Climate Change Community

Community Update
No. 72: 4th January, 2016
In this Issue

FROM THE RESOURCE PERSON

Dear Members,

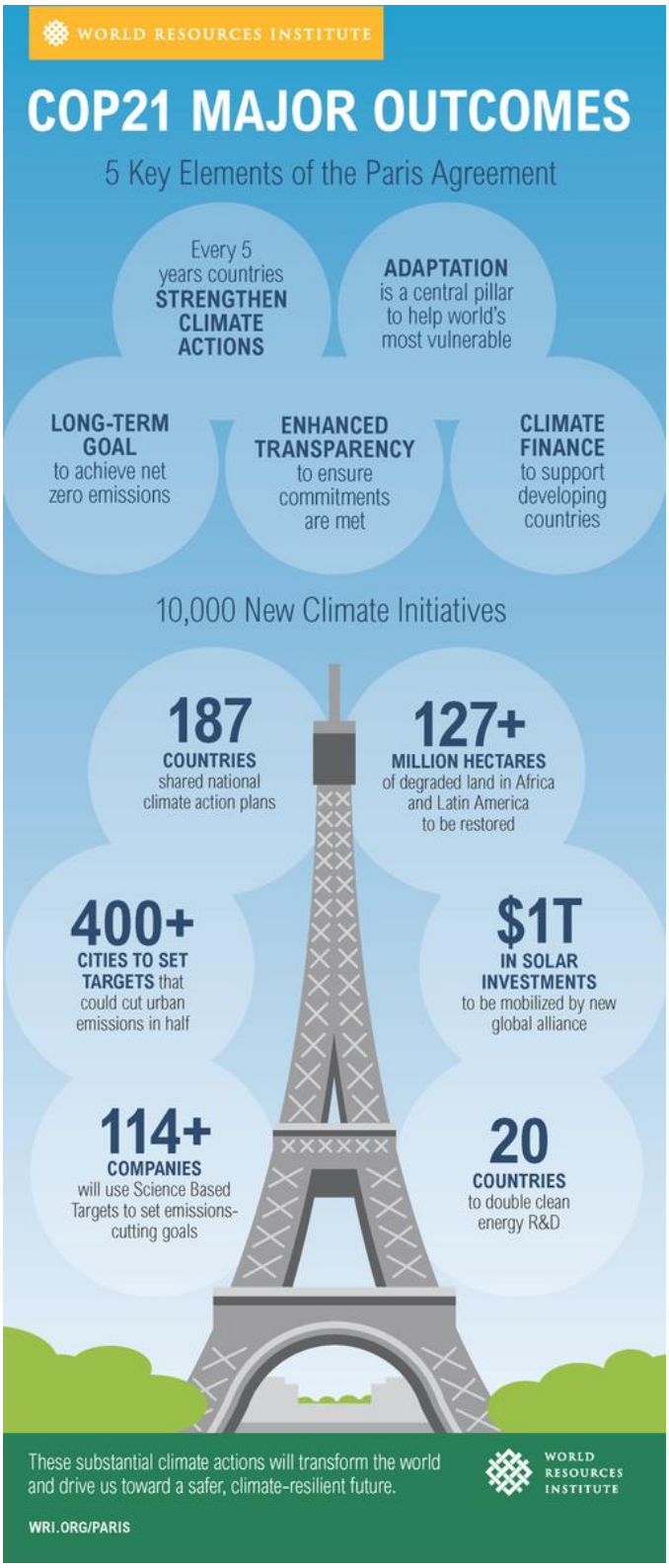
Happy New Year!!

We are presenting the 72nd Edition of the Monthly Community Update of the Climate Change Community of Practice (CoP), today.

The 21st Conference of Parties (COP 21) to the UN Framework Convention on Climate Change (UNFCCC) concluded on Saturday, 12th December, 2015. As in the past, we published regular updates of the Summit to our members. I hope you find these useful and enlightening.

The Lima Conference (COP20) held last year in December, 2014 was able to lay the groundwork for Paris by capturing progress made in elaborating the elements of a draft negotiating text for the 2015 agreement and adopting a decision on Intended Nationally Determined Contributions (INDCs), including their scope, upfront information, and steps to be taken by the Secretariat after their submission, which facilitated in an agreement being reached at Paris.

This year the daily updates to members regarding the salient issues being discussed at COP21 being held at Paris were cross-posted with the Disaster Management Community.



The infographics and the complete article on the Paris Agreement is available at:
http://www.wri.org/blog/2015/12/paris-agreement-turning-point-climate-solution

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.

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

The UN CC:Learn introductory e-course on climate change now includes 2 new specialized modules on cities and health.

Further details are available at: http://www.uncclearn.org/news/new-climate-change-learning-modules-health-and-cities-now-available-online.

UN: CC:Learn is pleased to announce the launch of two new specialized introductory learning modules on 1) Climate Change and Cities and 2) Climate Change and Human Health. These modules were developed with support from UN-Habitat and WHO respectively. They extend the UN CC:Learn Introductory Course on Climate Change, which includes a core set of 6 basic modules.

Climate Change and Cities

This module introduces the theme of climate change in urban areas. The module covers how cities are affected by climate change and how cities are contributing to climate change. In addition, the module looks at how climate change adaptation and mitigation can be considered in urban planning and identifies concrete measures. Several examples of how cities can play a transformational role in addressing climate change are presented.

Climate Change and Human Health

This module introduces the theme of climate change and human health. Human health is directly affected by the weather, climate variability and climate change. The module explains how mitigation and adaptation policies and measures in health and related sectors can benefit the human health. Several examples of how countries are responding to the health challenges posed by climate change, including taking advantage of the opportunities, are presented.

All Modules are also available as downloadable power point presentations that can be used for offline study or for training purposes. The modules also contain links to other UN resources on climate change.

Please access these modules here.

Rising Level of Poisonous Air Pollution due to Negligence of the Environmental Policy in the State of Uttar Pradesh. The report in Hindi is available at: http://solutionexchange-un.net.in/ftp/clmt/resource/res_info_04121503.pdf**. Waste Burning in Campus of CPCB and UPPCB. The report in Hindi is available at:** http://solutionexchange-un.net.in/ftp/clmt/resource/res_info_04121502.pdf **.**

These reports have been prepared in the wake of the negative response of the Central and Stare Governments on waste management and controlling air pollution. It seems that the authorities have closed their eyes on critical environmental issues, which are making the lives of the masses miserable.

We are indeed surprised as to how the Government of India will achieve its agenda of Making Smart India/ State/ Cities by ignoring basic environmental issues, which are endangering the lives of millions of citizens in this country.

We hope, that the above reports will give members a good insight over the Commitment of the Government on reducing the level of air pollution in the country.

Waste Burning and Air Pollution in Uttar Pradesh

Environmental policies of the Central government, and a number of State Governments are documents in perfection, as these have been prepared referring to the best policy documents of the world. Like in other sectors of socio-economic development it is the implementation of the policy that is lacking.

