



Climate Change Community



Community Update
No. 69: 1st October, 2015
In this Issue

FROM THE RESOURCE PERSON

Dear Members,

We are presenting the 69th Edition of the Monthly Community Update of the Climate Change Community of Practice (CoP), today.

We thank you for your continued cooperation and support to this unique knowledge sharing platform facilitated by UNDP which is now in its 7th year of continuous operation and increasing from strength to strength.

We seek your inputs on the following query by KR Viswanathan, Practical Action Group UK, New Delhi. The Reply by date is 16th October, 2015.

Impact of climate change have a direct bearing on water, energy and food security, sustainable agriculture, human health, livelihoods and overall poverty level, industrialisation, migration etc. Effective and practical solutions to slow down or mitigate the effects of climate change will require need planned interventions and sustained collaboration at all levels.

Climate change impacts are gendered and its effect on men and women are different. Women in both rural and urban areas face barriers (social, economic and political) that limit their ability to cope with the impacts of climate change. However, there is a danger in singling them out as passive victims or recipients to the benefits of adaptation or mitigation activities.

Collective efforts are essential to engage women alongside men and other groups, as potential actors or agents for change. Information on the effectiveness of gender-sensitive approaches has not been quantified and analysed to produce clear evidence on the need for engendered approaches for climate compatible development. The lack of segregated data makes it difficult to demonstrate the link between gender, adaptation and mitigation activities.

*Practical Action Group through its consulting arm, Practical Action Consulting, is collaborating with the Gorakhpur Environmental Action Group (GEAG) and Institute of Development Studies (IDS, Sussex) in pursuing the South Asia research initiative on '**Gender Equality and Climate Compatible Development: Drivers and Challenges to People's Empowerment**'. This is part of a three nation CDKN supported study involving India, Peru and Kenya.*

*The year-long study will look at the adoption and meaning of 'gender-sensitive' approaches to Climate Compatible Development in **different urban contexts**, and also build understanding of the roles both men and women play in climate change related initiatives. It will also explore the socio-economic, political and cultural factors and conditions which either support or*

constrain gender responsive policies; strategies, approaches and actions. The existing barriers in effective participation of women in decision making for activities around disaster risk reduction, post-disaster recovery, adaptation and mitigation will also be evaluated.

The study will manage the production and dissemination of high quality evidence on gender-sensitive approaches to Climate Compatible Development (CCD) including how and to what extent they can contribute to increasing women's ability to engage in adaptation and mitigation efforts in ways that affect long-term impacts.

The findings from the three national/ sub-national studies (in India, Peru and Kenya) will be used to substantiate the benefits of gender equality and the subsequent design and implementation of appropriate development programmes in the case study countries and beyond. The study will also help inform design and implementation of urban development and town planning strategies.

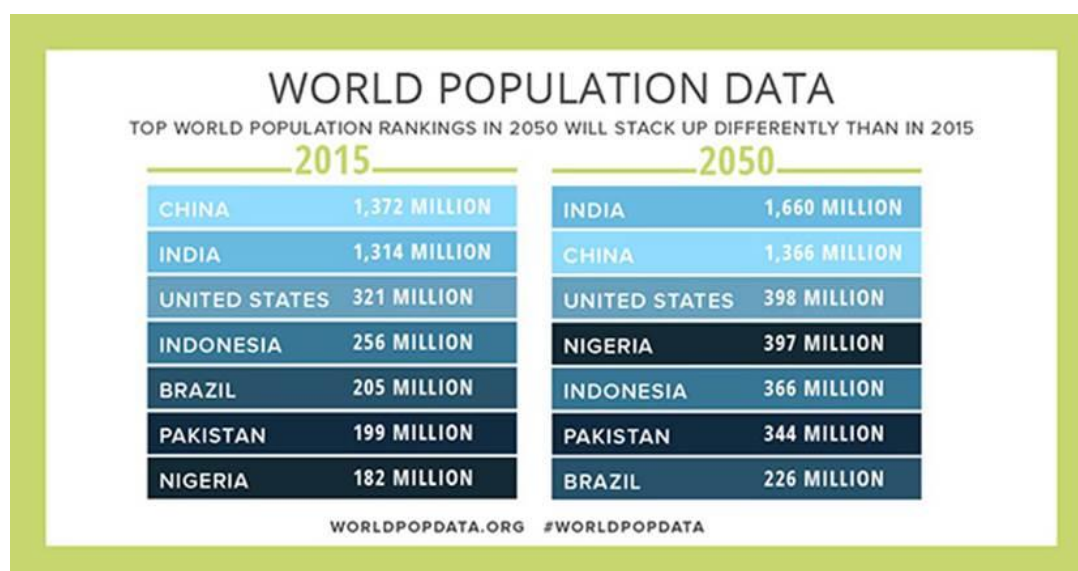
We request inputs and suggestions from members on the following:

- ***What are the ongoing initiatives that address gender concerns in climate compatible development (adaptation, DRR and mitigation), particularly in urban areas of India?***
- ***What are the innovations, lessons learnt and good practices on effective integration of gender-sensitive approaches in pursuing climate compatible development in urban areas?***

The information and insights provided by you will provide additional perspectives on the ongoing research initiative.

Thanks & best regards,
Ramesh Kumar Jalan
Resource Person & Moderator
Climate Change Community,
Solution Exchange-India
United Nations Development Programme, New Delhi

DEVELOPMENT IN THE SECTOR



International Conference on Climate Action: Local Governments Driving Transformation; 1-2 October 2015; Hanover, Germany

The summary is available at :

<http://www.iisd.ca/climate/icca2015/html/enbplus173num10e.html>

PIONEERING LOCAL CLIMATE ACTION (AGENTS OF CHANGE):

On the risks and benefits of being a pioneer, participants stated: risks include that initially cities rely on new, less-tested and initially-costly technologies before they become mainstream; and benefits include access to national or EU funding to pilot new climate innovations and reputations as local climate action leaders.

On experience sharing and transfer, including how to connect with stakeholders, participants suggested: engaging stakeholders early on, such as industrial actors, non-governmental organizations and neighborhood cooperatives, to understand and engage in local climate actions. They also suggested that less-pioneering cities visit pioneers to learn technical and process innovations.

On how cities can contribute to national targets, participants noted that cities can show what is possible or profitable at the local level, as well as what can be scaled up.

Closing remarks reflected that: cities have different drivers to motivate climate action, such as energy security; leading by example is more difficult without support; local climate actions require an emphasis on "learning by doing" and being open to making mistakes; cities have to balance short- and long-term planning; and cities should support inclusive pathways, maximizing co-benefits.

CAPACITIES FOR LOCAL CLIMATE ACTION (AGENTS OF CHANGE):

Acknowledging many players are responsible for local climate protection, Hans Hertle, Institute for Energy and Environmental Research Heidelberg (Ifeu), suggested continuous climate change education, focusing on soft skills and technology.

Calling climate change a complex problem requiring many skills, Daniel Willeke, Difu, introduced a national programme to train local climate managers through courses, focusing on carbon footprint, mobility, consumption, efficiency and public relations.

Cord Remke, Rural Adult Education, presented on adult education training on climate change, noting considerable interest.

Referring to working with local administrations in British Colombia, Canada, Svend Anderson, GHG Consulting, presented tools and methods, including a web-based toolkit and quantification methods.

Priscella Mejillano, UN-Habitat, presented efforts in the Philippines, noting their working nexus: local/urban development; urban mitigation; and disaster resilience. She recognized capacity gaps, including limited appreciation and expertise, and stakeholder engagement via citywide consultation processes.

Julia Schirrmacher, University of Flensburg, presented research on investigating change

agents, underscoring the role of networks and formal and informal knowledge.

LOCAL CLIMATE ACTION AS AN INTRODUCTION TO TRANSFORMATION PROCESSES (GOVERNANCE):

Benson Ochieng, Executive Director, Institute for Law and Environmental Governance, presented on the changing role of local administrations in Kenya, in the context of Kenya's new constitution, including an emphasis on stakeholder engagement and a focus on integrated county development plans. Indicating that Kenyans are beginning to understand their power, he identified two priorities: promoting local entrepreneurship; and institutional innovation.

Hoppe described the similar aspects of playing soccer and addressing climate change, such as planning, strategy, intuition and teamwork, to achieve goals. Both feats, he implied, are unpredictable, complex, require cooperation, coordination and communication, and are played by risk savvy and risk adverse types, including interactions with multiple players, leading to "serendipitous" outcomes. With this in mind, participants broke into small "teams" to plan local climate action strategies.

ADDRESSING CHALLENGES OF CLIMATE ACTION IN THE CONTEXT OF THE ENERGIEWENDE (GOVERNANCE):

Speakers identified challenges and success factors in managing an energy transition, using the cases of the US's Clean Power Plan and India's goal of reaching 175 gigawatts of installed renewable energy by 2022.

Emma Zinsmeister, US Diplomatic Mission to Germany, described how environmental regulation conducted in partnership with subnational governments provides flexibility, especially in a large geographic area with diverse priorities, and makes for more effective regulation.

Timon Herzog, German Agency for International Cooperation (GIZ), said that Indian cities often welcome distributed power generation as a way to relieve congested power lines. He underscored that India is coping with rapid population and electricity demand growth, lack of electricity access for over 300 million citizens, load shedding and up to 30% transmission and distribution losses.

The workshop highlighted successful experiences where a broad, high-level programme supported local communities to implement their own strategies. Participants called for increasing this support at the local level as a best practice in managing transformation processes.

CLIMATE-FRIENDLY MOBILITY IN RURAL AREAS (INFRASTRUCTURE):

The main bottleneck is knowledge of good practices and thus informative examples would be the focus of the workshop.

