REDD-plus: an update

(Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries)

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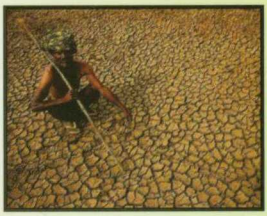

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Evolution of REDD-plus

Forest sector is uniquely placed in climate change scenario. On one hand deforestation and forest degradation contributes significantly to the warming of global climate systems, and on other hand forests have the potential to arrest the fast pace of changing climate by removing accumulated carbon dioxide from atmosphere and sequester it into vegetation and soil. In durable wood products also, the carbon continues to be locked for long time. Hence, when global forest resources are saved from further deforestation and degradation, and enhanced simultaneously, they deliver large reductions in GHG emissions and bring removal of carbon dioxide from the atmosphere. Reducing emissions from deforestation and forest degradation (REDD) offers an opportunity to mitigate significant sources of emissions at relatively low costs. It also has the potential to generate substantial co-benefits of biodiversity conservation, opportunities for livelihood and sustainable development. However, reducing these large emissions has not been the part of mitigation effort of the global community as these were earlier not included in United Nations Framework Convention on Climate Change (UNFCCC) or its Kyoto Protocol.

Any serious effort of combating global climate change without addressing emissions from forestry sector may not help in limiting the rise in global temperature to the desired levels. In this backdrop, REDD, a forest based climate change mitigation measure, was introduced during COP 11 (Eleventh Conference of Parties to UNFCCC) in 2005 through a proposal by a group of countries led by Papua New Guinea calling themselves 'The Coalition for Rainforest Nations'. Two years later, the proposal was taken up at COP 13 in Bali and the concept evolved into REDD-plus by also incorporating different measures of enhancing forest cover and carbon stocks, i.e., conservation, sustainable management of forests and enhancement of forest carbon stocks.

REDD-plus became part of the Cancun Agreement (COP 16) in December 2010, as it was reflected in the outcome of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. The climate change talks in Durban (COP 17) on REDD-plus, centered around four key areas of finance, safeguards, reference levels, and measuring, reporting & verification (MRV) of carbon emissions from forest activities. Some progress was made on issues of finance and parties were allowed to choose from number of financing options including markets. During COP 18 held in 2012 in Doha, it was decided to undertake a work programme on result based finance for REDD-plus comprising two co-chairs, one each from developing and developed countries, which included ways and means to transfer payments for result based actions and ways to incentivize non-carbon benefits.

REDD-plus made a significant progress during the COP 19 held in Warsaw, which was dubbed by many experts as REDD-plus COP. The major decision was on result based finance for developing countries implementing REDD-plus activities which would allow them to receive funds. The 'Warsaw Framework' for REDD-plus emphasized that developing countries must measure, report and verify anthropogenic forest related emissions as part of National Forest Monitoring System and address social & environmental safeguards.

The 20th COP held in Lima, in December 2014 concluded the talks with 'Lima Call for Climate Action' that laid the foundation for a new global climate deal. All the countries agreed to submit their Intended Nationally Determined Contributions (INDCs) by March 2015 and a significant progress on adaptation was made with newly launched Green Climate Fund (GCF) crossing an initial $10 billion target. In REDD-plus, the guidance with respect to type of information, transparency, consistency and comprehensiveness was deliberated on Safeguard Information System (SIS) to be kept in place by the developing countries.

The 21st COP held in Paris, in December 2015 reaffirmed the goal of limiting global temperature increase well below 2° C, while urging efforts to limit the increase to 1.5° C. It called for all parties to establish binding commitments to make 'Nationally Determined Contributions' (NDCs), and to pursue domestic measures aimed at achieving them. Further, it was decided that each country shall prepare, communicate and maintain successive NDCs every five years with the clear expectation that they will represent a progression beyond the previous ones.

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Paris agreement also recognized the implementation of policy approaches and positive incentives for reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. It further recognized joint mitigation and adaptation approaches for sustainable management of forests while reaffirming the importance of non-carbon benefits. It also recognized adequate and predictable financial resources from public, private, bilateral and multilateral sources such as GCF.

Issues and Challenges for REDD-plus

REDD-plus is based on a core principle of financially incentivizing the individuals, communities, and countries to reduce GHG emissions from forest sector. It is more than a decade when REDD came into existence, yet several elements of it are still to be finalized. The issues of reference levels, MRV of carbon emissions from forest activities, finance and safeguards

are some key challenges, which have been centering among most of the climate change negotiations pertaining to REDD-plus. One also needs to find ways to measure reductions in emissions when data are poor or non-existent to put a REDD-plus mechanism into action. It is further required to ensure that reductions in deforestation and degradation are real and it should create mechanism that stops destruction of forest in non-project areas or other countries. The fact that trees store carbon temporarily and the stored carbon is released back in to the atmosphere on harvest, i.e., non-permanence, is another important methodological challenge that needs to be addressed. The co-benefits of REDD-plus performance like biodiversity conservation, watershed benefits and several other ecosystem services pose enormous challenges on their measurements.

