percent at the end of the century.

"This is mostly good news," Lucas Davis, lead author of the paper and professor at the Hass School of Business, wrote in a blog post. "Air conditioning will bring relief to the more than three billion people who live in the tropics and subtropics."

The problem, however, is that meeting the new demand will require intensive investment in electricity grids in places where it is already badly needed, such as India and southeast Asia.

In the United States, which uses more air conditioning than the rest of the world combined, most of the grid is sized to meet the few days a year when coolers are cranking at full blast under sweltering temperatures.

This has led to a grid that runs inefficiently most of the year. Some technologies have been adopted more widely in recent years to help curb demand when it's at its highest, such as remotely controlling air conditioner compressors, but those will have to become commonplace in other areas of the world if air conditioning is widely adopted.

In India there are three times as many days that are warm enough to warrant air conditioning use as there are in the United States. **That brings India's demand for cooling to 12 times what it is in the United States, according to the researchers**. Indonesia, Thailand and the Philippines all have even more such "cooling degree days" than India. Within just a few decades, the model shows "near universal saturation" of air conditioning use, according to the Berkeley team.

Grids need enough generation available to power all of these air conditioners. But in India, there is not even adequate generation for the electricity load today. But there is also an opportunity to invest in efficient air conditioners and in generation sources that will best match the growth in air conditioner use.

The southeast United States could be somewhat instructive for other countries. It has seen electricity use for cooling jump 43 percent in the past 20 years, and the region's electricity use is growing as people build bigger homes with central air conditioning. Unlike some other regions of the United States, however, it is relatively devoid of strict state energy efficiency standards that exceed federal efficiency standards or other standards that drive the uptake of more efficient AC units.

In China, efficiency standards for air conditioners have become more strict in the past decade, and could continue to do so. As a potential supplier to Southeast Asia, the minimum efficiency of Chinese products could be important for efficiency across Asia.

Another concern with the rising use of air conditioning is the issue of matching generation to demand. Solar power peaks earlier than cooling use, but it can be close. So precooling homes and businesses while solar output is at its highest could help mitigate how much power an air conditioning unit may need from the grid in the late afternoon.

There is also an opportunity for more distributed solutions, such as air conditioners that run at least in part on solar power directly. Advances in technologies such as these, along with energy efficiency could "reduce the energy consumption impacts substantially," Davis wrote.

But the time is now to make decisions about the cost of energy and what technologies should be available, he added. "We need an 'all-hands-on-deck' approach including aggressive funding for innovation, efficient pricing of energy, and evidence-based environmental policies," he wrote. "**We need efficient markets if we are going to stay cool without heating up the**

planet."

From destructive pine to productive fuel

The article is available at: http://www.kxsd.org/index.php?option=com_resources&task=details&id=1099&Itemid=106 .

Source: Jain V K and Srinivas S N, Ed .2012. Empowering Rural India the RE way: Inspiring Success Stories, pp.8-13. New Delhi, India: Ministry of New and Renewable Energy, p.145. It is available at : http://mnre.gov.in/file-manager/UserFiles/compendium.pdf

AVANI, a voluntary organization working in the villages of Central Himalayas in the field of appropriate technology, has found a productive use for the pine needles. The organization aims to set up an enterprise involving unemployed youth.

The initiative will involve the collection and utilization of pine needles to generate producer gas, which will be used to generate electricity that can be sold to the power companies through an existing grid. AVANI installed gasifiers in two villages, namely, Malla Balta and Talla Balta belonging to the same Gram Sabha in the Almora district of Uttarakhand.

AVANI's pine-needle gasifier project proposes to address the most energy intensive and vital household process, which is, cooking effectively utilizing charcoal, a byproduct of the gasifier. This village-level cooking energy solution will reduce fuel gathering time by 70% and provide a smoke-free environment to the villagers. The gasification process produces about 10% residue, which incidentally is high quality charcoal. This, in turn, is used for cooking in village households.

Residue from a 120-kW gasifier system will be sufficient to meet the cooking fuel needs of 100 households. Families can pay for the charcoal, which is cheaper than gas or kerosene, either by cash or by collecting pine needles in lieu for it. Using charcoal as a cooking medium in place of fuel wood will result in many benefits for the villagers. It will save time, improve health of the women, and provide a smoke-free environment thereby reducing all health-related issues.

By producing energy from biomass, the project aims at reducing 0.89 kg of carbon dioxide for each unit of electricity generated. As the biomass burns on the forest floor without providing any useable energy, the project will further contribute to the reduction in carbon emissions by eliminating all those wasted emissions.

In many earlier projects, AVANI had focused on capacity building of the local residents for technology and management. Taking a leaf from these projects, the organization proposes to set up an enterprise employing unemployed youth who will be trained to operate and maintain the gasifier.

Pine-needle collection will generate employment opportunities for the villagers. It is estimated that one family can collect up to 100–200 kg of pine needles in a day depending upon the time they spend in collection. By monetizing the collection of pine needles and use of charcoal, AVANI aims at addressing the economic disparity at the village level.

Environment-friendly stove: Technology Informatics Design Endeavour.

The article is available at: http://www.kxsd.org/index.php?option=com_resources&task=details&id=1100&Itemid=106 .

TIDE (Technology Informatics Design Endeavour) has helped create and operationalize a rural enterprise model for disseminating fuel-efficient wood burning stoves among rural/small town industry clusters. For this, it was awarded the prestigious Ashden Award in 2008. TIDE used the award grant to spin off Sustaintech India Pvt. Ltd as a social venture to demonstrate an enterprise model for the rapid adoption of fuel-efficient stoves by street food vendors. Under this arrangement, TIDE develops fuel-efficient stoves and Sustaintech develops the marketing network. The for-profit enterprise model of Sustaintech has also been conceived as a sustainability plan for TIDE.

The approach has been to focus on user-friendly stoves that require minimal maintenance. Spares as required are available locally. Fuel is saved through good combustion efficiency by optimizing the air–fuel ratio, the right combustion chamber volume, and use of a well-designed chimney. Good heat transfer efficiency is achieved by maximizing the surface area exposed to heat and minimizing wall losses through good insulation. The programme was initiated in Karnataka and Kerala but has now been expanded to Tamil Nadu, Andhra Pradesh, and Rajasthan.

Some of the areas where TIDE has developed and disseminated fuel-efficient wood burning stoves are as follows.
• Large specialized cookstoves for a range of cooking operations (including dosa, frying, and tea-coffee making stoves)
• Customized large cookstoves for big kitchens like those in marriage halls and temples
• Stoves for preparation of herbal medicine, making rubber bands, processing arecanuts, making jaggery, boiling turmeric, and those for textile bleaching and dyeing, and silk reeling.

TIDE has developed a range of stoves for different industry clusters. Initially, its strategy was to train local masons to construct fuel-efficient stoves. While it still adopts this strategy for large stoves, for example, those used in jaggery making, textile bleaching, and dyeing, it is gradually moving to factory-produced stoves for uniformity in design, consistent fuel-saving features, lower rejection rates, and quality assurance features. Financing for end users is also easier with factory-produced stoves when compared with on-site constructed stoves that lack standardization.

For the small businessmen, advantages from the improved stoves are two folds; saving on money and increased productivity. According to an assessment by TIDE in 2011, the stoves installed by TIDE and Sustaintech have so far saved Rs 8 crore in fuel costs and 60,000 tonnes of carbon dioxide emissions annually. About 2,00,000 people have benefitted through their interventions. This project has helped the women self-help groups in increasing income generation in the areas of fish-drying, cashew nut processing, and drying of coconuts, spices, and other food products.

What Does the Data Say About Cities for People?

The article is available at: http://sustainablecitiescollective.com/cc-huang/1070771/deep-dive-data-behind-cities-people?utm_source=feedburner&utm_medium=email&utm_campaign=Sustainable+Cities+Collective+%28all+posts%29 .

With the world's population rapidly urbanizing, the future of the planet's climate hinges on the sustainability of its cities.

Will these cities be sprawling and force residents to sit in crippling traffic jams as they choke on polluted air? Or will they offer easy access to goods and services through a variety of transportation options that emit fewer carbon emissions and other air pollutants?

Energy Innovation finds out in a new report reviewing dozens of quantitative studies.

To learn about the ingredients for success, Energy Innovation reviewed the scientific literature on low-carbon cities and sustainable urban development. Our conclusion: compact, walkable, and transit-oriented development creates sustainable, healthy, and economically vibrant cities that deliver a high quality of life to residents.

Cities for People: Insights from the Data synthesizes the quantitative data on urban form and transportation, while also pointing out potential areas for future research. We emphasize studies using real-world evidence, paying particular attention to China, which is urbanizing at a breakneck pace.

The world's cities are as different as its counties and cultures, but decades of research across the globe have yielded a common set of fundamentals for building sustainable cities.

Known as The 8 Principles, these concepts offer a guide for cities seeking to reduce their carbon footprint, improve residents' mobility, and foster strong economic growth.

Numerous studies from China and beyond have produced data-backed evidence to support The 8 Principles. An approach that favours sustainable urban form and transportation results in an impressive array of environmental, economic, and social benefits as given below:

Environmental benefits

- Improved air quality: Walking, biking, and public transit can cut transportation emissions, which account for more than 30 percent of the PM 2.5 pollution in Beijing.
- Smaller carbon footprint: Better urban design can reduce carbon pollution from the transportation sector, which accounts for nearly a quarter of the planet's energy-related greenhouse gas emissions.
- Decreased car dependence: Bike-sharing programs and dedicated lanes provide alternatives to private vehicles. In China, 138 bike-sharing programs had been implemented by the end of 2014, more than any other country.

Economic Benefits

- Lower cost for residents: Households can save money through more energy efficient travel due to mode shifting, easier access to goods in mixed-use developments, and lower parking costs.
- Reduced congestion costs: Employing The 8 Principles can deliver mobility with density and reduce the economic waste associated with traffic, which amounts to 8 percent of metropolitan GDP in Rio de Janeiro and São Paulo.
- Higher property values: Studies from around the globe show that walkability and accessibility to transit increase real estate values.
- Improved productivity: Density boosts productivity and innovation through network effects; by contrast, congestion and pollution harm economic activity and human health.
- Higher government revenues: By choosing smart development strategies, governments can cut capital, labor, and maintenance costs. Globally, $3 trillion in capital investment in urban infrastructure can be saved in the next 15 years by pursuing more compact strategies in line with The 8 Principles.

Social benefits

- Improved public health: Mixed-use, transit-oriented development increases physical activity, whereas failure to mix land-uses and increased car ownership are associated with higher risks

of obesity and colon cancer. Sustainably designed communities also offer safer streets and reduce traffic-related injuries.

- Greater human mobility: Greater mobility saves time wasted in traffic jams and expands economic and lifestyle choices for urban dwellers.
- Increased equality of access: In a car-centric framework, low-income residents are often left out of the planning calculus. By building better public transit, sidewalks, and biking paths, those who cannot afford to drive gain greater access to the city.

International Compost Awareness Week (ICAW) is the largest and most comprehensive education initiative of the compost industry. It is celebrated each year in the first full week of May. As the US Representative of the composting industry, **US Composing Council**, has signed onto the International Year of Soils, a project of the Global Soils Partnership and the Food and Agriculture Office of the United Nations. The US theme centred on the need for compost as a component of healthy soil here in the country, in infrastructure development, agriculture and food production – compost's role in everything from mitigation of brownfields, storm water management and erosion control, and water conservation.

The U.S. Composting Council is a national organization dedicated to the development, expansion and promotion of the composting industry. Established in 1990, the USCC achieves this mission by supporting and performing compost-related research, promoting best management practices, establishing standards, educating professionals and the public about the benefits of composting and using finished compost. USCC members include compost producers, marketers, equipment manufacturers, product suppliers, academic institutions, public agencies, nonprofit groups and consulting/engineering firms.