Gunnar Heipp, International Association of Public Transport (UITP), presented a tool that allows users to compare their costs of transportation when deciding whether to live in a rural or an urban area.

Timo Barwisch, plan:mobil, noted migration to cities can mitigate transportation emissions, as urban dwellers generally travel shorter distances. Noting that projects implemented in one

place cannot always be transferred without modification to another locale, Barwisch presented examples of good practices and lessons learned.

One successful rural initiative Barwisch described was a flexible bus service that does not follow a timetable, but rather allows users to call for pick-ups and stops for drop-offs anywhere requested. Another system he described saved costs by using one bus to run multiple routes during the week, serving some cities or shopping centers on certain days of the week and others on the remaining days.

He explained that car sharing or “professional hitchhiking” was found to be less successful, largely due to perceptions that it is dangerous. However, he noted that in a very small village of about 100 inhabitants, a very popular car-sharing arrangement arose organically and was met with much enthusiasm. Barwisch emphasized that the success of a public transit initiative depends on good marketing for the entire duration of the project.

Thoughts of Dr JS Rawat, IUCN on Sustainable forestry for ecosystem services: Mitigation option of GHGEs . Please note that the contents of this article do not necessarily reflect the views and policies of IUCN.

I feel stimulated as I reflect on the rich deliberations that took place in the recently concluded International Conference on **‘Involvement of the Private Sector in Forest and Landscape Restoration’ on 26th August 2015 in New Delhi.**

Forestry sector provides exciting opportunities for tackling climate change but the real challenge is how much these nature based solutions can really contribute in the coming years.

During the conference, a discussion with businesses, especially with bankers and financial institutions lead to strengthen the financial mechanisms and instruments for **forest and landscape restoration (FLR)**. A workshop held earlier on 4th March on the similar subject demystified FLR issues, discussed the latest tools, identified, prioritized and emphasized on increasing investment opportunities by judicious involvement of the private sector in FLR activities in India.

Traditionally, India has been very sensitive to conservation and environmental issues and it has a people-friendly Forest Policy (1988) which aspires to have 33% of its total geographical area covered under forest. The Indian Forest Policy emphasizes on conservation of resources for providing ecosystem goods and services rather than timber production.

At present, the country has 23.3% forest cover and 24.1% forest and tree cover. According to the Forest Survey of India (FSI) 2013, a vast chunk of land (33mha), both in and outside the forest area still needs immediate restoration, however, World Resources Institute (WRI) in 2014, put this figure at 77 mha.

In 2013, Ministry of Rural Development (MoRD), GoI estimated that there is 46.7mha wasteland in India (15% of its total geographical area). Although there is a difference in estimates of restoration potential by various agencies, the country is putting a lot of emphasis on tree cultivation outside the forest lands and over the years this has led to 2.78% increase in trees outside forest.

India is further emphasizing on tree planting outside forest areas and increasing forest crown density through the launching of flagship programme ‘Green India Mission’ (GIM) which along

with the Ministry's GEF project, aspires to increase the forest cover by 11 mha in a decade.

However, in order to achieve at least 30% forest and tree cover within a period of ten years, private sector should be involved in FLR to increase additional 5% tree cover in non-forest area and also to enhance quality of forests by application of ten principles of sustainable forest management.

Increase in forest and tree cover and crown density will further increase carbon potential of India's forests and strengthen the nature based INDC(s). Further, pledging at least 10m ha of afforestation/ reforestation to Bonn Challenge may contribute to carbon sequestration of 1Gt per year, globally, and help in lifting millions out of poverty, while also reducing the annual carbon emission gap by 11-17% over the next 50 years (www.bonnchallenge.org).

In addition to increasing budgetary allocation in forestry sector to at least 4% of GDP, funding from the private sector is instrumental as the private sector has the know-how and is well versed in tapping finances from the public at large. As an innovative approach to the FLR financing mechanism, an FLR fund can be created by linking it with climate change, carbon emissions, carbon sequestration by way of introducing green taxes and cess on the principle that 'the destroyer should pay for the destruction'.



Sustainable Finance Solutions to Meet Ambitious Clean Energy Targets of INDIA

The article is available at: http://switchboard.nrdc.org/blogs/skwatra/sustainable_finance_solutions_.html

Under Prime Minister Modi's leadership, India has redoubled its efforts to ensure smart growth and combat climate change by significantly increasing renewable energy generation capacity. India plans to increase capacity to 175 GW in the next 7 years. To fuel this expansion, clean energy finance has to scale up proportionately. Recent developments portend good progress on this front.

India's renewable energy markets - particularly solar and wind technologies - have received a boost of momentum lately. In a transformative development for the energy sector in India, as per a recent study, solar energy is undercutting coal: new solar PV plants can generate

electricity at a cost cheaper than new coal plants running on imported coal. Not surprisingly, in related news, Standard Chartered Bank has withdrawn support for a mega coal mine in Australia which was to be developed by the Adani Group, but now has an uncertain future. Instead, the Adani Group is now in talks with international investors to secure financing for a \$3 billion project to make solar cells and panels in the India.

The national government announced a Draft Renewable Energy Act to develop a supportive policy ecosystem for clean energy to flourish. The Ministry of New & Renewable Energy (MNRE) also laid out a timeline of annual targets to lend clarity on how the whopping 100 GW of solar energy could be achieved by 2022 as the market scales up from its current 4 GW of solar.

However, the finance needed to realize these ambitious targets is a significant challenge. Recent examples of sustainable finance - including bond issuances by government, private sector banks and equity and debt listing by companies - indicate significant progress being made in overcoming these barriers. Initiatives currently underway in global and domestic markets show the way forward for financing India's ambitious actions to address climate change.

Achieving the Indian government's goal of installing 100 GW of solar power by 2022 would require nearly \$100 billion in finance over seven years. Additional funding will be needed for associated evacuation infrastructure and related grid ancillary services. However, scarcity of low cost, long term financing presents a challenge that must be addressed if India is to meet its capacity addition targets. Solving this challenge requires regulatory changes and financial innovations that allow more investment from domestic institutions and international investors to flow into clean energy.

Emerging Finance Solutions

A range of financial measures are needed to meet India's targets. Green bonds are one such measure and can help unlock institutional and retail investment and mobilize finance for clean energy. Green bonds are similar to any other bond, and help raise capital through debt markets, with a commitment to fund assets delivering an environmental benefit such as renewable energy, low carbon transport or forestry projects.

Initiatives by several Indian domestic institutions indicate a growing interest in such bonds in India. The recent INR 315 crore (\$50 million) green bond issue by Yes Bank, one of India's largest commercial banks, will be used to meet its commitment of 5,000 MW renewable energy projects. IFC - part of the World Bank Group - issued a "green Masala bond" on the London Stock Exchange earlier this month for the same amount to invest in the Yes Bank bond, essentially capitalizing it and lowering the cost of lending to green projects. This bond issue follows an issue of INR 1,000 crore (\$161 million) green infrastructure bonds by Yes Bank in February. The recent 2,000 crore (\$313 million) tax-free bond announced by IREDA (the Indian Renewable Energy Development Agency) - a Government of India financial company - will be used to lend to solar energy projects.

National and subnational governments as well as companies and multinational institutions can issue green bonds. Since the first issue in 2007, market for green bonds has grown rapidly and is expected to reach 100 billion dollars in 2015. Yet, this is a fraction of the debt capital markets of nearly 100 trillion dollars, showing the scale and scope of growth opportunity for global money markets to support sustainable growth over the long-term.

Green IPOs - or initial public offerings are simply the market listing of clean energy companies. Leading renewable energy developer SunEdison recently raised \$675 million

through an initial public offering (IPO) on Nasdaq. SunEdison listed its Indian renewable energy portfolio on the stock market through subsidiary TerraForm Global - a YieldCo which would provide dividends from sale of electricity by operating the company's renewable energy assets. TerraForm Global also raised \$800 million in green bonds to finance global renewable energy projects.

Lastly, initiatives such as the dollar linked power contracts proposed by National Thermal Power Company help attract international investment, reducing hedging costs for solar projects, while protecting power purchasing utilities from currency fluctuations. Green bonds and IPOs and other innovative mechanisms such as the dollar denominated contracts can go a long way in raising capital needed to meet India's ambitious solar targets. The growth of Indian solar industry over the last five years has largely been driven by policy incentives and government push for capacity addition. With the rapidly falling prices of renewable energy, it is time for global money markets to step in and play a greater role in helping India achieve its clean energy targets.

Announcements

Elevated Indoor Air Pollution Levels During NDTV Breathe Clean Conclave in New Delhi

The article is available at: http://switchboard.nrdc.org/blogs/ajaiswal/elevated_indoor_air_pollution_.html

NDTV, a popular media house in India, organized a televised experts discussion on ways to address air quality challenges across India earlier this week as part of its "Breathe Clean" campaign. India's Minister of State for Environment, Forest and Climate Change Prakash Javadekar presented his "clean air is my birthright" views as part of his keynote address to the audience. Other air quality experts, including NRDC, presented their views as part of the panel discussion that followed Minister Javadekar's address. Important takeaways and suggestions from the experts included a) the need for monitoring the sources - both stationary and mobile, outdoor and indoor; b) the need for effective health risk communication to engage a wider audience and finally c) the need for clean technology and other control measures and practices to contain the pollution at the source.

The PM 2.5 level inside the discussion hall itself was a whopping 400 micrograms per cubic meter - highlighting the fact that addressing indoor air pollution warrants as much attention as outdoor pollution.

