

Imaginary Sinks: India's REDD Ambitions

A Position Paper by NFFPFW

Various optimistic estimates now abound, about the carbon sequestration potential of India's forests, and endless possibilities of creating new tradable carbon reserves in India apparently open up, especially once the REDD is really through. The most recent estimate was published in a 'technical paper' authored by the Indian Council of Forestry Research and Education, which was released with great fanfare by the Indian Government's Minister of Environment and Forests. According to the paper, (a) India ranks 10th in the list of most forested nations in the world with 76.87 million ha of forest and tree cover, (b), India's forest and tree cover accounts for about 23.4% of the total geographical area of the country, (c) Over the past decades, national policies of India aimed at conservation and sustainable management of forests have transformed India's forests into a net sink of CO₂; from 1995 to 2005, carbon stocks stored in our forests have increased from 6244.78 to 6621.55 million tonnes (mt) registering an annual increment of 37.68 mt of carbon = 138.15 mt of CO₂eq, and finally, (d). This annual removal by forests is enough to neutralize 9.31% of India's total annual emissions of 2000. Moreover, this amount of carbon sequestration will still be adequate to dent the country's emissions even when these will be on the increase because of an 'accelerated development process'. The 'Paper' included a methodology, of course, and an elaborate description of how various types of forests were adequately sampled and the results matched with satellite images. Despite this, one likes to question the veracity of the data.

Before going into the sequestration/sink story, however, it is important to see how much forests India is left with, and what is happening to them.

Forest cover in India

According to recent estimates of Forest Survey of India (State of Forest Report, 2003), standing forest cover in India is 67.5 million hectares (mha), which constitute 20.64% of total geographic area of the country (Table 1). 'Recorded' (meaning recorded by the forest department) forest area of the country is 76.52 mha which constitute 23.28% of the total geographic area of the country. Dense to moderately dense forests occupy about half of the total forest area; the rest is 'open forests' and scrub.

Just how authentic/believable are these forest cover data? According to Forest Survey of India (State of Forests Report, 2003) estimates, India continues to lose its forest cover. The 2003 estimates record a net loss of nearly three million hectares of 'dense forests', which means serious and continued deforestation in forests with canopy density of 40 percent and above. Because satellite imageries acting as source of these data are still treated as 'classified' in the country, and 'ground-truthing' (if any) exercises are carried out in a similar clandestine manner, it is difficult / impossible to verify exactly how much natural forests vanish each year, and where. From the State of Forests Report, it can be seen that degradation of forests is not confined to any particular province/region, but it is happening, almost uniformly, everywhere. For instance, while the province of Uttar Pradesh in the North records a loss of 2969 sq. km.s of dense forests, Assam in North East, and Andhra Pradesh in the South record 2788 and 1788 sq.km.s. In 2006-7, a team of researchers from Indian Statistical institute, New Delhi estimated the forest cover in two regions in the Himalayan province of Uttaranchal and found that the proportion of forest loss is much higher than estimates made by the FSI. According to FSI data, the Almora and Bageswar districts have 19 percents of degraded forests whereas the new study showed that the degraded forest constitutes almost 78 percent of the total. "We looked at a small part of the Himalayas, but discrepancies that showed up here might appear elsewhere because the FSI uses the same method" said R Prabhakaran, an ecologist in Bangalore and a study team member.

India's North East, considered to be one of the richest biodiversity hot spots in the country, is fast losing its forest cover, according to data released by Aaranyak, an Assam-based NGO. The data shows that the northeastern states of India have lost almost 20 percent of their forest cover in the past two decades.

The total forest cover of the country, according to the Indian Government's 2009 State of Environment Report, is 677,088 sq. km (2005 estimate), or 20.60 per cent of the geographic area of the country. Between 2003 and 2005, the total forest cover had decreased slightly by 728 sq. km. The states, which have shown a decline in the forest covers, are Nagaland (296 sq. km), Manipur (173 sq. km), Madhya Pradesh (132 sq. km) and Chhattisgarh (129 sq. km). There has been a significant loss of forest cover in the Andaman and Nicobar Islands (178 sq. km) because of the Tsunami.

