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REDD, Climate Change and the Rights of Tribal Communities in India

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ABSTRACT

Reducing Emissions from deforestation and forest degradation (REDD) is the global endeavour to create incentive for developing countries to protect, better manage and save their forest resources, thus contributing to the global fight against climate change. REDD plus goes beyond merely checking deforestation and forest degradation, it includes incentives for positive elements of conservation, sustainable management of forests and enhancement of forest carbon stocks. Countries that reduce emissions and undertake sustainable management of forests will be entitled to receive funds and resources as incentives. REDD became part of the Bali action plan, which was supposed to culminate in a new climate protection treaty in Copenhagen in December 2009. The Inter-governmental Panel on Climate Change has also stressed the importance of REDD+ in the context of international climate co-operation. Furthermore with the exception of the European Union Emissions Trading System (EU- ETs) all existing and most proposed domestic or regional trading schemes include or aim to include sustainable land practices and forestry as a class of eligible offsets. While moving forward towards the implementation of REDD+, participation of local communities with compulsory representation of women would be the central theme. Government of India is committed to ensure that full and adequate incentives from REDD+ go to the local communities as and when these became available. India's context, the forest will not be managed for "carbon services" alone but for all the ecosystem services that are flowing to the local community from the forests. Incentives for carbon services will be an addition to the benefits that the local communities are already receiving from the forest eco systems.

Key Words: *REDD ,REDD+, Carbon sequestration, Tribal rights*

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I. Introduction:

Climate Change is caused by the release of certain gases especially carbon dioxide (CO_2), which traps heat, resulting in a warming of the temperature of the earth. Constraining global temperature increase to less than 2° C will depend upon keeping atmospheric CO_2 concentrations below 450 parts per million (ppm). Gases like these are mainly released when fuels like coal and petrol are burnt, but they are also released when forests are felled. Estimates say that 20 per cent of global emissions result from deforestation. Greenhouse gas emissions from the forestry sector are estimated to be 8.4 Gt. CO_2 eq/year (Jayant Sathaye et al 2011).

Deforestation and forest degradation significantly affect the global carbon cycle, directly when forest biomass is burned and CO_2 is emitted into the atmosphere, and indirectly after land-use change lakes place, resulting in further de-composition of organic matter, soil respiration and soil degradation and erosion processes (Schulze et al 2002).

Forestry, in particular tropical forestry, has always been recognized as an important topic in international discussions on climate change. The issue of land-use related emissions in developing countries however is not accounted for in the UN framework convention on climate change or in the Kyoto protocol. Hence, there are no incentives for reducing emission from deforestation in non-Annex I countries (Streck, 2008).

The question of how to include deforestation and forest degradation in an international mitigation scheme under the UNFCCC has been a difficult technical and political issue to resolve from the start of the negotiations in 1992. Reducing Emissions from deforestation and forest degradation (REDD) is the global endeavour to create incentive for developing countries to protect, better manage and save their forest resources, thus contributing to the global fight against climate change. REDD plus goes beyond merely checking deforestation and forest degradation, it includes incentives for positive elements of conservation, sustainable management of forests and enhancement of forest carbon stocks. Countries that reduce emissions and undertake sustainable management of forests will be entitled to receive funds and resources as incentives. (Jaimin Sarkar, 2011). REDD became part of the Bali action plan, which was supposed to culminate in a new climate protection treaty in Copenhagen in December 2009. The Inter-governmental Panel on Climate Change has also stressed the importance of REDD+ in the context of international climate co-operation (IPCC, 2007). Furthermore with the exception of the European Union Emissions Trading System (EU-ETs) all existing and most proposed domestic or regional trading schemes include or aim to include sustainable land practices and forestry as a class of eligible offsets. During the Oslo climate and forest conference, convened in May 2010, several developed countries jointly pledged $4 billion to support REDD+ policies and measures (Matreu Henry et al 2011).