The focus on air quality in New Delhi and several other cities in India has risen tremendously over the last few months. Alarming reports and statistics about the number of people exposed in India by organizations such as the World Health Organization and several others have brought the challenge of air pollution to the forefront of Indian environmental debates. Popular mainstream media houses are running elaborate campaigns on air quality - both outdoor and indoor - taking on the role to educate common citizens on the health effects of bad air quality as well as the nature of pollutants. In continuation of their "Breathe Clean" campaign, NDTV brought together India's top international and Indian health, policy and technology experts including those from the Public Health Foundation of India (PHFI), NRDC, the Centre for Science and Environment (CSE), Clean Air Asia and the All India Institute of Medical Sciences (AIIMS) to discuss the health effects of poor air quality and some of the practical solutions that can be used to protect citizens from the alarmingly poor air quality that is prevalent in some parts of the country.

Environment Minister Javadekar through his keynote address highlighted the role of the media, the government and the citizens in addressing the air quality challenges that are prevalent in Indian cities as well as rural areas. He articulated the following efforts being carried out by the government to address both indoor and outdoor air pollution:

- Since Prime Minister Narendra Modi's Independence Day appeal to Indians to voluntarily relinquish their liquefied petroleum gas (LPG) cooking cylinder subsidies, between 30 to 40 thousand citizens have given up their subsidy. This would be distributed to poor households to reduce dependence on biomass burning and reduction of household air pollution.
- Solar photovoltaic lights and other applications are being used to reduce the need for and use of kerosene for lighting and other purposes in an effort to further reduce air pollution.
- Earlier in 2015, the national government launched the National Air Quality Index (AQI) to monitor and provide comprehensive information on pollutant levels in 10 Indian cities in a step towards monitoring outdoor air pollution.
- In an effort to sensitize waste collectors, the government has undertaken an extensive awareness campaign to educate waste collectors about the harmful consequences of burning biomass and waste.
- Further in cities, to address the pollution from vehicles and mobile sources, the government is offering a 30% subsidy on the purchase of electric vehicles.
- A parliamentary act to introduce one lakh electronic three wheelers (rickshaws) in New Delhi has been passed already and plans for a bypass road for trucks to go around New Delhi have been approved.

Minister Javadekar recognized the important of increasing common awareness on the level and dangers of indoor pollution as necessary for citizens to be able to use preventive solutions to safeguard health. "We want to make our air, water and environment clean", said Minister Javadekar, "and together with clean technologies like solar, we will deliver".

According to Anumita Roychowdhury from CSE, the pollution has now become odorless and more dangerous. Cardiologist Dr. Guleria from AIIMS shared that the kind of diesel being used in vehicles now is much smaller in size and contributes to the PM 2.5 levels. PM 2.5 lodges deep into the lungs and leads to reduced lung function and increased risk of heart diseases. He mentioned, for example, a study that revealed that lung function of children who are raised in Delhi to be much lower than those raised in other parts of the country, on account of PM 2.5 exposure. Larger particulate matter such as PM 10 causes irritation and other respiratory ailments such as asthma and bronchial infections.

Indoor air pollution levels are much higher than outdoor air pollution levels in many Indian cities. While the measures to address both outdoor and indoor air pollution include better monitoring, increased health risk communication and using control technologies, use of energy efficient building techniques to reduce the need for air conditioning and ensure proper ventilation are also critical for energy use and air pollution control. Guidelines for appliances and products used inside houses and offices as well as guidelines for emissions from mobile and stationery sources of pollution can help in setting standards for industries across the country. Clean technology including solar and wind reduce the dependence on fossil fuel. Better practices and control technologies for conventional power sources as well as vehicular pollution can be implemented to reduce emissions.

Overall, the experts agree that the top three priorities to start addressing pollution in India are a) monitoring, b) effective and widespread health risk communication and c) ultimately, using clean energy, energy efficiency and control technologies to reduce the overall emissions

and pollution. Evidence from cities worldwide shows that the reduction of pollution doesn't need to come at the cost of economic progress. It is possible to decouple economic growth and harmful environmental and health impacts. This open and televised national dialogue about priorities to address air pollution is a good step.

UNDP launches storytelling contest to amplify climate coverage on the run up to Paris summit.

The article is available at :

http://www.preventionweb.net/english/professional/news/v.php?id=45598&a=email&utm_source=pw_email .

The last date for submissions is October 11th, 2015.

UNDP has launched a global storytelling contest, Voices2Paris, to contribute to raising public awareness on the negative impacts of climate change as well as on the opportunities and solutions seen in actions by individuals and governments alike across vulnerable developing countries worldwide.

"We want to provide young journalists in developing countries a unique opportunity to contribute to the global debate on climate change in the run-up to COP21, while building their capacity and providing recognition for excellence" noted Neil Buhne, UNDP Geneva Director.

UNDP targets journalists 35 years of age and under from developing countries who are already engaged in public writing and want to contribute – locally and internationally – towards greater public awareness on climate change.

The best stories will be published every day in the immediate run-up to COP21, carrying messages of struggle, opportunity and hope from the climate change frontlines worldwide. **The authors of the top two prize-winning stories will be invited to attend and cover the COP21 UN climate summit in Paris this December.**

Stories can be submitted by young journalists from developing countries in English, and in Arabic, Chinese, French and Spanish with an English translation, on a **rolling basis until October 11th, 2015**. Guidelines to participate are available on UNDP Geneva website.

A team of senior journalists reporting on climate change from top-tier international media outlets, regional media associations, and representatives from major international organizations, will review the entries and mentor the participants.

"The contest is an excellent initiative to promote investigative and innovative coverage from the young generation of journalists. It is also an opportunity for African journalists to reconfigure state-society relations and contribute to the development of the continent" added Sidi El Moctar Cheiguer, President of the African Network of Environmental Journalists.

Stories, once screened and scored will be published on UNDP's website and disseminated through partners' channels to ensure maximum outreach and support the call for an ambitious agenda to be endorsed during the COP21.

Four Indians on MIT 35 Innovators under 35 List for 2015

The article is available at: <http://gadgets.ndtv.com/internet/news/four-indians-on-this-years-mit-35-innovators-under-35-list-729646> .

Each year, the Massachusetts Institute of Technology (MIT) publishes a list of 35 innovators under the age of 35. The research institute says these "are inspiring and creative people" who "illustrate the most important emerging technologies of the moment."

This year, the list includes four Indians and given below is **a brief look at their work:**

- **Rahul Panicker, Embrace:** He is an engineer from India who studied at Stanford, but then returned home to work on a technology solution that would help reduce infant mortality. Panicker worked on a prototype incubator that costs 1 percent of what traditional solutions cost, and can maintain its temperature for six hours without electricity, according to the MIT Technology Review. In 2009, Panicker quit his job, and started a company called Embrace in Bangalore which makes these warmers, that are sold in a "hybrid for-profit/ not-for-profit business model".
- **Rohan Paul, SmartCane:** He created an affordable obstacle detection system for people with visual disabilities - a smart cane that alerts them about anything in their path. "In 2005, I was at the Indian Institute of Technology in Delhi as an undergraduate. As part of a course intended to design solutions for real-life challenges, we visited the National Association for the Blind in Delhi," Paul told Technology Review. "We heard stories of how people with blindness get hurt when out walking-abruptly hitting open windows, tree branches, or vehicles. It creates so much fear that they are reluctant to step out without assistance." Paul went on to create the SmartCane, a \$50 (approximately Rs. 3,250) attachment that can be clipped onto the traditional white cane used by people with visual disabilities. When Paul and his team tested it in 2012, they found collisions go down by 95 percent.
- **Aaswath Raman, 'sky cooling':** He is still researching at Stanford, has created a very special mirror that actually gets colder under direct sunlight, and stays around 5 degrees Celsius cooler than the surrounding air. It's the same essential concept that leads to dew formation on leaves and petals - Raman's mirror is just a lot more effective, and able to keep cool even at the higher temperatures during full daylight. Raman is now working on integrating the material into air-conditioning infrastructure, and has a working prototype on the roof of Stanford's Packard Electrical Engineering Building. The advantage of doing this could be air conditioners that don't give you a giant electricity bill.
- **Saurabh Srivastava, Xerox India:** He is a researcher at Xerox Research Centre of India, and his work is focused on solving real world problems in areas such as literacy, employment, healthcare and bridging the digital divide by designing interactive systems that can be used by people who are low-literate. "Having spent all my life in the developing world, I have been surrounded by people who are marginalised and underserved," said Srivastava. "I see the huge potential technology can play to enhance the lives of this population that is less-literate or less-digital. Compassion drives me to design and innovate taking into account the unique needs and culture of the underserved so, for example, a farmer can increase their yield or a pregnant woman can get better healthcare."

The Coming Global Food Crisis

The article is available at : <http://www.countercurrents.org/avery180815.htm> .

What is the optimum population of the world? It is certainly not the maximum number that can be squeezed onto the globe by eradicating every species of plant and animal that cannot be eaten. **The optimum global population is one that can be supported in comfort, equality and dignity - and with respect for the environment.**

In 1848 (when there were just over one billion people in the world), John Stuart Mill described the optimal global population in the following words: **"The density of population necessary to enable mankind to obtain, in the greatest degree, all the advantages of cooperation and social intercourse, has, in the most populous countries, been attained. A population may be too crowded, although all be amply supplied with food and raiment."**

"... Nor is there much satisfaction in contemplating the world with nothing left to the spontaneous activity of nature; with every rood of land brought into cultivation, which is capable of growing food for human beings; every flowery waste or natural pasture plowed up, all quadrupeds or birds which are not domesticated for man's use exterminated as his rivals for food, every hedgerow or superfluous tree rooted out, and scarcely a place left where a wild shrub or flower could grow without being eradicated as a weed in the name of improved agriculture.