The same Report quotes FSI 2005 estimates to show that forests cover 23.6 per cent of India's total geographic area, including 3.04 per cent of the tree cover.

Explaining forest cover change: the 'real' menace of Deforestation

Official agencies in charge of environmental information in India seldom use 'deforestation', a harsh, taboo word. Usually it is 'degradation', a softer term that hides endless stretches of lost forests, hacked, plundered, looted, mined, built upon, and submerged. Factors that cause deforestation are hidden in layers of vague terms like 'anthropogenic interventions' and 'biotic factors'

In reality, there are many factors behind deforestation in India and elsewhere; the most important of which logging—both legal and illegal. While data on illegal logging is scarce and seldom verifiable, it is common knowledge that organized logging exists, and no province of India really free from the menace. According to data from the Ministry of Environment Forests (MoEF), in just three years (2001-2004), more than 600,000 cases of illegal logging were recorded, and more than 300,000 Cubic Meters of timber could be recovered. This was just the tip of the iceberg; and the actual figure may anywhere be between 100-150 million Cubic Meters.

Besides logging, there is large-scale conversion of forests (official term is 'diversion', another euphemism). Destruction of forests for agricultural activities and different developmental projects like construction of roads, industries and townships, large dams and mining is a common practice in India. In three decades between 1952 to 1980, a total of 4.3 mha of forest lands have been 'diverted' for 'non-forestry purposes', according to the same official estimate. These activities /developmental projects which catered essentially to privileged urban communities displaced millions of tribal/ rural people from their ancestral lands (Indian Planning Commission estimates suggest that 21.3 million people were displaced by development projects between 1951 and 1990 alone) and also created social and political tensions.

The disreputable Sardar Sarovar mega hydro project on river Narmada would alone submerge 56,513 hectares of forest land and subsequently displace millions of people. Displaced or evicted people from those different developmental projects (or development oustees) often, of necessity, had to settle in forest land, for livelihood and sustenance. In many cases the Government settled those evicted people in forests, causing additional deforestation.

Then there is the factor of 'encroachment' of forest land. The term 'encroachment' denotes illegal possession of others' property or land, but in context of Indian forests, it contains a different and complex social narrative. Though India still has a predominantly agricultural economy, per capita availability of cultivable land is low because of a number of factors like lack of irrigation facilities, adequate market support and most important of all, a highly inequitable distribution of land. In most parts of the country, there has been no land reform and rural elites directly and indirectly control both rights of access and

ownership in prime agricultural lands. Landless and small/ marginal peasants are compelled to occupy the fertile forest land for survival, especially in forest areas of the country where the population is an ethnic mix of indigenous *adivasis* and a variety of migrants: development oustees, domestic and cross-border political refugees, and also large number of landless people from neighbouring countryside. According to the MoEF (Forests and Wildlife Statistics, India.2004), more than 1.3 Million Hectares of Indian forests were under encroachment (as of October 2004, see table 3).

Another important reason behind deforestation is forest fire. Forest fires, mostly ground fires, continue to destroy forests, irrespective of the nature of the forests. An FSI sample survey conducted in 1995 found that annually fires affect some 53-54% of overall forest areas. In the year 2000, a maximum 3.7 Mha of forest land were affected by forest fire.

Underlying/root causes of deforestation usually remain unaddressed in India, and Government agencies either hide or deliberately falsify deforestation data. The myth of forest cover increase is a typical example of this, where growth of firm and forestland plantations is equated with and shown to offset loss of natural/dense forests.