The conference of parties meeting of 196 countries of the UNFCCC in Cancun, Mexico, (December 2010) was able to advance initiatives on REDD+ even while there was limited progress on fossil fuel related aspects of an international climate change agreements. The Cancun meeting recognized that there was strong and broad support for REDD+ and was able to agree to the development of a formal mechanism under the UNFCCC for incentivizing REDD+ activities (Valentina Bosetti and Steven K. Rose, 2011).

REDD+ is that payments will be made on a massive scale in potential almost every tropical forest country and will be available on a long-term basis with very stringent monitoring and verification. The services delivered might at a later stage be sold through a market as off sets for countries with emission reduction targets (Angelson, 2009). REDD+ should not only compensate for avoided deforestation and degradation but should also incentive sustainable forest management and enhancement of forest carbon stocks. (Markins Ledercr 2011).

The basic idea is to set up economic incentives so that local, national and international actors have greater interest in protecting a forest than in cutting it down (Eliasch, 2008). REDD+ would in the eyes of many not only contribute significantly to the aim of reducing CO2 emissions in the atmosphere but also to reducing the mismanagement of tropical forests. But what is the likelihood of establishing an effective and legitimate instrument of carbon governance that can also guarantee accountability (Biermann and Gupta, 2011).

Effectiveness of carbon governance is based on what Fritz Scharpf termed output oriented legitimacy differentiating it from input oriented legitimacy (Scharpf, 1999). Output oriented legitimacy is thus a substantive ideal that must be able to contribute to problem solving (Lovbrand et al, 2009). Input oriented legitimacy is assumed to exist when stakeholders included in the decision making process of a policy and thus accept the use of the instrument more or less independent of the outcome (Glicken, 2000).

It is evident that questions of legitimacy and potential trade-offs between input and output oriented legitimacy are of particular importance when new environmental markets are being set up, as there is a high likelihood that some group receive significant benefits while others are disenfranchised (Corbera et al, 2007).

II. Forest Cover and Deforestation in India

The current forest and tree cover of the country is estimated to be 78.37 mha (million hectares) accounting for 23.84 per cent of the geographic area of the country (FSI, 2009) Out of this the forest cover is about 69.09 mha, which constitutes 21.02 per cent of the geographic area of the country. Though India has only 2 per cent of the global forest area, it is faced with the demands of 16 per cent of the world's human and 18 per cent of world's Cattle population (Table 1).

Deforestation

The unsustainable exploitation of forest resources have resulted in the degradation of the forests which has been estimated at 40 per cent of for the past two decades. Major drivers of deforestation and degradation are (1) forest supplies 128 mt of fuel wood, 741 mt for fodder and 41 mt for timber. (2) As per government estimates, 1.34 mha of forest area is encroached in the country (MOEF, 2006). (3) Shifting cultivation affects 10 mha of forest area across 16 states especially in the north eastern part of the country. The estimates of people involved in this practice ranges between 3 and 26 million. (4) It is estimated that 1.45 to 3.73 mha of forest area is affected annually by fires (WWF, 2003, Bahuguna and Upadhyay 2002). (5) Diversion of forests for developmental activities has had a major impact on India's forests and quality. It has been estimated that 0.2 mha of forest area was diverted between 2005 and 2008 (India Stat, www.Indiastat.com).

III. Carbon Sequestration Potential of Existing Forests of India

India has 690,899 square kilometres of forest area which covers 21.02 per cent of the geographical area of 32,87,23 square kilometres as per Forest Survey of India, 2009. The forests of India classified as tropical wet evergreen, tropical semi evergreen, tropical moist deciduous, littoral and swamp, tropical dry deciduous, deciduous, tropical thorn, tropical dry evergreen, subtropical broadleaved hill, subtropical pine, subtropical dry evergreen, wet temperate, Himalayan moist temperate, Himalayan dry temperate and alpine and sub alpine and sub alpine forests. The tropical moist deciduous forest occupies the major part of forest land in India, covers 234352.94 square kilometres, 33.92 per cent of the forested area which is followed by tropical dry deciduous forests, 208375.13 square kilometres (30.16%) and tropical wet evergreen forests, 60453.66 square kilometres (8.75%). All the other types of forests mentioned earlier accounts the remaining 27.17 per cent of the forest area of India. Carbon Sequestration Potential of forests are calculated and given in Table 2.