If the earth must lose that great portion of its pleasantness which it owes to things that the unlimited increase of wealth and population would extirpate from it, for the mere purpose of enabling it to support a larger, but not better or happier population, I sincerely hope, for the sake of posterity, that they will be content to be stationary, long before necessity compels them to it." John Stuart Mill, "Principles of Political Economy, With Some of Their Applications to Social Philosophy", (1848).

Has the number of humans in the world already exceeded the earth's sustainable limits? Will the global population of humans crash catastrophically after having exceeded the carrying capacity of the environment? There is certainly a danger that this will happen, **a danger that the 21st century will bring very large scale famines to vulnerable parts of the world, because modern energy-intensive agriculture will be dealt a severe blow by the end of the fossil fuel era, and because climate change will reduce the world's agricultural output.**

When the major glaciers in the Himalayas have melted, they will no longer be able to give India and China summer water supplies; rising oceans will drown much agricultural land; and aridity will reduce the output of many regions that now produce much of the world's grain.

Falling water tables in overdrawn aquifers, and loss of topsoil will add to the problem. We should be aware of the threat of a serious global food crisis in the 21st century if we are to have a chance of avoiding it.

In 1944 the Norwegian-American plant geneticist Norman Borlaug was sent to Mexico by the Rockefeller Foundation to try to produce new wheat varieties that might increase Mexico's agricultural output. Borlaug's dedicated work on this project was spectacularly successful. He remained with the project for 16 years, and his group made 6,000 individual crossings of wheat varieties to produce high-yield disease-resistant strains.

In 1963, Borlaug visited India, bringing with him 100 kg. of seeds from each of his most promising wheat strains. After testing these strains in Asia, he imported 450 tons of the Lerma Rojo and Sonora 64 varieties: 250 tons for Pakistan and 200 for India. By 1968, the success of these varieties was so great that school buildings had to be commandeered to store the output. Borlaug's work began to be called a "Green Revolution". In India, the research on high-yield crops was continued and expanded by Prof. M.S. Swaminathan and his coworkers. The work of Green Revolution scientists, such as Norman Borlaug and M.S. Swaminathan, has been credited with saving the lives of as many as a billion people.

Despite these successes, Borlaug believes that the problem of population growth is still a serious one. "Africa and the former Soviet republics", Borlaug states, "and the Cerrado, are the last frontiers. After they are in use, the world will have no additional sizable blocks of arable land left to put into production, unless you are willing to level whole forests, which you should not do. So, future food-production increases will have to come from higher yields. And though I have no doubt that yields will keep going up, whether they can go up enough to feed the population monster is another matter. Unless progress with agricultural yields remains very strong, the next century will experience human misery that, on a sheer numerical scale, will exceed the worst of everything that has come before."

With regard to the prospect of increasing the area of cropland, a report by the United Nations Food and Agricultural Organization (Provisional Indicative World Plan for Agricultural Development, FAO, Rome, 1970) states that "In Southern Asia,... in some countries of Eastern Asia, in the Near East and North Africa... there is almost no scope for expanding agricultural area... In the drier regions, it will even be necessary to return to permanent pasture the land that is marginal and submarginal for cultivation. In most of Latin America and Africa south of the Sahara, there are still considerable possibilities for expanding cultivated areas; but the costs of development are high, and it will often be more economical to intensify the utilization of areas already settled." Thus there is a possibility of increasing the area of cropland in Africa south of the Sahara and in Latin America, but only at the cost of heavy investment and at the additional cost of destruction of tropical rain forests.

Rather than an increase in the global area of cropland, we may encounter a future loss of cropland through soil erosion, salination, desertification, loss of topsoil, depletion of minerals in topsoil, urbanization and failure of water supplies. In China and in the southwestern part of the United States, water tables are falling at an alarming rate. The Ogallala aquifer (which supplies water to many of the plains states in the central and southern parts of the United States) has a yearly overdraft of 160%.

In the 1950's, both the U.S.S.R and Turkey attempted to convert arid grasslands into wheat farms. In both cases, the attempts were defeated by drought and wind erosion, just as the wheat farms of Oklahoma were overcome by drought and dust in the 1930's. If irrigation of arid lands is not performed with care, salt may be deposited, so that the land is ruined for agriculture. This type of desertification can be seen, for example, in some parts of Pakistan. Another type of desertification can be seen in the Sahel region of Africa, south of the Sahara. Rapid population growth in the Sahel has led to overgrazing, destruction of trees, and wind erosion, so that the land has become unable to support even its original population.

Especially worrying is a prediction of the International Panel on Climate Change concerning the effect of global warming on the availability of water: According to Model A1 of the IPCC, global warming may, by the 2050's, have reduced by as much as 30 percent the water available in large areas of world that are now large producers of grain.

Added to the agricultural and environmental problems, are problems of finance and distribution. Famines can occur even when grain is available somewhere in the world, because those who are threatened with starvation may not be able to pay for the grain, or for its transportation. The economic laws of supply and demand are not able to solve this type of problem.

Investing in a Healthier Climate : A new report examines the risks and opportunities that climate change presents to impact investors.

The article is available at :

http://ssir.org/articles/entry/investing_in_a_healthier_climate?utm_source=Enews&utm_medium=Email&utm_campaign=SSIR_Now&utm_content=Title .

We're falling further behind the International Energy Agency's goal of \$5 trillion in additional clean energy investments by 2020 to keep temperatures from rising past two degrees (the internationally accepted limit to avoid the most dangerous effects of climate change). However, investors have a variety of emerging opportunities to invest in climate solutions that are good for both the planet and their bottom lines.

A new report from Climate Policy Initiative, an analysis organization that focuses on climate finance, examines this world of risks and opportunities that climate change presents to investors. To add clarity to a complex climate investment landscape, the report explores the data, tools, and financial products available to investors to help manage it.

Climate finance is flowing but it's not enough. We are falling further behind investment levels needed to reach global temperature targets. (Image courtesy of Climate Policy Initiative)

So where does data on climate risks and opportunities come from and how useful is it?

Environmental, social, and governance (ESG) data is the predominant source of information for investors who want to understand the risks that they face from climate change. ESG information gives investors insight into company performance across climate-relevant factors including emissions, water consumption, energy use, and many other variables.

ESG data is incredibly valuable information. There's mounting evidence that companies and funds that score highly on ESG metrics financially outperform their average- and low-ESG peers.

There are several kinds of financial products based on ESG data that allow investors to manage the financial implications of climate change:

- Exclusionary indexes remove fossil fuel assets or particular subsets, such as coal and tar sands, from their holdings.
- Non-exclusionary indexes take a different tack, tilting portfolios to overweight high-ESG performers and underweight low ones without excluding fossil fuels or other energy intensive/extractive industries. Some think of this colloquially as "picking the cleanest players in a dirty space."
- Green thematic indexes pursue pro-climate investments such as renewable energy and alternative fuels, often targeting companies that are deemed leaders in climate change mitigation and adaptation. However, it is not always clear how "green" a given thematic index actually is. Their value is not in offering pure-play green investments, but rather, variations on mainstream market trends that capture small structural movements toward clean technologies.

Animation Video on Rain Water Harvesting (RWH).

The video is available at: https://www.youtube.com/watch?v=mYRYtqyIp_M&list=UUfGN9OJF9KakdyUK04M3cA .

PARJANYA undertake rain water harvesting consultancy to overcome the grave problem of water shortage. It undertakes consultancy as well as turnkey rain water harvesting projects.

I am forwarding an animation video on Rain Water Harvesting. This 6 min video is designed & developed by my son Rohan. In present water crisis you will find this video useful as awareness tool. It has universal application & not restricted to any specific place.

First NSM bid under the new government oversubscribed by over 10x

Six developers including SunEdison, Adani, Rattan India, Reliance, SoftBank and Energon have bid for the entire 500 MW capacity; Prominent new entrants include SoftBank, Trina Solar, Enel, Energon, Solar Arise, Suzlon and Greenko; Industry murmurs suggest very aggressive tariffs that can even fall below INR 5/kWh but we remain sceptical in view of high solar park infrastructure costs;

The blog is available at : <http://www.bridgetoindia.com/blog/a-1000-oversubscription-for-the-first-nsm-bid-under-the-new-government/> .

Bids were submitted last week for 10x50 MW of solar PV projects under the new phase of National Solar Mission (NSM) in Andhra Pradesh. This is the first round of NSM bids since the new government took office in May 2014. This is also the first time that bids have been called for projects to be set up in solar parks being developed under the new Solar Parks Policy. A total of 30 developers have submitted valid bids totalling 5.5 GW.

Existing prominent developers that have participated include Acme, Azure, SunEdison, Adani, Reliance, Tata Power, Renew, Welspun, SkyPower and SolaireDirect. Renew, Tata Power, Shapoorji Pallonji, Azure and Orange Renewables have all bid for capacities of 200 MW or more. A bid by a Scottish developer, Dundee Power, has been disqualified due to incomplete documentation.

At this stage of the tender, initial bids have been submitted independently by each developer. Based on the conditions set out in the tender, 28 developers are now expected to move on to the second round of open online bids. At that stage, developers will be able to see their relative position and bid successively until no further bid revisions are received from any of the developers. No date has been fixed yet for online bidding but it is expected to take place a month from now. This is the first time an online open bidding will take place in the Indian solar market. If similar bids in India for telecom spectrum and coal mine allocation are any indicator, this mechanism will lead to a further intensification of competition.

Going by the interest in this allocation process, there seems to be no let-up in competition. In fact, our discussions with market participants suggest that the next round of NSM projects in Rajasthan for 420 MW will get considerably higher interest. At last count known to BRIDGE TO INDIA, over 80 developers had shown interest in participating in the Rajasthan allocation. The relatively lower interest in Andhra Pradesh has been attributed to high cost of lease for the solar park and the lack of clarity on the park's progress.

