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Over the years IIFM, has established itself as an institute of excellence at national as well as international levels in the field of Forestry, Environment and Management.



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Published by:

The Forest Policy Division,

Ministry of Environment & Forests, Government of India, New Delhi
and Indian Institute of Forest management, Bhopal

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Forest Policy, Ministry of Environment & Forests.



सत्यमेव जयते

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Government of India
Ministry of Environment and Forests

IMPLEMENTING NON-LEGALLY BINDING INSTRUMENT ON FORESTS IN INDIA

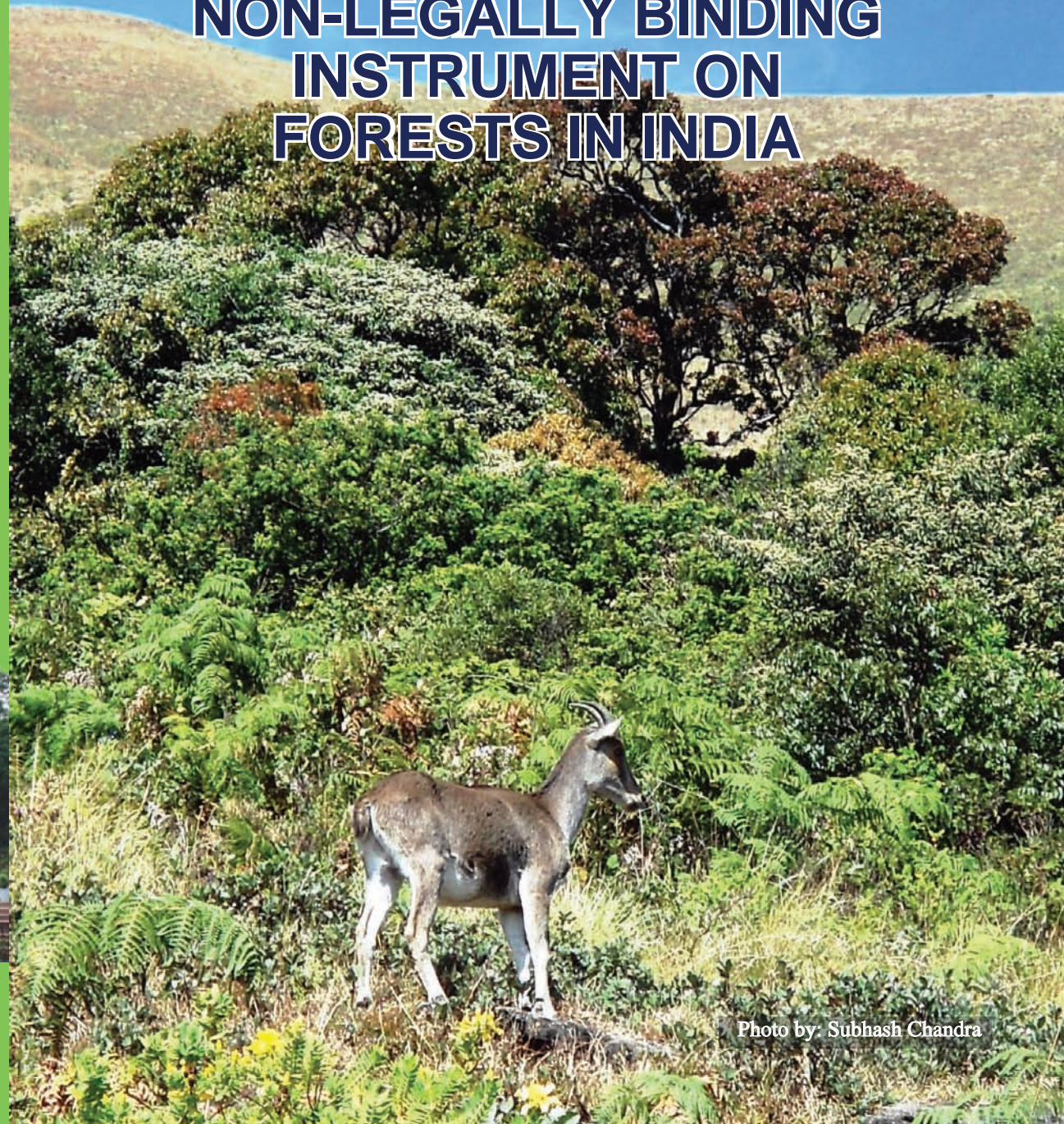


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CONTENTS

1. Towards implementing non-legally binding instrument on forests in India:
2. Sustainable Forest Management:
3. National Forest Policy, 1988
4. Present Status of Implementation of NLBI in India



Photo by: Kumari Manisha

1. CBD: Convention on Biological Diversity
2. ECOSOC: Economic and Social Council
3. FAO: Forest and Agriculture Organization
4. FI: Forest Instrument
5. FLEGT: Forest Law Enforcement, Governance and Trade
6. FRA: Forest Resources Assessment
7. FRA, 2006: The Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 or Forest Rights Act, 2006
8. FSI : Forest Survey of India
9. GIM: Green India Mission
10. ICFRE: Indian Council of Forestry Research and Education
11. IFF: Intergovernmental Forum on Forests
12. IIFM: Indian Institute of Forest Management
13. IGNFA: Indira Gandhi National Forestry Academy
14. IPF: Intergovernmental Panel on Forests
15. JFM: Joint Forest Management
16. MDGs: Millennium Development Goals
17. M&F: Monitoring and Evaluation
18. NAPAs: National Adaption Programme of Actions
19. NEMAPs: National Environmental Management Action Plans
20. NFPs: National Forestry Programmes
21. NLBI: Non-Legally Binding Instrument
22. PESA: Panchayat (Extension to Scheduled Area) Act, 1996
23. REDD+: Reducing Emission from Deforestation and Forest Degradation Plus
24. SFM: Sustainable Forest Management
25. TOF: Tree outside Forest
26. UN: United Nations
27. UNCCD: United Nations Convention to Combat Desertification
28. UNCED: United Nations Conference on Environment & Development
29. UNFCCC: United Nations Framework Convention on Climate Change
30. UNFF: United Nations Forum on Forests



TOWARDS IMPLEMENTING NON-LEGALLY BINDING INSTRUMENT ON FORESTS IN INDIA:

BACKGROUND

Forests cover one third of the world's land area, constituting the largest terrestrial ecosystems. Forests provide a wide range of economic, social, cultural and environmental services and have played a central role in the development of modern civilization. Forests today lie at the centre of any serious discussion of a sustainable future for planet earth including food and water security. They play an essential role in mitigating climate change and providing products and ecosystem services that are essential to the sustenance and prosperity of humankind. More than 1.6 billion people globally depend, to varying degrees, on forests for their livelihood, and use forest resources for fuel, timber, food, medicine and income. Forests and woodlands also provide important environmental services that include watershed protection, wildlife habitats, bio-diversity, carbon sequestration and maintenance of ecosystem functions.