Carbon sequestration ‘Potential’ in India

The discussion above shows that, instead of being linear and wholesome, ‘constant’ constructs, Indian forests (like any other tropical forests) are part of a larger, dynamic, and ever-changing socio-political and socio-ecological discourse (or multiple such discourses). Mathematical calculations and simulated models to project sequestration of carbon in forests can never be expected to assimilate the innumerable, essentially asymmetric and ‘truant’ variables that such discourses contain; neither hypothetical baselines nor imaginary ‘future’ scenarios can explain/interpret/predict contextually related but often spatially separated sets of uncertain social, political and ecological events influencing deforestation events. This methodological impossibility, coupled with doubtful and unverified official forest cover estimates, makes an estimation of all carbon stock in the in Indian forests downright impossible.

Even assuming (such assumptions govern all sequestration data) that India’s forest cover will remain constant, and in ideal conditions for over a long period of time, estimates of long-term sequestration potential of Indian forests (by different investigators/agencies) vary widely. Asia Least-cost Greenhouse Gas Abatement strategy (ALGAS), conducted by Asian Development bank (ADB,1998) estimated the technical potential scenario in terms of carbon sequestration in the forestry sector of India by using COMAP model. It was estimated that under this options 4.936 mt.(million tonnes) of carbon (or **123 mt of carbon annually**) would be sequestered over a 40 years period of time. Ravindranath *et al* (2001) developed a sustainable forestry scenario (baseline) and a commercial scenario (meeting biomass demands through plantation and restoring forests). Comparison of the commercial forestry scenario with the baseline scenario (for the period 2000-2012) showed that an additional carbon stock of 78×10^6 Mg C (millions grams of carbon) would be sequestered.(or **6.5 mt of carbon annually**)if the commercial scenario were implemented. Bhadwal and Singh (2002) studied the carbon sequestration potential in India by considering three distinct scenarios – Business as usual, conservation and plantation forestry. They used Land use and Carbon Sequestration (LUCS) model with software developed at the World Resources Institute, Washington DC, USA .It was estimated that under business as usual scenario 6.65 bt (billion tonnes) of carbon (or **13.3mt of carbon annually**) and under plantation scenario 6.94 bt of carbon (or **13.88 mt of carbon annually**) will be sequestered during 2000-2050. Prasad *et al* (2003) analyzed the land use changes and forestry data of India from 1997 to 1999 and estimated that Indian forests would sequester 0.94 Gt (Gt: Thousands million tonnes) of carbon over period of time if land use changes similar to those that occurred during 1997-1999 continue.

These variations are due to differences in methodologies as well as types of variables adopted. As we said, India, forestry sector in India is governed by various socio-economic and environmental factors. High pressure on forests for fuel and industrial wood, lack of agricultural land, unequal distribution of cultivable land, lack of co-ordination among local communities and government personnel etc are different socio economic constraints which directly and indirectly affect growing forest biomass. Natural and man-made disasters like flash floods, forest fires, soil erosion and land slides etc may affect and reduce long term growth and productivity of forests. These variables thus also affect the physical process of carbon sequestration. Forests can not be treated as isolated models which would only produce forest biomass as per simulated analysis, and without being affected by all external factors. Because variables affecting forest growth are difficult to assess, estimation of forest growth and carbon sequestration by forests is bound to be a mathematical impossibility.

Forests and CDM in India

The factor that drives—and to a great extent regulates—the new emphasis on carbon sequestration used to be the LULUCF (Land Use Land Use Change and Forestry) option of Clean Development Mechanism (CDM) under Kyoto protocol, which allowed for new plantations in non-forest land for carbon sequestration purposes. Tree planting projects that can sell generate revenue by claiming to store additional carbon & sell this stored carbon in new, poorly understood market are increasingly shown as big opportunities for India to earn precious dollars/euros. Creating ‘new carbon sinks’ and generating tradable CERs – the meaning of these terms remains poorly understood while the business opportunity they provide has been readily taken up by Indian business.

This ‘opportunity’ becomes a windfall with the advent of REDD, or the proposal that CDM projects should cover the ‘Reduced Emission through Deforestation or Degradation’ scenario, which means if a project reduces any emissions caused by deforestation and degradation of forests, it should get CDM status. India now contends that it should be given carbon credits for both its old and new forests (the country has an ambitious programme of raising 30 million hectares of new plantations).