It is clear that the appetite per developer has also increased considerably. Analysis by BRIDGE TO INDIA shows that the capacity of projects under execution for top 15 developers in the country is almost four times the capacity of already executed projects by these developers. Developers such as Acme, Adani, Renew and SunEdison already have a pipelines exceeding 500 MW each and they have all bid for significant capacities under this round. It is likely that they will continue to bid for significant capacities under several upcoming allocations.

With the recent state policy bids in Madhya Pradesh, Telangana and even Punjab, tariffs have already come down considerably. In the past, we have noted that bids under NSM are typically more aggressive in terms of return expectations than those at the state level primarily due to better bankability of the off-taker, NTPC in this case. There have been industry murmurs suggesting that the current batch of NSM projects may see tariffs fall below INR 5/kWh. While we believe that would be very aggressive, recent bidding in Punjab, a state with relatively lower irradiation and higher cost of land, was an eye-opener with tariffs in the range of INR 5.09/kWh –INR 5.98/kWh.

Rural Advisory Services: What works? A synthesis on innovative approaches for benefiting and empowering farmers; Produced by: World Agroforestry Centre (2015) .

The paper is available online at: <http://www.eldis.org/cf/rdr/?doc=73322> .

This paper presents an assessment of four types of Rural Advisory Services with two examples – from Africa and Southeast Asia – of successful agroforestry extension programs.

The four types are:

- a) **Farmer-to-farmer extension;**
- b) **Rural Resource Centres and rural institutions;**
- c) **Community nurseries and agroforestry farmer field schools;**
- d) **Civil society campaigns, radio and social network analysis.**

Rural Advisory Services (RAS) are activities that empower farmers with knowledge, strengthen their capacity, and promote innovation.

This need is particularly acute for agroforestry practices, which are typically knowledge-intensive, often requiring specialised skills such as raising seedlings in a nursery and pruning trees.

The paper highlights that helping farmers access the information and services they need is therefore a key priority in agroforestry and, more generally, programs aimed at improving rural livelihoods.

Strengthening Education and Training in Support of Ambitious Climate Change Response : Ghana

The article is available at: <http://www.unclearn.org/news/strengthening-education-and-training-support-ghanas-ambitious-climate-change-response> .

Ghana kicked-off the development of its National Climate Change Learning Strategy at a Planning Workshop. The strategy will be an important piece of Ghana's national climate

change response and is intended to support the implementation of the country's Intended Nationally Determined Contribution (or 'INDC' – Ghana's international commitment to combat climate change). The strategy development process is supported by the One UN Climate Change Learning Partnership (UN CC:Learn) with financial support provided by the [Swiss Government](#).

More than 80 participants from various government sectors, civil society organizations, the private sector, research and education institutions, development partners and the media joined the meeting to share their experiences and ideas for the strategy development process.

The National Climate Change Learning Strategy will be structured around the five priority areas of the National Climate Change Policy (NCCP), namely:

- Agriculture and food security
- Disaster preparedness and response
- National resource management
- Equitable social development
- Energy, industrial and infrastructural development.

One of the main objectives of the strategy is to strengthen the capacity of national education and training system to deliver climate change learning actions in line with the NCCP. The workshop revealed that the country already had a number of dedicated university courses, and even Bachelor, Master and PhD Programmes on climate change.

Despite these notable efforts tertiary institutions encounter challenges in terms of adequate human resources given that only few faculty members have specialized knowledge in the area of climate change. At the primary and secondary level some aspects of climate change are taught in geography classes, but opportunities exist to teach climate change issues in a more coherent and systematic manner.

The strategy will be developed through a multi-stakeholder and multi-sectoral process over the next months under the political leadership of the Ministry of Environment, Science, Technology and Innovation ([MESTI](#)) and with technical coordination provided by the Environmental Protection Agency (EPA). The aim is to launch the strategy by the up-coming Climate Summit in Paris in December 2015.

Two Simple Things You Can do to Fight Climate Change.

The article is available at : <https://www.linkedin.com/pulse/4-simple-things-you-can-do-fight-climate-change-tobias-engelmeier>.

Let me say this upfront: We need to save the planet and we have about 30 years to do it. Given the size of the task at hand, that is a very short amount of time. **The good news is: we can do it. "We" meaning each one of us, individually.**

Climate change is the struggle of our generation. It is happening as you read: droughts, threatened harvests, rising sea levels, vanishing ecosystems, more extreme weather. There is more than enough scientific evidence that it is a man-made problem, linked to the rise in carbon emissions witnessed since the beginnings of the industrial era in the 19th century.

Sometimes, the vastness and complexity of the issue, the lack of progress and the repeated apocalyptic messages can dull our senses or scare us into looking the other way. Let's not be distracted. Let's stay alert. We don't need to wait for others to sort this out. We can do our

part – here and now.

You might be surprised at how much power we, as individuals, have to fight global warming, if we really care and make it a part of our everyday decisions. You can make a difference as a consumer, as a voter, as an investor and as a professional.

Let me explain to you what I mean in the following two posts, my “Everyday Climate Warrior Guide”:

[Part 1: Care as a Consumer](#)

We are used to making our everyday purchase decisions based on preferences such as comfort/fit, pleasure, timing, price, functionality, or brand. It is still unusual to take climate change or ecology into account as a further factor. We should, however - and it is not difficult. Sometimes climate change benefits dovetail with other benefits. For instance, replacing your lightbulbs with energy efficient LEDs is a great choice economically and it helps reduce carbon emissions. The same is true for many other resource efficiency measures. Increasingly, there are green choices that are also fun or status choices. Wouldn't you like to drive the new Tesla or BMW i8? (Although, of course, from a climate perspective, buying a small, fuel efficient car would be better than buying an electric sports car as long as electricity is still mostly produced from fossil fuels.)

There are other consumer choices that have a powerful impact on climate change – but are seldom thought about in these terms. This is a great starting point for making an impact. Here are two specific examples: Eating habits and travel preferences.

Production of meat, especially red meat, is a major driver for climate change. Globally, the livestock industry produces more greenhouse gases (mostly the very potent methane) than we emit through all transportation emissions put together. In fact, if current global trends towards more meat eating continue, the world's entire carbon budget might be consumed by agricultural emissions alone by 2050. When ordering a steak, take this into account, too.

A second area in which emissions should come into the picture is travel. To keep it simple: The most damaging form of travel is by air. It has the highest emissions per person/km. In addition, we currently have no clue how to shift to low-carbon fuels for planes. That is why oil majors see their future growth in the globally booming airline industry. By contrast, rail travel is much less polluting. Just taking that into account when making your travel plans can make a big impact. In many countries, a flight of up to 2 hours can be replaced by a rail journey at little extra cost in time, taking into account the time it takes to get to and from airports and the time you spend at airports until you board your plane. Also, if you fly, going Business or First Class makes it much worse (you take up more space in the aircraft). I don't know anyone who really does that yet, but who knows, maybe in a couple of years time, flying anything else than Economy will be considered an egotistic indulgence, like throwing your garbage on the street.

[Part 2: Care as a Voter](#)

Climate change is an ever hotter political issue in democracies around the world. It impacts power structures and industries, linking up with fundamental political debates about such topics as development and justice, individual interests vs. the common good, or short vs. long term benefits. In these important debates, you can have your say as a voter and can choose to make climate change a part of your political decisions. In this way, you can force politicians to deal with the issue and develop policies.

Here are some examples from different countries to show how important this is:

- In the US, for instance, the Republican party - representing just under half the voters -

has no real climate change policy. The topic is downplayed and viewed through an immobile, ideological prism. The fact of climate change is often denied (as if reality is subject to approval). The result is that there is no inter-party political debate about what would be the best way to deal with this challenge. It is left to the Democrats. That is ludicrous, because climate change is not a partisan issue. There are many and complicated economic, social and environmental trade-offs to be made. On these there should be a Republican view.

- Another example is Australia. Here, as in the US, climate change polarises politics, offering a stark choice to voters. Under the Labour government (2007-2013) Australia initiated some of the most progressive climate change policies, including a carbon tax and a strong solar scheme. When Tony Abbott's Liberal government came to power in 2013, it reversed these policies and instead focused on building up coal mining for export. Literally overnight, Australia, shifted from being a leader in the global climate debate to being a climate change "villain".
- Germany is a different case: here, climate change is top of the agenda for almost every political party and the country has been a pioneer in driving renewable energy and energy efficiency policies (what is called the "Energiewende"). However, there are severe inconsistencies in Germany's energy and climate strategy. For instance, as the share of subsidised renewables rose, it priced gas-fired power out of the wholesale market. Instead, the country turned to burning large amounts of cheap, but highly polluting and carbon intensive lignite. Voters have not taken the government to task on that.
- **In India, the political debate is slightly different. Development (meaning more energy, infrastructure, industry and growth) easily trumps climate change as a political topic. In fact, India so far had a purely defensive climate position: secure own "carbon space" and a "right to emit", while demanding cuts and financial aid from developed countries. While this approach is probably just, it has also been quite ineffective from a climate change point view. Given the facts that India is one of the countries most vulnerable to climate change (and also already the third largest emitter), that China and the US are changing tracks to seek more cooperation on climate change, and that energy efficiency and renewables make great sense for India from an economic point of view (and India has very ambitious policies), the country could now place climate change higher on its agenda and develop a more engaging approach.**

In every country, there are very specific political decisions that have a large impact on climate change. As a voter, you can make these your business. And, if that is not enough for you (or if you don't live in a democratic country), you can become an activist: demonstrate, innovate, educate. Making your voice heard on social media is a great start.

Climate Knowledge Brokers Manifesto has been launched.