REDD-plus in India

To implement REDD-plus, India has enabling policies and legal framework like Indian Forest Act, 1927; Wildlife Protection Act, 1972; Forest Conservation Act, 1980; National Forest Policy, 1988, Biological Diversity Act, 2002 and Forest Rights Act, 2006 in place for the sustainable management of its forests. The country has demonstrated its commitment to address climate change by launching an ambitious 'Green India Mission' (GIM) programme under its National Action Plan on Climate Change for further improving the quality and extent of forest and tree cover. Participation of local communities in forest management, and centrally sponsored scheme on 'Intensification of Forest Management', for creation of infrastructure for the development, protection, and conservation of forest resources in the country further strengthen its commitments for mitigation of climate change. MoEF&CC has also initiated the review of Indian Forest Policy which is likely to further strengthen the REDD- plus performance.

It is well recognized that significant scaling up of finance is required for the successful and sustainable implementation of REDD-plus in developing countries. However in all the past COP meetings, finance has been a contentious issue. In a significant improvement during COP 21 it has been decided that, GCF will provide support for the least developed countries and developing countries for the formulation of national climate change adaptation and mitigation plans and for the implementation of REDD-plus policies and projects. In 2015, GCF has recognized National Bank for Agriculture and Rural Development as the National Implementation Entity (NIE) in India in the area of climate change adaptation and mitigation.

India's stand on REDD-plus

As per 'National REDD-plus Policy and Strategy' of MoEF&CC, REDD-plus aims to guide forest conservation and management in the country while safeguarding the rights of local communities. The policy also strives to manage forests for a bouquet of ecosystem services with an appropriate mechanism for REDD-plus funding and transforming the financial benefits to the communities in a fair, equitable and transparent manner based on their performance. The REDD-plus Policy is supposed to be operationalized and implemented through National REDD-plus strategy designed to address critical gaps in the capacity and institutional framework towards creating REDD-plus readiness in the country. This would help to incentivize the removals in the form of enhancement of forest carbon stocks opting for sub-national level approach to construct Reference Level which may eventually be integrated to construct single National Forest Reference Level (NFRL). The policy on REDD-plus also emphasizes on achieving various thematic elements of sustainable management of forests by addressing the drivers of deforestation and forest degradation, afforestation of degraded areas and protection measures. The safeguards to protect the rights of forest dependent communities are already in place in the form of policy and legal instruments like Joint Forest Management (JFM) programmes, Forest Rights Act and the Biological Diversity Act. India's existing institutional set-up with some additional responsibilities could be used for implementation and management of REDD-plus in the country.

Operationalization of REDD-plus in India

The 'National REDD-plus Policy and Strategy', further states that the National REDD-plus framework is expected to be designed and implemented by establishing 'National REDD-plus Authority' in MoEF&CC under a National Steering Committee with other supporting Institutions, i.e. Government, Semi-Government & Non-Government, Technical & Scientific, in coordination with State Forest Departments (SFDs) and other stakeholders. The National REDD-plus Authority with support from REDD-plus Cell of MoEF&CC and assistance from SFDs and other institutions are well suited for undertaking the pilot REDD-plus projects for generating valuable experiences and technical capability. This will also help in field testing of proposed methodologies in coordination with Forest Survey of India as a nodal agency for MRV. This framework calls for adoption of simple and systematic approach to build capacity of all the stakeholders on various issues ranging from general awareness about REDD-plus strategy to their roles and responsibilities. The capacity needs to be developed also on MRV mechanism, social & environmental safeguards, benefit-sharing and other related issues.

National REDD-plus policy and strategy envisages that REDD-plus programme could result in capturing of around 1 billion tonnes of additional CO2 over the next three decades. The policy also aims at developing National Forest Monitoring System for establishment of robust and transparent national, sub-national MRV and National REDD-plus information system for analysis of available data amongst various

institutions. At present India is in the readiness phase of REDD-plus which includes development of national strategy, construction of NFRL, MRV, SIS and capacity building.

REDD-plus Performance of SFDs: Need for Documentation

India is among the first country in the world which started managing its forests scientifically and sustainably. India's current forest and tree cover is estimated to be 79.42 million ha, constituting 24.16 % of the geographical area of the country. However, the quality of forests is not of the desired level as evident from absence of natural regeneration on one third of the forest area; moderate to heavy incidences of fire over half the forest area and only around 11% of forests are free from injuries such as illicit felling, girdling and lopping. The heavy biotic pressure is also due to grazing, and other anthropogenic influences. The situation is so challenging that more than one-third of forests are devoid of humus and half of the forests are characterized by shallow to medium soil depth.

In order to deal with these challenges, the SFDs carry out numerous forest management, plantations and other forestry activities which add to the REDD-plus performance. These actions, if documented systematically would demonstrate REDD-plus achievements at the national level. SFDs under different schemes and projects take definite steps towards reducing forest degradation, which includes protection, soil and moisture conservation measures and gap plantations. In order to reduce pressure on forests, SFDs carry out high density fuelwood plantations outside forests, promote agro-forestry, farm forestry and distribute seedlings for planting on homesteads and other privately owned blank areas. Measures on providing alternatives to fuelwood such as providing LPG connections, solar cookers, improved cook stoves, pressure cookers etc., are also taken which helps in reducing degradation of forests. Some of the steps, which could add to the performance towards reducing deforestation, would be alternatives to land diversion such as construction of underground roads and tunnels for road and rail transport, construction of flyovers with underpass for wildlife in forest areas, and other alternatives such as cable transportation in hilly areas.