Although the local, national and global importance of forests to human well-being, socio-economic development, poverty reduction, biodiversity and environmental conservation, and achievement of the Millennium Development Goals (MDGs) is widely acknowledged, the forests continue to decline due to deforestation and forest degradation. Forests now cover 31% (4 billion ha) of the total land area but were lost, between 2000 and 2010, at an average rate of 13 million ha annually (FAO, 2012). Deforestation and forest degradation are estimated to produce 17% of worldwide greenhouse gas emissions. At the same time forests have a huge potential as carbon sinks accounting for an estimated 289 Gt of carbon in 2010 (FRA 2012). The significance of forests on a global scale reinforces the importance to manage them in a sustainable way and finding ways to ensure forests benefit present and future generations, which is the essence of sustainable forest management.

The importance of forests to sustainable development was brought into sharp focus at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in 1992. During the conference countries agreed on the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests, also known as the Forest Principles, as well as Chapter 11 of Agenda 21: Combating Deforestation. The international dialogue on forest policies continued under the United Nations through the Intergovernmental Panel on Forests (IPF, 1995-1997)



and the Intergovernmental Forum on Forests (IFF, 1997-2000). These processes culminated in the over 270 IPF/IFF proposals for action, and the establishment of the United Nations Forum on Forests (UNFF). UNFF was established as part of a new international arrangement on forests, to carry on the work building on the IPF and IFF processes. In 2006 the UNFF adopted the four shared Global Objectives on Forests.

Non-Legally Binding Instrument on all Types of Forests (NLBI) also commonly known as the Forest Instrument (FI) was adopted by the United Nations General Assembly in 2007, which is an important step to move forward in achieving sustainable forest management globally. It is the first time since UNCED in 1992 that the member states of the UNFF have agreed on a voluntary basis on a series of measures at the international and national levels to strengthen forest sector governance, technical and institutional capacity, policy and legal frameworks, forest sector investment and stakeholder participation, within the framework of national forest programmes (nfps).

India has long history of scientific management of forests and has sound policies which can significantly contribute to achieving many objectives of the Forest Instrument. However, many activities are not linked to the NLBI due to lack of sufficient knowledge of the Instrument. There is a need to carry out a systematic assessment of various conservation and forest management activities to know where they stand in relation to the implementation of the NLBI and achievement of SFM as well as the global objectives on forests. Therefore awareness raising on the usefulness of the Instrument and capacity building on how to implement, monitor and report on the Instrument at the country level voluntarily is crucial. Various stakeholders need to gain a better understanding of the purpose and objectives of the NLBI and of its usefulness in achieving progress to sustainably manage their forest resources.

Origin and purpose of the Non-Legally Binding Instrument of All Types of Forests

The importance of forests to sustainable development was brought into sharp focus at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in 1992. During the conference, countries did not agree to having a convention mainly due to lack of consensus on forest business and the strong view that forests are a sovereign issue. However, they managed to agree on the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests, also known as the Forest Principles, as well as Chapter 11 of Agenda 21: Combating Deforestation. The international dialogue on forest policies was however continued under the United Nations through the Intergovernmental Panel on Forests



(IPF,1995-1997) and the Intergovernmental Forum on Forests (IFF, 1997-2000). On 18 October 2000, Economic and Social Council (ECOSOC) adopted Resolution E/2000/35, ***outlining an international arrangement on forests and establishing the United nations Forum on Forests (UNFF) as a subsidiary body of ECOSOC.*** The international arrangement on forest comprised the UNFF as the UN's principal forest policy making body, the Collaborative Partnership on Forests (led by FAO), the Multi-Stakeholder Dialogue, inputs and support from regional and sub-regional processes and evolving financial arrangements.

The main objective of the international arrangement on forests is ***to promote the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end.*** Its purpose is to:

- promote the implementation of internationally-agreed actions on forests at the national, regional and global levels;
- provide a coherent, transparent and participatory global framework for policy implementation, coordination and development; and
- carry out principal functions, based on the Rio Declaration, the Forest Principles, Chapter 11 of Agenda 21, and the outcomes of the IPF and the IFF, in a manner consistent with and complementary to existing international legally-binding instrument relevant to forests, such as the Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD).

Global Objectives on Forests:

In 2006, at its sixth session, the Forum agreed on four shared Global Objectives on Forests, providing clear guidance on the future work of the international arrangement on forests. The four Global Objectives seek to:

- Reverse the loss of forest cover worldwide through sustainable forest management (SFM), including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation;
- Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest-dependent people;
- Increase significantly the area of sustainably managed forests, including



protected forests, and increase the proportion of forest products derived from sustainably managed forests; and

- Reverse the decline in official development assistance for sustainable forest management and mobilize significantly-increased new and additional financial resources from all sources for the implementation of SFM.

The Non-legally Binding Instrument on All Types of Forests (NLBI)

In May 2007, the United Nations Forum on Forests (UNFF) adopted the Non-legally Binding Instrument on All Types of Forests (NLBI), which is also commonly known as the “Forest Instrument”. This significant international consensus was reached to promote the implementation of sustainable forest management (SFM).

Justification

The justification for having the NLBI is given below:

- Forests and trees outside forests provide multiple economic, social and environmental benefits and sustainable forest management contributes significantly to sustainable development and poverty eradication,
- There is existing consensus on forests such as the Forest principles, the proposals for action of the Intergovernmental Panel on Forests/ Intergovernmental Forum on Forest and resolutions and decisions of the United Nations Forum on Forests;
- “Sustainable forest management”, is a dynamic and evolving concept, that aims “to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations,”
- The impact of climate change on forests and sustainable forest management, as well as the contribution of forests to addressing climate change
- The need to strengthen political commitment and collective efforts at all levels,
- Effective implementation of sustainable forest management is critically dependent upon adequate resources, including financing, capacity development and the transfer of environmentally sound technologies, in particular the need to mobilize increased financial resources,



Purpose of the Forest Instrument

The purpose of the NLBI according to the UNFF resolution (UNFF A/RES/62/98) is:

- To strengthen political commitment and action for SFM at all levels to implement effectively SFM of all types of forests and to achieve the shared Global Objectives on Forests
- To enhance the contribution of forests to the achievement of the internationally agreed development goals including the Millennium Development Goals (MDG), in particular with respect to poverty eradication and environmental sustainability;
- To provide a framework for national action and international cooperation.

