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## ENVIRONMENTAL SUSTAINABILITY IN FOREST MANAGEMENT

**Jitarani Udgata\*, Sudhi Ranjan Dash\*\***

### ABSTRACT

*India is a growing economic power and is expected to grow at the rate of nearing 10% by the later period of the year 2010. At this critical phase of its development, the resilience of this democratic nation remains in its commitment towards sustainable development, and economic prosperity without damaging the environmental and natural fabric of the nation, which is necessary for the well being of its diverse masses. However, sizeable proportion of population is dependent on natural resources including forests. Under the changing scenario of economic, socio-cultural and developmental scene, ensuring the sustainability of natural resources particularly the availability of limited forest resources becomes a challenge for the sector. Sustainable Forest Management (SFM) becomes the necessity for the country looking to the dependency of rural poor on the forests for their livelihood. SFM incorporates the technical, ecological and economic aspects of the forestry as well as addresses the socio-economic and livelihoods of forest dwelling communities.*

*Criteria and indicators (C & I) approach being adopted by as many as 159 countries for achieving SFM. The C and I is a framework which helps to define the SFM and continuously monitor the various interventions made to improve the forests (Kotwal and Prakash, 2007). The Center for International Forestry Research (CIFOR) Criteria and Indicators (C & I) research responded to an international demand for science to help clarify the assessment of sustainable forest management through development and improvement of C & I. C & I helps in defining standards for sustainable forest management and is now being used by many different groups. Governments are using C & I to help them regulate the practices of forest users and report on the status of their forests to international processes and flora. Forest certification bodies depend on C & I to assess whether forest management companies or groups are managing their forests in a sustainable manner. Forest managers themselves often use C & I to improve the quality of their management, and, similarly, local communities can use C & I to improve their own management practices and hold to account others who share their forests.*

**Keywords:** *Forest, Sustainability, Environment*

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### Introduction

As part of forest stewardship plans approved by government, companies must outline how they will meet environmental standards. In this way, they can be held accountable for achieving the results they promise. A team of specialized staff at the Ministry of Forests will conduct thousands of inspections every year. In cases where there is an unacceptable risk of damage occurring, the act gives government the power to issue stop-work orders to prevent environmental damage.

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\* Research scholar at Indian Institute of Foreign Trade, New Delhi, India.,  
E-mail ranijita@yahoo.co.uk, ph-91-11-9910357432

\*\* Assistant Professor, Maharishi Institute of Management, Noida, India  
E-Mail dashsudhir123@rediffmail.com , ph-91-11-9818036561

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In addition, the Forest Practices Board provides objective, independent investigations on forest practices. It investigates complaints, participates in appeals and issues special reports (Heartland, 2005). The analysis of public certification assessment reports coupled with a review of findings published in recent literature show that certification in developing countries has helped secure or improve environmental services in certified forests, improved worker conditions within certified forests, acted to reduce social conflict in and around certified forests, helped in securing land tenure and rights (in certified community forests), improved the image of the forest management enterprise locally and in associated markets, provided greater access to premium timber markets (where they exist), and helped promote sustainable forest management more generally through dialogue between the private sector, government bodies, non-governmental Organizations and civil society (Spilsbury, 2005).

The test in Germany identified nine attributes as important for assessing C & I. These attributes were seen as instruments with which the cost-effectiveness of an assessment system could be improved and were applied in all subsequent CIFOR tests. Criteria and indicators should be relevant, unambiguously related to the assessment goal, precisely defined, diagnostically specific, easy to detect, record and interpret, reliable, especially as indicated by replicability of results, sensitive to stress on the forest management, ecological or social systems, able to provide a summary or integrative measure over space and/or time, appealing to users. Thus the standards applied in any given field-audit context involve stakeholder inputs, but decisions on their final content are taken by the accredited certification companies themselves rather than through use of consultative voting or consensus-based processes.

#### *Best Available Knowledge Includes*

Scientific data, Traditional knowledge, Practical experience, Legal requirements and International agreements.

#### *Decision-making Required to*

Fill in gaps in knowledge, resolve conflicting requirements and deal with variability of forests.

The most commonly occurring categories for Corrective Action Requests in certified forest in CIFOR target countries are given below (Table 1).

Table 1

<b>Forest Management</b>	<b>Environmental issues</b>	<b>Social, cultural and economic issues</b>
'Plantation/Forest-stand management'	Protected areas	Social impacts (lack of social impact assessment) negative impacts from forest operations)
Clear cut use/size of felling coupes	Threatened and endangered species	Information provision (public access to information)
Chemical use and disposal (storage and application)	Environmental Impact (lack of EI Assessments or lack of consideration of wider environmental impact off forest operations)	Communications and conflict resolution– with local stakeholders
Improvements to roads and skid trails	Aquatic and riparian areas	Worker safety and worker welfare
	Soil conservation and erosion	Compliance with laws and regulations

Forest management improved with respect to all these issues because the regulatory nature of the certification process provides this as a guarantee through third-party forest auditors. It is clear that many of the 'changes on the ground' in certified forest are consistent with the

Consultative Group on International Agricultural Research (CGIAR) mission of protecting the environment; less certain is how these outcomes translate into livelihood benefits. However, given the assumed counterfactual of forest management without certification failing to make these improvements, it is reasonable to assert that the consideration of local stakeholder interests is generally higher in certified forest than it would otherwise have been. Quantitative attribution of CIFOR's research contribution to certification standards proved problematic although it is clear that CIFOR research helped to improve the standards and audit processes applied, especially with regards to 'social' issues in developing-country settings.