The USCC is a non-profit organization that also directs the **Composting Council Research and Education Foundation (CCREF),** a charitable foundation, which administers public and private research and education activities.

Fight Drought with Compost, University of California Riverside Expert Says

The article is available at : http://sustainablecitiescollective.com/seedstock/1070271/fight-drought-compost-university-california-riverside-expert-says?utm_source=feedburner&utm_medium=email&utm_campaign=Sustainable+Cities+Collective+%28all+posts%29 .

It's no secret that Southern California is suffering from prolonged drought, and according to a University of California, Riverside (UCR) professor and conservation specialist, compost can be used as a potent drought-fighting tool.

"**Compost is a good source of organic matter, helps retain nutrients and helps conserve water," says David Crohn. "Adding compost to sandy soil helps it to hold more water, which makes water management easier."**

Looking to raise awareness and educate people about this and other benefits of composting is International Compost Awareness Week, a venture of the U.S. Composting Council, which concluded last week.

Awareness of composting is high at UCR, where the university's dining services composts many tons of food waste. Another effort on campus involves composting coffee bags and tea bags, with

numerous sites available to do this.

The Riverside County Waste Management Department provides several resources for residents who would like to compost, including free backyard composting workshops and Master Composter training classes. UCR also has information available to citizens about composting.

One important fact to remember, according to Crohn, is that not all composts are equal. Compost that smells good is one sign that it's genuine and healthy. Even healthy composts vary widely, and bring different attributes. **For example, says Crohn, green waste compost improves soil structure and knocks back weed growth.**

In local food systems, which are becoming more prevalent in Riverside and throughout Southern California, compost enhances soil irrigation and bolsters food production for small farmers.

Yet, despite all the advantages that come with composting, Crohn acknowledges the obstacles that keep the sustainable practice from becoming more widespread. There is also the issue of compost's acceptance in urban areas due to odour.

Compost is actually a biosecurity measure. With more compost, less waste goes into landfills. We all generate green waste and food waste. People need to understand that when they use compost, they help us to manage our waste and conserve landfill space—this benefits all of us.

Because of land expense and the need for odour control, much of the commercial composting in Southern California takes place indoors.

Thanks to a new law in California, composters will have even more green waste to work with. In the past, landfills in the state utilized green waste daily as a cover.

"Now, more green waste is coming to us as compost," Crohn says. "This is one more opportunity to take advantage of."

Shimokawa Town, Hokkaido, Japan : Establishing an Energy-Sustainable Small Town Management Model with Local Forest Resources

The article is available at : http://www.japanfs.org/en/news/archives/news_id035217.html .

Japan for Sustainability (JFS) worked on its Local Well-Being Project since April 2013, because we believe that local activities for well-being are the key to our happiness and planetary sustainability.

Likewise, the state of the local economy is an indispensable item to consider when we are looking closely at happiness and its relationship to local activities.

JFS held a symposium on February 9, 2015, titled "Community Initiatives for Survival--from a Local Economy / Regional Revitalization Perspective," to which front-running practitioners in local community development were invited as guest speakers.

From 1960 up until now, we have planted 40 to 50 hectares of trees in these mountains each year. When we had afforested all the area where we could plant trees, we bought another block of national forest. This time, we paid 2.2 billion yen (about US$18,333,333), and we have planted and grown trees in this area as well.

It takes about 60 years for plantations of Sakhalin firs and Japanese larch trees -- both are Hokkaido's prefectural trees -- to grow big enough to be cut down.

Because we plant trees every year, the age of the trees in these man-made forests vary from one year to 50 to 60 years old, all of which are growing well. Starting this year, we are now able to practice circulating forest management -- cutting down trees that our predecessors planted and then re-planting more trees in the logged area. I am not aware of any other town practicing this kind of forest management. There is no income for about 60 years while trees are being planted. Considering the economy of this method, nobody wants to do this. We have had great predecessors in Shimokawa Town.

A forestry cooperative is responsible for growing and taking good care of trees ranging from one year to 50 to 60 years old in the mountainous forests that the town bought. Currently, about 64 people work in the cooperative. An increasing number of people have been returning or moving into Shimokawa, and there are always roughly 20 to 30 people who want to work in the cooperative. They can get these jobs only when a vacancy opens up.

In order to generate small businesses connected to forestry, we also process timber from forest thinning, including both thin to thick trees; in many ways this is like harvesting fruit from clusters of grapes. We waste nothing and use everything we take from the forest. We have a system to exploit the blessings of forest -- for example, using Sakhalin fir leaves to extract essential oil or as filling for pillows, as well as taking care of the forest by thinning the trees, which also provides timber.

Looking at the demographics of Shimokawa Town, we can see that population outflow has been stopped by the town's policy of buying and taking care of forests, creating small businesses related to forests, and preparing workplaces to receive people coming back or moving into the town. As the number of working people is increasing, the number of children is growing as well because they come here with their parents. These analyses were performed by university professors at the request of the town. I think it is very important to adopt appropriate policies and take action based on experts' opinions and a proper understanding of the structures and mechanisms underlying current developments.

Based on our predecessors' concept that "**wherever there are resources, industries will emerge**," Shimokawa has created an industry by nurturing community-based resources for 50 to 60 years. One related project started in 2004 involves systematically shifting energy use in public facilities, such as public baths, from conventional fossil fuel (oil) to wood waste. Our current basic idea is "where there are energy resources, industries will emerge," and about 60 percent of public facilities, such as a day-care center and agricultural facilities, are powered by boilers using wood waste. CO2 emissions from public facilities have been drastically decreased accordingly. **If we maintain the pace of energy shifting from fossil fuel to wood waste and wood chips for boilers in a self-sufficient way, we will be able to achieve a reduction of 4,700 tons of CO2 emissions in 2022.**

With fossil fuel prices rising, we have actually saved about 17 million yen (about US$141,666) by replacing oil with wood waste, because wood waste is abundant in Shimokawa. The system encompasses abandoning fossil fuel and burning wood chips to save money, and providing the saved amount to childcare services to make life in the town happier for children.

A few years ago, a research group with university participation studied the flow of money in Shimokawa. Currently, Shimokawa's intraregional production value amounts to 21.5 billion yen (about US$179 million). It earns money outside the region by selling agricultural and forestry

products. The money guzzler is energy. Of a total of 1.2 billion yen (about US$10 million) flowing out of the region, 700 million yen (about US$58,333) is for oil, coal and fossil fuels and 500 million yen (about US$41,667) is for electricity. The balance of payments within the region amounts to a 5.2 billion yen (about US$43.3 million) deficit.

If we do a simulation of how the economy would change if we plugged the energy leak amounting to 1.2 billion yen's worth (about US$10 million) a year by creating energy within the region, the result would be an increased production value in the region of 2.8 billion yen (about US$ 23.3 million). This would include a 700 million yen (about US$58,333) increase in combined forestry and forest product production, and it would also mean jobs for about 100 more workers in the region. The overall picture is an increase in workplaces as the scale of economy expands. As a timber-producing town, Shimokawa provides timber for flooring to a co-working space, T-Time, in Akasaka and to other public facilities in Tokyo's Minato Ward. Needless to say, the town is also internationally certified by the Forest Stewardship Council. This is the Shimokawa model.

Two-thirds of Japan's land is classified as forest. Among 1,718 municipalities, 734 (43 percent) meet national government criteria for "developing mountain villages" by having over 75 percent of their area under forest. Shimokawa Town might provide a robust model that could spread across Japan to revitalize farming and mountain villages by increasing employment and providing opportunities for achieving self-actualization. I think it could be one of the models for Japan's future development. In Hokkaido, 13 out of 179 municipalities are working on biomass projects similar to that of Shimokawa Town. The town intends to promote this approach throughout Japan and the world.

The important point in the shift toward biomass energy is what will happen to people who have been making a living by selling fossil fuels. The bottom line is that their sales will drop. One of the reasons we are not seeing widespread biomass development is opposition from existing businesses. This is understandable. They won't be able to earn a living.

A subdivision project was also launched to build a biomass cogeneration plant in a suburb of Shimokawa Town, and to sell or consume the generated energy within the community, asking the residents whose homes are scattered around the area to live more closely together, and supplying heat through heat conduits. When this project is completed, it will create about 100 jobs and energy production volume equal to 2.8 billion yen (about US$23.3 million).

One way we bring money into the community is to sell carbon credits in exchange for growing trees, including maintenance and thinning, and their carbon sink effect. **Shimokawa was the first town in Japan to introduce an offset credit for forests.**

It is undertaking "carbon accounting," which measures not money but carbon. Townspeople use bikes instead of vehicles as a way to decrease carbon dioxide (CO2) emissions. They can also fix CO2 by using wood. In terms of carbon volumes, if people strive to plant forests and create a wood-based society, the carbon balance improves. If they emit less CO2, the overall carbon balance improves.

Let me introduce an example. When townspeople bring wood residue such as branches pruned off of trees in their gardens or forest plantations into wood material manufacturing facilities, they get a gift certificate worth 500 Yen per 100 kilograms. This initiative enables us to secure fuel, even though not in significant amounts, and reduce CO2 as well as garbage volumes.

While only 145 people obtained certificates through this project in 2010, more recently this number increased to 760, which means that about one fifth of Shimokawa's population is participating. Some people say they participate because they want to decrease CO2 emissions

and some say because they can get 500 yen. My plan is to ask the townspeople to participate in the project for the purpose of minimizing CO2 emissions, with a view to obtaining carbon trade funds from cities to put to work to further our aims.

The "**Natural Capital Declaration**" was launched at Rio +20. Soon after that, Shimokawa Town signed the "Shimokawa Natural Capital Declaration" in 2013. Today, when supply chain management is becoming more popular, mainly companies and financial institutions are trying to figure out how
they are placing a burden on the environment, not only in terms of CO2 emissions, but throughout the entire process from production to consumption of goods. Our town has already evaluated the value of
natural capital in Shimokawa.

The forests owned by Shimokawa are valuable. To enjoy their benefits, it is thinking about inviting companies and individuals to invest in our forests. As it sets up various types of projects relating to forest maintenance, it is also planning to build a mechanism for investment in forests.

In an aging Japanese society, the ratio of people 65 years old and over to the total population in Shimokawa is 38 percent. The town provides detailed services designed to deal with aging society issues. One is a community bus, which stops anywhere within a certain zone by request.
People can also make an appointment to have the bus pick them up and bring them back home.

Share-ride taxi service is also available for the elderly to visit a hospital if a reservation is made not later than the day before. A benevolent monitoring service for the elderly is provided using the optical cable that has been installed throughout the town. Another monitoring service uses a sensor installed in people's refrigerators that blows a whistle when the fridge is not used for a day.

Another service is shopping support: Support personnel stock a small pickup truck with daily commodities bought from local shops and tour each district of the town. The elderly can make their purchases without the insecurity of ordering items sight unseen.

Because Shimokawa Town has heat produced from biomass resources, Oji Holdings Corp., a paper manufacturing company that was starting up a medicinal plant business, established a research institute for plants with medicinal properties in Shimokawa Town. It is well known that licking the inner bark of yellow birch is good for the stomach, and wild plants are blessings of nature which can be used to heal the sick. What pulled the trigger for this company was that the town has heat and energy resources. As I said earlier, "Where there are energy resources, industries will emerge." New businesses are bound to emerge where energy resources exist.

More human resources and money coming in and fewer going out have no doubt had beneficial effects on the regional economy, population and production as they circulate within the region. Decreasing population can be overcome. I believe that this can also be a model for regional revitalization.