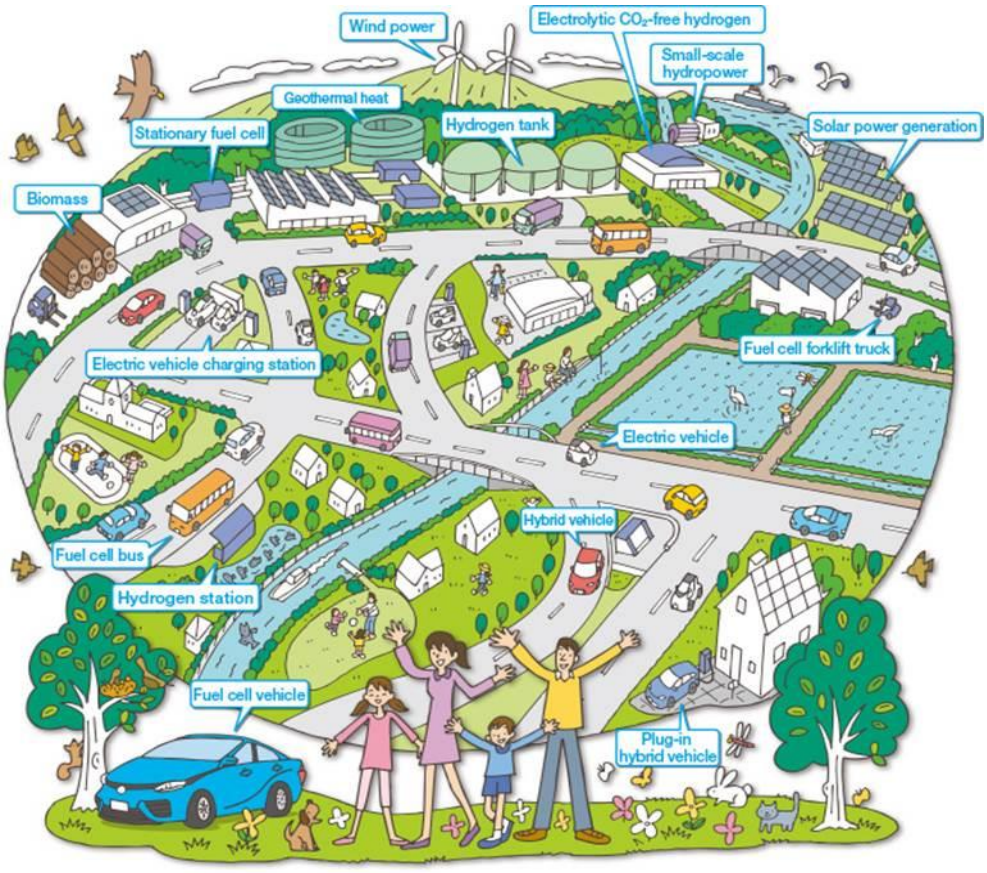
There are no enactment institutions with teeth to bite the offenders. Unless this aspect is

taken care of, how can policy show its impact? Whatever we have in the name of enactment agencies, they lack manpower, expertise, technology and finance to be effective. Thus, the powers that be can only make public statement that strict action will be taken but no follow-up action is seen.

There is need for a serious in-depth, independent study on the wherewithal required for enactment of environmental laws and implementation of environmental policies, and appropriate provisions be made at all levels to fight environmental degradation. This needs a multi-pronged attack.

The issue of education and advocacy can best be taken up by established professional bodies and NGOs who have credibility and access to powers that be. A coordinated effort can also promote voluntary involvement of scientific and engineering research institutions.

Government will need involvement and support of people to make this a success.



Toyota Environmental Challenge 2050

Challenge to Zero & Beyond

The infographic is available at : http://www.toyota-global.com/sustainability/features/environment/

CDKN launches new e-book: Mainstreaming climate compatible development.

The book is available at: http://www.cdkn.org/mainstreaming/ .

On 3rd of December at COP21 in Paris, the Climate and Development Knowledge Network (CDKN) launches a new digital book "Mainstreaming climate compatible development" which presents insights from five years of partnership work to design and deliver climate compatible development.

Simon Maxwell, CDKN's Executive Chair, says the book "demonstrates that climate compatible development offers great potential for strategic innovation by governments, civil society and the private sector". There are many possibilities to achieve 'win-win benefits' for climate mitigation, adaptation and human development. However, he adds, "no-one should pretend that achieving climate compatible development will be friction free."

Drawing on CDKN's programme in more than 70 countries, "Mainstreaming climate compatible development" shares practical approaches to seven key challenges:

- First, eliminating ambiguity in the concept of climate compatible development, and exploring possible trade-offs in the implementation of climate-related policies that will deliver the Sustainable Development Goals and targets.
- Second, making the case and winning the argument, in countries where leaders face many competing demands on political capital and resources.
- Third, managing climate compatible development planning in ways that mainstream climate concerns into development planning and ensure cross-government coherence.
- Fourth, finding the resources to cover any additional costs of climate compatible development, drawing on international as well as domestic sources.
- Fifth, creating the right culture and instruments for implementation, to ensure that plans are not blown off course.
- Sixth, delivering at scale, so that impact is transformational in scale and irreversible.
- Seventh, linking the national to the global, so that national interests are well-represented in global negotiations, and global agreements are reflected in national action.

The book is intended for decision-makers, development planners and practitioners - including civil society groups - as well as donors working to address climate change in developing countries. It aims to offer a rich source of learning based on CDKN's practical experience.

"Mainstreaming climate compatible development" is written by Mairi Dupar, Sam Bickersteth, Connie Espinosa, Ari Huhtala, Ali Tauqeer Sheikh, Carl Wesselink and Maria Jose Pacha, with the support of dozens of CDKN staff from across Latin America, Asia and Africa.

The authors encourage you to comment on the chapters. They intend to produce a revised version in 2016, based on reader feedback. Readers can contact the author team on cdknbook@cdkn.org with comments and suggestions.

Specifically, they invite readers' views on: Which strategies are increasing resilience, curbing emissions and tackling poverty simultaneously? How are decision-makers grappling with sometimes conflicting climate predictions to make sound investments that will endure over decades of climate impacts? What are the trade-offs involved in making development more 'climate compatible' and what are the politics of decision-making? Which approaches are contributing to fairer outcomes for the most climate-vulnerable, and which decisions risk making the poor even poorer? The emerging answers to these questions can contribute to our

collective endeavor to develop a secure, resilient world.

The book is available at: http://www.cdkn.org/mainstreaming/ .

Comprehensive law for rejuvenation of river Ganga under consideration : Government is considering the need to draft a comprehensive legislation for rejuvenation of river Ganga

The article is available at: http://www.india.com/news/india/comprehensive-law-for-rejuvenation-of-river-ganga-under-consideration-765935/ .

Government is considering the need to draft a "comprehensive" legislation for rejuvenation of river Ganga, Rajya Sabha was informed.

Union Water Resources, River Development and Ganga Rejuvenation Minister Uma Bharti shared the information responding to questions including ones on status of the Namami Gange programme and whether the Government proposes to enact a law to make the scheme successful.

"The need for a comprehensive legislation for rejuvenation of river Ganga is under consideration of the Ministry Water Resources, River Development and Ganga Rejuvenation," Bharti said in a written reply in the Upper House.

The Minister said that an inter-Ministerial Committee (IMC) was earlier constituted for framing draft legislation on the National River Ganga to strengthen efforts to make the revered river pollution-free and ensure its continuous flow was established when the programme was under Union Ministry of Environment and Forest. "Consequent upon transfer of the work to Water Resources Ministry, the IMC has been reconstituted and dialogue with the states has also been initiated," she added.

The Minister also said the government has until now sanctioned funds worth Rs 6,191.54 crore, while Rs 1,501.32 crore have been released to five states namely Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal from where Ganga passes through. The states have spent Rs 1348.10 crore till now, the Minister said.

The Minister also informed the House that New Delhi is "constantly" in touch with Federal Government of Germany and its agencies for factoring the experience of Rhine river rejuvenation in cleaning of Ganga, "wherever practical".

Answering a question, she informed that the Government has already deployed a battalion of Ganga Task Force at Allahabad as part of its efforts to keep Ganga clean. "Government has plans to raise battalions, Ganga Task Force in other locations for keeping the river clean.