The article is available at : <http://cdkn.org/2015/09/news-climate-knowledge-brokers-manifesto-launched/> .

Today a group of major international organisations issues a call for strong and coordinated communications initiatives to support action on climate change.

The UN-backed Renewable Energy and Energy Efficiency Programme (REEEP) and Climate Technology Centre and Network (CTCN) together with the Overseas Development Institute, Climate and Development Knowledge Network and dozens more are backing the launch of the 'Climate Knowledge Brokers' Manifesto', which lists the key principles for communicating climate change effectively and so precipitating a step change in society's response to the climate crisis.

The Climate Knowledge Brokers Manifesto was developed in a collaborative process by the CKB Group (CKB), involving interviews with 80 climate knowledge brokers and users of climate-related knowledge, and an editorial conference among the 17-strong author team.

The full version of the Manifesto includes an analysis of user needs, characteristics of the climate knowledge broker role in responding to those user needs, and how the CKB Group improves the effectiveness of climate knowledge brokering through collaboration. It concludes with an invitation for users of climate knowledge, funders of climate information services and climate knowledge brokers to engage with us.

The Climate Knowledge Brokers' Manifesto webpage also provides access to transcripts of some of the interviews conducted by the Group and examples of successful climate knowledge brokering initiatives.

Based on the belief that 'knowledge is power,' the Group urges redoubled efforts from the grassroots to the global level to make 'high quality climate relevant information available and accessible to all who need it'.

The Manifesto is the brainchild of the Climate Knowledge Brokers' Group, founded in 2011 and now numbering more than 100 international agencies and programmes.

The Group was created in recognition that climate change has growing impacts on every aspect of people's daily lives. Climate change will transform local environments the world over and has implications for countless decisions, especially major policy and investment decisions.

Yet, the science of climate change is a fast-evolving science and our understanding of humankind's relationship with the changing climate is rapidly progressing. People need help and guidance to make sense of the trends and connections.

"Only now are we really grasping the full extent to which our lives, our jobs and our environment are being altered by a changing climate. To improve our resilience in the face of these changes, we need more effective decision-making in practically all sectors and at all levels. And the people charged with making decisions need the best available information and knowledge to do their jobs well.

The Climate Knowledge Brokers Group says it's the job is to make sense of this ocean of information so that people are well informed to act on climate-related risks.

The Group defines the knowledge broker's role as interpreting, sorting, translating, and integrating this wealth of information and tailoring it for the needs of different audiences – from government decision-makers and industry chiefs to everyday consumers and voters.

Never has there been a greater need to integrate climate-related information in investment decisions, to ensure that policies, plans and investments made today do not lock in high greenhouse gas emissions for the future and to ensure that

they integrate the climate variables in their design. Rather, they need to take advantage of low carbon technologies and approaches, and be resilient to future climate change.

Knowledge brokers play a vital role in getting the right climate information to the right people at the right time. They can also be a great source of further support on the generation of information so authorities can make responsible decisions. They can help people share their experiences in climate-compatible development, which helps everyone in meeting our global climate challenge together.

Climate knowledge brokers need to work together to avoid overlap and make sure they are identifying and meeting people's information needs effectively. Only then will climate knowledge brokers meet their full potential for turning knowledge into action.

MIT AWARD WINNING INNOVATION : Generation of Biogas energy from animal waste for use in rural areas : The use of Biogas energy from animal waste is a sustainable source of energy to meet the domestic energy demands for cooking and lighting.

The article is available at: <http://climatecolab.org/web/guest/plans/-/plans/contestId/1301502/phaseId/1309176/planId/1314414>.

Kenya, a developing country, has an installed electricity capacity of 1800 megawatts against a demand of about 8000 megawatts. This creates a supply deficit of 6200 megawatts and as such, less than 50% of the households in Kenya are connected to electricity.

Furthermore it costs approximately KShs 35,000 (EUR 318.18) to connect to the national grid and about 0.1145 EUR equivalent per kWh of electricity service. These are relatively high costs that pose a major obstacle to the expansion of electricity connections to low-income households in the rural areas, which can otherwise benefit from alternative sources of energy, such as biogas.

A report published by Shell Foundation from a study conducted by ETC Group, (Action Group on Erosion, Technology and Concentration) in Kenya in 2007 revealed that more than 80% of the households in rural Kenya use firewood fuel for cooking.

Shell Foundation contracted the ETC Group to conduct a feasibility study on Biogas adoption across households in rural areas of Kenya. The study targeted households that rear livestock because much of domestic biogas in the country is produced from livestock waste.

Kenya's population grows at a rate of 3%, this means that much demand is placed on the little forest reserve that Kenya has, (less than 2% forest cover).

Rural communities that are firewood dependent are at a greater risk of energy crisis because the trees are being cut down at a faster rate than they can regenerate.

Acknowledging the role trees play in the carbon sequestration process, there is eminent danger of rural communities suffering from adverse effects of climate change such as unpredictable weather patterns.

This danger might combine with other challenges such as soil erosion, habitat destruction and water scarcity to culminate into an environmental problem.

There is therefore an urgent need to make the rural communities resilient to these emerging environmental challenges.

Burgeoning solar pipeline defies sceptics.

The Government has recently issued a notification removing the power generated by more than 25 year old NTPC plants from the existing PPAs, opening an important source of unbundled power; Tenders for project development and EPC issued by SECI and NTPC add up to 3.9 GW, and several new tenders are expected; Projects adding up to 7 GW are either under development, have been allocated or are under allocation at state level; several new allocations are being planned.

The article is available at : <http://www.bridgetoindia.com/blog/indias-burgeoning-solar-pipeline-defies-sceptics/>

India's utility scale solar project pipeline is growing rapidly, bringing the government's ambitious solar goals closer. The installed capacity stands at 4.4 GW and projects under development and allocation stand at an additional 10.9 GW.

The pipeline number is expected to swell further as new tenders are released. Accounting for policy uncertainties and delays, **these developments can place India solidly in the 4-6 GW a year capacity additions range between 2016 and 2019, while leaving room for a potential upside.** While the market might still fall short of the 60 GW target for utility scale projects, this market growth would make India a key global market over the next few years. **Depending on the performance of the Japanese market, India could become the third or the fourth largest solar market in the world.**

Based on recent announcements, it seems that the public sector company National Thermal Power Corporation (NTPC) is going to play an increasingly important role in helping India achieve its targets. In its last earnings conference call towards the end of August, NTPC announced that it wants to develop 15 GW of solar by 2019 (refer). The Government has recently issued a notification removing the power generated by more than 25-year-old NTPC plants from the existing PPAs. This power can now be bundled with the solar power generated by the NTPC and will be sold at a bundled rate. This is an important development from the solar market perspective. The company has already started work on a 250 MW project and has published EPC tenders for an additional 1,260 MW. Based on the availability of solar parks, more tenders can be expected soon.

In parallel, NTPC is also allocating projects to private developers under the National Solar Mission (NSM). Initially, it plans to help allocate 3 GW. Of this, tenders for 1,750 MW have already been announced. Additional tenders are expected over the next few months. A tender for 1,000 MW from this bucket is expected to be for a dollar denominated bid.

At the same time, the Solar Energy Corporation of India (SECI) has been tasked with allocating another 2 GW to private developers. Of this, tenders for 750 MW have been announced (refer) and more tenders across different states are expected soon. SECI has also been given the mandate to develop its own projects and support other PSUs with their developments. It is already developing a 750 MW project in Madhya Pradesh.

Projects under development, recently concluded allocations and ongoing allocations at the

state level add up to 7 GW. The new allocations from this are spread across states such as Punjab (500 MW), Haryana (150 MW), Bihar (150 MW), Tamil Nadu (1,240 MW), Telangana (2,000 MW) and Madhya Pradesh (300 MW). More state level tenders are coming up in Maharashtra, Karnataka, Gujarat and Uttar Pradesh.

With the closing gap between tariffs for power from green field thermal, wind and solar projects, the demand for new solar projects in India is here to stay. The government backed procurement of power is already augmented by captive consumption or business-to-business sale of power. According to BRIDGE TO INDIA research, a capacity of 300 MW of solar has already been commissioned for private consumption through open access.

With the growth of utility scale solar more or less secured for the next few years, the active interest from global suppliers, developers and investors seems justified. However, the Indian market remains complex and we need to be mindful of remaining challenges, especially the low project margins.

Management of Indigenous Knowledge for Developing Countries

The article is available at :
http://www.academia.edu/3035646/Management_of_Indigenous_Knowledge_for_Developing_Countries .

Indigenous knowledge refers to a large body of knowledge and skills that has been developed outside the formal educational system. It is embedded in culture and it is unique to a particular location and its culture. However, the management of IK is still lacking as it is essential for the food security and health of millions of people in the developing world.

It is highlighted that knowledge is the key to sustainable social and economic development. Building on local knowledge, the basic component of any country knowledge system, is the first step to mobilize such a capital. Exchange within a community where providers and recipients speak the same language and share its underlying cultural concepts is much more easily accomplished than transferring tacit knowledge across cultures. Indigenous knowledge and appropriate “techno-blending” is essential. In this way people can use their own locally generated knowledge to change or improve their livelihood and provide opportunities for designing development projects.

If serious consideration is given to the indigenous knowledge management, it could provide practical tools for poverty alleviation, sustainable development, and empowerment in general. The exchange of indigenous knowledge is an ideal outcome of a successful transfer and dissemination. To provide the foundation for indigenous innovations and experimentations is an initial step for managing indigenous knowledge. In order to gain maximum benefit developing countries have to improve both scientific as well as traditional knowledge at the local level

What Is Indigenous Knowledge?