Shimokawa Town is promoting these initiatives in an effort to create a sustainable regional society. The Japanese word for economy "keizai" is obviously based on the more comprehensive concept of "keisei-saimin" which incorporates the idea of not only making money but also of governing local communities and helping people make a living. In short, its ultimate goal is to achieve sustainable livelihoods and improve the well-being of people in the region. In 2009, the French president at the time, Nicholas Sarkozy, also said that the actual state of economy and the society cannot be represented by GDP alone.

The consensus in Shimokawa is that unless the town sustainably maintains its farm land, mountains, agriculture and other key industries in its area (about the size of all of Tokyo's 23 wards) the town cannot consider itself sustainable. In large cities such as Tokyo, sustainability might be achieved by promoting the service and manufacturing industries. In the case of Shimokawa, however, land, agriculture and forestry are vital. To make these resources sustainable, it must plant trees continuously and promote sustainable agriculture. Otherwise, it cannot make its area sustainable.

In many initiatives including community building, it is necessary to help indifferent people achieve higher awareness, and encourage people to change their behaviour as well.

Shimokawa Town is promoting its initiatives with this in mind. For example, it holds events as a way to raise awareness among otherwise uninterested people, and organize workshops and lectures by specialists to inspire people to act.

It needs to develop separate policies specifically for people who are indifferent and people who are concerned and/or engaged in activities.

The Problem with Incinerating Waste: It's Not What You Think

India has a long way to go before it reaches the goals of the developed countries, particularly those in Europe. However, the potential in India is enormous and mindboggling.

The article is available at : http://sustainablecitiescollective.com/cathy-rust/1070756/problem-incinerating-waste-its-not-what-you-think?utm_source=feedburner&utm_medium=email&utm_campaign=Sustainable+Cities+Collective+%28all+posts%29 .

A Canadian delegation of environmental entrepreneurs and journalists were invited to Poland to attend Poleko in October, 2014. This is Poland's largest environmental protection trade fair. The author had meetings with many people around the subject of construction waste management. Europe in general and Germany in particular are known for its progressive waste management policies, so he wanted to find out what they do and how they do it.

Anyone involved in the waste sector, especially on a global level, already knows how they do it -- the phrase "burn baby burn" comes to mind. **Incineration is a big part of European waste management whether you are in a Scandinavian country, Germany or Holland, all rely on incineration.**

He spoke with Peter Meinlschmidt a physicist with the Fraunhofer Institute for Wood Research about how Germany handles waste. He told him that **all organic material, including plastic, is forbidden to go to landfill.** "So, then, what do you do with it?" He asked since not all plastics can be recycled. "It's burned, and the waste heat is converted to electricity and fed to the grid."

He did not know a lot about new incineration technologies, so he said, "But what about the fumes from burning the plastic? Doesn't it create terrible air pollution?"

"**It's all about the filters, and we have developed excellent filters which permit extremely low levels of emissions. In fact, it's practically none**," he said.

There went one of my big misgivings and misunderstandings about incineration -- **good filters**

mean little, if any air pollution.

So let's hop over to another conversation he had with a fellow from Holland who sells recycling equipment. Holland too, is a country that turns waste into energy. Here's the problem: incinerators are now running short of "fuel" **ie., garbage.**

So the operators will pay more for recycling material than the recyclers. Further, he told me, that **in the older incinerators still in operation, in order to moderate the temperature of the stuff being burned, they have to add wet organics to keep the temperature from getting too hot.**

So there is a double whammy created:

- In some cases organics that are supposed to be bound for anaerobic digesters are diverted to incinerators
- Material that should be getting recycled is being burned.

Waste to Energy policy too successful?

There are plenty of articles out there highlighting how Norway and Sweden have run out of material to burn and are now importing garbage from other countries to fuel their incinerators.

And this is the point. Sometimes policies intended to solve a problem, do it a little too well. Running out of feedstock and poaching from other sources isn't a progressive way of handling waste; once it's burned, the energy and resource is lost forever. When a product is recycled it extends its life and saves energy and resources.

While researchers are working on infinite recycling loops, for now we can get two, sometimes three uses out of a product before it's reached the end of its useful life, but it's better than it going up in a puff of smoke after its first life.

North America may be behind Europe in its waste management efforts, but being behind also gives us the opportunity to benefit from other countries' missteps.

In this case, while burning waste is full of good intentions (waste to energy, less landfill) and technology has advanced far enough that emissions issues are (potentially) a thing of the past, in reality, incinerating material misses the target of the circular economy (something the EU is striving for) and encourages societies to consume more stuff to provide waste for the incinerators to power the grid.

It is in fact why more European companies and researchers are looking at moving to adopting the Cradle to Cradle approach, and why the EU's Horizon 2020 program is encouraging researchers and companies to develop an interim step called the "cascading model of recycling," -- get as many uses out of a material before it's finally burned. **Governments across the world recognize that burning waste isn't the end solution.**

Every Delhi household to pay environment compensation for a cleaner Yamuna: NGT

The article is available at : http://indiatoday.intoday.in/story/yamuna-compensation-delhi-household-sewage-generation-national-green-tribunal/1/437085.html .

The NGT said 76 per cent of Yamuna's pollution is generated in NCT of Delhi. Drains carry industrial effluents and untreated sewage into the Yamuna. Every household in Delhi will have to pay a minimum environment compensation of Rs 100 for generating sewage that merges in the

Yamuna, the National Green Tribunal has ordered.

In authorised colonies, this compensation would be directly proportional to the property tax or water bill, whichever is higher. **For those residing in unauthorised colonies or not paying water bills, the amount would be Rs 100 to Rs 500.**

Individuals, including municipal corporation employees, will be slapped with a fine of Rs 5,000 for throwing or dumping waste into drains in the National Capital, it said. Municipal corporations of Delhi will clean all the drains. They will also ensure that no illegal, unauthorised washing, slaughtering or running of dairies is permitted on the banks of the drains. All of this will have to be done in a month's time.

"We direct Delhi government, Delhi Jal Board and all municipal corporations, Cantonment Board, electricity companies like BSES and other civic authorities to levy environmental compensation on every household, which is generating sewage in the NCT of Delhi on the **'Polluters Pay Principle'**," directed the bench,headed by Chairperson Justice Swatanter Kumar.

"The monthly compensation would be determined by the authority concerned with reference to the construction existing on the plot. The amount received shall be deposited with the Delhi government," it added.

This amount would be charged irrespective of whether a household is sewered or not and would be equally applicable to the household located in the unauthorised colonies, the tribunal clarified. Payment of environmental compensation shall be added to electricity bill, water bill and the property tax demand in order of preference by the respective department.

The court also directed Delhi Jal Board to submit the complete action plan and time frame for completion of first phase of Maily Se Nirmal Yamuna Revitalization Plan, 2017 within one week from Friday.

"We will not grant any further extension and the erring officer would be personally liable for default," the bench said.

The tribunal said: "**Of the entire pollution of Yamuna river, 76 per cent is generated in NCT Delhi**. Industrial effluents and untreated sewage are carried into the Yamuna and with passage of time, it has been converted into a stinking drain."

Global CO2 Concentrations Reach Record High

The article is available at : http://climate-l.iisd.org/news/global-co2-concentrations-reach-record-high/ .

Atmospheric CO2 concentrations reached a record global average in March 2015, underscoring the importance of reaching an effective and universal climate agreement in Paris in December 2015.

According to the US National Oceanic and Atmospheric Administration (NOAA), monthly global average CO2 concentrations surpassed 400 parts per million (ppm) in March 2015 for the first time since the administration began tracking atmospheric CO2.

While the 400 ppm threshold was already passed at NOAA's Mauna Loa Observatory in 2013, this is the first time that the global average crossed this threshold.

The March figures have only now become available due to the time necessary for samples to be collected and analyzed.

NOAA bases the CO2 concentration on air samples taken from 40 global sites, with NOAA and partner scientists collecting air samples in flasks while standing on cargo ship decks, on the shores of remote islands and elsewhere around the world. **Samples are then shipped to Boulder, Colorado, for analysis at NOAA's Earth System Research Laboratory.**

According to the Intergovernmental Panel on Climate Change (IPCC), approximately 80% of known fossil fuel reserves would need to stay in the ground so that atmospheric CO2 concentrations remain below 450 ppm, which would lead to a 50% chance of limiting temperature to below 2°C.

Pieter Tans, NOAA's Global Greenhouse Gas Reference Network, said 400 ppm was first reported when all of NOAA's Arctic sites reached that value in the spring of 2012, **adding that burning fossil fuels has caused global CO2 concentrations to increase by more than 120 ppm since pre-industrial times.**

The International Energy Agency (IEA) reported that emissions growth from burning fossil fuels stalled in 2014, remaining at 2013 levels. **However, stabilizing the rate of emissions is not enough to avert climate change.**

James Butler, NOAA's Global Monitoring Division, highlighted difficulties with reversing increases of greenhouse gases (GHGs), noting that eliminating approximately 80% of emissions would halt the rise in atmospheric CO2, but that CO2 concentrations would not begin decreasing until further reductions are made and even then, they would decrease slowly.

NOAA scientists expect the global average to remain above 400 ppm through May, when CO2 concentrations peak due to natural cycles combined with rising GHGs.

Responding to this finding, UNFCCC spokesperson Nick Nuttall said the Paris agreement and related decisions must constitute a long-term development plan that provides the policies, pathways and finance for triggering a peaking of global emissions in ten years. **He said a deep decarbonization of the global economy should follow by the second half of the century.**

HIMALAYAS: Enhancing adaptive capacity by using innovative technologies and management systems for solving the problem of water for domestic use and irrigation.

Some details are available at: http://climatecolab.org/web/guest/plans/-/plans/contestId/1301411/planId/1314405 .

Following technologies and practices can be examined:

Rainwater harvesting: Water can be collected in certain areas in a cost-effective pond. The stored water can be used for drinking, domestic use and vegetable growing. About 10 litres per person per day of water can be also collected from roof tops. There are very few families in India using rainwater harvesting (RWH) from roof tops to obtain drinking water. The main cost of RWH

is the collection tank. Low-cost techniques are also available, and outside support is also needed. The system could be used in many places in the hilly areas of the Himalayas. Existing sources of water can be conserved and enhanced for infiltration so that there is a chance to increase flow capacity with same or reduced rain flow by stopping surface runoff.

Solar energy: Solar energy is gaining popularity in India. Solar energy can be used for lighting and lifting water from nearby streams for drinking and drip irrigation. The installation cost of solar power is not high. Since, grid connectivity is difficult in the remote areas of the Himalayas, the Government of India is encouraging people to use solar power in rural communities. These climate-change vulnerable communities should be supported as part of the National Solar Mission. Some examples can be seen on how communities located in difficult areas have benefited from solar-power-driven water supply systems.

Drip irrigation: Drip-irrigation technology delivers water directly to the plant root at the required time through a system of plastic tubes, thereby preventing losses due to evaporation or runoff. Drip-irrigation systems are 90% efficient, and therefore require minimum water for growing vegetables. This will make efficient use of precious water for reproducing fresh vegetables. This kind of drip irrigation has been piloted and used in different parts of India.

Ecological sanitation (Ecosan): Ecological sanitation is based on the fact that most of the nutrients excreted by human beings are contained in the urine. Hence, urine is separated from faeces using a special pan and then used for growing vegetables. This is more effective than fertilizer because it contains all kinds of trace metals which plants need. This technology will promote sanitation and recycle nutrients as well as water to some extent. Urine mixed with 1:4 water and used with drip irrigation system fulfils both water as well as fertilizer needs. Theoretically, urine excreted by one person is sufficient to grow vegetables sufficient for one person.