Guiding principles of the NLBI

The guiding principles of the NLBI as defined in UNFF resolution (UNFF A/RES/62/98) are:

- The instrument is voluntary and non-legally binding;
- Each State is responsible for the sustainable management of its forests and for the enforcement of its forest-related laws;
- Major groups (as identified in Agenda 21) local communities, forest owners and other relevant stakeholders contribute to achieving sustainable forest management and **should be involved in a transparent and participatory** way in forest decision-making processes that affect them, as well as in implementing sustainable forest management, in accordance with national legislation;
- Achieving sustainable forest management, in particular in developing countries as well as in countries with economies in transition, depends on **significantly increased, new and additional financial resources** from all sources;
- Achieving sustainable forest management also depends on **good governance** at all levels;
- **International cooperation**, including financial support, technology transfer, capacity-building and education, plays a crucial catalytic role in supporting the efforts of all countries, particularly developing countries as well as countries with economies in transition, to achieve sustainable forest management.



National policies and measures of the NLBI

In order to achieve the purpose and objectives of the Instrument, and taking into account national policies, priorities, conditions and available resources, member states committed themselves to implement a series of policies and measures that are necessary to achieve SFM. These are presented below:

- (a) Develop, implement, publish and, as necessary, update national forest programmes or other strategies for sustainable forest management which identify actions needed and contain measures, policies or specific goals, taking into account the relevant proposals for action of the Intergovernmental Panel on Forests/Intergovernmental Forum on Forests and resolutions of the United Nations Forum on Forests;
- (b) Consider the seven thematic elements of sustainable forest management, which are drawn from the criteria identified by existing criteria and indicators processes, as a reference framework for sustainable forest management and, in this context, identify, as appropriate, specific environmental and other forest-related aspects within those elements for consideration as criteria and indicators for sustainable forest management; (The elements are (i) extent of forest resources; (ii) forest biological diversity; (iii) forest health and vitality; (iv) productive functions of forest resources; (v) protective functions of forest resources; (vi) socio-economic functions of forests; and (vii) legal, policy and institutional framework.)
- (c) Promote the use of management tools to assess the impact on the environment of projects that may significantly affect forests, and promote good environmental practices for such projects;
- (d) Develop and implement policies that encourage the sustainable management of forests to provide a wide range of goods and services and that also contribute to poverty reduction and the development of rural communities;
- (e) Promote efficient production and processing of forest products, with a view, inter alia, to reducing waste and enhancing recycling;
- (f) Support the protection and use of traditional forest-related knowledge and practices in sustainable forest management with the approval and involvement of the holders of such knowledge, and promote fair and equitable sharing of benefits from their utilization, in accordance with national legislation and relevant international agreements;



- (g) Further develop and implement criteria and indicators for sustainable forest management that are consistent with national priorities and conditions;
- (h) Create enabling environments to encourage private-sector investment, as well as investment by and involvement of local and indigenous communities, other forest users and forest owners and other relevant stakeholders, in sustainable forest management, through a framework of policies, incentives and regulations;
- (i) Develop financing strategies that outline the short-, medium- and long term financial planning for achieving sustainable forest management, taking into account domestic, private-sector and foreign funding sources;
- (j) Encourage recognition of the range of values derived from goods and services provided by all types of forests and trees outside forests, as well as ways to reflect such values in the marketplace, consistent with relevant national legislation and policies;
- (k) Identify and implement measures to enhance cooperation and cross-sectoral policy and programme coordination among sectors affecting and affected by forest policies and management, with a view to integrating the forest sector into national decision-making processes and promoting sustainable forest management, including by addressing the underlying causes of deforestation and forest degradation, and by promoting forest conservation;
- (l) Integrate national forest programmes, or other strategies for sustainable forest management, as referred to in paragraph (a) above, into national strategies for sustainable development, relevant national action plans and poverty-reduction strategies;
- (m) Establish or strengthen partnerships, including public-private partnerships, and joint programmes with stakeholders to advance the implementation of sustainable forest management;
- (n) Review and, as needed, improve forest-related legislation, strengthen forest law enforcement and promote good governance at all levels in order to support sustainable forest management, to create an enabling environment for forest investment and to combat and eradicate illegal practices, in accordance with national legislation, in the forest and other related sectors;
- (o) Analyse the causes of, and address solutions to, threats to forest health and vitality from natural disasters and human activities, including threats from fire,



pollution, pests, disease and invasive alien species;

- (p) Create, develop or expand, and maintain networks of protected forest areas, taking into account the importance of conserving representative forests, by means of a range of conservation mechanisms, applied within and outside protected forest areas;
- (q) Assess the conditions and management effectiveness of existing protected forest areas with a view to identifying improvements needed;
- (r) Strengthen the contribution of science and research in advancing sustainable forest management by incorporating scientific expertise into forest policies and programmes;
- (s) Promote the development and application of scientific and technological innovations, including those that can be used by forest owners and local and indigenous communities to advance sustainable forest management;
- (t) Promote and strengthen public understanding of the importance of and the benefits provided by forests and sustainable forest management, including through public awareness programmes and education;
- (u) Promote and encourage access to formal and informal education, extension and training programmes on the implementation of sustainable forest management;
- (v) Support education, training and extension programmes involving local and indigenous communities, forest workers and forest owners, in order to develop resource management approaches that will reduce the pressure on forests, particularly fragile ecosystems;
- (w) Promote active and effective participation by major groups, local communities, forest owners and other relevant stakeholders in the development, implementation and assessment of forest-related national policies, measures and programmes;
- (x) Encourage the private sector, civil society organizations and forest owners to develop, promote and implement in a transparent manner voluntary instrument, such as voluntary certification systems or other appropriate mechanisms, to develop and promote forest products from sustainably managed forests harvested in accordance with domestic legislation, and to improve market transparency;
- (y) Enhance access by households, small-scale forest owners, forest dependent



local and indigenous communities, living in and outside forest areas, to forest resources and relevant markets in order to support livelihoods and income diversification from forest management, consistent with sustainable forest management.

Implementing the NLBI/FI

Implementing the Forest Instrument will contribute to mitigating the effects of climate change and to implementing the United Nations Framework Convention on Climate Change. It will strengthen country's policy and institutional capacity to combat deforestation and forest degradation, and to achieve sustainable forest management. India is already implementing forest development plans and programmes at various scales that include some of the policy measures adopted in the Forest Instrument. For example India is already implementing community-based forest management programmes known as Joint Forest Management (JFM) as part of its national forest programmes (nfps).