India has submitted a REDD proposal for a mechanism of “Compensated Conservation” that also rewards countries for maintaining and increasing their forests as a result of conservation. As such, India would support a common methodology that i) assessed changes in carbon stocks and GHG emissions due to conservation and sustainable management of forest, and ii) reductions in emissions from deforestation and degradation. To enable robust reporting of changes in forest cover, a national baseline is recommended, to prevent double accounting and leakage. CDM A/R project activity, will also be entered as a debit in the national inventory for REDD accounting.

India presently has two registered forestry CDM projects (one in Haryana and another in Andhra Pradesh, by the corporate giant ITC). Besides, the World Bank already supports a plantation project called “Rural Livelihoods in Orissa and Andhra Pradesh, and is actively considering support to a huge forestry project in the Himalayan state of Himachal Pradesh. Its neighbouring state of Uttarakhand is also making similar plans. There are several other projects in the pipeline.

India has maintained, since very early days of the trade, that .it (Operationalising CDM, Planning Commission Document, 2003) that India can generate around 5 mtc (million tonnes carbon)/year (with an aggregate of 25 mtc over 5 years) from LULUCF programmes, which is about 10 percent of the projected global total of 50 Mtc from such projects ((Operationalising CDM, Planning Commission Document, 2003). Translated into CERs, this sequestered carbon would fetch a value of \$ 125 million (Planning Commission, *ibid*) at US\$4/5 per tonne (can be much more, going by the current CER prices of 13 Euros per tonne) over the 5 year period of 2008-2012.

The snag in this estimate was the additionality factor. Because any CDM project has to be new and 'additional', India can not use its existing forests for sequestering carbon. This was set to change because of REDD, and if 2009 Copenhagen talks or later talks reach an agreement on REDD modalities, the carbon trading in India's forests will really take off.

The National Forest policy (1998) of India envisages bringing 33% of India's total land area under forests within 2020. This has to be achieved by implementing the National Forestry Action programme (NFAP, 1999). Objectives of this strategic action plan include establishing plantations on about 29 mha of non-forest and farm lands, apart from improving another 31-odd mha of forests. Achieving this goal would require an outlay of over Rs, 39,148 Crores (More than 7 Billion Euros) in next 20 years, or about Rs. 1957 Crores (around 355 Million Euros) annually.

National Action Plan for Operationalizing CDM in India (2003), estimated that India could gain a worth of \$125 million fro 5 years from 2008-2012 by sequestering 5 Mt of carbons annually under LULUCF activities. It can be achieved by massive plantation in wasteland which includes degraded forest, village's commons and fallow lands. NFAP needs 29 mha of non-forest land to be afforested, to bring the country's forestry cover to the magic 33% mark.

Both programmes require huge investment and though India now has a standing reserve fund from the CAMPA (or compensatory afforestation fund created through forest diversion), these will be better served if private corporations/agencies enter the forestry sector in India. The Indian pulp and paper lobby has been trying, since 1992, to lease 'degraded forests' in order to meet the growing demand of raw materials for word-based industries. It has been arguing (unsuccessfully, so far) that the industry demands can be to a large extent met by raising 'protected' private plantations in forest lands lying degraded, thus reducing the substantial import costs. In 1994, when the Indian Government tried to bring a new Bill to legitimize handing over 'degraded forests' to industries, it faced stiff resistance from not only the community groups and NGOs, but also the Planning Commission which set up an expert committee(Chaired by N.C. Saxena)to look into the matter. The Committee's reports are now known as famous (or infamous) Saxena Reports (1998), and these categorically refuted the industry claims that degraded lands do not support biodiversity, and communities do not use those. The Saxena Reports also went on to show that leasing out of forests to industries would prove to be both ecologically and socially harmful, and would be an injustice to communities, who use all forests for livelihood and other reasons, and no forests in the country can be said to be 'absolutely degraded'. Though stalled for the time being, the Industry retorted with a blue print for "Re-greening India" (Name of the Report published by CII—Confederation of Indian Industries, 2003), which made a strong case for forest lease, in order to ensure forest protection, and generating rural employment. Because trees sequester carbon, possibilities of earning carbon credits were mentioned in great detail.