The total forest area of India was classified under various forest types with their respective shares in the total forest area. It was multiplied by per hectare annual biomass increment to get annual growth of standing biomass as mentioned by Forest Survey of India 1995, reported by All and Singh (2000), for different types of forests in India. Fifty per cent of the annual growth of standing biomass was taken as carbon sequestration potential of existing forests in India and it was multiplied by 3.67 to get total CO_2 intake of the forests of India.

From the table 2, existing forests of India is sequestration more than 116 million tons of CO_2 per year which is equal to 32 million tons of carbon sequestration, contributes to reduce atmospheric carbon of the globe. The average carbon sequestration potential and CO_2 intake is 0.46 tonnes and 1.67 tonnes per hectare respectively for the existing forests of India. The tropical moist deciduous forests record the highest contribution to carbon sequestration (9.4 million tonnes) and CO_2 intake (34 million tonnes) because it occupies one-third of the forested area in India. The annual biomass growth is 63 million tonnes per year and average biomass growth per hectare is 0.91 tonnes per annum.

IV Forest Rights of Tribal Communities in India

REDD has assumed global significance in the climate change debate, as it is considered to be a cost effective mitigation option (Sathaye et al, 2007, Stern, 2007). This could also generate additional conservation and livelihood benefits (UNEP – WCMC, 2007). However a number of civil society organizations and researchers have raised concerns regarding impacts of REDD on livelihoods and rights of indigenous groups and local communities (Rawles, 2008, Griffiths 2007, Lovera, 2008).

In India, tribal, forest dwellers and other local communities have always enjoyed legal safeguards to practice their, customary rights and traditions. India has had a fairly successful initiative involving local communities for protection and management of forests. National Forest Policy, 1988 marked a paradigm shift in forest management from regulatory to participatory. It implied a shift from the revenue oriented forest management to the conservation oriented management. It puts emphasis on meeting people's needs and involving them in management of forests. Meeting the subsistence needs of the local communities, maintenance of environmental stability and restoration of ecological balance have been identified as the major objectives of forest management.

Joint Forest Management guidelines were issued in 1990 to facilitate the involvement of local communities to the management of forests. Since then 100000 Forest Protection Committees (FPCS)

have been constituted across the country which manages 28 per cent of the total forest area (MoEF and WII 2005).

The National Environmental Policy 2006, recognized that forest laws and formal institutions have undermined traditional community rights and disempowered communities and such disempowerment has led to the forests becoming open access in native, leading to their gradual declaration in the classic sense of tragedy of commons (MoEF, 2006). The policy advocates recognition of traditional rights of communities to remedy a serious historical injustice.

The Scheduled Tribes and other traditional forest dwellers (Recognition of) Forest Rights Act, 2006 (FRA) seeks to rectify some of the anomalies that have resulted from the notification of tribal and other lands as state forests without settling of rights. It has been reported that the October 2009, 2.49 million claims have been filed under the Act, out of which 0.56 million titles have already been distributed (MOTA, 2009).

As REDD proposals and projects gather momentum indigenous peoples, forest movements and forest policy experts emphasise that effective and sustainable policies on forests and climate change mitigation must be based on the recognition of rights, respect for the principle of Free, Prior and Informed Consent (FPIC) and requirements for progressive forests sector tenure and governance reforms. At Bali meeting the decision on REDD did not contain explicit recognition of the need to respect the rights of indigenous people and local communities. While the Cop decision did not mention human rights instruments or important intergovernmental commitments like the UN Declaration on the Rights of Indigenous People (UNDRIP), in India majority of forest resources function as life support systems for nearly 400 million people and also act as safety nets. In spite of heavy dependence of people on forests these resources are used in a sustainable manner due to certain indigenous forestry practices of forest fringe communities which reduce the extraction and dependency load on forests and thus help better management of forest carbon.