India's forestry programmes are contributing significantly towards poverty eradication, through various schemes of Central and State Governments. Afforestation, regeneration and bio-diversity conservation programmes create significant employment opportunities for forest dependent people and local communities. Apart from that people collect forest produce, especially non timber forest produce for supplementing their livelihood. Local people and gram Sabha have been empowered and given ownership of minor forest produce in respect of their jurisdiction under recent legislation of PESA, 1996 and Forest Rights Act, 2006. Development of various Non Timber (Minor) Forest Produces is being worked out for increasing income of rural people and tribals. These programmes directly contribute to the implementation of the policy measures on: "enhancing access of households, small scale forest owners and forest dependent communities to forest resources and improving forest legislation and strengthening forest law enforcement" respectively.

The national policies and measures represent a broad and comprehensive set of measures required at national level to achieve sustainable forest management. In order to facilitate implementation of the NLBI, it would be useful to systematically relate National Forest Programme (nfp) to the Forest Instrument, and identify those areas of the Forest Instrument that are inadequately addressed in the current national policies, strategies and ongoing forestry-related development initiatives. This would provide a basis for prioritizing areas for incorporating them into the national forest programmes in order to advance their efforts towards achieving sustainable forest management. At the country level most forestry stakeholders are not familiar presently with the Forest



Instrument, its purpose and objectives. Stakeholders in India need to gain a better understanding of the forest instrument and of its usefulness in achieving progress in their efforts to sustainably manage forest resources.

Benefits of implementing NLBI:

Implementing the NLBI provides a country with an opportunity to view and implement forestry initiatives in a comprehensive and systematic manner. The expected benefits include:

- Heightened political commitment to sustainable forest management (SFM) at national level
- An overarching framework for forestry development
- Improved environmental, social and economic contribution of forests at national level and to internationally agreed development and environmental sustainability goals
- A single framework for coordination of national and international forestry actions
- A holistic and comprehensive “360 degree” view of forests that reduces fragmentation of efforts and programmes
- A tool for assessing progress towards sustainable forest management at national level

Some of the benefits are described in detail below:

a) Taking the NLBI as an overarching forestry development framework

The NLBI can serve as an overarching framework for facilitating integration of national and international forestry-related policies and programmes at national level. It enhances coordination among various forest-related policy processes and programmes which are often implemented in a fragmented manner. The fragmentation often leads to duplication and inefficient use scarce resources. In the worst case it can even lead to contradictory policies, legislation and programmes. Coordination is particularly important for international forest and related initiatives such as forest biodiversity conservation, reducing emissions from deforestation and forest degradation (REDD+), Forest Law Enforcement, Governance and Trade (FLEGT) and related to this, the Voluntary Partnership Agreements (VPA) between the EU, and partner countries and combating desertification. Coordination is also important with other forest-relevant sectors of the national economy.



b) Linking the NLBI to national development frameworks

Implementation of the NLBI provides an opportunity of integrating forest related policies and programmes into national development frameworks such as poverty reduction strategies, National Adaptation Programme of Action (NAPAs) and National Environmental Management Action Plans (NEMAPs). This can be achieved by incorporating the priority policies and measures into the national forest programmes and ensuring these are properly integrated into the national development programmes. There are several approaches that can be used to ensure integration into national development plans, The first approach is to clearly articulate the contribution of forests to the national economy and then ensuring this is reflected in the periodic national development plans, For example Uganda has identified forestry as one of the four drivers of economic growth in its current five year national development plan. In, they recently took advantage of the drafting of a new constitution to incorporate forestry into their national development plan with a target of reaching 10% forest cover in the next 20years,

c) Linking with and coordinating international forestry related agreements and development goals

There are many international forestry-related processes that are being implemented by national governments especially under the three environmental conventions namely CBD, UNFCCC and UNCCD. Countries can use implementation of the NLBI to facilitate and coordinate implementation of forestry activities under the international the various forestry programmes and processes.

d) Taking the NLBI as a framework for enhancing inter-sectoral coordination

There are many forest related processes and initiatives that are being implemented in other sectors such as energy, water, agriculture and environment. By conducting an inventory of all on-going forestry related actives, using the FI national measures as a checklist, and identifying the stakeholders involved, implementation of the FI can provide a basis for effective cross-sectoral coordination. This is essential for harnessing synergies and avoiding duplication and sometimes contradictory policies and initiatives at country level.

e) A basis for resource mobilisation

By integrating the elements of the NLBI into nfp and clearly demonstrating the link between the nfp and NLBI, and in particular the contribution to the global objectives



of achieving SFM and the global objectives on forests, India can have a basis for developing a comprehensive financing strategy. Development of comprehensive financing strategies will help in mobilising financial and technical resources from all sources especially domestic public financing, private sector investment and bilateral and multilateral support. When the contribution of the nfp to the NLBI and the global objectives on forests is clearly articulated it may be easier to guide and convince development partners to contribute to the funding of the NFP..

MONITORING THE IMPLEMENTATION OF THE NLBI

Monitoring and evaluating progress in implementation is an important component of implementing the NLBI as it will assist the stakeholders to continuously assess their progress towards achieving their goals and objectives. In addition it will help the stakeholders gain a better understanding of the enablers and challenges encountered in implementing the NLBI. It will also help in identifying the strengths and weaknesses of the overall national forest programme and stakeholders will be able to pinpoint those areas that need the most urgent attention. Thus the monitoring information will be useful to stakeholders in reviewing the nfps in planning and other decision-making processes. Depending on the scope of the national policies and measures being implemented by a country at a given time, the data and information collected through the FI monitoring system can be used for voluntary reporting on forestry activities and achievements to various national and international processes. The information on NLBI implementation generated through monitoring at country level will also be useful at the international level. In 2015, at the occasion of the Eleventh Session of the UNFF, the effectiveness of the NLBI will be reviewed and its contribution to SFM and to the achievement of the four global objectives on forests will be assessed. This international assessment will only be possible if countries engaged in NLBI implementation report on progress made and their experiences with implementation. Stakeholders will also learn to better understand the environmental, economic and social implications of SFM and the amount of effort, inputs and time needed for this purpose. Monitoring and evaluation (M&E) at country level will facilitate collaborative and institutional learning while helping the Government and other stakeholders in relation to implementing their NFP.