Role of the World Bank

This was absolutely as per prescription of the World Bank Forest Strategy 2003., and the CII plea for increased private stake in forestry was ably supplemented by the Bank which meanwhile came up with a 'sure' formula of increasing community stake and control over forests and reforming Joint Forest Management (Unlocking Opportunities for Forest-dependent People, 2006) so that private investors could come in. The World Bank study on India has found that though the JFM model has been successful, most communities still fail to utilize the '*full potential of forests*' to improve local livelihood. For communities to benefit from the untapped potential of forests, the study stressed, wide ranging and carefully phased reforms are required at both the national and State level.

The economic benefits from forestry have been envisaged to be immense. The total forest income from commercial timber, bamboo and non-timber products on improved forests is expected to rise from an estimated \$ 222 million in 2004 to approximately \$ 2 billion by the year 2020. Further, with modest value addition and quality enhancements, annual commercial incomes could also increase significantly. Ecological and eco-tourism values from current JFM forests could be as high as \$ 1.7 billion as formerly degraded forests mature and begin to generate important conservation benefits, the study concluded.

One can well imagine what REDD will mean in this context. Going by the previously mentioned 'Technical Paper's estimate, the Indian forests are cumulatively storing about 135 million tones of carbon. This is in addition to the carbon already stored in the forest biomass and soil. If all the stored carbon can be converted into credits, then it will mean a windfall return of billions and billions of rupees. This is a new market which, besides the Indian Government, all sheds of carbon brokers, consultants and investors eye expectedly, and for good reasons. Even in the non-Kyoto voluntary market, forestry credits (UNFCCC has not issued Credits to forestry projects yet) are fetching about 8 Dollars. This can increase enormously with UNFCCC approval.

Because forest legislations in the country do not have room for private investment in Government-owned forests, a new form of forest management is suggested by both CII and the MoEF.

MSP: the new avatar of Joint Forest Management

Acts of leasing out 'degraded' forest land to private sectors would now be known as "multi stakeholder partnership", under the new BANK-CII-MoEF prescription. Under these multi stakeholder partnerships (MSP), government would transfer degraded forestland to the private investors on 30-year lease for raising industrial plantations on a huge scale. Revenue generated from such plantations would be distributed among investors, forest department and local communities organised under Joint Forest Management Committees. Ostensibly, this is being done for greater "community benefit".

With launching of the MSP, Indian forests would finally start its journey towards complete corporatization. In a way, this can be termed coming off age, a kind of transition from old-word colonial feudalism to the new age market capitalism, the state being replaced by companies, and the centralized forest management by MSPs. On the part of the Government, this is also an attempt to end forest ownership debates which had started since colonial take over of forests in 19th Century.

The Forest Rights Act 2006 and REDD

However, the Government had to shelve the MSP plan pre-maturely because of the historic Forest Rights Act of 2006. The Act became operational in 2008. Though the provincial governments are not implementing the Act properly, and the forest bureaucracy as well as some of the big conservation NGOs try their best to scuttle it, the forest movements of India has been considerably strengthened by it. The FRA gives the forest communities seemingly unlimited governance power over the existing Government forests including the protected conservation areas, and a very recent Government Order issued by the MoEF bars any diversion of forests without community consent. Though the community institutions under the FRA (Gram Sabha) are in their infancy, it can not be doubted that the Act can be used in community interest.