Indigenous Knowledge (IK) refers to a complete body of knowledge, know-how and practices maintained and developed by peoples through generations, generally in rural areas. As they have extended histories of interaction with the natural environment, indigenous knowledge is somehow unlike the international knowledge system which is generated by universities, research institutions and private firms.

Indigenous knowledge is the information base for society, which facilitates communication and decision making; it is dynamic and is continuously influenced by internal creativity and

experimentation as well as by contact with external systems. On the other hand, indigenous knowledge is unique to a given culture or society, the basis for local level decision making in agriculture, healthcare, food preparation, education, natural resource management and host of other activities in rural communities.

IK can be broadly defined as the knowledge of indigenous (local) community accumulated over generations of living in exacting environment. This definition encompasses all forms of knowledge technologies, know-how skills, practices and beliefs that enable the community to achieve stable livelihoods and survival in their environment. Indigenous knowledge is built up by a group of people through generations of living in close contact with nature but mostly not available in codified form.

It is reported that "IK is usually tacit knowledge, stored in people's individual or collective memories, and often guarded jealously, hence the saying that each time an elder dies, it is as if a library had burned down". Indigenous knowledge is also the accumulation of practical experiences. It encompasses sum of facts that are known or learned from experience or acquired through observation.

Indigenous Knowledge Methodology

Indigenous knowledge is a practical concept, which can be used to facilitate communication among people coming from different backgrounds such as researchers, development practitioners and beneficiaries. IK is usually shared among local communities and transferred from one generation to the next, through oral traditions and storytelling. IK originates within the community, maintaining a non-formal means of dissemination, collectively owned, developed over several generations and subject to adaptation, as well as imbedded in a community way of life as a means for survival. Generally indigenous knowledge has two kinds of carriers. The first kind is millions of laypersons, ordinary householders, farmers, shepherds, artisans, artists, & priests. It includes both men and women. The second kind is scholars and seers. Their numbers run into several hundred thousand. The exchange of IK is taking place through personal communication and demonstration i.e. from master to apprentice, from parents to children, from neighbour to neighbour, from priest to parish. Herbal medicine is a good example of IK, which has noticeable impact on the lives of people around the globe.

Significance of Indigenous Knowledge

Indigenous knowledge is a key element of the "social capital" of the poor; their main asset to invest in the struggle for survival, to produce food, to encompass shelter or to achieve control of their own lives. Owing to dynamic nature changes its character according to the needs of people and gains vitality from being deeply entrenched in people's lives.

Consequently it has the potential of being translated into commercial benefits by providing leads/clues for development of useful practices and processes for the benefits of mankind. Indigenous knowledge is an integral part of the development process of local communities. Moreover IK is an important resource in the development process and sharing within and across communities can help enhance cross-cultural understanding and promote the cultural dimension of development.

Observation shows that knowledge for development not only confined to scientific and technical knowledge but also to community-based knowledge systems. Therefore development practices that underpin the day to day survival and innovation at local levels should be increased. It is stressed that IK holders and innovators encourage economic self-sufficiency for indigenous peoples, and also provide incentives for the conservation and sustainable uses of environment.

IK is important for both the local communities and the global community as it is based on exchange within a community and expresses human creativity; both individual and collective level. It is stated that indigenous knowledge provides the basis for local-level decision-making about many fundamental aspects of day-to-day life: for example hunting, fishing, gathering, agriculture and husbandry; food production; water; health; and adaptation to environmental or social change. Indigenous knowledge provides the basis for problem-solving strategies for local communities, especially the poor ones.

IK is capable of increasing production and real economic growth rate without further damaging the environment by better knowing, harvesting and using knowledge as a vital and competitive development resource. **The world market value for medicines derived from medicinal plants by indigenous people is US \$ 43 billion.**

One paradigm is that in the Himalayan range at least 70% of medicinal plants and animal species in the region consist of wild species, and 70-80% population depends on these traditional medicines for healthcare. There is additional role of indigenous knowledge as a part of education for strengthening a culture of safety and resilience at the local level and has the potential to provide solutions for reducing disasters at many levels. It is important, that IK is available for almost no cost. Consequently, development strategies based on IK could be completed with very low cost. There is another significance of IK due its capacity to empower the community. Communities, including the most vulnerable and disadvantage groups, are much more able to take action instead of relying on external help only.

Some of the characteristics of indigenous knowledge which demonstrate its applicability in development are:

- Understandable to users;
- Implementable (usable, doable);
- Originated within communities, based on local needs, specific to culture and context;
- Provides core knowledge with flexibility for local adaptation for implementation;
- Uses local knowledge and skills, and materials based on local ecology.

Indigenous knowledge proved to be useful to the poor in the areas like agriculture, animal husbandry and ethnic veterinary medicine, use and management of natural resources, primary health care, preventive medicine and psycho-social care, saving and lending, community development, and poverty alleviation, among others.

SOLUTIONS CENTER REPORT HELPS POLICYMAKERS ATTRACT INVESTMENT IN ENERGY ACCESS : Policies to Spur Energy Access Spotlights Public-Private Models for Providing Electricity Access

The article is available at : <https://cleanenergysolutions.org/news/policies-to-spur-energy-access>

As part of its commitment to providing clean energy policy resources to policymakers in developing countries, the Clean Energy Solutions Center has published "**Policies to Spur Energy Access,**" a comprehensive report produced jointly with the International Institute for Environment and Development. The report features contributions by several international experts and draws from a wide range of direct interviews and recently published reports.

Over 100 countries are partnering with the Sustainable Energy for All (SE4All) initiative to

meet the sustainable development goal of ensuring access to affordable, reliable, sustainable and modern energy for all by 2030. The International Energy Agency estimates decentralized energy solutions will be the pathway to energy access for the majority of the over 1 billion people still without electricity.

The Solutions Center's "Policies to Spur Energy Access" reveals policy options for developing countries to engage the private sector in creating market solutions to energy access. The report discusses the regulatory and policy frameworks that can enable decentralized solutions and attract private sector investment.

The report also notes that creating a robust market for energy services requires policymakers to address broader market issues. Policymakers can catalyze private financing and build human capacity to meet the needs of an emerging market. Because energy access impacts a wide range of development goals—poverty alleviation, health, education, agriculture and the environment—integrating the efforts of various public ministries can streamline energy access and leverage wider resources.

The second part of this two-volume report includes in-depth case studies of public-private programs for financing energy access in Bangladesh, Ethiopia, Mali, Mexico and Nepal. The case studies focus on the policy decisions that underpin each program and their impact on energy access for underserved populations.

The executive summary of the report is available at: <http://www.nrel.gov/docs/fy15osti/64460-ES.pdf>

Climate Neutral Now : Climate change affects us all. Be part of the solution.

The article is available at : <http://climateneutralnow.org/SitePages/How.aspx> .

You can take action towards a climate neutral world in three steps:

- 1. Measure your climate footprint;**
- 2. Reduce your emissions as much as possible;**
- 3. Offset what you cannot reduce with UN certified emission reductions**

Measure your climate footprint

Carbon footprint is the set of greenhouse gas emissions caused by our activities. It can be calculated for a product, service, person, event, business, or even a country.

Estimate your carbon footprint to understand your impact on climate change and to be able to identify areas where you can reduce them. This is your first step in taking action.

Use the online calculator to measure your climate footprint, which is available at: <http://climateneutralnow.org/Pages/footprintcalculator.aspx> .

Reduce emissions as much as possible

When you calculate your climate footprint, you identify the causes and sources of your emissions, as well as opportunities to reduce these emissions. This is your second step in taking action.

Offset what you cannot reduce with UN Certified Emission Reductions (CERs)

Offsets must meet stringent standards of environmental integrity. UN Certified Emission Reductions from the Clean Development Mechanism (CDM) meet high environmental integrity standards approved by the UNFCCC. Other offsetting projects following robust standards are available in the voluntary carbon market. You can find out more about these projects from ICROA (International Carbon Reduction and Offsetting Alliance). Further details are available at: <http://www.icroa.org/>

Offsetting projects are located in developing countries that often cannot afford to reduce emissions on their own. In addition to reducing emissions, the projects also contribute to sustainable development priorities such as education and health improvements in the communities that host them.

Some also offer substantial additional environmental benefits such as improved air and water quality or protection of biodiversity. **The sale of climate credits generates local income and supports economic growth in poor communities.**

Coming Soon : Science Express : Climate Change Special : Unique Exhibition-on-wheels.

The exhibition is open to all but primarily targets are students and teachers.

More information is available on the website : www.sciencexpress.in.

After seven successful tours across India, the eighth phase of Science Express is redesigned on the theme 'Climate Change' and will be running on the Indian Rail Network as '**Science Express – Climate Change Special (SECCS)**'. It is a unique collaborative initiative of Department of Science & Technology (DST); Ministry of Environment, Forest & Climate Change (MOEFCC) and Department of Biotechnology (DST), Govt. of India.

In the upcoming phase starting in mid-October 2015, SECCS is planned to travel across the country for about seven months, halting at 64 stations in 20 states and covering about 18,000 km.

Climate Change is one of the most important environmental issue, with short term as well as long term and large scale impact. Unfortunately, there is very little understanding about the climate change and its impacts. In this regard, the state-of-the-art exhibition aboard the SECCS aims to create awareness on climate change and similar issues among various sections of the society, especially the students.

SECCS intends to contribute towards increasing understanding of the science of climate change, observed and anticipated impacts, and different possible responses.

The SECCS primarily contains exhibition on climate change, conservation work being carried out by different research institutions across India, India's development in the field of Biotechnology, Science Education in India, DST Scholarships & Schemes, Careers in Science & Technology, etc.