Monitoring and evaluation of the NLBI process offers the possibility to harmonize with the M&E systems of other existing forest-related policy processes such as the National Forest Programme, but also the FLEGT VPA or REDD+ initiatives. It thus facilitates the assessment of overall progress made towards SFM and the four Global Objectives. Finally monitoring and evaluation will help identify the inputs and the



amount of human and financial resources necessary to reach the desired results and for a country to achieve sustainable forest management and the global objectives on forests and help in mobilising resources from different sources.

The assessment of the current situation vis-à-vis the 25 national policies and measures of the Forest Instrument that is carried out at the beginning of the implementation process provides a useful basis for establishing the monitoring system. In particular it provides a basis for establishing or determining the baseline information required for assessing changes as a result of implementation of the NLBI process. It provides a basis for designing a more comprehensive baseline that is informed by what is existing and the identified priority actions. The M&E system, including the baseline survey, to be developed for implementation of the NLBI should be in line with available resources and should be integrated with and complementary to relevant existing M&E systems. It is important to involve key national stakeholders in the process of developing the monitoring system and identification of key indicators. This ensures that the stakeholders identify with and take ownership of the subsequent M&E process. This will help in the clarification and assignment of monitoring roles and responsibilities to different stakeholders. In this regard a participatory approach to the design of the M&E system is required. The design of the system should address the following key issues:

a. Definition of scope, purpose, intended use and potential users:

It is important to define the scope of activities to be monitored, the results expected from the monitoring, the intended use of the monitoring data and who the potential users of the information are. This will ensure that the needs of the stakeholders are taken on board and that the monitoring is targeted and not general. Knowledge of the intended uses and users also guides the selection of parameters and indicators for measuring change and impacts.

b. Linking with existing M&E systems

In most countries, a number of forest-related programmes and initiatives already exist prior to the commencement of the NLBI implementation process, some of which already have an M&E system. It is therefore important to identify and analyze the existing M&E systems with relevance to SFM and identify opportunities for integrating them with the NLBI monitoring system. In fact the M&E system for the NLBI should be integrated into, and implemented through, the NFP. This will provide opportunities for the harmonization and



coordination of other forest development processes and measures (e.g. REDD+, FLEGT, and VPA) with the National Forest Programme. This will help to avoid duplication of efforts and reduce the financial burden of monitoring. At the same time it is important that all parties involved in the NLBI monitoring, either from the forestry side or from other cooperating sectors or programs have a clear understanding of their respective roles and responsibilities from the beginning.

c. Determination of indicators

Indicators provide a means for assessing and measuring changes and achievements resulting from the implementation of the NLBI. They are used to measure whether, and to what extent, the objectives and expected results are being achieved through the NLBI process. It is important to identify both quantitative and qualitative indicators to be able to effectively measure the results and impacts of the NLBI implementation process. In general it is advisable to select and use a limited number of key indicators that are easy to assess while providing a reasonable measure of progress achieved. It is also important to involve key stakeholders in the process of identifying the indicators in order to ensure that their interests are taken on board and they can identify with and own of the M&E process. Examples of indicators for measuring achievement of SFM include:

- Increase of percentage of forest under SFM
- Increase in volume and percentage of processed forest products
- Increase in value of processed forest products
- Volume of private sector investment in SFM
- incidence of forest pests and diseases
- Percentage of protected forests
- Percentage/ hectarage of certified forests
- Number of community households accessing forests

d. Identification of methods and frequency of data-gathering and data management;

Once the indicators have been selected it is important to determine the methods and frequency of data collection. This will help in determining the amount of resources required, who will be involved or responsible for collection of which data, how this data will be stored and shared. It is important



to ensure that the methods and frequency of measurement selected give realistic and adequate data. For example the period between measurements should be long enough to allow for change to have occurred. The assignment of roles and responsibilities right at the onset is also critical for determining what additional resources are required. It is important that the monitoring activities be tailored to available resources.

e. Data collection and analysis

The availability and quality of data and information generated from the monitoring and evaluation system is very important as it determines the usefulness of the whole NLBI process. In this regard data collection is critical and should be managed efficiently and effectively. For example it should cover all the data required based on the indicators selected by the stakeholders and the information required by users. It is also important to find a balance between the frequency of measurement, the precision and amount of data collection and cost.

An important component is to collect baseline data. A systematic collection of baseline data and information should take place early into the implementation of the NLBI process when all relevant stakeholders and implementing agents have a reasonable understanding of the purpose of the NLBI, its role and the benefits of implementing it. The assessment of the current situation vis-à-vis the 25 national policies and measures of NLBI that is carried out at the beginning of the implementation process provides a basis for designing a comprehensive baseline that is informed by what is existing and the priority actions for implementation..The baseline assessment should take into account available sources of data to avoid duplication of data collection. It should be limited to the minimum information required to obtain a good understanding of the current situation. Baseline information will enable stakeholders to have a benchmark against which to measure changes achieved through implementation of the NLBI process. It also helps to refine the indicators, frequency of measurement and the assignment of responsibilities based on what is actually on the ground. In this regard this exercise should be combined or be part of the initial situation analysis studies and identification of existing forestry-related initiatives. It is important to limit data collection to the minimum necessary to gauge progress and to identify possible challenges to NLBI implementation. At the same time it should cover the information/ parameters required for national and international reporting. This will help in ensuring that the data collection efforts and costs are in line with the available human and financial resources as well as the available institutional capacity.



f. Mechanisms for analysis and feedback to decision makers;

The monitoring system must include very clear guidelines on who will be responsible for conducting analysis and providing results to the relevant stakeholders. This will ensure generation of targeted information and early uptake and use of the information. In particular the information that should be provided to decision makers at various levels must be clearly identified and the methods and channels of communication clarified.



Photo by: Subhash Candra



SUSTAINABLE FOREST MANAGEMENT:

A definition of sustainable forest management (SFM) developed by the Ministerial Conference on the Protection of Forests in Europe (MCPFE), and adopted by FAO is given below:

“The stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.”

SFM can be described as the attainment of balance between society’s increasing demands for forest products and benefits, and the preservation of forest health and diversity. SFM aims to ensure that the goods and services derived from the forest meet present-day needs while at the same time securing their continued availability and contribution to long-term development. In its broadest sense, SFM encompasses the administrative, legal, technical, economic, social and environmental aspects of the conservation and use of forests. It implies various degrees of human intervention, ranging from actions aimed at safeguarding and maintaining the forest ecosystem and its functions, to favouring specific socially or economically valuable species or groups of species for the improved production of goods and services.