The above options would help people optimize use of available rain water to fulfil their overall water needs. All options have been used effectively in some parts of India. It is a matter of collecting all these experiences in one place and utilizing them in the Himalayas.

Summary of the 1st Global Stakeholder Meeting of the 10-year Framework of Programmes on Sustainable Consumption and Production; 14 MAY 2015, New York, USA: ACHIEVING THE SDGS THROUGH THE 10YFP.

The article is available at: http://www.iisd.ca/10yfp-scp-gsm1/html/crsvol156num2e.html .

Moderator David Donoghue, Permanent Representative to the UN, Ireland, introduced the session by illustrating the role of SCP as a cross-cutting enabler to achieve many of the proposed SDGs through the implementation of the 10YFP.

SCP Targets in the SDGs: Raquel Breda, Ministry of Environment, Brazil, proposed that achieving the SDG Target 12.1 on the 10YFP will have a transformative and significant impact on all SDGs. She shared examples from Brazil that demonstrate how social, economic and environmental criteria have led to progress in eradicating poverty without undermining human development and environmental conservation.

On sustainable and resource efficient industry in SDG Targets 9.2 and 9.4, Cleo Migiro, National Cleaner Production Center, Tanzania, reflected on the history of involvement of businesses and industry to promote inclusive industrialization. Migiro proposed the addition of another programme to focus on manufacturing schemes and SMEs to provide opportunities to use the

10YFP to address these targets.

On sustainable food production in SDG Target 2.4, Robert Azofeifa, Ministry of Agriculture and Livestock, Costa Rica, said the target will ensure resilient practices are implemented, and also lead to strengthened capacity to adapt to climate change and drought. He explained that the 10YFP can impact government and other actors to achieve the target by sharing experiences locally, regionally and internationally.

Peter Repinski, Stockholm Environment Institute, discussed sustainable lifestyles as reflected in SDG Target 12.8. Noting the poor ecological footprint of Sweden, he identified as cause for hope surveys that suggest that Swedes value good health, access to education and more time with family and friends, rather than many material items. He suggested the need for policy shifts at the national level and called for common indicators.

Tim Scott, UN Development Programme (UNDP), addressed capacity building and partnerships as defined in SDG Targets 17.9 and 17.16, noting the 10YFP is already supporting capacity development and partnerships, and identifying the STP as a good example. He stressed the 10YFP is a means of implementation for all SDG Targets.

Moderator Donoghue opened discussion, asking for reflection on how the 10YFP can effectively support achievement of SDGs, what further innovation is required in the post-2015 development agenda, and how achievements under the 10YFP can be measured.

On measurement, 10YFP Board Co-Chair Fernandez said indicators must be easy to measure and applicable across countries to provide a common language for discussing SCP, stressing this is necessary to ensure inclusion of SCP in national planning and implementation programmes. One participant noted the need to measure how far we currently are from true sustainability. Another participant called for regional-level assessment.

On innovation, one participant noted the need to use local initiatives as a catalyst for action, stressing the need to identify and share innovation. Scott highlighted the UNDP Equator Initiative as an example of looking for and sharing local programmes. Another participant called for capitalizing on adoption of the SDGs to get a broader audience interested in SCP.

A participant called for regional-level focus on implementation, including all initiatives in the Global 10YFP Clearinghouse. Repinksi commented that **involving many Ministries in SCP policy development increases implementation buy-in at the national level.**

Several participants debated the value of bottom-up grassroots approaches to address lack of top-level political will versus a top-down approach, in part necessitated by lack of local capacity. A number of participants noted the importance of local-level capacity building.

One participant pointed out that many developing countries can avoid some of the mistakes made in the development of locked-in infrastructure in developed countries. He noted the role of national policies and cross-municipality partnerships.

On collective impact, Arden-Clarke underscored the grassroots genesis of collective impact, stressing it is an “extraordinarily powerful tool” to possibly catalyse much of what is being said in the room. One participant stressed that collective impact is exactly what is needed, noting that there are many fantastic and completely “siloed” projects being implemented.

She highlighted the 10 Million Better campaign, which created a shared cause around monitoring and scaling up social and environmental benefits from travel for the tourism industry and took a

collective impact approach to magnify outcomes.

Yaker explained that collective impact is something UNEP has been trying to do for years, without having any specific name for it. He said it is exciting to have the approach defined and underscored the powerful role of regional cooperation to share innovation and avoid duplication.

In search of clean air

The article is available at : http://www.frontline.in/columns/Jayati_Ghosh/in-search-of-clean-air/article6901557.ece

The worsening atmospheric pollution in India threatens the basic health of people, but almost nothing is being done in terms of effective public policy to address this serious problem.
The concentration of nitric oxide (NO) in Delhi is often nearly five times the recommended level (at 320 µg/m), nitrogen oxides (NOx, highly reactive gases) was four and a half times, particulate matter PM10 (at 958 µg/m) was nearly 10 times and sulphur dioxide was more than five times the recommended upper limit.

The Meteorological Department's estimates for that day were hardly more reassuring: **levels of PM10 that were 24 times the level recommended by the World Health Organisation (WHO) and six times those of our own much more lenient national standard.**

The worst news was about the levels of PM2.5—extremely tiny particulates that are more dangerous because they can penetrate deep into the lungs to cause illness and even death. **Levels of PM2.5 in Delhi are often in excess of 15 times the WHO limit, but even on this apparently clear and pleasant day they were more than 22 times the WHO limit.**

Delhi is, unfortunately, not alone in this respect. In 2013, the WHO found that India had 13 of the 20 cities in the world with the most polluted air: a sad attribute for which to be the world leader, especially with our still low levels of both per capita income and industrialisation. Nor are the big metros always the biggest offenders. Indeed, on the very day that levels for Delhi were checked, the **worst atmospheric pollution was recorded by Pune in Maharashtra**, once a city renowned for its leafy streets and pleasant environment.

Officially, half of our towns and cities have "critical" levels of atmospheric pollution, and one-third of urban residents in India live in surroundings that are designated as "extremely critical" in terms of contaminated air.

It is no surprise, therefore, that **people across the country now routinely suffer from serious respiratory illnesses, including asthma and persistent throat and lung infections**. Many of us will eventually also have to deal with potentially fatal diseases such as cancer and pulmonary failure, and suffer from more heart attacks and strokes, simply because of the air we breathe on a daily basis.

It has been estimated by the Environment Pollution (Prevention and Control) Authority appointed by the Supreme Court of India that outdoor air pollution is the fifth biggest killer in India, after high blood pressure, indoor air pollution from cooking fuels, tobacco smoking and poor nutrition. The WHO estimated that air pollution ranked fifth in terms of mortality impact and seventh in terms of health burden in India, contributing to over 6,27,000 deaths and 17.7 million healthy years of life lost in 2010.
As always, the poor are the worst affected.

So, what exactly are we doing about this appalling situation that threatens the basic health and well-being of so many of our people? Sadly, almost nothing is being done in terms of effective public policy. Pollution is still not seen as a political issue: even in the Delhi elections, none of the major contending parties dealt with it seriously in their manifestos. In official circles, much of the discussion is confined to high-minded platitudes rather than genuine and systematic efforts to address this rapidly worsening problem.

If anything, the problem is set to get much worse before it gets better. A significant part of urban air pollution comes from vehicular traffic, and the automobile population in the country is only going to grow. **A study by The Energy and Resources Institute (TERI) and the University of San Diego in 2014 suggested that "if the current trends of vehicle population, fuel and emission standards persist, PM2.5 emissions will increase by a factor of three, and those of NOx will increase by a factor of five".**

Obviously, one direct and necessary way of addressing this is to regulate the number and nature of vehicles. This has been a major means of reducing atmospheric pollution in the developed world, with different policy carrots (better public transport and more planned urban environments with reduced commuting needs) being combined with sticks (higher taxation and tighter regulation of the number of vehicles, stricter emission limits, and so on). **However, in India all this is still in its infancy, and in fact public policy still operates to incentivise automobiles and private ownership of vehicles. The first sector to receive subsidies and tax rebates in the wake of the global financial crisis in 2008-09 was the automobile sector.**

Unfortunately, there is no indication that dealing with urban air pollution is a pressing concern for policymakers.

Integrating concerns of women in public transport

The article is available at : http://www.trafficinfratech.com/integrating-womens-concerns-in-public-transport/

Drawing from various research studies in India and globally, this article highlights the differences in men and women's travel patterns, met and unmet needs in bus-based public transport and suggests key areas of intervention.

According to the UNDP, six out of ten of the world's poorest people are women and this has marginally changed since 1995, when women constituted 70% of the poor (UNDP 2014). However, urban development is assumed to be gender neutral i.e. providing equal access to men and women, which does not acknowledge that physical infrastructure projects may have dissimilar and unequal impacts on the two groups.

The predominant mode of travel for low-income women in developing countries is walking. Even when there was a lack of bicycle facilities in Chennai, bicycling rates for men were eight percent compared to one percent for women.

Similarly in Sanjay camp in Delhi, it was observed that nearly twice the number of women walked to work as compared to men. Though 21% people used bicycles, out of which two percent women constituted pillion riders.

The difference in cycle use is largely explained by women's higher concern for safer riding environments and their inferior access to personal means of transport. Women's limited access to

basic carts or load-carrying bicycles, results in frequent strain injuries, neck and back pain due to excessive head loading.

While bus transport shares vary from 25% in Mumbai to 37% in Bhopal, women are more dependent on public transport than men, especially when they are from lower-income groups.

In Mumbai, it was observed that women made 45 % more trips by bus than train, which increased to 67% for households with incomes less than Rs. 5000 per month.

In many Indian cities like Bhopal, informal systems carry more passengers (20%) than the formal public transport system.

Since women are overrepresented as informal workers, their destinations may not be concentrated in the Central Business District or in one or two main areas, but dispersed. In Vishakapatnam, it was observed that while 39% of all trips were for work, only 11% of women's trips versus 62.7% of men's trips were for work.

A study of a low-income settlement in Delhi showed a gender dimension to the shelter-transport-livelihood link i.e. women are much more affected than men with respect to access to employment, education or basic services when these amenities are located far away from their residences.

For example, relocation of squatter settlements to the periphery of Delhi led to an increase in female unemployment by 27% compared to just 5% for men.

Important points from High Level Panel of Experts (HLPE) report : Water is integral to food security and nutrition

The report is available at: http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-9_EN.pdf

You may be interested in the latest report coming from the High Level Panel of Experts on water food security and nutrition.

The report is the first of its kind to bring together water, food security and nutrition. The report is unique in pointing out these connections, and understanding these links is integral to tackling poverty. It goes far beyond the usual agricultural focus and highlights the necessity of water and sanitation for human wellbeing and survival.

The Water for Food Security and Nutrition report launched recently by the HLPE for the UN **Committee on World Food Security (CFS)** calls for policy coherence at all levels of governance and management around water, food security and nutrition issues. It makes several important points, including :

- Policies and governance issues around land, water and food are usually developed in isolation; however it is vital for decision makers to take a joined-up approach in addressing these challenges. Against a backdrop of future uncertainties, including climate change, changing diets and water demand patterns, ensuring universal access to water and recognising the linkages between water and food security and nutrition are fundamental.
- Understanding that water comes into every aspect of life, from consumption to production, is necessary for humans to able to lead a healthy life and have a sustainable livelihood. The

report makes proposals for practical and immediate action to increase water, land and agricultural productivity to address these challenges.