"Currently, the process for providing hands on training to jawans in plantation/afforestation and to identify the suitable land parcels for preparatory and plantation activity is underway," she added.

The Minister stated sewage from cities along the river account for 75 per cent of pollution in the river.

"In order to improve health of Ganga, it is required not to let wastewater flow into the river. It

should be recycled and used for cultivation of plants like sugarcane or industries. We can cultivate sugarcane using 'B' class or 'C' class (treated water) or supply it to industries.

"Ganga is a source of 'A' class water, which is drinkable and pure. Such water should be used strictly for potable purposes and cultivation of vegetables which require less water. This will ensure lesser water is withdrawn from the river and its flow improves," Singh said.

Allowing cultivation of sugarcane, requiring excess water, in areas located below the level of Ganga is recommended. Whereas vegetables, which consume less water, can be planted on areas located above the level of the river. And such plantation should be organic farming. This will give enough revenue to our farmers with quality produce.

Lesser water withdrawal will also mean more water remains in the river and it flows to cleanse itself. Thus, its environmental and ecological flow will be better, improving its health. When flow is proper, it will also reduce encroachment along its banks.

The Centre has started a national mission to clean the 'holy' Ganga, which traverses five states -- Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal -- during its course of 2,525 km before flowing into the Bay of Bengal.

Dispelling concerns over alleged slow progress in implementation of the National Mission for Clean Ganga -- 'Namami Gange', Union Water Resources Minister Uma Bharti said the NDA government is committed towards making the Ganga "one of the cleanest" rivers in the world by October 2018.

Book on climate change by PM Modi titled "Convenient Action - Continuity for Change".

The article is available at: http://www.btvin.com/article/read/news/3659/modi-s-book-on-climate-change-released-at-paris-summit .

Prime Minister Narendra Modi's book "Convenient Action- Continuity for Change" was released in the presence United Nations Secretary General Ban Ki-moon and many world leaders at the Paris COP21 Summit.

"My book 'Convenient Action- Continuity for Change' talks about India's efforts to mitigate

climate change and importance of climate justice," Modi said in a series of tweets.

The book offers a rich insight and perspective on the efforts of the Government of India towards mitigating the menace of climate change and towards improving our environment, he said. The book outlines the Prime Minister's thoughts on climate ethics and climate justice.

Modi has been emphasizing on climate justice for several years now, stating that it is our responsibility to care for a world and a generation that we will not see and securing them from natural disasters as well as the ill-effects of environmental degradation.

In the book, Modi talks at length about India's efforts to transform itself into a low-carbon economy. The PM has emphasized on the importance of collectively working together to achieve our desire of a clean and green India. Building on a model of positive partnership between people, businesses, scientific community, government and NGOs, Modi's proposal calls for delivering clean energy and prosperity through site-dependent initiatives and scaling up efforts to make rapid transformation.

The book, which has been published by leading publishing house LexisNexis is available in major cities of USA, UK, France, Canada, Australia, Malaysia and Japan.

The launch of the International Solar Alliance was the opportune moment to release a book of this kind. Such an alliance has been Prime Minister's Modi dream for several years. The enthusiasm and interest shown by President Hollande ensured that this alliance became a reality during the all-important COP21 Summit. President Hollande and the UN Secretary General joined Prime Minister Modi and shared their thoughts on solar power, renewable energy among other issues.

In his speech, Modi stated that "the time has come to look towards the sun to power our future." He expressed his dismay on the fact that millions of people are in darkness despite the rays of the sun touching so many parts of the world. He enumerated India's strides and ambitious targets vis-à-vis renewable energy, particularly solar energy.

The issue of mitigating climate change has been very close to Modi's heart for several years. As Chief Minister Shri Modi had penned a book, "**Convenient Action: Gujarat's Response to Challenges of Climate Change" in which he elaborated on how Gujarat rose to the occasion to mitigate climate change".**

Further details are available at: http://www.lexisnexis.in/convenientaction/#home

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Hope on climate & a long road ahead

It is available at: http://www.thehindu.com/opinion/editorial/paris-agreement-on-climate-change/article7983555.ece?homepage=true , seems to sum up the essence of Paris accord well. Effective deliberations and due diligence on all the related issues at the national level looking for a different developmental paradigm have become the need of the hour.

While it seems correct to say that the accord was the outcome of a long struggle by millions of citizens around the world, aided by the weight of scientific evidence, there can be no doubt that the road ahead of us is very long and tortuous before we can confidently say that we have done all that is possible.

As one of the activists has said: it's a big opportunity to push governments to come up with

more ambitious pledges and stronger policies at home. The big polluters will fight tooth and nail to prevent this and we will have to fight for it. The implications of this agreement depend entirely on what we make of it.

As the editorial has said ,"the signal from Paris is clearly for a shift away from polluting fossil fuels such as coal and oil to renewable energy, and the adoption of smart policies and innovative technology," will the vested interests of our society allow the governments to do so?.

Our leaders may take the shelter behind the provision where no specific GHG reduction target or dead line is mentioned for India. But will such an approach be in the interest of our vulnerable communities?

The agreement is found wanting on many issues such as: specific GHG emission targets and dates even for the developed countries; definitive statement on 1.5 Degree limit; clear action plan to reach there; definitive statement on financial and technological support for the developing countries to move away from fossil fuels; reiterating the historical responsibilities etc.

Those factors of high GDP growth paradigm which are the root cause of high GHG emissions, are also the root cause for the accelerated depletion of our natural resources and for the unacceptably high pollution levels of our land, air and water.

The air pollution related issues in Delhi and all other urban areas as well as pollution of land and water bodies all over the country, cannot be dismissed as unrelated to global warming phenomenon. Even if we cannot produce scientific evidence of linking these events to global warming without any doubt as yet, there have been warnings from scientific bodies, including the IPCC, for years that the global warming will exacerbate such problems if adequate measures are not taken urgently.

In this context it will not be a responsible attitude on part of our society, if we choose to ignore the recent calamities such as in Chennai, Uttarakhand, Srinagar, the ongoing drought situation in many parts of the country etc. as unrelated.

Will the civil society groups from around the country be able to come together to persuade our leaders to think rationally, take a holistic view of the true welfare of all sections of our society, and resolutely move away from fossil fuels, large dams and nuclear power **towards a sustainable life style, as our PM seem to indicate repeatedly in his statements?**

Can we also say that the work for civil society groups and socially conscious citizens is far from over, and there is plenty more to do than that has been done so far?

Effective deliberations and due diligence on all the related issues at the national level looking for a different developmental paradigm have become the need of the hour.

Biomyths: Bioenergy carbon neutrality myth is a time bomb…

The article is available at: http://globalforestcoalition.org/biomyths-report-pr/ .

The term 'wood based bioenergy' refers to a range of different types of wood based fuels, which are used in different ways and on different scales. On a smaller scale, wood, wood

residues and charcoal are traditional fuels, and wood is still the main energy resource for poorer communities across the world.

However, 'wood based biomass' is now being promoted as a means of providing energy on an industrial scale, with potentially devastating consequences for forests and biodiversity, forest dependent peoples, and climate change.

Feedstocks for these power plants include forest residues, sawn wood offcuts, wood chips or sawdust. However, there is an increasing use of wood pellets, which are made from compressed, dry sawdust.

These are more energy dense and easier to transport, facilitating international trade in addition to local production and consumption. At present industrial scale wood based biomass consumption for energy is primarily located in the Northern hemisphere, mostly in the US and the EU. However, there is potential for this scenario to change.