Thematic Elements of SFM:

Seven thematic elements being the key components of SFM are:- (1) Extent of forest resources; (2) Biological diversity; (3) Forest health and vitality; (4) Productive functions of forest resources; (5) Protective functions of forest resources; (6) Socio-economic functions; (7) Legal, policy and institutional framework:

1. Extent of forest resources

The theme expresses an overall desire to have significant forest cover and stocking, including trees outside forests (TOF), to support the social, economic and environmental dimensions of forestry. The theme encompasses ambitions to reduce deforestation and to restore and rehabilitate degraded forest landscapes and also includes the important function of forests and TOF to store carbon and thereby contribute to moderating the global climate.



2. Biological diversity

The theme concerns the conservation and management of biological diversity at the ecosystem (landscape), species and genetic levels. Such conservation, including to protect areas with fragile ecosystems, ensures that diversity of life is maintained, and provides opportunities to develop new products, for example medicines, in the future. Genetic improvement is also a means to improve forest productivity.

3. Forest health and vitality

Forests need to be managed so that risks and impacts of unwanted disturbances are minimized, including wildfires, airborne pollution, storm felling, invasive species, pests, diseases and insects. Such disturbances may impact social, economic as well as environmental dimensions of forestry.

4. Productive functions of forest resources

Forests and TOF provide a wide range of wood and non-wood forest products. The theme expresses the ambition to maintain a high and valuable supply of primary forest products, while at the same time ensuring that production and harvesting are sustainable and do not compromise management options of future generations.



Photo by: Apoorva Singh



Photo by: Apoorva Singh

5. Protective functions of forest resources

The theme addresses the role of forests and trees outside forests to help moderate soil, hydrological and aquatic systems including maintaining clean water, healthy fish populations, as well as to reduce risks or impacts of floods, avalanches, erosion and droughts. Protective functions of forest resources also contribute to ecosystem conservation efforts and have strong cross-sectoral aspects, as the benefits to agriculture and rural livelihoods are high.



6. Socio-economic functions

The theme addresses the contributions of forest resources to the overall economy like employment opportunities, values generated through processing and marketing of forest products and energy, trade, and investments in the forest sector. The theme also addresses the important functions of forest to host and protect sites and landscapes that have high cultural, spiritual or recreational values, and thus include aspects of land tenure, indigenous and community management systems, and traditional knowledge.

7. Legal, policy and institutional framework

The theme includes the legal, policy and institutional arrangements necessary to support the above six themes, including participatory decision making, governance and law enforcement, and monitoring and assessment of progress. The theme also addresses broader societal aspects, including fair and equitable use of forest resources, science research and education, infrastructure arrangements to support the forestry sector, transfer of technology, capacity building, public information and communication.

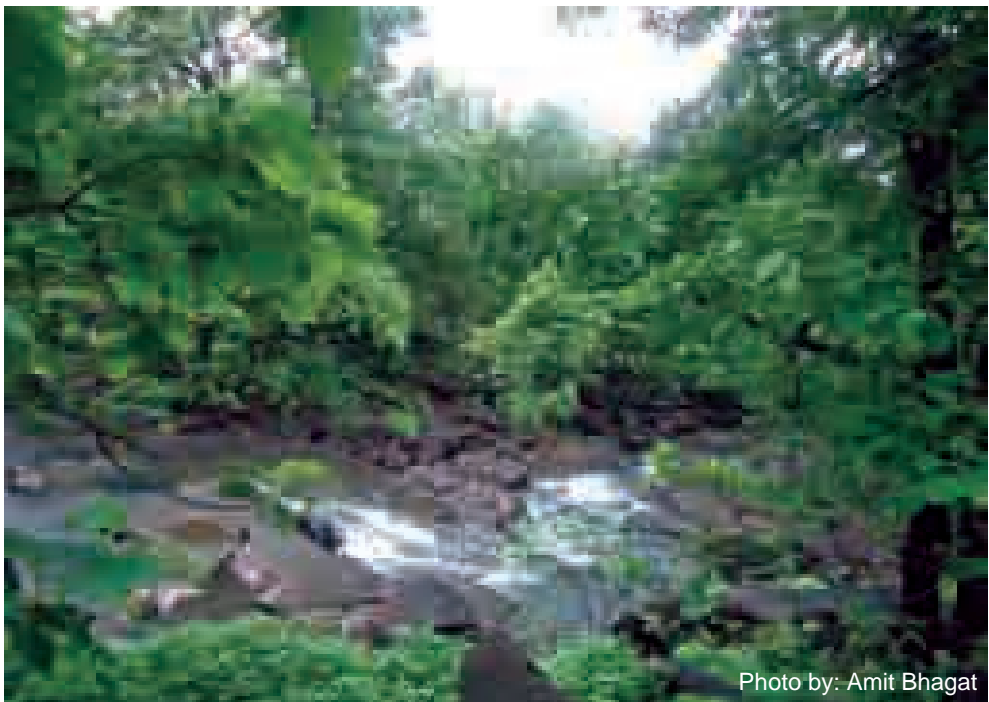


Photo by: Amit Bhagat



Photo by: Subhash Candra



NATIONAL FOREST POLICY, 1988

BASIC OBJECTIVES:

The principal aim of Forest Policy is to ensure environmental stability and maintenance of ecological balance including atmosphere equilibrium which are vital for sustenance of all life forms, human, animal and plant. The derivation of direct economic benefit must be subordinated to this principal aim.

Basic objectives of the National Forest Policy are as follows:-

- Maintenance of environmental stability through preservation and, where necessary, restoration of the ecological balance that has been adversely disturbed by serious depletion of the forests of the country.
- Conserving the natural heritage of the country by preserving the remaining natural forests with the vast variety of flora and fauna representing biological diversity and genetic resources of the country.
- Checking soil erosion and denudation in the catchment areas of rivers, lakes, reservoirs in the interest of soil and water conservation and also checking the extension of sand-dunes in the deserts of Rajasthan and coastal tracts.
- Increasing sustainably the forest/tree cover in the country through massive afforestation and social forestry programmes.
- Meeting the requirements of fuel wood, fodder, minor forest produce and small timber of the rural and tribal populations. Creating a massive people's movement with the involvement of women, for achieving these objectives and to minimize pressure on existing forests.
- Increasing the productivity of forests to meet essential national needs and encouraging efficient utilization of forest produce and maximizing substitution of wood.