- Policymakers have to prioritise the rights and interests of the most marginalised and vulnerable groups, with a particular focus on women, when it comes to water access. Water of sufficient quantity and quality is essential for agricultural production and for the preparation and processing of food. Irrigated agriculture accounts for 70 percent of all surface and groundwater withdrawals globally. Water is also essential for various ecosystem functions, i.e. the conservation of forests, wetlands and lakes upon which all humans depend.
- There needs to be an explicit focus on vulnerable communities. Policymakers have to prioritise the rights and interests of the most marginalised groups around access to water for food security and nutrition.
- **The human right to safe drinking water and sanitation as well as the right to food are globally recognised rights**.

The report calls for states to ensure the full realisation of these rights and explore how they can be meaningfully joined up. It argues that universal access to water and sanitation will lead to healthy and productive lives for all, for now and in the future.

STRENGTHENING GLOBAL ENERGY COOPERATION ON ENERGY.

The article is available at: http://www.iisd.ca/energy/se4allforum/2015/html/crsvol181num10e.html

Even after the adoption of SDGs in September 2015, energy challenges will remain.

Sustainable development and climate change are deeply integrated. Stressing the need for multilateral as well as national work on the two issues, it was highlighted the “tremendous market power” of the US-China Joint Announcement on Climate Change.

On the affordability of renewable energy technologies and finance, Naoko Ishii, CEO and Chairperson, Global Environment Facility (GEF), pointed out that the cost of new technologies has been declining.

The challenge of catalysing the private sector to bring transformational change, stressing the need to join the global community to better implement SDGs was highlighted.

Strengthening Global Energy Governance and Partnerships – Roles of the UN:
The UN provides a neutral platform where countries, companies and civil society can come together to become more than the sum of their parts.

Christoph Frei, Secretary General, World Energy Council, said that international cooperation should reflect the energy “trilemma” framework to find a balance between the issues of equity, environment and security. He also underscored the importance of regional integration to implement effective policies.

Fernando Ferreira, Executive Secretary, Latin American Energy Organization, highlighted the progress made in energy access in Latin America and the Caribbean since the 1990s, highlighting the contribution of regionally aligned policies in this transition. He added that there was willingness to increase the share of renewables, but stated that transitioning to 100% renewables was unrealistic for many states in the region due to economic dependency on oil.

Do the links between energy and the SDGs mean that there is a need to create a UN Energy Agency? The ensuing discussion reflected different perspectives, with panelists and delegates noting that the UN could play an important role in aligning policies but that SE4ALL was already providing a strong global vision that could be further strengthened.

The energy revolution has started and the ongoing dialogue between young change-makers and ministers at the meeting is a welcome step as it turns the spotlight on the critical role of new generations in the transition to sustainable energy.

India, China underline importance of climate talks: But for a meaningful Paris treaty, both countries want rich nations to start paying now

The article is available at : http://www.thethirdpole.net/india-china-underline-importance-of-climate-talks/

India and China have underlined the importance of climate change to their nations by coming up with a separate joint statement during Indian Prime Minister Narendra Modi's visit to Beijing last week. For China's President Xi Jinping, this is the second major announcement on climate change, following the joint statement during US President Barack Obama's visit to Beijing last November.

The joint statement by China and India – currently the world's largest and third largest greenhouse gas (GHG) polluters respectively – assumes significance because it indicates what will persuade these emerging economies to take on significant GHG emission control measures after 2020.

At the end of Modi's trip to China, Mongolia and South Korea, a senior official who had helped draft the joint statement told thethirdpole.net, "We have made it as clear as we can in diplomatic language – if developed countries want us to take strong measures after 2020 under the Paris treaty, they will have to start putting their money where their mouths are."

"Developed country governments will have to significantly raise their contributions to the Green Climate Fund right now and all the way to 2020, by which time they should be paying US$100 billion a year, as they had promised way back in 2009." The official was speaking on the condition of anonymity.

While this message is clear, the language of the May 15 joint statement is more conciliatory than used by Indian and Chinese delegates during past sessions of the United Nations Framework Convention on Climate Change (UNFCCC), when they have repeatedly pointed out that most of the extra GHG in the atmosphere – which is causing climate change – has been put there by developed nations since the start of the Industrial Age.

Instead of referring to that once more, the joint statement says climate change "needs to be addressed through international cooperation in the context of sustainable development." It also refers to the 2010 memorandum of understanding between the two governments on cooperation on green technologies and promises to further cooperation in this area.

This is followed by the more traditional hard-line approach. While expressing full support to the success of the Paris conference scheduled later this year, the two governments have reaffirmed "that the 2015 agreement shall be in full accordance with the principles, provisions and structure of the UNFCCC, in particular the principles of equity and common but differentiated responsibilities and respective capabilities, reflecting different historical responsibilities, development stages and national circumstances between developed and developing countries."

As the official pointed out, the meat of the joint statement comes after this, where it says that India and China "urged the developed countries to raise their pre-2020 emission reduction targets and honour their commitment to provide US$100 billion per year by 2020 to developing countries."

Domestic action

The joint statement adds, "As the two biggest developing countries, China and India are undertaking ambitious actions domestically on combating climate change through plans, policies and measures on mitigation and adaptation despite the enormous scale of their challenges in terms of social and economic development and poverty eradication."

During Obama's visit last November, in a joint statement China said it intended to peak its GHG emissions by 2030. The current roadmap towards the Paris climate treaty is dependent on what individual countries will do on their own to combat climate change.

With reference to that, the May 15 joint statement said, "China and India are fully engaged in their domestic preparations for their respective intended nationally determined contributions (INDCs) in the context of the 2015 agreement and will communicate their INDCs as early as possible and well before the Paris Conference."

Observers happy

Environmentalists who have been tracking climate negotiations were reasonably happy with the India-China joint statement, since they read in it a willingness by both countries to be flexible in their differentiation between the commitments of developed and developing countries. This has been one of the major sticking points in the negotiations, but observers who are used to reading between the lines said China and India may now be more willing than before to consider taking on progressively higher emission control commitments as their economies improved. Observers are now watching the next preparatory meeting – scheduled in Bonn in June – in case there are more straws in the wind.

Half of India's groundwater is poisonous

The article is available at: http://indiatoday.intoday.in/story/india-groundwater-poisonous-half-water-pollution/1/433664.html .

Already grappling with the Ganga cleaning project, the government seems to have a bigger problem at hand as the groundwater in more than half of the country's districts is contaminated with poisonous substances. **Groundwater in at least 387 districts has high nitrate levels.**

The Central Ground Water Board (CGWB) has come up with a shocking assessment, according to which 276 districts have high levels of fluorides in their groundwater. At least 387 districts in 21 states, of the 676 districts in the country, have nitrate above permissible levels and **87 areas have high arsenic content which is a slow poison.**

The permissible levels of fluorides prescribed by Bureau of Indian Standards is 1.5 milligram per litre (mg/l) but groundwater exceeding the limit was found across the country from Andhra Pradesh, Telangana, Bihar to Uttar Pradesh, Tamil Nadu and West Bengal.

According to experts, if heavy metals enter the groundwater, they cannot be removed. At best, they can be diluted but they remain stuck to the aquifers forever.

The report only reveals the utter failure of pollution boards and committees that have existed only in name during the past three decades.

Lack of control on effluents, which have polluted the basins as a whole, has resulted in this situation," environmentalist Manoj Misra said.

CGWB chairman K.B. Biswas said, "**The measurement for arsenic, iron, cadmium and chromium in the report are point-specific. It is not that the whole of the district in a given state are polluted. The fluoride measurements, however, are area-specific."**

In Haryana, the groundwater of Gurgaon, Faridabad, Rohtak, Panipat and Panchkula is contaminated.

Significantly, the groundwater in 86 districts of 10 states has been detected with exceedingly high levels of arsenic. **UP is the worst polluted**.

Further worsening is the fact that the **groundwater of 113 districts in 15 states has been poisoned with impermissible levels of hazardous heavy metals, lead, cadmium and chromium**.

Message of the Environment Minister on International Day for Biological Diversity: 22nd May, 2015.

The press release is available at : http://pib.nic.in/newsite/erelease.aspx?relid=121919 .

Following is the text of the message:
"Today we celebrate the International Day for Biological Diversity, to recognise the pivotal role of biodiversity to life on earth and human well-being. **On this day in 1992, the text of the Convention on Biological Diversity (CBD) was adopted. To mark this, 22nd May has been proclaimed by the United Nations as the International Day for Biological Diversity, to increase awareness about the importance of and threats to biodiversity**.

The theme this year, 'Biodiversity for Sustainable Development' is very topical, as the international community accelerates its efforts to define the post-2015 agenda, including adopting a set of goals for sustainable development.

This year's theme reflects the bigger and very crucial paradigm shift that the world has undergone from seeing 'development' and 'environment' as two ends of a spectrum, where one must be compromised in order to enhance the other, to having development while protecting environment.

Biodiversity, the variety of life on earth, is vital to social and economic development, and is indeed fundamental to our survival. Over the years, retrospective wisdom and the development experience have guided us in favour of the common-sensical understanding that protecting the variety of life forms and their infinitely complex interactions, form the very basis for long-lasting and inclusive development. In other words, environment, or more specifically biodiversity and its invaluable and often irreplaceable ecosystem services, from the air we breathe to the water we drink, are the very foundation on which viable long-term development rests. Former themes for the International Day for Biological Diversity have captured this fact in snippets. Past themes have been: Biodiversity and Poverty Alleviation (2003); Biodiversity: Food, Water and Health for All (2004); Biodiversity: Life Insurance for our Changing World (2005); Protect Biodiversity in Drylands (2006); and Biodiversity and Agriculture (2008) among others.

The challenge before India to imbibe and translate the theme of 'Biodiversity for Sustainable Development' is imperative in the light of our privileged status as a mega-biodiverse country, past and projected demographic transitions and commitment to democracy as a political principle. These three facets make it non-negotiable that we galvanise the political will, scientific and technological know-how and financial resources to contribute to the agenda set out in the outcome document from the Rio+20 Conference, 'The future we want'.
Nature has generously endowed our country. With only 2.4% of the world's land area, India has 7-8% of the recorded species of the world, with over 46,000 species of plants and 91,000 species of animals. India is also an acknowledged centre of crop diversity, and harbours many wild and domesticated animals, fish and millions of microbes and insects.

The ecosystem diversity is also unparalleled. These are the strengths to draw upon to meet the goals of ending poverty and hunger; achieving food security and improved nutrition and promoting sustainable agriculture; ensuring healthy lives and promoting well-being for all at all ages; ensuring availability and sustainable management of water and sanitation for all and in making cities and human settlements inclusive, safe, resilient and sustainable.

Promoting multiple varieties of staple food-grains; switching to cropping patterns, wider seed and plant variety choices, water conservation and utilisation patterns, and farming practices that combine the best of traditional wisdom and science with a whole-system perspective; valuing the therapeutic properties and medicinal uses of various parts of plants and animals; all form key aspects of the way ahead.

Communities that are inclusive and resilient are also the only ones that will be safe in the long run. The income-poor in India and the world over face the negative fallouts of depleting and degraded natural resources in disproportionate measure to those who are responsible for such depletion and degradation. Sustainable development rests on a viable and sound natural resource base.

The future we want, thus depends heavily on the restorative and ameliorative action that we engage with, in relation to our wealth in biodiversity today. This challenge can only be met with broad stakeholder participation. From the right knowledge, to the right resources and the right spirit of working together for the common good, may the International Day for Biological Diversity 2015 help us draw on synergies and strengths across sectors to achieve the vision of Biodiversity for Sustainable Development.

The Day is being celebrated all over the country by different States and organisations. The main event is being held in Srinagar in the State of Jammu & Kashmir. In this event, the BIOFIN India project is being formally launched today with the release of a brochure. **Another brochure on announcement of India Biodiversity Awards 2016, the third in the series is being released today**, along with a release of a publication on good models of biodiversity governance emanating from India Biodiversity Awards 2014. Also being released today is an India Business and Biodiversity Initiative publication on best practices on biodiversity management by some companies.