Investments in wood based biomass facilities in Asia certainly indicate that Asian production and consumption of wood based fuels are increasing rapidly. In general, bioenergy is already the world's largest source of 'renewable' energy.

Total primary bioenergy supply stands at 50EJ, but the International Energy Agency (IEA) anticipates that this could more than triple by 2050, to 160EJ, with 100EJ of this being for the generation of heat and power.

Countries are supposedly switching away from fossil fuels and to biomass, including wood based biomass, for three reasons: to ensure security of energy supply, to avoid the volatility of fossil fuel prices, and to mitigate climate change.

The use of biomass as a key tool to combat climate change is based on the myth that it is carbon neutral. However, this is not the case as:

- ✓ **Firstly, trees that are no longer standing are not available to continue carbon sequestration, meaning that atmospheric carbon concentration will be higher than it would have been if the trees had been left standing.**

- ✓ **Secondly, there is no guarantee that trees that are burned for bioenergy will actually be replanted, and that there will be replacement trees that will regrow and mature.**

- ✓ **Thirdly, it may be many decades before the carbon released is fully re-adsorbed by growing trees (the main argument used to promote biomass), but the time available to reduce carbon emissions before climate change reaches 'tipping point' is severely limited.**

Furthermore, harvesting trees and burning wood actually releases more carbon dioxide than burning coal, which is shocking given that coal is one of the dirtiest energy sources in use.

Finally, the IEA states that studies suggest that the increased demand could be met through wastes, residues and 'purpose grown energy crops' but even if this were possible, it does not mean that cheap timber from plantations would not be used.

In the absence of any relevant regulations it will be the cost of relative wood based feedstocks that determines which are used, not whether they are waste materials or not.

Overall, this 'carbon neutral' accounting loophole is set to undermine progress towards climate change. It will permit power plants to go on pumping carbon emissions into the environment whilst countries falsely claim that they are reducing emissions. Because wood pellet prices generally compare unfavorably with fossil fuel prices, many governments are using or have used a range of economic incentives to make the use of wood based bioenergy attractive to industry. This transition away from fossil fuels is also driven by renewable energy targets in most countries.

By mid-2015, 164 countries had at least one type of renewable energy target, up from 45 countries in 2005. Developing and emerging economies now account for 131 of those 164 countries. These targets range from government announcements and sectoral plans through to legally binding obligations.

For example, the EU's Renewable Energy Target requires at least 20% of energy use to be met from renewable sources by 2020, and the EU's 2030 new Climate and Energy Framework includes a target of 27% by 2030. By 2012, biomass and waste combined accounted for about two thirds of all renewable energy consumption in the EU, and forest biomass is now the main source of renewable energy in the EU. Most of the EU's biomass supply is domestic, with real and potential contamination, reduced water availability, and loss of food security and soil fertility, especially in the tropics and subtropics. Specifically with respect to climate change, deforestation and forest degradation result in loss of carbon stocks in vegetation and soil, as well as affecting water retention and microclimate regulation.

The Global Forest Coalition has launched a new report at the Paris climate talks today titled "Biomyths, the Costly Carbon Scam of Bioenergy".

The report exposes how large-scale bioenergy is being promoted as a replacement to some fossil fuels, based on what it calls the myth of its "carbon neutrality". The report is available at: http://globalforestcoalition.org/wp-content/uploads/2015/12/bioenergy-report1.pdf .

"Accepting that large-scale bioenergy can be carbon neutral will permit power plants to go on pumping carbon emissions into the atmosphere whilst countries falsely claim that they are reducing emissions." said Mary Lou Malig, Global Forest Coalition Campaigns Coordinator.

"The low carbon myth has led to claims that bioenergy, in combination with CCS, can achieve "negative emissions" and therefore "offset" emissions from fossil fuel burning.

The "Biomyths" report highlights that in the US and EU, bioenergy now accounts for the largest share of energy classed as renewable. The rapid growth in the industry is being driven by renewable energy targets and financial incentives that are now offered in most countries.

The International Energy Agency (IEA) anticipates that total primary bioenergy generation globally could more than triple by 2050, driven by an increase in industrial-scale heat and power generation.

"The idea that burning trees for energy is good for the climate is a lie." said Simone Lovera, executive director of the Global Forest Coalition. "As the report highlights, burning trees means releasing carbon that has been sequestered over decades straight into the atmosphere. On top of this, forests that are cut down or degraded lose much or all of their capacity to sequester carbon. **We must reduce emissions now, not increase them through false solutions."**

The report provides an overview of current global industrial-scale bioenergy trends. Use and

production are primarily in the US, the EU and Russia at present, but other regions such as Asia are gearing up to become heavily engaged in it, predominantly through the production, consumption and trade in industrial-scale wood-based biomass.

"Foreign investors are using the bioenergy boom, particularly in the EU, as an excuse for grabbing more land in Africa, South America and Southeast Asia, specifically to produce biomass for energy.

We are already facing the detrimental environmental, social and economic impacts of large-scale bioenergy, which include deforestation, biodiversity loss, land grabbing, water contamination, reduced water availability, and the loss of food security and soil fertility." warns Kureeba David, of the National Association of Professional Environmentalists in Uganda, a member group of the Global Forest Coalition.

World leaders unanimously agree to end the fossil fuel age within a few decades

The article is available at: http://www.footprintnetwork.org/en/index.php/GFN/blog/ .

The climate pact approved in Paris Saturday represents a huge historic step in re-imagining a fossil-free future for our planet.

It is nothing short of amazing that 195 countries around the world—including oil-exporting nations—agreed to keep global temperature rise well below 2 degrees Celsius *and*, to the surprise of many, went even further by agreeing to pursue efforts to limit the increase to 1.5 degrees above pre-industrial levels.

These bold moves suggest an end to fossil fuel by 2050. That is within 35 years—well within many of our lifetimes. Just think, many people still can easily remember what happened 35 years ago: Jimmy Carter was unseated by Ronald Reagan; the summer Olympics in Moscow were boycotted by the U.S., Japan, West Germany, China, among other nations; John Lennon was killed; and the *Empire Strikes Back* debuted on movie screens.

Of course, this is not going to happen automatically. Through the agreement, 190 nations acknowledged this transformation is the desired goal.

Yet, science tells us that the pledges submitted by each nation are projected to result in a temperature rise of between 3 and 7 degrees Celsius, exceeding the 2-degree limit or "global handrail" acknowledged by the agreement.

We are glad that the final agreement requires countries to return every five years with new emission reduction targets. Whether this essential requirement will be sufficient to catalyze more action remains to be seen.

It's worth noting, however, that the pledges submitted by nations were submitted before many new commitments and developments were announced at COP21, which also give us more reason to be optimistic.

Indeed, the agreement itself implies that committing to the 2-degree limit will involve far more than just a transition to clean energy; managing land to support many competing needs also will be part of the solution.

If we truly move out of fossil fuel fast and furiously, demand for substitutes—for instance forests as a fuel source—could place tremendous new pressures on our planet if not managed well.

At the same time, the agreement references reducing emissions through "sustainable management of forests and enhancement of forest carbon stocks in developing countries."

The agreement also says it "aims to strengthen the global response to climate change…in a manner that does not threaten food production."

The combination of all these forces—consumption, deforestation, agriculture and food, emissions—underscores more than ever the value of a comprehensive measure like the Ecological Footprint, which takes into account all competing demands on the biosphere, including CO_2 emissions and the capacity of our forests and oceans to absorb carbon.

The more comprehensive Ecological Footprint can help nations better understand such competing needs as reforestation to support carbon sequestration, cropland for food, timber for everything from heat to furniture to paper—and thus the need to manage all these demands on our planet's ecosystems as a whole.