V. Traditional Forest Management Practices

Forests are an important source of food, fibre, fresh water and construction materials for subsistence as well as cash income for the tribal people (Wollenberg and Ingles, 1999, Cambell and Luckert, 2002). In the developing world, an estimated 80 per cent of the population depends on non-timber forest products (NTFPs) for primary health care and nutritional needs (Chandrasekharan, 1995).

Indigenous communities developed various resource management techniques, rules and practices, popularly known as traditional ecological knowledge, in order to ensure uninterrupted supply of forest products and other benefits from the forests (Phulthego and Chanda 2004). Overtime, these communities have evolved a system of combining forest conservation and sustainable use at a micro level. (Malhotra, 1999). Possessing traditional ecological knowledge of the resource, users themselves and local institutions can help in ecosystem management (Gadgil et al 1993, Becker and Ostrom 1993, Colding and Folke, 2001). It can contribute to the enhancement of livelihood and provision of ecosystem services (Tiwari, 2005). Benefits obtained by the communities from forest management are cash generation, drinking water availability bio diversity conservation, food security and health care of the people.

The forest dependent communities of Banderdewa forest range are still continuing their traditional management practices (TMP) of natural resources such as wet rice cultivation, Jhum cultivation, indigenous slope water harvesting system, tree cum bamboo plantation, JOKO plantation, Agri-silvi horticultural system and aqua forestry (Pangging, G. et al, 2011).

Traditionally managed forests are the treasure houses of innumerable medicinal plants utilized in the health care systems. The rotational use and division of forests into compartments, selective felling of trees and promotion of natural regeneration of forests are among the best practices of forest management (Tiwari, B.K. 2010). There is a great variability in the management practices followed by traditional societies as these practices have evolved under different bio physical and cultural environments.

In India, a number of new local institutions such as joint forest management committees (JFMs) and forest user groups (FUGs) at the community level

have been established while traditional local institutions have been strengthened to protect and manage community and village forests (Balooni et al, 2007). A large portion of forest is being managed by the village council for the benefit of the inhabitants of the village. The three types of forests are sacred forest, the home of a deity who according to the local belief protects the village from natural calamities, famine and diseases, village forests provide firewood, wild edible plants and poles for house construction and repairs and agro forests are the primary source of cash income (Tiwari, B.K. 2010).

The van panchayat council which had a patron-client relationship with the larger village community, could make, rules dealing with local forest utilization, based on general regulations issued by the government. The council was empowered to find offenders, impound cattle and deny a household use of forest resources if any of its members broke the rules. To ensure adherence to the rules, including proper and fair utilization of forest products, the forest councils normally appointed a paid forest guard. Its own members could also act as forest watchers (FAO, 2011).

VI. REDD, REDD+ and India

The REDD+ initiatives will help local Indian communities as it clearly safe guards their rights. India is committed to the fact that monetary benefit from REDD+ will flow to local, forest dependents, forest dwellers and tribal communities. This is ensured for three reasons.

First in the Indian context REDD+ is intended to be an additional co-benefit to the goods and services already accruing to and being enjoyed by the local communities and therefore it comes as a bonus without compromising on the existing benefits.

Second the Indian government additionally ensures that REDD+ will not adversely impact the traditional and legal rights of the local communities over forests, but on the other hand, will ensure more monetary benefits flowing to them.

Third REDD+ recognizes and respects national legislations relating to safeguards for the rights of indigenous peoples and local communities and aims to promote their participation in implementation and monitoring of the endeavour. (Jaimini Sarkar, 2011).

While moving forward towards the implementation of REDD+, participation of local communities with compulsory representation of women would be the central theme. Government of India is committed to ensure that full and adequate incentives from REDD+ go to the local communities as and when these became available. India's context, the forest will not be managed for "carbon services" alone but for all the ecosystem services that are flowing to the local community from the forests. Incentives for carbon services will be an add on to the benefits that the local communities are already receiving from the forest eco systems.

REDD includes the novel idea of payment for environmental services (PES). The design of UN-REDD is important as it may channel a great deal of the international funding that may become available for payment for ecosystem services related schemes. If agreed, up to $30 billion could be transferred annually from rich countries to poor owners of endangered forests (Kristin Rosendal, 2011).