### **Forest Stewardship Council Principles**

Forest Stewardship Principles are:

Compliance with Laws and FSC Principles, Tenure and Use Rights and Responsibilities, Indigenous people's Rights, Community Relations and Worker's Rights, Benefits from the Forest, Environmental Impact, Management Plan, Monitoring and Assessment, Maintenance of High Conservation Value Forests (HCVF) and Plantations. The broad objectives of the Ministry of Environment and Forest are:

- Conservation and survey of flora, fauna, forests and wildlife,
- Prevention and control of pollution,
- Afforestation and regeneration of degraded areas,
- Protection of the environment, and
- Ensuring the welfare of animals.

These objectives are well supported by a set of legislative and regulatory measures, aimed at the preservation, conservation and protection of the environment. Besides the legislative measures, a National Forest Policy, 1988, a National Conservation Strategy and Policy Statement on Environment and Development, 1992, a Policy Statement on Abatement of Pollution, 1992 and a National Environment Policy, 2005 has also been evolved. (Ministry of Environment & Forest). The following steps have been taken by ministry of environment and forest:

Conservation, Environmental Impact Assessment, Abatement of Pollution, Regeneration and Eco-Development, Research, Education and Awareness, International Cooperation and Sustainable Development.

### **Restriction on the Dereservation of Forests or Use of Forest Land for Non-Forest Purpose**

Notwithstanding anything contained in any other law for the time being in force in a State, no State Government or other authority shall make, except with the prior approval of the Central Government, any order directing-

- (i) That any reserved forest (within the meaning of the expression "reserved forest" in any law for the time being in force in that State) or any portion thereof, shall cease to be reserved;
- (ii) That any forest land or any portion thereof may be used for any non-forest purpose;
- (iii) That any forest land or any portion thereof may be assigned by way of lease or otherwise to any private person or to any authority, corporation, agency or any other organization not owned, managed or controlled by Government;
- (iv) That any forest land or any portion thereof may be cleared of trees which have grown naturally in that land or portion, for the purpose of using it for reafforestation.

Explanation - For the purpose of this section, "non-forest purpose" means the breaking up

or clearing of any forest land or portion thereof for-

- (a) The cultivation of tea, coffee, spices, rubber, palms, oil-bearing plants, horticultural crops or medicinal plants;
- (b) Any purpose other than reforestation;

but does not include any work relating or ancillary to conservation, development and management of forests and wildlife, namely, the establishment of check-posts, fire lines, wireless communications and construction of fencing, bridges and culverts, dams, waterholes, trench marks, boundary marks, pipelines or other like purposes.

### **Financial Costs and Benefits of Certification**

The financial costs and benefits of certification are topics that feature prominently in published literature. The direct cost of certification is the cost of the certification process itself. Indirect costs are those incurred to improve management performance to meet the required forest management standards (Bass *et al.* 2001). Direct costs vary with size of enterprise and distance that certifiers have to travel. The direct costs of certification are relatively low for large, intensively managed, industrial operations, and relatively high for small-scale extensive producers (Gullison, 2003). The use of personal protection equipment is mandatory in certified forests. With these preventive measures, accident rates have fallen dramatically in certified (versus non-certified) operations. In order to avoid the difficulties brought by the seasonality of forest activities (which cease during the wettest period of the year) certified companies have negotiated a flexible time system with labour unions. Workers can hold their contracts for the whole year. These are typically not options in uncertified operations. Improved profitability of forest operations via access to premium green markets is often assumed to be one of the key benefits of (and incentives for) certification. Whilst this can sometimes be true, it is generally less common in certified forests of the South than in the North, where access to such markets is generally better. (Putz, 2004) observes that while much of the timber harvesting in the tropics remains unsustainable, companies motivated to obtain FSC certification have helped to substantially improve forest management practices in several countries. These improvements have occurred even though consumer demands for wood products from certified sustainable forestry operations has been slow to grow, especially in the United States. Similarly, the acceptance of 'green premiums' (an additional cost for wood products from well-managed forests) has been limited even in the environmentally aware markets of Europe. One reason for the slow growth in the market for certified forest products is consumer confusion. Many (Carrera *et al.* 2004) report that some community groups in Guatemala were disappointed with certification efforts as a result of false expectations regarding price premiums for certified timber, a sentiment that was amplified when they no longer received subsidies from support organizations since they generally lacked the financial resources to pay for re-assessments, audits and compliance with conditions necessary to maintain their certificates.