In the coming year, the United Nations Framework Convention on Climate Change will need to shift gears and focus on implementation and monitoring global and national progress.

The race is not won, but scientists and national leaders have now agreed on the same finish line for the world to cross together. Let's put on our running shoes and sprint into action.

Announcements

Urban jungle: wooden high-rises change city skylines as builders ditch concrete. Mass timber projects in the USA offer eco-friendly dwellings, but can it really catch on in the industry?

The article is available at : http://www.theguardian.com/artanddesign/2015/dec/12/wood-high-rise-buildings-urban-architecture-skylines-new-york-city-oregon?utm_source=esp&utm_medium=Email&utm_campaign=GU+Today+main+NEW+H&utm_term=143485&subid=10574271&CMP=EMCNEWEML6619I2 .

The concrete jungle has a rival: forests. Two urban building projects, in New York City and Portland, Oregon, USA will be changing their city's skylines with an **environmentally sustainable, cost-competitive building material. The key ingredient? Wood.**

Called mass timber, the material is an umbrella term for large, solid chunks of panelized wood. When used in buildings, the benefits are sky high: flexible, strong, fire resistant and carbon-sequestering. Mass timber could prove to be a viable alternative to concrete and steel for mid-to-high rise buildings.

The two projects in question were nationally recognized last September when each was awarded $1.5m from the US Department of Agriculture's (USDA) Tall Wood Building prize, a competition that sets out create America's first modern mass timber building, reaching 80ft or higher.

Moreover, the USDA is looking to these projects to mitigate climate change and support jobs in rural America.

And apart from building specs, "Spaces that utilize wood in a significant way have been shown to have considerable psychological benefits for the inhabitants, from reduced hearts rates and stress levels to improved productivity," said Amir Shahrokhi, project director at SHoP.

Out of the mass timber initiative, **cross-laminated timber (CLT)**, might prove to change the construction paradigm. Essentially, CLT is plywood (actually invented in Portland in 1905) on steroids. It's manufactured by layering panels of 2-ft-by-6-ft lumber at 90-degree angles, then literally gluing them together on their wide faces.

Similar to panels of precast concrete, CLT is prefabricated, which means most of the work is done off-site, leading to shortened construction cycles and less environmental impact on the site itself.

"The advantage of CLT over concrete is that it's lighter, so it goes up easier and faster than concrete does … it's also quieter in construction," Judith Sheine, department head of the School of Architecture at the University of Oregon. "And if you have to make tiny adjustments, it's possible to do with wood and it's not really possible with concrete."

CLT is nothing new, however. It was invented in the 1970s in Switzerland as a sustainable alternative to concrete, masonry, and steel construction. As such, CLT buildings have cropped up in Scandinavia, Austria, Germany, the UK, Australia and Canada, from commercial high rises to modular construction in housing and classrooms.

According to the USDA, during the recession, the drop in new construction and decline in home remodeling had a serious impact on wood manufacturing. So it's hoping next-generation wood products can pick up the slack in the non-residential market. Roughly 35 jobs are created for each million board feet of wood processed.

"Sustainably harvested wood could activate mills in Oregon to engineer wood products, like CLT, which would then be used within Oregon cities," said Hallová. "**So the cities are fueling the cycle, but the products fuel the city.**"

The key is keeping manufacturing local, as it supports communities and cuts waste from long-distance transportation. "In the future Portland is going to expand dramatically and wouldn't it be revolutionary to be able to actually grow those buildings within a couple hours of the city itself," said Thomas Robinson, principal and founder of Lever Architecture. "I think it's analogous to the farm-to-table movement."

The reduced carbon footprint of mass timber and CLT construction, too, is looking hopeful. According to statistics provided by ReThink Wood, the 10-story CLT Forté project in Melbourne, Australia is expected to reduce more than 1,400 metric tons of carbon dioxide (CO_2) emissions when compared to concrete and steel – the equivalent of removing 345 cars from Melbourne's roads.

The Crossroads, a Promega corporation building in Madison, Wisconsin, uses portions of CLT in its ceilings. From that alone, its total potential carbon benefit is estimated at 692 metric tons of CO_2, which compares to keeping 132 cars off the road for a year, or providing the total energy to operate a home for 59 years.

Long known as the glue of our civilization, concrete is responsible for about 5% of global CO2 emissions. And for every ton of cement made, one ton of CO2 is produced.

So could mass timber, or CLT, be an industry competitor? CLT's success "really depends on the market", said Judith Sheine. "When we have more substantial CLT production in use, I think the prices will be very competitive."

However, the road to approve CLT as a sound building material in the US has been arduous, with engineers and architects working to prove that it complies with codes and is resistant to fire and seismic events.

"**Wood has a very high strength-to-weight ratio, that means you're not attracting as much force," said Robinson. "The building isn't as heavy, so it has the ability to be more flexible and potentially withstand a larger seismic event. That in itself is incredibly sustainable."**

So wood structures make sense in seismic-heavy regions, especially in the Pacific Northwest, where a 9.0 magnitude earthquake is expected to hit in the next 50 years. As such, Framework has in fact been designed to exceed the state's building codes for earthquakes.

But not everyone is excited by new buildings in Portland. Due to its rapid growth and a non-negotiable urban growth boundary, the city is moving to deregulate the height of buildings. Developers will no doubt jump at the chance to build upward, much to the chagrin of some residents.

Though Mehaffy supports construction that uses sustainably harvested wood, he said "it's all too tempting to use greenwashing to justify buildings that are otherwise detrimental to the city … **I think our first priority ought to be to assure that we re-use older buildings, as the greenest building is the one that's already built."**

Invitation for the International conference on Education as a Driver for Sustainable Development Goals from January 11-13, 2016.

Further details are available at: http://www.ceeindia.org/esdg/About%20the%20Conference.html .

The UN Decade of Education for Sustainable Development (DESD) has demonstrated how education can play a vital role leading to sustainable development. The UN DESD closed with an International Conference in Nagoya, Japan in November 2014 with the declaration of the Global Action Programme (GAP). The GAP has identified five priority areas to advance the Education for Sustainable Development agenda and enable strategic focus and foster stakeholder commitment. CEE is a key GAP partner to the priority area 'Advancing Policy'. Every country and region would need to develop their own GAP agenda bringing in local perspectives and initiative.

In September 2015, the UN also launched Sustainable Development Goals (SDGs), an outcome of global consultative processes. It is important for ESD communities to look specifically at each goal and determine how education can play an effective role in helping achieve this.

An international conference titled 'Education as a Driver for Sustainable Development Goals' is being organized by Centre for Environment Education

(CEE), in partnership with UNESCO, UNEP and the Government of India. The Conference will be organized from January 11-13, 2016.

It aims at bringing together global experience and expertise to highlight and strengthen the role of education in realizing the SDGs. It will be an opportunity to build upon the learnings from the **UN Decade of Education for Sustainable Development**, 2005- 2014 and recognize Education as a key enabler.

The SDGs are applicable to the world as a whole. Increasingly, the emphasis has moved away from a solely economic view of development to a larger view that includes the three pillars of sustainability – environmental, social and economic. **With this new emphasis comes also the recognition that policy instruments or technological solutions are not going to be enough and that behavioral change was critical to achieving Sustainable Development.** Thus the role of education in its broadest sense including training and capacity building, communication and creating public awareness, scientific research, sharing and access to information and networking; and partnerships becomes a key strategy for achieving the SDGs.

The objective of the Conference is to bring together the global experience and expertise of using Education as a way of achieving SDGs.