The real challenges to ensure a suitable implementation of REDD+ activities are mainly three. First many human induced drivers of various kinds like economic and institutional interact and may result in forest cover loss and degradation. As the dynamics that animate the various political, institutional, economic and social factors that shape land-use decisions and trends are both complex and interrelated, it is difficult to assess than specific role in drawing deforestation and degradation. Second as REDD+ is a results based mechanism India has to establish an accurate quantification system to assess forest cover, carbon stocks and their changes, changes in space and time and report on any uncertainties in then data. Thirdly India faces important institutional challenges that exacerbate the difficulty of designing and implementing national forestry monitoring system.

VII. Conclusion

The Kyoto protocol excludes avoided deforestation projects in developing countries as a creditable mitigation option, while steps taken in Cancun are in the direction of country – rather than project based REDD programs. Individual countries must decide that REDD is a priority program and must be initiated, data, tools, protocols and trained people need to be developed.

Individual and community rights on forest resources need to be recognized. Efforts are already on through FRA but process need to be strengthened and expedited. Communities need to be given secure

tenure in JFM areas so that they have enough incentive to invest in sustainable management of forests. Procedural aspects will have to be taken more seriously, so that meaningful participation of stakeholders becomes possible even if resulting in higher trade-offs.

REDD is not only quantitatively much bigger than former efforts but also qualitatively different so that it could eventuality outperform past conservation measures. The low awareness of REDD+ process warrants broad sensitization and capacity building exercise for all stakeholders. Subsequently a comprehensive REDD+ implementation strategy at the country level should be developed with participation of various stake holders.

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Table 1
Forest Cover (Mha) as Estimated by the FSI from 1987 to 2007

Assessment	Year	Forest Cover Estimate	Percentage of Total Geographic Area
First	1987	64.08	19.49
Second	1989	63.88	19.43
Third	1991	63.94	19.45
Fourth	1993	63.94	19.45
Fifth	1995	63.89	19.43
Sixth	1997	63.34	19.27
Seventh	1999	63.73	19.39
Eight	2001	65.39	19.89
Ninth	2003	67.78	20.62
Tenth	2005	67.71	20.60
Eleventh	2007	69.09	21.02

Source: Forest Survey of India (2005, 2008, 2009).

Table 2
Carbon Sequestration Potential of Existing Forests of India

Forest Types	Percentage in total forest area *	Area (in km) *	Annual biomass increment * t (t/ha)	Annual biomass growth ** (tC)	Annual Carbon Sequestration ** (tC)	Total CO_2 Intake (t CO_2) **
Tropical Wet evergreen	8.75	60453.66	1.20	7254439	3627219.5	13311895
Tropical semi evergreen	3.35	23145.11	1.18	2731123	1365561.5	5011611
Tropical moist deciduous	33.92	234352.94	0.80	18748235	9374117.5	34403011
Littoral and swamp	0.38	2625.42	1.07	280920	140460.0	515488
Tropical dry deciduous	30.16	208375.13	0.66	13752758	6876379.0	25236310
Tropical thorn	5.11	35304.94	0.73	2577261	1288630.5	4729274
Tropical dry evergreen	0.29	2003.61	0.62	124224	62112.0	227951
Subtropical broad leaved hill	0.38	2625.42	1.09	286171	143085.5	525124
Subtropical pine	5.99	41384.85	1.32	5462800	2731400.0	10024238
Subtropical dry evergreen	0.36	2487.24	0.65	161671	80835.5	296666
Montane wet temperate	3.45	23836.02	1.37	3265535	1632767.5	5992257
Himalayan moist temperate	3.79	26185.07	1.54	4032501	2016250.5	7399639
Himalayan dry temperate	0.28	1934.52	2.10	406249	203124.5	745467
Alpine and sub-alpine	3.79	26185.07	1.51	3953946	1976973.0	7255491
Total	100	690899.00	---	63037833	31518916.5	115674422

Source: * FSI 2009 Lal M and Roma Singh, 2000, ** Shoba Jasmin & Dhulasi Birundha, 2011. (calculated) 1 ton C = 3.67 tons of CO_2.