### **The Impact of Forest Certification on Local Communities**

Certification has had some very significant benefits for communities affected by industrial forest operations in various settings. It has fostered a more participatory dialogue among stakeholders and fostered more balanced discussion of policy reforms in countries with weak attention to traditional and indigenous tenure rights in the forest estate. Communities and social change agents have used these certification models to promote more participation in their country's forest decisions more generally. Certification has had an impact, still not well documented or measured, on employment conditions for communities and worker health and safety, most evident in large-scale operations in countries with poor enforcement of legal frameworks. .It has provided

other indirect benefits, tenure security or tenure access, recognition that community management can be environmentally sound, technical training and support for qualified forestry professionals to improve forest management and organization of the enterprise.

### **CIFOR C & I Research Influence at National or Sub National Level (India)**

In India, CIFOR's C & I research led to changes in national forest policy and management guidelines implemented at state level through its use in a follow on project conducted by the Kerala Forest Research Institute, Peechi, Kerala, in collaboration with the Indian Institute of Forest Management, Bhopal, in Madhya Pradesh. CIFOR scientists were invited to participate in a workshop organized at Bhopal in early 1999 with the aim of developing C & I for sustainable forest management relevant for India. This workshop resulted in an initiative known as the 'Bhopal- India Process' (Prabhu and Ferguson 1999). The Bhopal-India Process led to an ITTO funded research project that provided an opportunity for forestry scientists, forest managers, local communities and non-governmental organizations (NGOs) in Kerala and Madhya Pradesh to participate in the testing and evaluation of C & I of sustainable management of plantations based on the iterative filtering and generation method developed for natural forests by CIFOR. Stakeholder participation during the field tests and final workshops, which included local communities and NGOs, played an essential role in shaping C & I related to social and economic concerns. This raised a number of important issues including impact of plantation development on water supplies to villages and settlements. Minimum sets of C & I applicable to the three sites included in this project and considered to be more widely relevant to plantation forestry across India were identified (Sankar *et al.* 2000). The results from the project demonstrated the importance of testing and evaluating C & I at the Forest Management Unit (FMU) level to ensure that local issues pertaining to the sustainable management of forest plantations are addressed. The project identified 8 national level criteria and 51 related indicators for SFM (IIFM 2000). In parallel to the research, the Indian Institute of Forest Management and its partners made a conscious effort to reach and influence key policy audiences through publications, workshops and seminars (IIFM 2001; Prasad 2001), and through continued inputs from CIFOR (Prabhu 2001). As the literature was generated there were several workshops and training programmes for Indian and south Asian audiences. The World Bank-WWF Global Alliance for Sustainable Use of Forests also collaborated to prepare a manual and organize training programmes for the members of the Indian Forest Service, NGOs and communities; the programme trained more than 300 key stakeholders across the country. The FAO acknowledged these efforts, which then fed into the development of C & I for dry-zone Asia (Castañeda 2000; Prasad 2001). These initiatives in combination succeeded in generating enough interest among policy makers to persuade the Government of India to appoint a Task-Force on Sustainable Forest Management led by the Director of IIFM (Pandey personal communication). The task force designed C & I for SFM that featured livelihoods issues prominently among eight criteria and 43 indicators for the national level assessment of sustainable forest management (Prasad 2000). This process led the Ministry of Environment and Forests of the Government of India to release guidelines on sustainable forest management to various State Forest Departments. There are indications that field functionaries in State Forest Departments now incorporate these guidelines in their routine planning and implementation of forest management (Pandey, personal communication).

### **Conclusions**

The CIFOR Criteria and Indicators (C & I) research responded to an international demand for science to help clarify the assessment of sustainable forest management through development and improvement of C & I. C & I helps in defining the standards for sustainable forest

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management and is now being used by many different groups. Governments are using C & I to help them regulate the practices of forest users and report on the status of their forests to international processes and fora. Forest certifiers depend on C & I to assess whether companies are managing their forests in a sustainable manner. Forest management companies themselves often use C & I to improve the quality of their management, and, similarly, local communities can use C & I to improve their own management practices and hold to account others who share their forests. CIFOR's was the first international research effort that sought to test and compare the effectiveness of C & I for sustainable forest management at the Forest Management Unit (FMU) level. The research made use of multidisciplinary teams in a series of comparisons of indicator sets in various (often tropical) forest settings. The case study shows that the research achieved widespread influence and uptake across many different types of organizations. This uptake has led to the generation of significant international public goods. The analysis of Public Certification Assessment Reports coupled with review of findings shows that certification in developing countries has helped secure or improve environmental services in certified forests, improved worker conditions within certified forests, acted to reduce social conflict in and around certified forests, helped in securing land tenure and rights (in certified community forests), improved the image of the forest management enterprise locally and in associated markets, provided greater access to premium timber markets (where they exist), helped promote sustainable forest management more generally through dialogue between the private sector, government bodies, NGOs and civil society.

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