Expected Outcomes

- To apply the learnings of the UN Decade of Education for Sustainable Development to develop programmes to achieve the SDGs
- To look at how the Global Action Programme (GAP) on ESD can play a major role in the SDG strategy
- To develop synergies and partnerships

The conference spread over 3 days will have 5 Plenaries and 17 Working Groups

Theme of the Conference: Education as a driver for Sustainable Development Goals

Working Groups

The working groups are organized on the lines of Sustainable Development Goals (SDGs) :

Goal 1: Poverty Alleviation
Goal 2: Sustainable Agriculture, Food Security and Nutrition
Goal 3: Health and Well being
Goal 4: Quality Education
Goal 5: Gender Equality and Empowerment
Goal 6: Sustainable Management of Water and Sanitation
Goal 7: Access to Sustainable and Modern Energy
Goal 8: Sustainable Economic Growth
Goal 9: Sustainable Industrialization and Infrastructure
Goal 10: Reduce Inequality
Goal 11: Sustainable Cities and Human Settlements
Goal 12: Sustainable Consumption and Production
Goal 13: Combating Climate Change and its impacts
Goal 14: Conservation and Sustainable use of Marine Ecosystem and Resources
Goal 15: Conservation and Sustainable use of Terrestrial Ecosystems and Resources; combating desertification and land degradation
Goal 16: Peaceful and Inclusive Society and Institutions
Goal 17: Strengthening Means of Implementation

Low Carbon Lifestyles toolkit (revised edition) with a focus on 50 messages was released at the COP 21 on 9th December 2015.

The final version of the toolkit is available at: http://solutionexchange-un.net.in/ftp/clmt/resource/res_info_21121501.pdf

We sincerely wish each one of you a Very Happy & Merry Christmas and Happy New Year – 2016.

The adoption of the Sustainable Development Goals in New York and the climate agreement in Paris were highlights in what we all hope 2016 will prove to be a pivotal year for the planet.

The SDGs and the Paris agreement recognize that the health of the global commons — the planet's finite environmental resources, from land and forests to oceans and the atmosphere — is essential for a thriving world.

In my view recognition is not enough. It is now time for us to focus on actions on the ground so that we can deliver on the promises of these historic agreements. This will require efforts on multiple fronts and at all levels of society.

We need nothing less than a transformation of our major economic systems: energy – how we power our homes, offices, industry and transport; cities – how we live; and food production – how and where we produce food, and what we eat.

Keeping the above in view, The Low Carbon Lifestyles toolkit (revised edition) with a focus on 50 messages was released at the COP 21 on the 9th December 2015, at the India Pavilion by the Honorable Environment, Forests and Climate Change Minister of India – Shri Prakash Javedkar. This was then widely circulated at the COP.

The final version of the toolkit is available at: http://solutionexchange-un.net.in/ftp/clmt/resource/res_info_21121501.pdf

The toolkit highlights measures that need to be adopted in three areas of focus...to be undertaken by each one of us in **Homes; educational institutions and then at work places**.

It is my firm belief that we can all look back on 2015 with a sense of accomplishment and satisfaction.

We would like to take this opportunity to thank all of you for your partnership, support and shared commitment for a fresh start for planet Earth.

Small is beautiful: the community solar projects taking on big energy: A brewery, a bowling club and a library join forces with a new type of energy supplier to save money and become more sustainable.

The article is available at: http://www.theguardian.com/sustainable-business/2015/dec/08/australia-community-solar-energy-project-take-on-the-big-energy-companies

What do Sydney's Young Henrys brewery, Shoalhaven Heads' Bowling and Recreation Club, and Bendigo library have in common? **They're all hosts to some of Australia's first solar**

power projects funded and run by local people in community energy groups.

Projects like these are becoming increasingly popular in Australia. The Coalition for Community Energy (C4CE) 2015 national community energy strategy states that there were 19 community energy groups operating in early 2015, with a further 59 projects in development.

So, why the surge in community energy? The solar energy subsidies are part of the appeal, although for many it's the fact that it allows local people to decide where their energy should come from, whether that be solar, wind, hydro or other forms, and puts any profits generated into local hands, rather than those of energy companies.

For example, 19 members of the Repower Shoalhaven community group invested $119,800 to pay for 400 solar panels, which were installed on the bowling club roof. The club purchases the energy generated from the panels, which generates revenue for the investors (approximately 7% ROI per year) and helps the club save money (it reportedly saved $4,000 in the first month alone). At the end of the 10-year contract term, the solar power system will be gifted to the club.

Local authorities have taken note. Lismore city council in New South Wales is looking into solar farming options, while Byron shire council, also in NSW, is supporting the creation of Australia's first community-owned renewable energy retailing and installation business, Enova.

Oscar McMahon of Young Henrys and Jake Steele of Solargain pose at the Young Henrys brewery with one of the solar panels to be installed as part of a community solar project. Photograph: Jamie Williams

"There are two great benefits of community energy," the Byron shire mayor, Simon Richardson, explains. "It allows more people to be part of the solution, part of the low-carbon economy, and be in control of their economic and environmental sustainability.

"It's also a way of ensuring renewable energy can come to the local area independent of what is happening on the energy agenda at a federal level. And it allows the community to be [potentially] self-sustaining in terms of energy."

But, despite the appeal of community energy to locals, it is, unsurprisingly, less attractive to the big energy companies that are needed to purchase the energy generated. One of the barriers to bringing community energy projects online is finding a buyer for the energy produced.

It is this issue Enova is hoping to counteract, as it intends to compete with big energy retailers, such as AGL Energy, Origin Energy, and EnergyAustralia, which buy energy from the wholesale market and sell it on to customers.

"One of the main reasons why people thought about setting up a social enterprise as a retailer is [because] it's almost impossible to get community energy projects in place unless you have someone to buy that energy from you to sell back to the community," says Alison Crook, Enova chair.

Enova has the backing of the Byron Bay community, which is buying shares in the social enterprise, to help the company raise the required $ 3 m to be listed on Australian stock exchange.

Byron shire council is also looking to further the potential of community energy by

undertaking a feasibility study into a local energy trading system. This could see the excess energy production from the solar array of one building, credited by the energy retailer against the consumption of another building. Ideally this would save local businesses money, as they'd avoid the full retail costs of energy.

It's this sort of system that could see traditional energy companies get involved with community energy. Marc England, executive general manager for new energy at AGL Energy, says: "The grid was built to be one-directional – with energy from big power stations a long way away using an economical and cost-effective transmission to the end user … The move forward is for the grid to be multi-directional, where there will be communication between different locations.

While our traditional business model will evolve, it won't go away, because it's still giving an important backup source of power in part of that overall ecosystem."

Whatever the structure of future energy generation and supply models may be, it's clear that the disruptive force of the growing community energy sector is causing huge ramifications for the whole industry, paving the way for a new era of renewable energy and forcing traditional energy providers to transform their business models.

Release of the Latest Issue of the SUN Focus: Quarterly Magazine on Concentrated Solar Heat: Vol. 3, Issue 2, Oct to Dec, 2015.

The latest issue can be downloaded from: http://www.in.undp.org/content/dam/india/docs/Sun%20Focus_Oct-Dec15.pdf .

I am pleased to share the tenth issue of SUN FOCUS magazine with you all. Previous nine issues of the magazine were planned so as to cover various aspects of concentrated solar thermal sector in India, such as policy, technology developments, and new applications. These issues have been found to be very useful by all the stakeholders towards generating awareness about the industry.

The current issue focusses on international developments regarding concentrated solar thermal technology. The issue aims to introduce readers to various technologies and their implementations in various industries. **The special feature article of this issue, gives the overview of CST potential and status in the state of Himachal Pradesh.** The article outlines the CST potential in the state while outlining its present status on installations.