As we celebrate the 2015 International Day for Biological Diversity, let us work together for conserving biodiversity to ensure the future we want for us and our coming generations. For, we have borrowed this earth from our children, and not inherited it from our ancestors."

Cheap Earthquake Warning Systems: Crowdsourced networks of low-cost sensors and cellphones could have provided life-saving seconds in Nepal

The article is available at: http://spectrum.ieee.org/consumer-electronics/portable-devices/cheap-earthquake-warning-systems/?utm_source=techalert&utm_medium=email&utm_campaign=052115 .

While predicting earthquakes remains a dream, scientists have developed early-warning systems that give people precious seconds to run out of buildings or take cover. Such systems are in place in Japan and Mexico.

The U.S. Geological Survey (USGS) is testing a system that gave a 5- to 10-second warning when a temblor hit California's Napa Valley in 2014. That kind of warning might have saved hundreds of lives when a 7.8-magnitude earthquake devastated Nepal on 25 April.

Earthquake-warning systems come at a high price, though, too high for countries like Nepal and others in quake-prone zones in South Asia, the Caribbean, and Central and South America. Researchers are now working on more affordable, crowdsourced warning systems based on low-cost sensors and cellphone electronics.

Today's alert systems deploy networks of hundreds of expensive, extremely sensitive seismic sensors that detect energy waves, along with GPS sensors to detect permanent ground movement due to the motion of the geological fault that triggers the earthquake.

It is possible to get as good—or in some cases even better—earthquake data from a network of cheap sensor packages. These are made up of microelectromechanical accelerometers attached to inexpensive, off-the-shelf cellphone equipment that manages data gathering and communication. The sensor packages used by the USGS cost about $30,000 each but these would cost $100 each to build."

The network should have virtually no installation or maintenance costs, because Yildirim plans to rely on the kindness of the crowd. Zizmos asks for volunteers to donate a tiny bit of interior wall space and a power outlet to host a sensor package, which is about the size of a deck of cards.

When a sensor detects a rumble, it will send information about the time of the event and the magnitude of the shaking to a cloud-based server; algorithms will check reports from neighbouring sensors to determine whether the vibration was local—say, from a truck going by—or felt elsewhere. If the latter, the system will calculate a hypothetical epicentre for the earthquake, the original time of the event, and an estimated magnitude. **For earthquakes with magnitudes greater than 4.0, it will issue an alert.**

Benjamin Brooks, a geophysicist with the USGS, has a different crowdsourcing approach in mind. Why not tap into the GPS sensors in people's phones and navigation systems, he says. GPS-equipped cellphones are ubiquitous in developing countries, and such a crowdsourced system would offer early warning at practically no cost. "A country like Nepal, with high earthquake hazards and minimal resources, is where a crowdsourcing approach would be most effective," Brooks says.

Brooks and his colleagues subjected a Google Nexus smartphone and a commercial GPS module to displacements ranging from 10 centimeters to 2 meters. Both GPS sensors picked up the smallest motion. Next, the researchers performed simulations using data from a hypothetical magnitude-7 earthquake in northern California and from the real 2011 magnitude-9 earthquake that hit Tohoku-oki, Japan. They simulated smartphone responses based on census data around the earthquake epicenters and recorded a phone as triggered if it and its four nearest neighbours measured more than 5 cm of movement. If at least 100 phones were triggered, the system

declared an earthquake.

It took fewer than 5,000 smartphones to detect the simulated California earthquake within 5 seconds, giving enough time to warn San Francisco and San Jose. For the Japan quake, which had an offshore epicentre, detection occurred at just over 80 seconds, too slow for the closest onshore towns but in enough time to issue a warning to Tokyo

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Traditional Knowledge and Climate Science Toolkit

The article is available at: http://www.unutki.org/news.php?news_id=161&doc_id=103.

Indigenous communities have long, multi-generational histories of interaction with the environment that include coping with variability, uncertainty and change.

However, climate induced impacts on their territories and communities are anticipated to be both early and severe due to their location in vulnerable habitats, including small islands, high altitude zones, desert margins and the circumpolar Arctic.

Climate change poses a direct threat to many indigenous societies due to their continuing reliance upon resource based livelihoods.

At the same time, resilience in the face of a changing environment is embedded in indigenous knowledge and know-how, diversified resources and livelihoods, social institutions and networks, and cultural values and attitudes.

Attentiveness to environmental variability, shifts and trends is an integral part of their ways of life. Community-based and local knowledge may offer valuable insights on climate induced changes, and complement broader-scale scientific research with local precision and nuance.

Indigenous societies have elaborated coping strategies to deal with unstable environments, and in some cases, are already actively adapting to early climate change impacts.

While the transformations due to climate change are expected to be unprecedented, indigenous knowledge and coping strategies provide a crucial foundation for community-based adaptation measures.

This toolkit provides access to articles, videos and various other resources that will assist indigenous peoples, local communities, policy makers and other stakeholders in accessing research on climate change adaptation and mitigation.

These resources can be freely used under a creative commons license to enhance parity in climate change adaptation and mitigation discourse and efforts. They can also be adapted for various climate change awareness and education initiatives at the local, regional and national levels.

There is no one-size-fits-all blueprint to mobilise awareness and action for climate change. Readers will have to develop their own strategies, based on their individual or institutional capacity and specific context, and tailored to their needs and resources. However, this toolkit provides links and references to a wealth of additional tools and resources that provide more in-depth policy guidance.

These resources may be of particular value as introductory material for various issues sessions, as

background material when conducting local or regional assessments, to assist in reviews of policies and practices, or to contribute to dialogues between traditional knowledge holders and climate scientists.

Lighting our Cities: More than Meets the Eye: Light defines space, how people feel within it and how people perceive the buildings, structures and materials that make it.

The article is available at: http://sustainablecitiescollective.com/futurecapetown/1071261/future-london-lighting-our-cities-more-meets-eye?utm_source=scc_newsletter&utm_medium=email&utm_campaign=newsletter .

Light is a powerful yet often unappreciated feature of our urban experience. Sustainable Cities Collective presents Future London's interviews with the participants of the new Urban Lightscapes/Social Nightscapes project in London, an initiative exploring the role of light in our cities and highlighting its importance in how we design and interact with our urban spaces.

Light and lighting are ever-present elements of city life, from flickering bus lights to dim overhead streetlights, to the large lighting features which illuminating our cities' skylines. But while many other aspects of urban life enjoy dedicated research fields, something of a silo exists between lighting designers and social research.

Enter Configuring Light is a joint initiative set up by co-founders Dr. Don Slater and Mona Sloane (LSE) and Dr. Joanne Entwistle (King's College London). The initiative takes its impetus from the notion that "light has been largely invisible in the social sciences", identifying a key gap between the research agendas around light in visual culture and the technical literature on light in the fields of architecture, design and energy studies.

Last year the team ran Urban Lightscapes/Social Nightscapes – a site-specific project with residents, lighting designers and social scientists at London's Whitecross Estate.

The lighting design workshop, run in collaboration with Peabody's IMPROVE project and the Social Light Movement, aimed to create new lighting design interventions to help improve the outdoor spaces on the estate.

Bringing together lighting designers, architects, planners, residents and social scientists, the project sought to link lighting designers with the local community in order to understand life on the estate, lighting needs and to ultimately produce public lighting ideas that would best serve the area.

Working with residents can be a positive influence not only on the design, by understanding the needs of a community better, but also to gain support from those using the space; when people feel that something is being designed for them and not imposed upon them they feel more inclined to contribute to the discussion, enabling a designer to gain an even better understanding of their needs.

The final outcome should, as a result be welcomed more readily, embraced and used by residents which will also build stronger relationships between residents and the housing association which can only be a positive thing.

Briefing Note of the Fossil Fuel Subsidy Reform and Investments in Clean and

Affordable Energy

The article is available at: http://www.iisd.ca/climate/fossil-fuel-subsidy-reform/html/crsvol172num23e.html .

The "Fossil Fuel Subsidy Reform and Investments in Clean and Affordable Energy" side event took place on 26 May 2015 at the Hotel Fiesta Americana, Merida, Mexico, immediately prior to the Sixth Clean Energy Ministerial. **The event was presented by the Government of Denmark and the Global Subsidies Initiative, and hosted by the US Department of Energy and Government of Denmark.**

Scott Vaughan, President, International Institute of Sustainable Development, moderated the event. Ernest Moniz, Secretary of Energy, US, underscored his country's commitment to fossil fuel subsidy removal and the imperative of freeing up resources to invest in a clean technology future. Acknowledging significant global progress on subsidy removal, Rasmus Helveg Petersen, Minister for Climate, Energy, and Building, Denmark, observed that more than 50 countries have committed to phasing out fossil fuel subsidies. He noted the enormity of the task, called for sharing best practices and taking advantage of current low oil prices to reinforce efforts ahead of the 21st Conference of the Parties (COP 21) of the UN Framework Convention on Climate Change Conference (UNFCCC) in December.

Maria van der Hoeven, Executive Director, International Energy Agency, provided an overview of global fossil fuel trends. She noted that in 2014, fossil fuel subsidies exceeded US$500 billion: four times the subsidies for renewable energy. She said high energy prices between 2008 and mid-2014 had been the key driver for reform but that current lower prices may reduce the budgetary urgency for governments to take action.

On challenges, van der Hoeven observed that governments are still adopting an ad hoc approach to reforms without communicating effectively or understanding public perceptions regarding subsidy removal. She called for: building public trust by demonstrating that financial savings made from subsidy removal would benefit consumers; targeting support to the most vulnerable populations; and addressing oil price volatility with transparent pricing that depoliticizes energy pricing.

César Alejandro Herández Alva, Director General, Secretariat of Energy (SENAR), Mexico, outlined his country's efforts to phase out fossil fuel subsidies, highlighting the Energy Transition Act. He said the Act is aimed at: regulating the sustainable use of energy; promoting clean energy; and reducing emissions in the electricity sector. He noted that 30% of electricity consumption is subsidized with households paying 40% and agriculture 20% of consumption costs. Herández Alva observed that subsidies would now have to come from the budget allocation to enhance transparency.

Charles Feinstein, World Bank, discussed energy subsidy reform in the context of high price volatility. He emphasized that subsidies are regressive and high-income earners capture the largest share with poor households spending up to 20% of their income on energy. He advocated other compensation type mechanisms targeted towards health and education instead of energy, but acknowledged that subsidies are politically sensitive and reflect deeply entrenched interests.

Feinstein outlined the World Bank's work on subsidy reform, including capacity building, training and analytical work. He explained that technical assistance for subsidy reform is matched with development policy lending, citing the Energy Sector Management Assistance Program (ESMAP), a global multi donor technical assistance trust fund providing US$20 million to support analytical dialogue on subsidy reform.

Rigoberto Ariel Yepez-Garcia, Inter-American Development Bank, highlighted his organization's report assessing the impact of energy pricing policies in Latin America and the Caribbean. He noted that the shows that subsidies are aimed at preventing inflation, protecting the living standards of vulnerable populations and restoring competitiveness, but these objectives were not reached.

Yepez-Garcia explained that subsidies are commonly applied to gasoline, diesel and liquefied petroleum gas, and are either implicit (illegal connections or theft) or explicit (applied through block tariffs or volume differentiated tariffs). He said there is a high variation in the impact of subsidies in the region and that in the past two years, the volume of subsidies has decreased, which presents an opportunity to tax fuel consumption in order to earn additional revenue.