The SFDs carry out management of all government owned forests as per the prescriptions of the approved working plans which adds to the REDD-plus performance towards Sustainable Management of Forests. About a quarter of these forests are managed with the partnership of local communities on the principle of 'care and share', which are potential areas to be taken up under REDD-plus. All the protected areas i.e. National Parks, Wild Life Sanctuaries, Conservation Reserves, Community Reserves, Biosphere Reserves managed by the State Wildlife Departments can be included under 'Conservation' component of REDD-plus. Under the component on 'Enhancement of Forest Carbon Stocks', the SFDs may include afforestation, reforestation, ANR, gap plantations, canal bank, railway and roadside plantations and other similar afforestation interventions under various schemes including GIM.

REDD-plus Pilot Projects in India

India's first REDD-plus pilot project by Plan Vivo is located in the East Khasi Hills district (Mawphlang) in Meghalaya, which has been initiated in 2010 with the support from Ecometrica. There are some other pilot projects which have been concluded or under implementation with the help of institutions such as TERI which carried out pilot studies in Uttarakhand, U.P., M.P., Orissa, West Bengal, Nagaland, Gujarat, and Rajasthan. ICFRE is involved in 'REDD-plus pilot project in Van Panchayats of Uttarakhand and IGNFA is also carrying out a 'Pilot study on REDD-plus' in the same state. Another project on 'Partnership for Land Use Science (Forest-PLUS) funded by USAID under bilateral agreement with MoEF&CC has been implemented in four locations in H.P., Karnataka, M.P. and Sikkim with the aim to explore methods and approaches to REDD-plus implementation.

REDD-plus initiative of IGNFA

A "Cell for REDD-plus in relation to global warming and climate change" has been set up in Indira Gandhi National Forest Academy, Dehradun to equip itself to impart latest knowledge and skills on 'Forest and Climate Change' in general and 'REDD-plus' in particular, to entry level and in-service IFS officers as well as officers of other services who visit IGNFA for different courses. The mandate of the Cell is to deliberate upon and opinion building on issues relating to international REDD-plus framework; modalities, procedures and on-going negotiations; National REDD-plus framework; Construction of National Forest Reference level; MRV and Capacity building of stakeholders in REDD-plus implementation.

The REDD-plus Cell has made significant progress towards meeting its objectives, which include finalization of four modules for capacity building of entry level and in-service officers and other stakeholders. The Cell has also conducted two modules for IFS (P) of 2013-15 and 2014-16 Courses during 27-28 May 2015 and 10-11 December 2015, respectively. Both the modules were received very well by the IFS (P). The module conducted for 2014-16 Course has received National Level award in "Excellence in Andragogy and Methodology" by the DoPT for the year 2016.

In order to strengthen the capacity building initiatives of Academy on REDD-plus, a pilot study on REDD-plus is being carried out in Timli Forest

Range, Kalsi Soil Conservation Forest Division, Shiwalik Circle of Uttarakhand with the objectives to estimate the potential of emissions reduction due to avoidance of forest degradation; study of the drivers of forest degradation and ways to address them for emission reductions and to develop a practical module on REDD-plus to be utilized for capacity building of IFS officers. The pilot is being implemented on 9907 ha of forest of Timli Range. The Landsat satellite data of study area has been downloaded from USGS earthexplorer website and classified for the three time frames viz., 1998, 2008 and 2014 by using ERDAS imagine 2014 software. The area has been classified in four different forest density classes viz., very dense forest, moderately dense forest, open forest and non forest and compartment wise area statistics has been generated for three time lines.

As per IPCC Good Practice Guidelines, 2006 all the four carbon pools viz., (i) Above ground woody biomass, (ii) Below ground biomass (iii) Dead organic matter (iv) Soil organic carbon, have been analyzed for the carbon stock of the study area. Stratified random sampling technique has been applied as per FSI Methodology and 25 random sample points each were generated in the 2014 classified image in the four density stratum with the help of ERDAS Imagine software. One sample plot of 0.1 ha has been laid out on each of the stratified point in a manner that plot location could be accessible. The total carbon stock has been estimated for the study area for the year 2014 using FSI methodology. SAVI (Soil Adjusted Vegetation Index) image has been generated for the three time line of the study area for the estimation of biomass of earlier years and for biomass change detection. Logarithmic regression equation has been developed by correlating biomass value acquired from the field survey and SAVI values of the same coordinates in 2014 satellite image for each plot. Using this regression equation, biomass of entire project site was calculated for 2014 and also of the year 2008 and 1998 to estimate extent of degradation. The Socio-economic study has also been carried out to assess the dependence of the local people on the forests of Timli range, i.e. drivers of degradation, and to work out strategies to address these drivers. The pilot study is likely to be completed soon and the outcome will be utilized in capacity building of entry level and in-service IFS officers.

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