There is also an article briefing about the long term performance of the oldest CST system installed at Mount Abu, Rajasthan. The system is operational since 1997 and is well maintained till date.

There is also an article about low cost CST technology developed by TinyTech, Rajkot.

There are three articles in the issue which present the latest international developments in CST:

- The first article is about PolyTroughTM parabolic trough technology developed by NEP Solar, Switzerland.
- The second article is by Solera GmbH, Austria, about the SmirroTM parabolic trough technology and its application in the meat processing industry.
- Lastly, there is an interesting article by CSP-F solar, Italy about development of the Linear

Fresnel Reflector technology and its installation for cheese production in Italy.

In addition to above, for the first time in the country, and international workshop on CSTs for medium and high temperature application was held at Mumbai as part of InterSolar Conference and Exhibition, 2015. A brief report on the workshop is included in the issue.

The magazine is available at: http://www.in.undp.org/content/dam/india/docs/Sun%20Focus_Oct-Dec15.pdf .

CERC benchmark solar PV capital costs fall by more than 25% in 2 years

Recently, Central Electricity Regulatory Commission (CERC) passed an order for determination of benchmark capital cost for solar PV projects for the financial year 2016-17 (refer). The order estimates capital cost including cost of equipment, construction, land, transmission and pre-operative expenses of solar PV projects for the upcoming financial year at INR 50.1 million/MW (USD 0.76 million). Based on inputs from the industry due by 10th January 2016, final benchmark capital cost and solar tariff is expected to be notified on 31st March 2016.

For current year (FY 2015-16), CERC had pegged the benchmark capital cost at INR 58.7 million/MW (USD 0.87 million), subsequently revised to INR 60.6 million (USD 0.92 million) after industry feedback. We believe that an increase based on industry inputs is likely this year as well. Further, the industry is also likely to seek a separate benchmark capital cost for projects using domestic cells and modules because of the substantial cost difference between imported modules and domestically manufactured modules.

Combined with cost reduction of 12% for the current year, the new benchmark amounts to a total reduction of 28% over 2 years. This may seem a bit drastic but is consistent with the trend observed in bid tariffs over this period. During FY 2014-15, the average tariffs discovered through bids in Andhra Pradesh (500 MW), Telangana (500 MW) and Karnataka (500 MW) were in the range of INR 6.50 – 7.00/kWh. About one and a half years later, new bids are now expected in the range of INR 4.75 – 5.00/kWh.

The drastic cost reduction comes on the back of significant PV capacity addition in China and sharp fall in polysilicon prices. While most experts have been predicting gradual price reduction of 5-7% per annum over the next few years, some industry observers feel that we will continue to see double digit decline in capital cost in the coming year.

A decline of this magnitude in capital cost raises two important implications for the sector. First, it is commercially not viable for the Indian government or any other power offtakers to offer fixed feed-in-tariffs. Second, what is the significance of CERC benchmarks? Based on benchmark capital cost for the current year, CERC has defined the solar power tariff at INR 7.01/kWh. But average bid tariffs during the year have come in sharply lower at rates significantly below INR 6/kWh for all allocations since May 2015.

Executive Summary: Report on India's Renewable Electricity Roadmap 2030: Towards Accelerated Renewable Electricity Deployment

The report is available at: http://shaktifoundation.in/wp-content/uploads/2014/02/Report-on-Indias-RE-Roadmap-2030-full-report-web2.pdf .

For decades, as demand for power has grown, India has added large-scale conventional power resources. Now, with solar and wind power and other renewable electricity (RE)

resources becoming commercially available in the marketplace, there are additional choices available to policymakers and stakeholders concerned with the technical, economic, and environmental characteristics of a future power system that keeps pace with economic growth.

One of India's major advantages today and going forward is that its RE potential is vast and largely untapped. Recent estimates indicate that India's solar potential is greater than 10,000 GW and its wind potential could be higher than 2,000 GW.

To fully take advantage of India's RE potential over the next few years, however, will require new initiatives from central and state governments — beyond policy and programs currently in place — to support the engagement, participation, and new behaviors of power sector stakeholders including RE industry and developers, grid operators, public and private finance, consumers, and others.

Renewables are different than power technologies of the past. Most renewables have zero fuel costs but they are more capital-intensive than conventional fossil power plants. India's renewable resources are abundant, but the output of wind and solar photovoltaic is variable, and in the case of wind in particular, subject to uncertainty.

To capture the benefits, India would need to raise the necessary capital, and get comfortable with managing the variability and uncertainty of renewable energy generation. The enormous benefits RE brings — zero fuel, electricity prices free from volatility and external influence, reduced imports, dramatically reduced pollution and water use — will not be had without significant effort. NITI Aayog's initiative – The India Energy Security Scenarios 2047 (IESS 2047) – would be useful in illustrating the costs and benefits of adopting high RE targets to meet India's growing energy demand.

To help policymakers identify these new approaches, a stakeholder-driven analysis of the opportunities and barriers to rapid deployment RE was initiated at the request of the Government of India in November 2013.

The resulting process and its findings have significant relevance in the current scenario, when the Government of India has enhanced its aspirations multifold – amending them from 20 GW of solar power (by 2022) to 100 GW (by 2019) and from an additional 15 GW of wind power (during 2012-17) to an additional 40 GW (by 2019).

The Process

Given this backdrop of benefits and challenges, the Government of India's erstwhile Planning Commission, in its role as co-leader of the 21st Century Power Partnership (21CPP), initiated the "RE Roadmap Initiative". It requested that the Confederation of Indian Industry (CII), in conjunction with knowledge partners the Shakti Sustainable Energy Foundation (SSEF) and the Regulatory Assistance Project (RAP), serve as the Initiative team and conduct a stakeholder-driven "roadmap" exercise to answer the question: "**How must the Indian power system evolve if India chooses to put RE at the core of the future system, rather than at the periphery?"**

The analysis, findings and practical "next-step" policy recommendations that follow are based, in large part, on broad and robust open-ended conversations conducted under the "Chatham House Rule" with over 250 power sector stakeholders from 13 states, and from central or pan- India institutions.

The stakeholders included the steering committee members, chairpersons/members and

senior staff of central and state electricity regulatory commissions, energy secretaries of states, managing directors of generation, transmission and distribution companies, grid operators, power sector planning agencies, grid managers, civil society, industry and finance, developers, and bilateral and multilateral institutions.

The draft policy recommendations drawn from the Roadmap Initiative process went through an iterative process from August through October 2014 as the Roadmap Initiative team solicited feedback from diverse stakeholders and domestic and international experts, both through correspondence and in-person.

Findings

The RE Roadmap Initiative's broad stakeholder process held under the Chatham House Rule allowed for frank and thoughtful conversations about the opportunities and barriers to RE as seen by diverse policymakers and stakeholders in India's power sector. The results were enriched by consideration of international experience (successes and setbacks), and by feedback from international experts.

Although there was not complete consensus, there was significant agreement on the challenges and obstacles facing a rapid scale-up of RE in India and the principles that would be the foundation for any solutions.

Stakeholder interviews and international experience identified four areas where new policy and programs would be useful.

There will, of course, be many specific alternative approaches and strategies to achieving successful RE policies. But there was significant agreement that the five core principles discussed below must be at the heart of any of those new efforts.