Responding to a question on why subsidies should be addressed by energy ministers, rather than finance ministers, Christian Zinglersen, Denmark, noted that introducing targeted energy policy intervention could counter a subsidy approach. Phyllis Yoshida, Deputy Assistant Secretary for Asia and the Americas, US, highlighted peer review work on fossil fuel subsidies noting that the first peer review for Peru had just been completed with reviews in the pipeline for the Philippines, Viet Nam, and Chinese Taipei.

During the ensuing discussion, participants addressed: the role of energy ministers in subsidy reform; the merits of subsidizing energy access; and the main barriers to subsidy reform.

WHO singles out air pollution as major health hazard : This is the first time that air pollution and its associated health risks have been discussed at the highest forum of WHO

India recently unveiled a composite air pollution index to monitor air quality in some of its cities.

The article is available at: http://indianexpress.com/article/india/india-others/who-singles-out-air-pollution-as-major-health-hazard/.

Putting air pollution on global priority, the World Health Organisation has adopted a resolution on health impacts of air pollution, and urged its member countries to implement its guidelines on air quality.

The 68th World Health Assembly, the top decision-making body of WHO which meets every year in Geneva, adopted the resolution on Tuesday night. The resolution highlights the health risks presented by air pollution, both indoor and outdoor, and the kind of steps governments need to take to improve air quality in their respective countries.

This is the first time that air pollution and its associated health risks have been discussed at the highest forum of WHO. **Adoption of such a resolution by the WHO means that air pollution would not just be seen as an environmental problem but also as a major health hazard.**

It would also energise efforts being made to curb pollution and encourage donors and funding agencies to channelize money towards these efforts.

The WHO resolution notes that about 8 million premature deaths happened in 2012 because of bad air quality, making it the world's single largest environmental health

risk. Of this, 4.3 million deaths could be directly attributable to exposure to indoor air pollution, arising mainly out of combustion of solid fuels like wood and coal. The rest, 3.7 million deaths, were caused by outdoor air pollution. Almost 90 per cent of the deaths were reported in low and middle-income countries.

The resolution asks member countries to "redouble their efforts" to identify, address and prevent the health impacts of air pollution in their own regions and also contribute to global response.

The resolution says countries need to encourage and promote measures that will lead to meaningful progress in reducing levels of indoor air pollution such as clean cooking, heating and lighting processes and efficient energy use.

It urges the member countries to develop air quality monitoring systems and health registries to improve surveillance for all illnesses related to air pollution.

India recently unveiled a composite air pollution index to monitor air quality in some of its cities. The initiative will be subsequently expanded to include other smaller cities as well.

The resolution asks the WHO to strengthen its technical capabilities to provide help to member countries in implementing guidelines on air quality.

Sustainable Bioenergy High Impact Opportunity (HIO)

The article is available at: http://www.iisd.ca/energy/se4allforum/2015/html/crsvol181num9e.html .

The panelists discussed the HIO partnership, which is designed to facilitate sustainable bioenergy solutions to help SE4ALL reach its goals.

Emphasizing the complexity of the issue and the importance of context, Olivier Dubois, FAO, stressed the need for: in-depth understanding; implementation of good practices through optimizing land-use efficiency and biomass use; an enabling policy and institutional environment; appropriate reporting and verification; political will; and good governance.

Underscoring that biofuels are "neither good nor bad," Barbara Bramble, Roundtable on Sustainable Biomaterials (RSB), said RSB aims to facilitate collaboration among all HIO programme members to reach SE4ALL goals, and to **demonstrate that smallholder projects can benefit from access to markets.**

Thomas Videbæk, Novozymes, identified the need for knowledge sharing. Edu Willemse, SNV – Netherlands Development Organization, highlighted the **HIO's potential to drive innovation.**

Ignaas Caryn, KLM – Royal Dutch Airlines, reported on KLM's biofuel programme, citing the Bioport Holland project on creating a **biojet industry for Europe as an example of a High Impact Initiative (HII) under the HIO.**

Ethan Zindler, Bloomberg New Energy Finance, emphasized that bioenergy needs to be economically viable.

Mosad Elmissiry, The NEPAD Agency, stressed the need for favorable investment environments.

Sergio Rivera-Zeballos, **Inter-American Development Bank (IDB), described the lack of bankable projects on biofuels as a challenge.**

Meghan Sapp, Executive Secretary, Partners for Euro-African Green Energy (PANGEA), presented on bioenergy technologies in rural electrification markets.

The business case for climate talks in Paris

Six months before United Nations (U.N.) climate treaty talks are to unfold in Paris, thousands of business, finance and political leaders gathered in the French capital to "show that low carbon makes good business sense – and a strong global deal means a smart economy." Convened by The Climate Group, Climate Week Paris features more than 25 high-level events. Global Footprint Network CEO Susan Burns introduced risk metrics and methodology from the ERISC (Environmental Risk in Sovereign Credit) research program to the participants of a full-day event titled "The financial sector and climate change—measuring climate performance and carbon risk." The event was hosted by ERISC partner la Caisse des Dépôts.

Burns participated in a panel titled "Sovereign Credit Risks: Integrating Climate, Carbon and Natural Resource Risks," which also featured Patrice Cochelin from Standard & Poor's and Rodolphe Bocquet from Beyond Ratings. Others presenting at the event included representatives from Moody's, Standard & Poor's, FTSE, MSCI, Mercer, Carbon Tracker, the U.N. Environment Programme Finance Initiative (UNEP FI) and the World Resources Institute.

The fact that climate change is an increasingly prominent issue on the agenda of institutional investors and banks is an encouraging trend. In March 2015, more than 266 investors with over $20 trillion in assets under management had implemented some form of climate change strategy, according to event organizers. However, a survey by the Asset Owners Disclosure Project found that nearly half of the top 500 global asset owners did nothing to protect investments under their stewardship from the threat of climate change.

"The bond market has traditionally been an overlooked portion of the market when it comes to environmental risk, although it totals $41 trillion," Burns noted. "But interest is growing in looking at decarbonization and climate change in this asset class as well."

Beyond the societal challenge of transitioning to a low-carbon economy, the finance industry is growing aware of the potential associated financial risks, including stranded assets, such as coal, oil and gas operations, amid mounting pressures to become less reliant on fossil fuels. As the need for metrics and models to measure country risk exposure in this new environment is heating up, Global Footprint Network has been taking research on stranded assets a step further by analyzing which other sectors (in addition to fossil fuel extraction) may be exposed to climate change.

The socio-economic development of India in 2015 is predicted to heavily ride on the three pillars of:

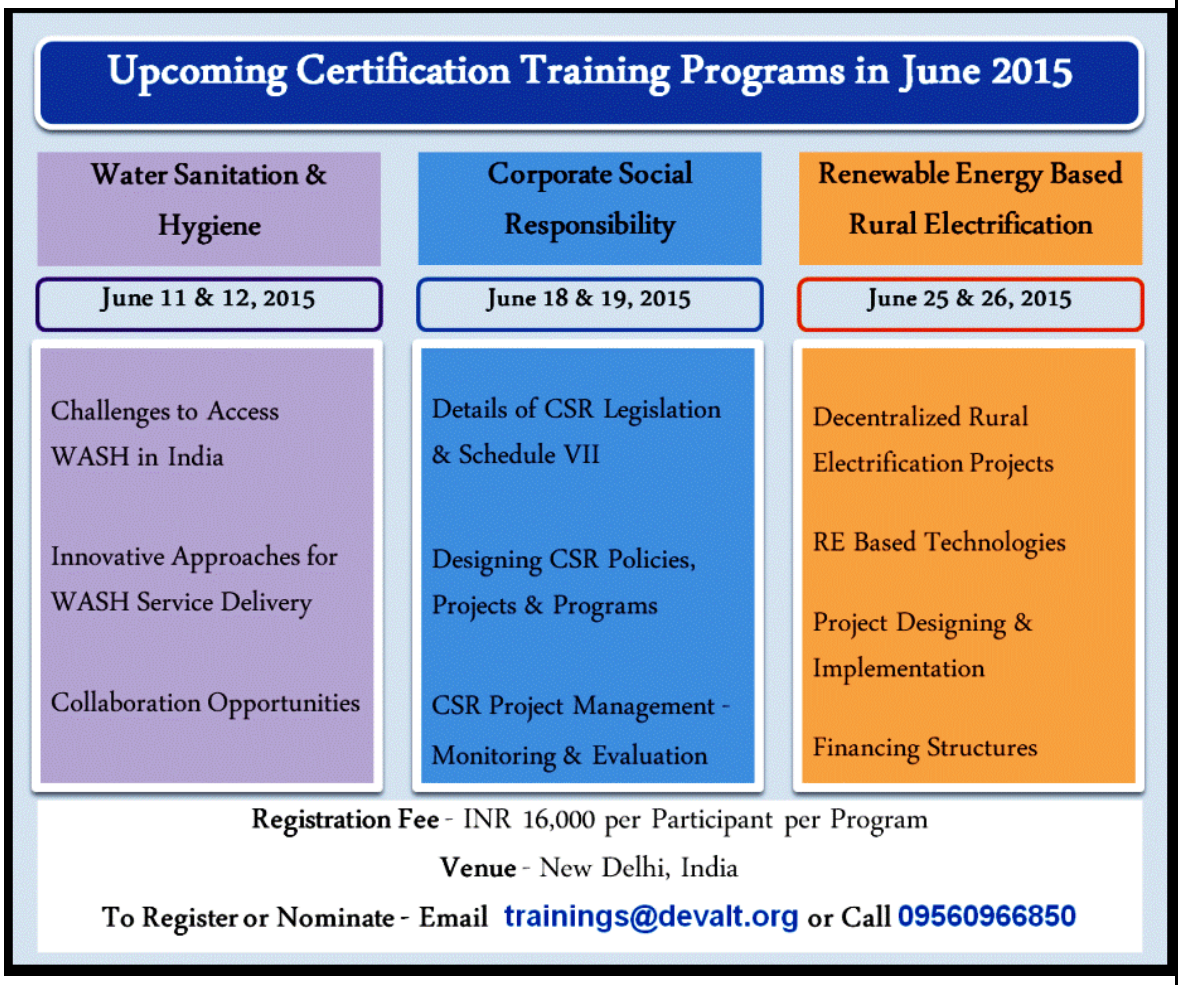
- Water Sanitation and Hygiene
- Renewable Energy based Rural Electrification
- Corporate Social Responsibility projects

The need of the hour is to build systematic responses to these interconnected areas which can have huge ramifications for development imperatives in India.

Our training programs scheduled for the month of June 2015 will enable professionals related to these areas to better perform their roles and responsibilities.

Register Now or Nominate your team members!

Email on trainings@devalt.org, mmishra@devalt.org or Call on 0-9560966850



Concept paper for Low carbon inclusive growth model for India

1st vertical as Nano Refinery

Natural Gas consists of Methane (CH4) to the tune of 70-90%. Cow guts produce Methane upto 500 liters a day per cow, as per a research team of MIT , Cambridge and Woods Hole Oceanographic Institution, Univ. of Toronto. This article was published by MIT News Office on March 5, 2015. https://newsoffice.mit.edu/2015/detector-sniffs-out-methane-0305. Cow's are giant methane fermenters . With our cow's, we can supply PNG (Piped Natural Gas) to every household. In the year 2013-14 , India imported LNG & LPG worth Rs.52000 crore and Rs.36000 crore (approx) respectively. PNG as combustible fuel for domestic cooking and is being supplied in urban India by Indraprastha Gas Limited (A Government of India undertaking) www.iglonline.net

2nd vertical as Nano Power Plant

Cow dung from approx 6000 cows can produce 1 MW of electricity. Cow dung is collected in underground tanks (methane digesters), from where the gas is transported to a generator producing electricity. The only raw material used in this is cow dung. Please see how a farm near Trenton , Florida, USA is doing this. www.youtube.com/watch?v=W5vV_K4533A . Enough power shall be generated by recycling bovine dung. It can be connected to the government grid.