SALIENT FEATURES OF NATIONAL FOREST POLICY:

- Strengthening and expanding network of national parks, sanctuaries, biosphere reserves and other protected areas for conservation of biological diversity.
- Provision of sufficient fodder, fuel and pasture, in areas adjoining forest, in order to prevent depletion of forests beyond the sustainable limit. Intensive afforestation for fuelwood to meet the energy requirement of the rural people.
- Minor forest produce provides sustenance to tribal population and to other communities residing in and around the forests. Such produce should be protected and their production enhanced for generation of employment and income.
- **Area under forests:** The national goal should be to have a minimum of one-third of the total land area of the country under forest or tree cover. In the hills and in mountainous regions, the aim should be to maintain two-third of the area to prevent erosion and land degradation and to ensure the stability of the fragile eco-system.
- **Afforestation, Social Forestry & Farm Forestry:** A massive need-based and time bound programme of afforestation and tree planting, with particular emphasis of fuelwood and fodder development, on all degraded and denuded lands in the country is a national imperative. Encourage planting of trees/ green belts alongside of roads, railway lines, rivers and streams and canals, and on other unutilized lands.
- Village and community lands, not required for other productive uses, should be taken up for the development of tree crops and fodder resources. The revenues generated through such programmes should belong to the panchayats where the lands are vested in them; in all other cases, such revenues should be shared with the local communities in order to provide an incentive to them the vesting, in individuals, particularly from the weaker sections. Beneficiaries would be entitled to usufruct and would in turn be responsible for their security and maintenance.
- Land laws should be so modified wherever necessary so as to facilitate and motivate individuals and institutions to undertake tree-farming and grow fodder plants, grasses and legumes on their own land. Appropriate regulations should govern the felling of trees on private holding.

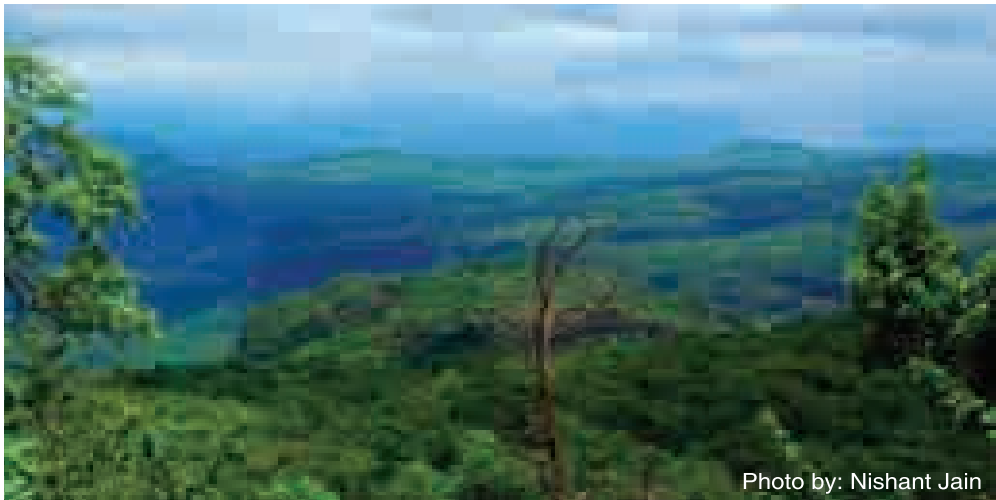


- **Management of State Forest:** Schemes and projects which interfere with forest that clothe steep slopes, catchment of rivers, lakes, and reservoirs, geologically unstable terrain and such other ecologically sensitive areas should be severely restricted. Tropical rain/moist forests, particularly in areas like Arunachal Pradesh, Kerala, Andaman & Nicobar Islands, should be totally safeguarded.
- No forest should be permitted to be worked without the Government having approved the management plan, which should be in a prescribed format and in keeping with the National Forest Policy.
- In order to meet the growing needs for essential good and services which the forests provide, it is necessary to enhance forest cover and productivity of the forests through the application of scientific and technical inputs. No such programme should entail clear-felling of natural forests, nor exotic species should be introduced, unless long-term scientific trial undertaken by specialists in ecology, forestry and agriculture have established that they are suitable and have no adverse impact on native vegetation and environment.
- **Rights and Concession** including grazing, should always remain related to the carrying capacity of forests. Stall-feeding of cattle should be encouraged. The requirements of the community, which cannot be met by the rights and concessions so determined, should be met by development of social forestry. The holders of customary rights and concessions in forest areas should be motivated for protection and development of forests from which they derive benefit. The rights and concessions from forests should primarily be for the bonafide use of the communities living within and around forest areas, specially the tribals. The life of tribals and other poor living within and near forests revolves around forests. The rights and concessions enjoyed by them should be fully protected. Their domestic requirements of fuel wood, fodder, minor forests produce and construction timber should be the first charge on forest produce.
- Wood is in short supply. The long-term solution for meeting the existing gap lies in increasing the productivity of forests. Similarly, on the front of domestic energy, fuel wood needs to be substituted as far as practicable with alternate sources like bio-gas, LPG and solar energy. Fuel-efficient Chulhas as a measure of conservation of fuel wood need to be popularized in rural areas.
- **Diversion of Forest Lands for Non-forest purposes:** Diversion of forest land for any non-forest purpose should be subject to the most careful examinations by specialists from the standpoint of social and environmental costs and benefits.



Development Projects which involve such diversion should at least provide in their investment budget, funds for regeneration/compensatory afforestation and should be consistent with the needs for conservation of trees and forests.

- **Wildlife Conservation:** Forest Management should take special care of the needs of wildlife conservation, and forest management plans should include prescriptions for this purpose. It is specially essential to provide for corridors linking the protected areas in order to maintain genetic continuity between artificially separated sub-sections of migrant wildlife.



- **Tribal People and Forest:** The tribal people should be associated closely in the protection, regeneration and development of forests as well as to provide gainful employment to people living in and around the forest. While safeguarding the customary rights and interests of such people, forestry programmes should pay special attention to the following:-
 - One of the major causes for degradation of forest in illegal cutting and removal by contractors and their labour. In order to put an end to this practice, contractors should be replaced by institutions such as tribal cooperatives, labour cooperatives, government cooperatives, etc., as early as possible.
 - Development of forest villages on par with revenue villages;
 - Family oriented schemes for improving the status of the tribal beneficiaries; and
 - Undertaking integrated area development programmes to meet the needs



of the tribal economy in and around the forest areas, including the provision of alternative sources of domestic energy on a subsidised basis, to reduce pressure on the existing forest areas.