These principles were synthesized from the best thinking of Indian stakeholders and international experts:

- **Treat RE as a resource of national and strategic importance**
- **Mandate RE as a significant component of the power sector**
- **Take an integrated approach to power sector planning, including generation, transmission, and distribution**
- **Make buyers indifferent between conventional and RE resources until grid parity is achieved**
- **Give small-scale/distributed RE, close to end users, priority equal to large-scale/centralized RE**

The principles described above are the foundation for the recommendations that follow. Drawn from stakeholder input and international experience, the paper suggests a framework for an integrated policy strategy for rapid RE implementation that complements both the existing and planned conventional power projects.

The framework includes:

- **A new comprehensive national RE law and/or policy and its components**
- **Implementation support mechanisms**
- **Reforms to ensure smooth grid integration of RE**
- **Energy access and off-grid RE considerations**

Key Policy Recommendations

National RE Law and/or Policy

- Establish targets
- Identify financial support required for achieving targets
- Undertake integrated energy resources planning Take a programmatic approach
    - A restructured and enforceable RPO
    - A mandatory net metering (NEM)/feed-in tariff (FiT)

Support Mechanisms for Compliance and Timely Implementation

- "One-Stop Shop" for standardized contracting Financial support and disbursal mechanism Streamlined project development
- Low-cost financing

RE Grid Integration and More Efficient Grid Operation

- Upgrade grid technology
- Upgrade grid operation protocols
    - Grid Codes
    - 5-minute Scheduling and Dispatch

Expand balancing areas and promote flexible demand and supply resources

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Half of India's interstate rivers plagued by pollution and poor water quality

The article is available at: http://www.indiawaterportal.org/articles/half-indias-interstate-rivers-plagued-pollution-and-poor-water-quality .

According to a recent study by the Central Pollution and Control Board (CPCB), almost half of India's interstate rivers are polluted and are of no use to anyone thus increasing the possibility of worsening of disputes over river sharing among states. Although India has a rich network of rivers with nine river systems spanning as high as 81% of the geographical area and a per capita water availability of 1720.29 cum per annum, water availability from rivers is increasingly being threatened due to rampant pollution from untreated domestic sewage and industrial effluents making it unfit for drinking or any other purpose.

The sewage generated from 650 cities and towns situated along the 302 polluted river stretches in the country has increased from 38,000 million litres per day (MLD) in 2009 to 62,000 MLD in 2015. Sewage Treatment Plants (STPs) have been unable to cope with the sewage that has increased from 26,200 MLD in 2009 to 38,000 MLD in 2015. In fact, the study claims that this discharge of untreated sewage and industrial waste into rivers has emerged as a major cause of pollution in 16 of the 40 interstate rivers in the country.

The CPCB study looked at the water quality with respect to indicators such as Bio-chemical Oxygen Demand (BOD), Dissolved Oxygen (DO), indicator of pathogenic bacteria (Total coliform) and Total Dissolved Solids (TDS). It found that the water quality was gradually deteriorating and not prescribing to the required quality standards, thus making the river waters unfit for any use.

Total coliform count is a quality parameter that is indicative of the sanitary condition of the water in terms of the presence of bacteria which can cause diseases such as diarrhea and typhoid among others. As high as 85% of the locations which were tested had a total coliform count way above the prescribed safe limits.

High pollution indicators

Biochemical oxygen (BOD) demand is an indicator of the level of organic pollution in the

water. The study found that almost one fourth of the river locations had BOD values exceeding the normal limits indicating high levels of organic pollution of the rivers. Dissolved oxygen (DO) is the amount of free oxygen found in the water. Very high or low levels of oxygen can be harmful to aquatic life and also affect the quality of the water. 21% of the river locations had water quality that did not ascribe to the prescribed standards.

Which rivers are most polluted?

- River Ghaggar, which passes through Haryana, Himachal Pradesh, Punjab and Rajasthan is the most polluted along with other rivers such as the Yamuna, Beas, Dhela, Churni, Bahela, Damanganga and Thenpennai.
- Despite the attention and resources being directed to the cleaning of the Ganga, the river has a high coliform count at a number of places.
- Despite the Yamuna Action Plan, 3 of the 9 locations on the Yamuna have poor water quality.
- Rivers with relatively better quality include the Bhima, Krishna, Wardha, Tapi, Mahi, Chambal, Betwa, Sone, Damodar, Ramganga and Subarnarekha.

Could pollution worsen the disputes over sharing of interstate river waters?

Indeed, recent evidence shows that water pollution could become a contentious issue between upstream and downstream states that share common rivers. For example, Tamil Nadu and Karnataka are already at war, with Tamil Nadu having moved to the Supreme Court seeking to restrain Karnataka from letting untreated sewage and industrial effluents into the Cauvery and its tributaries. Worry is being expressed over the polluted nature of the river Bhima in Maharashtra that flows through Solapur and then into Karnataka.

Indications are that conflicts could get more complicated because of these water quality concerns in addition to the existing quantity concerns with further limits on the availability of water resources. Recent news indicates that the war between Tamil Nadu and Karnataka is worsening because of poor rainfall in the catchment areas of the Cauvery leading to the fear of water scarcity.

What is the CPCB doing to deal with the problem?

One of the functions of the CPCB under the Water (Prevention and Control of Pollution) Act 1974 is to coordinate activities of the state boards and resolve disputes among them. The study undertaken has been one of the steps to resolve the disputes between states in relation to river pollution by trying to understand the extent of deterioration of the rivers in the country and prevent the flow of highly polluted rivers from one state to another.

The report says that the CPCB has already taken steps to deal with the situation. As a CPCB official informs in his interview with the Times of India, the states with identified polluted river locations have been sent letters with directions to the concerned state PCBs to deal with the pollution issues in their respective states.

The report recommends that:

- All towns and cities should have STPs to treat the sewage.
- Industries should remove contaminants from their effluents and close all the unauthorized activities which discharge industrial effluents, sludge and chemicals into the water.
- Strict regulation of religious activities, including immersion of idols in rivers to tackle pollution should be done.
- Procedures need to be strengthened to ensure quantity and quality of treated sewage.
- Community participation for the cleaning of rivers and awareness programmes should be encouraged.
- Flow pattern of rivers should be improved.

The report does not go beyond mentioning the polluted rivers and suggesting actions like issuing notices, nor does it seem to reflect on the issues around the present state of water conflicts. Even the recommendations that it makes seem to be nothing more than lip service without suggestions for any constructive mechanisms that demonstrate how to actually bring about the changes that it suggests.

What next?

Relook how we manage our rivers and develop a holistic plan to tackle pollution

The report mentions that the rivers do not have enough water to dilute pollutants. Experts argue for the need to have a complete relook at how not only interstate rivers, but all the rivers in the country are managed as many of the rivers have little water due to the construction of big dams over them or large scale water diversions.

Have better coordination and quality monitoring mechanisms with regulations for upstream and downstream states

Joy argues that proactive steps such as the establishment of better quality monitoring mechanisms, better coordination between CWC, CPCB and SPCBs that monitor rivers across the countries must be taken that will help bring out better data on rivers and the establishment of regulatory mechanisms for upstream and downstream states.

The relationship between upstream and downstream states sharing a river is often asymmetric as actions of the upstream state can impact the one downstream and not vice versa. Joy says, "We should have mechanisms to incentivize upstream states to prevent polluting its river waters, maintain environmental flows of rivers with support from the centre and also penalize states if they fail to curb the pollution with compensation for the affected. However, all this is only possible if institutional mechanisms are made to work jointly and transparently".

Meanwhile, discussions among upstream and downstream states over pollution of water sources **continue to grow with reports of fresh notices being served to state boards to control the pollution levels of their rivers. With freshwater resources declining, more and more rivers turn into sewage carriers. Also, the monsoons continue to evade us, and debates on the dangers posed by the use of untreated sewage water from rivers for agriculture rage on!**

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