3rd vertical as Nano Fertilizer Plant

Nitrogen(N) , Phosphate(P) , Potassium (K) & Mercury chloro Phenyl is present in cow dung & urine. These priceless organic fertilizer and pesticides make our yields better and free from poisonous fertilizers and pesticides. Excerpts from original research; a) partly supported by CSIR, New Delhi. www.ijrowa.com/content/2/1/21 , and; b) Radiation Technology Development Division, Bhabha Atomic Research Centre, Mumbai published in IOSR Journal of environmental Science, Toxicology and Food Technology. **www.iosrjournals.org**/ccount/click.php?id=3761.
The annual subsidy on fertilizer given by Government of India is Rs.72970.30 crores.

4th vertical as Soil Conditioner supporting Soil health card scheme

Cow urine can be used as a natural reagent for detoxification of toxic heavy metals viz. cadmium, lead, mercury, lanthanides, actinides series of elements etc. found majorly in the soil. These toxic metals interact with plant roots and subsequently enter the food chain of animals and humans. Excerpts from original research conducted by Radiation Technology Development Division, Bhabha Atomic Research Centre, Mumbai published in IOSR Journal of environmental Science, Toxicology and Food Technology. PRICELESS. **www.iosrjournals.org**/ccount/click.php?id=3761

5th vertical as ground table recharging agent supporting Pradhan Mantri Gram (krishi) Sinchai Yojna

Cow urine has Lipase enzyme.
https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB0QFjAA&url=http%3A%2F%2Ffiles.figshare.com%2F1631716%2FA0710108.pdf&ei=rNEKVfGZIc63uASjmYG4AQ&usg=AFQjCNFumAC4UzG1JzkfPzog6qY7aO6CXg&sig2=MnLFDqtDuc8GyXJhRbmA6w&bvm=bv.88528373,d.c2E , which can hydrolyze arid lands. Cow dung consists of organic Nitrogen which helps "Earthworms" thrive and multiply also called "Nature's Plow" as they form interconnected burrows , some several feet deep. This makes the soil porous, capable of absorbing rain water and recharging the water table, keeping it non-toxic. http://www.organicgardening.com/learn-and-grow/understanding-earthworms?page=0,0 .
This will also reduce floods and subsequent discharge of flood water into sea.
Rs. 5300 crore has been earmarked in this budget. An additional Rs. 3000 crore may also be provided.

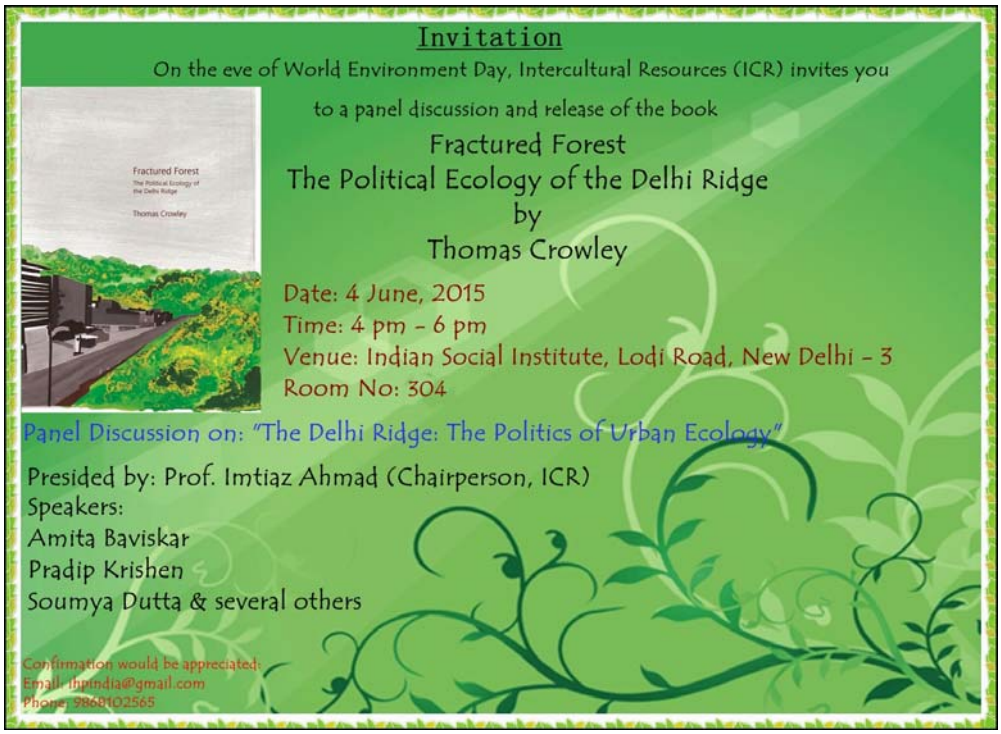
6th vertical as Tannery

The herds of only naturally died animals will be processed. Cow skin is used extensively in leather industry.

7th vertical as producing Tallow

Tallow is consumed in viz. pharmacy , cosmetic , processed food etc.... Further details are available at: http://www.meatupdate.csiro.au/data/Meat_By-products_Processing_03-84.pdf
file:///C:/Users/COMPAQ/Desktop/6-8-BeyondTheBeef.pdf

For any further clarification , please contact : :- vineetsahai45@gmail.com.



Invitation to participate in Management Development Programme on Smart Electric Grid for 24x7 Power: Development and Deployment, 23-25 July 2015, Bangalore

With the emerging power sector scenarios and the proposal for the development of 100 Smart Cities in India, Smart Electric Grid is perceived to be the future architecture of the power distribution sector. Smart Grid is found to be one of the important aspects in order to bring efficiency and sustainability in meeting the growing electricity demand with reliability and best of the quality.

The need of the hour in the context of Smart Grid is the training and capacity building at different levels in an integrated manner. But the major challenge remains the upskilling and expanding the capabilities of the present workforce to understand, develop and subsequently be able to operate and manage the Smart Grid System in the ever evolving dynamics.

Keeping the above context in mind, **The Energy Research Institute (TERI)** and **India Smart Grid Forum (ISGF)** are pleased to announce the Management Development Programme on **Smart Electric Grid for 24x7 Power: Development and Deployment** from **23rd -25th July 2015** at **TERI SRC**, Domlur II Stage, Bengaluru, Karnataka, India.

Who should attend:

Engineers, Managers responsible for the operation and maintenance of Power Generation systems, Transmission systems, Distribution systems, Genco's, Transco's, Discoms, Transmission Planners, Consultants, Officers of Power Utilities/Corporations, State Govt./SEBs, Industry professionals, Policy Makers, Entrepreneurs, Energy Planners, Private Entrepreneurs, Manufacturers, and Financial Institutions, etc.

Key takeaways:

- Gain in-depth knowledge about Smart Grid components and functionalities, potential and challenges and how Distributed Energy Resources , GIS and technology can play a critical role in a Smart Electric Grid.
- Exposure to the practical aspects of Smart Grid system and its components that will equip the participants with the knowledge and understanding required to execute their responsibilities in the sector in an integrated manner.
- A platform to have peer-to-peer interactions with the experienced industry experts on various aspects of Smart Grid.

Objective:

This three days intensive course seeks to provide a comprehensive overview of Smart Electric Grid, its components and functionalities, opportunities and challenges, policy and regulatory, communication, technological and storage aspects related to the system. The course shall be instrumental in demonstrating practical aspects of Smart Grid System through lab and field visits.

Certificate of Participation:

The Institute will issue a Certificate of participation on conclusion of the programme.

Program Fees:

INR 21,000/- per participant (plus Service Tax as applicable)

**Additional Discount of 10% on the programme fee for the members of India Smart Grid Forum (ISGF)*

Note: The fee includes program fee, course material, course kit and arrangements for lunch with tea/snacks during the 3 days of the programme. Reaching the program venue would be the responsibility of the concerned participant.

We invite you to participate in the programme or nominate executives from your organizations for the same.

For registration and more details please click on the **Brochure** or visit **http://www.teriin.org/ResUpdate/teri-mdps.php**

For further information, please contact:

- Gagan Suneja; gagan.suneja@teri.res.in ; 011-24682100 (Extn:2043)
- Sakshi Gaur; sakshi.gaur@teri.res.in; 011-24682100 (Extn:2017)
- Amol Sawant; amol.sawant@indiasmartgrid.org; +91 7042129429

A decade committed towards local sustainable actions

Created in 2005 on April 25, the South Asian branch of ICLEI, aimed at building and serving a regional network of local governments to achieve tangible improvements in regional and global sustainability through local initiatives.

ICLEI South Asia's journey towards making cities more sustainable began with just few local governments. Look at us now – More than 60 local governments, around 35 staff members and working with 6 countries in the South Asian region.

We enable cities to contribute to the global need for climate action with a number of local solutions, ranging from developing guidelines on low carbon growth, raising awareness about

sustainable sanitation and solid waste management, supporting municipalities in implementing Renewable Energy & Energy Efficiency projects, identifying and implementing sustainable and environment-friendly transportation, helping cities become resilient and assisting them to gain finances for their resilience based projects and more.

Having begun with just two projects - Local Renewables and ecoBUDGET, we had almost 15 on-going projects in 2014-15. Find them here

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Moving steadily towards building climate resilience

10 Indian cities namely, Leh, Dharamsala, Mandi, Dehradun, Nainital, Panaji, Nashik, Kurseong, Shillong and Gangtok and 3 cities of Bangladesh - Singra, Mongla and Barisal, are currently a part of the Rockefeller Foundation funded Asian Cities Climate Change Resilience Network (ACCCRN), working towards improving their climate resilience and protecting themselves from projected impacts of climate change.

Following are highlights of the cities' status in the project:

- Dehradun, Leh, Kurseong and Gangtok - Completed first phase where an introductory workshop has been conducted and phase two will be taking place soon.
- Nainital, Singra and Mongla - Completed second phase where the Climate exposure, Urban system analysis and Risk analysis have been conducted and third phase is being planned.
- Dharamsala, Barisal and Shillong - Completed third phase in which vulnerability assessment has been completed and final phases in respective cities are being planned.
- Mandi - In the fourth phase in which resilient interventions were identified. Resilience Strategy is being developed and the climate resilient strategy document will be produced soon.
- Panaji and Barisal - Urban Vulnerability Assessment (UVA) has been completed and a SLD with a different approach is being planned.
- Nashik - Risk assessment and vulnerability assessment have been completed and interventions identified and Climate resilience strategy has been prepared.

ICLEI South Asia, on the basis of the learnings, approaches and best practices developed across these pilot cities and the best practices from other approaches that build urban climate resilience, has developed a tool kit which can be used by local governments to develop their own climate resilience strategy and protect themselves against impacts of climate change. This toolkit has already been tested in 3 cities of Bhubaneswar, Mysore and Shimla. Click here to know more.

The ultimate vision of this program is to build resilience to climate change across all urban systems and groups, in particular the poorest and most marginalized. The specific objectives are:

- Developing climate resilience strategy for urban local authorities.
- Assist cities to prepare for climate action to plan a climate resilience strategy and become "investable".
- Finding ways for the ACCCRN approach and learnings to be incorporated into other programs, policies, events, trainings etc. in the Asian region through networking and partnerships.

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

Disclaimer: In posting messages or incorporating these messages into synthesized responses, the UN accepts no responsibility for their veracity or authenticity. Members intending to use or transmit the information contained in these messages should be aware that they are relying on their own judgment.

Solution Exchange is a UN initiative for development practitioners in India. For more information please visit www.solutionexchange.net.in