Besides the exhibition, in one coach, a Kids Zone has been created for kids, to indulge in fun-filled activities, games and puzzles in science, mathematics and environment. Further, the popular Joy of Science (JOS) Hands-on Lab is put up in another dedicated coach. In this mobile lab, students can perform various experiments and activities to understand concepts in

environment, science and mathematics in an interesting manner. **A Discussion centre-cum-training facility is provided in a coach for orientation of teachers.**

Vikram A Sarabhai Community Science Centre (VASCSC), Ahmedabad has been entrusted by DST with the task of managing the SEBS across India. VASCSC's team of qualified, trained and highly motivated Science Communicators travelling with the train explain and interpret the exhibition, answers queries, facilitate the visitors and conduct complementary activities.

Beyond the SDGs: A Fresh Start for Planet Earth? Presented by the GEF

The article is available at: <http://www.iisd.ca/post2015/summit/side-events/27sep.html>

In the context of the recently adopted Sustainable Development Goals (SDGs), the High-Level side event 'Beyond the SDGs – A Fresh Start for Planet Earth?' looked at the needs, challenges and opportunities to protect the global commons, Earth's shared natural resources, on an increasingly crowded planet. Leaders from government, business, international agencies, and academia engaged in a free-flowing conversation – moderated by Thomas L. Friedman, writer and New York Times columnist – on what successful implementation of the SDGs will mean for people and the planet.

Opening the event, Jim Yong Kim, President, the World Bank, said the poor people who didn't put the carbon in the air need to have access to energy. He noted that the World Bank's priorities include: **putting a price on carbon, eliminating fossil fuel subsidies, climate smart agriculture, and clean and liveable cities.**

L.T. Tobgay, Prime Minister, Bhutan, stressed that social inclusiveness is essential for resilience. He mentioned that Bhutan's constitution says 65% of the country needs to be covered by forest, while 52% of the forest area is protected by law. **He noted that the SDGs casted light on two emerging areas of development, environment and good governance, adding that good governance is the key to the paradigm shift towards sustainable development.**

Judith Rodin, President, the Rockefeller Foundation, underlined that for every dollar invested in development over the last 30 years, one dollar was wasted in disasters. She spoke about the "resilience dividend," explaining that one dollar invested in resilience can save four dollars. She explained governments and stakeholders how they can get more value per dollar by integrating resilience. Rodin stressed said young people have an extraordinary transformational capacity and are an important part of good governance, adding that each generation has the opportunity to change the course of history.

Johan Rockström, Director, Stockholm Resilience Center, explained that we are at the point where we are about to push ourselves beyond the planet boundaries, as damages caused to the climate system, the ozone layer, and the oceans can tip us out of our system. However, he noted, the window is still open for the transition to a path that can keep us in a planetary equilibrium and help us achieve prosperity within a stable Earth system. He underlined that "the SDGs are maybe the biggest decision in history," further mentioning that the Declaration that accompanies them "truly marks a paradigm shift to sustainable development." The problem with the SDGs, he added, is that they are rolled out as if they are understood, when actually many fail to understand that they are not a Millennium Development Goals (MDG) + agenda. The SDGs do not only complete the unfinished business of the MDGs he explained, but they are a much more complex agenda, which requires humans to reconnect with their planet.

Naoko Ishii, CEO and Chairperson, the GEF, identified two major challenges: **development is still being conceptualized in silos; and the management of global commons – oceans, air, land, forests – which don't have a market price and represent a challenge for governments. She also stressed the need for: greening the supply chain; involving stakeholders at all levels; and thinking of cities as mechanisms for governing the global goods.**

Taking the floor, civil society and private sector representatives discussed issues including:

Climate change as a human rights issue;

The role of young people in tackling climate change;

The need to transition to sustainable consumption and production patterns (SCP).

NRDC LEADS US-INDIA KNOWLEDGE EXCHANGE ON CLIMATE RESILIENCE IN NEW YORK CITY

The article is available at: http://switchboard.nrdc.org/blogs/ajaiswal/climate_week_starts_early_focu.html

Key government, academic and civil society leaders from India met with their counterparts in New York to discuss best practices on climate health and preparedness.

The New York City's Mayor's office, Columbia University, Mt. Sinai, NOAA, Bellevue Hospital, NRDC and key institutions rolled out a warm welcome for the high-level Indian delegation.

One major topic was scaling of climate resilience across cities from Ahmedabad to New York City to protect vulnerable communities from extreme weather events.

The gathering in New York of experts and leaders from the US and India was part of the "India-US Climate Resilience Partnership: **High-Level Knowledge Leadership Exchange Forum on Heat-Health and Climate Preparedness**," hosted by NRDC, the Public Health Foundation of India-the Indian Institute of Public Health (IIPH) and the Icahn School of Medicine at Mount Sinai, and supported by the Indo-US Science & Technology Forum (IUSSTF) and building on the work with the Climate Development and Knowledge Network (CDKN) and others.

Sharing lessons and best practices from experiences ranging the Ahmedabad Heat Action Plan as a response to deadly heat waves, to NYC's management of Superstorm Sandy, the leaders exchanged effective strategies for climate change planning that protects those who are most vulnerable.

The delegation from India included senior officials from the Indian Meteorological Department, Maharashtra Health Ministry, the Ahmedabad Municipal Corporation, national and state disaster management agencies and IIPH-PHFI.

Big Banks Call For Strong Climate Deal : Without government action, they say, private investment won't be enough

The article is available at : http://www.huffingtonpost.com/entry/big-banks-climate-change_560945d4e4b0768126fe0ffe?utm_hp_ref=business?ncid=newslushpimg00000003§ion=india&adsSiteOverride=in .

Six big U.S. banks called for a "strong global climate agreement" in a statement Monday, with Bank of America, Citi, JPMorgan Chase, Goldman Sachs, Morgan Stanley and Wells Fargo arguing in a joint release that government action, in addition to private business investment, is needed to address climate change.

The banks said that putting a price on carbon emissions is crucial to increasing investments in clean energy. The right policy frameworks, they wrote, "can help unlock the incremental public and private capital needed to ensure" that the estimated \$90 trillion in new infrastructure investments projected over the next 15 years will help reduce, not increase, carbon emissions.

The next round of United Nations climate talks will take place from Nov. 30 through Dec. 11 in Paris. This series of talks has dragged on for years without yielding a significant deal, but as Reuters' David Stanway reports, the 2014 agreement between the U.S. and China means that "a global deal in Paris has become much more likely" -- although Stanway also notes that the individual country targets that have been laid out so far are not as ambitious as many countries would like to see.

The banks' statement adds four major financial institutions to the list of U.S. businesses that support a deal in Paris.

"As U.S. negotiators enter climate talks in Paris, they can say with confidence that the business and financial community in this country is ready for government leadership to address climate change," said Mindy Lubber, president of the non-profit Ceres, in a statement Monday.

In July, 13 major U.S. companies, including Bank of America and Goldman Sachs, signed a White House statement in favor of a Paris deal. Politically, support from the business community could help to undercut the argument that economic growth and reducing carbon emissions are mutually exclusive goals.

Still, no matter what the country's major banks say, it's not clear whether they'll persuade many Republican lawmakers to get on board with addressing climate change -- especially if those lawmakers are facing primary challenges from tea-party types and already feel insecure about holding on to their seats. It's also far from certain whether the business community can do much to change the anti-climate-action views of conservative lawmakers who have won congressional seats in recent years.

ISGF *September 2015* issue of 'SMART GRID Bulletin'.

This bulletin aims to keep its audience updated on the various aspects of Smart Grid such as technology developments; policies, regulations and standards; updates on existing and upcoming projects; events and capacity building initiatives undertaken in India and overseas.

It is available online at: <http://indiasmartgrid.org/upload/201510Thu223811.pdf>

Sustainability Outlook is hosting the flagship convening of Annual Summit of Sustainable Business Leadership Forum and the Parivartan Sustainability Leadership Awards Evening on October 15th 2015 at The Grand in New Delhi.

Currently in its 5th year, the SBLF Annual Summit and Awards evening would convene business, catalysts, investors and service providers for showcasing innovative sustainability solutions and enabling industry-level collaborations. An exciting day is planned with:

- 5 Parallel Tracks and 12+ sessions (such as Energy and water efficient manufacturing, Sustainable materials and waste reuse, Big Data analytics and Internet of Things, Distributed Renewable Systems, Sustainable facilities and Branding for sustainability)
- Sustainability Ideas and Innovation Marketplace (short pitch sessions by innovators with cutting edge resource efficiency innovations)
- Convening of Collaborative Knowledge Networks (Side events and workshops with key partners)
- Launch of New Products and Market Intelligence Reports

You can download the detailed Agenda from the link: <https://goo.gl/WwNRSH>.

The work of Chintan at the New Delhi Railway station

It shows how not only can urban spaces be sustainable, inclusive and embracing of the poor, but in fact, the poor, such as the wastepickers, are germane to the safeguarding of the commons and making them more usable by all. The enthusiasm, guidance and the co-creation of the Railway Officials has helped this project to be a PPP project in the true sense.

Do click on the link below to read the piece. Hope you enjoy it.

<http://emagazine.governancenow.com/english/volume6issue15/#p=40>

Discussion paper on Sustainability Dynamics of Resource Use and Economic Growth. Using System Dynamics to test three popular policy options for sustaining Economic Growth, 1) Resource Efficiency, 2) Resource Efficiency and Green Growth, 3) Doubling of Resource Base due to technological advancement.

The model outcomes indicate that the above policies fail to avoid the overshoot and fall of the economy due to resource depletion, but are successful in delaying it.

I hope you enjoy reading the paper and I look forward to hear views, perspectives on it.

Paper Link: <http://www.teriin.org/policybrief/files/aug15/>

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.



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