What will happen to the carbon stored in the forest biomass under the FRA? The act says that community owns all Non-Timber Forest Produces of plant origin in any forest of India. Will the carbon supposedly stored in the biomass and forest soil be treated as a NTFP and hence treated as a community property? The Indian Government has not evidently thought about it yet. The 'Technical Paper' once again talks about JFM and does not mention the FRA at all. This clearly shows that the Government, despite very clear and precise provisions in the FRA, wishes to retain effectively control of the country's forests. The REDD money will act as an incentive here, and the very strong forest bureaucracy of India will want to hold on to

it. This, in effect, will signal the end of the FRA, though not in a legal sense, and unless the forest movements of the country do not develop a strategy to counter REDD and all forms of carbon Trading in the country's forests, the gains of the FRA may be irretrievably lost. Even with an operational FRA, there will be the danger of Gram Sabha leaders being bribed and de facto control and ownership of all forest resources may pass on to alien hands via the intermediation of the State. Because REDD will be an international treaty, there will be pressures upon the Indian Government to strengthen protection measures and ensure that the stored carbon is not leaked through human action. In turn, this will lead to more stringent enforcement of the old forest laws (a new legislation can also be created, or the FRA be suitably amended), barring the community access to forests, and prohibiting all human activity (meaning the usual community activities like grazing, fishing or fuelwood collection) in REDD forests. The world Bank, the biggest and most powerful promoters of REDD, will inevitably be taking of Public-Private partnership and the necessity of involving private players at some stage or another; and if REDD has to be operationalized, private players have to be imperatively roped in at some stage or another. It will be beyond the capacity of the existing Government machinery to do the complex carbon storage mathematics on each piece of forest cleared for REDD, and to sell the stored carbon in the global market.

At the present moment, REDD, and carbon trading are the greatest of threats facing the Indian forest movements and communities. Will they be able to resist these new threats? This will demand unity among all the movement groups and building up strategic alliances with other people's movements.

The challenge has to be faced.

Soumitra Ghosh, Hadida Yasmin, Arindam Das

REFERENCE:

- State of Forests Report (2009), Minister of state for environment and forest, Government of India, New Delhi.
- Ravindranath et.al. 2008 Forest conservation, afforestation and reforestation in India: Implications for forest carbon stocks, CURRENT SCIENCE, VOL. 216 95, NO. 2, 25
- National forestry Action Plan.(1999) Ministry of environments and forests, Government of India, New Delhi.
- National action Plan for Operationalising Clean Development Mechanism in India (2003) Planning Commission of India, New Delhi
- Siyag, P R., Forests and Forestry in India: A Study With Respect to the Potential for Carbon Mitigation. Forest Training Institute. Jaipur
- Jackson R B, E G Jobbagy, R Avissar, S M Roy, D J Barrett, C W Cook, K A Farley, D C le Maitre, B A McCarle, B c Murray.(2005) Trading Water for Carbon with Biological Carbon Sequestration. Science, 310 : 1944-1947
- Bhadwal, S & R. Sing (2002).Carbon sequestration estimates for forestry options under different land use scenario in India. Current Science 83. 1380-1386
- Prasad V K., K V S Badrinath, H Tsuruta, S Sudo, S Yonemura, J Cardina,b Stinner,R Moore, D Stinner, and C Hoy.(2003). Implications of land use changes on carbon dynamics and sequestration-evaluation from forestry datasets. India. The Environmentalist 23, 175-
- Ravindranath, N H and D. O. Hall.(1996) estimates of feasible productivities of short rotation tropical forestry plantations. Energy for sustainable Development, Vol 2: No. 5: 14-20
- Saigal S., Changing Ownership and Management of state Forests Plantations: India, Draft report for the international Institute for environment and Development (IIED).

- Asian Development Bank (ADB) 1998. Asian least cost greenhouse gas abatement strategy(ALGAS), India, Manila. ADB.
- State of Forest Report (2003) Forest Survey of India. Ministry of Environment & Forest. GoI.
- State of Forest Report (2001) Forest Survey of India. Ministry of Environment & Forest. GoI.
- State of Forest Report (1999) Forest Survey of India. Ministry of Environment & Forest. GoI.