- **Shifting Cultivation:** Shifting cultivation is affecting the environment and productivity of land adversely. Efforts should be made to contain such cultivation within the area already affected, by propagating improved agricultural practices. Area already damaged by such cultivation should be rehabilitated through social forestry and energy plantations.
- **Damage to Forests from Encroachments, Fires and Grazing:** Encroachment on forest lands has been on the increase. This trend has to be arrested and



effective action taken to prevent its continuance. There should be no regularization of existing encroachments. Special precautions should be taken during the fire season to prevent forests from fire damage. Improved and modern management practices should be adopted to deal with forest fires. Grazing in forest areas should be regulated with the involvement of the community. Special conservation areas, young plantations and regeneration areas should be fully protected.

- **Forest-based Industries:** A forest-based industry should raise the raw material needed for meeting its own requirements, preferably by establishment or a direct relationship between the factory and the individuals who can grow the raw material by supporting the individuals with inputs including credit, constant technical advice and finally harvesting and transport services.
 - No forest-based enterprise should be permitted in the future unless it has been first cleared after a careful scrutiny with regard to assured availability of raw material.



- Natural forests to serve as a gene pool resource and to maintain ecological balance. Such forests not to be made available to industries for undertaking plantation and for any other activities.



Photo by: Apoorva Singh



Photo by: Subhash Candra

- The practice of supply of forest produce to industry at concessional prices should cease. Industry should be encouraged to use alternative raw materials. Import of wood and wood products should be liberalized.
- **Forestry Education:** Forestry should be recognized both as a scientific discipline as well as a profession. Agriculture universities and institutions dedicated to the development of forestry education should formulate curricula and course for imparting academic education and promoting post-graduate research and professional excellence. Specialised training of foresters need to be encouraged, taking into account the latest development in forestry and related disciplines.



Photo by: Ashish Tirkey



Photo by: Amit Bhagat

- **Forestry Research:** Broad priority areas of research and development needing special attention are:-
 - i) Increasing the productivity of wood and other forest produce.



- ii) Re-vegetation of barren/marginal/waste/mined lands and water shed areas.
 - iii) Effective conservation and management of existing forest resources (mainly natural forest eco-systems).
 - iv) Research related to social forestry for rural/tribal development.
 - v) Development of substitutes to replace wood and products.
 - vi) Research related to wildlife and management of national parks and sanctuaries.
- **Personnel Management:** Personnel management for professional foresters and forest scientists should aim at enhancing their professional competence and status and retaining qualified and motivated personnel, keeping in view the arduous nature of duties they have to perform, often in remote and inhospitable places.
 - **Forest Survey and Data Base:** Priority needs to be accorded to completing the survey of forest resources in the country on scientific lines and to updating information. Periodical collection, collation and publication of reliable data on relevant aspects of forest management needs to be improved with resource to modern technology and equipment.
 - **Legal Support and Infrastructure Development:** Appropriate legislation should be undertaken, supported by adequate infrastructure, at the Centre and State levels in order to implement the Policy effectively.
 - **Financial Support for Forestry:** The objective of this revised Policy cannot be achieved without the investment of financial and other resources on a substantial scale. Forests should not be looked upon as a source of revenue. Forests are a renewable natural resource. They are a national asset to be protected and enhanced for the well being of the people and the Nation.



Photo by: Kumar Manisha



Present Status of Implementation of NLBI in India

India's forests & Biodiversity: India has about 2.5% of the world's geographical area and 1.8% of the forest area, but supports around 17% of the global human population and 18% of domestic cattle population. India's Recorded forest area is 77.47 m ha, (23.57% of the country's GA). As per India State of Forest Report, 2011, Forests & Tree cover is 78.29 m ha (23.81% of GA). Quality of forest cover however varies from region to region. In terms of density classes, area of Very Dense Forest is 83,471 km² (2.54% GA), Moderately Dense Forest 320,736 km² (9.76% GA) and Open Forest 287,820 km² (8.75%). Of the recorded forest areas, 51.6% are notified Reserved Forests, 30.8% are notified Protected Forests and the remaining 17.6% are un-classed forests. Total Growing stock of India's forest and ToF is estimated as 6,047.15 cum and the total carbon stock of the India's forest is estimated to be 6,663 million tonnes. India is one of the few countries of the world to have a robust and scientific system of periodic forest cover assessment at every two year interval. Per capita forest land availability is very low i.e. 0.06 ha. India is one of the twelve mega-biodiversity countries in the world, comprising over 91,000 animal and 45,500 plant species. Nearly 6,500 native plants are still used prominently in indigenous healthcare. India's Forests are home to around 70% of the terrestrial biodiversity. India has an elaborate Protected Area Network with 102 National Parks, 517 Wildlife Sanctuaries, 47 Conservation Reserves, 4 Biosphere Reserves etc. covering nearly 4 % of GA.

There has been considerable progress in stabilizing and maintaining the overall forest cover at the country level, i.e., in checking deforestation. However, forest degradation due to various factors including dependency of local communities, is a formidable challenge to be addressed on priority. Country's forests are under tremendous pressure for meeting demands of fuelwood, fodder, NTFPs etc. of the local communities dependent on forests for livelihood and sustenance. A multidisciplinary & cross sectoral approach would be better to deal with forest degradation and improving forest health, density, composition so that forests are able to play effective role in providing goods and optimising ecological and environmental services.

Forest Governance, Policy and Legal Framework: Scientific forest management in India dates back to mid-1800s. India has comprehensive policy and legislative framework for guiding forest conservation and management. Forests are managed by forest departments of State/ Union Territory Governments based on sustained yield principle through the mechanism of working plans/schemes prepared by trained professional foresters. The Central Government through the Ministry of Environment & Forests provides policy directions and guidelines. There has been considerable progress in stabilizing and maintaining the overall forest cover, i.e., in checking deforestation. In spite of severe pressure on forests and forest products, India has been able to nearly stabilise and maintain the forest and tree cover in last two decades.

The **National Forest Policy of 1988, the Indian Forest Act, 1927, the Wild life**



(Protection) Act, 1972, the Forest (Conservation) Act, 1980, the Biological Diversity Act, 2002 and relevant State legislations on the matters pertaining to forests, wildlife and biodiversity provide for the guiding principles, and ways and procedures through which forests are to be utilised and administered. The main objectives of these important legislations are given below:

Indian Forest Act, 1927 provides for notification of various categories of forests, their management and regulates activities which such forest areas. It provides for consolidation and protection of forests and forest produce and empowers forest officers in exercising their duties under the Act. The Act lays the foundation of sustainable forest management in the country.

Forest (Conservation) Act, 1980 provides that no forest land can be diverted for non-forestry purposes without the approval of the Central Government. It also provides for a Forest Advisory Committee to consider all aspects of conservation and management of forest land before it recommends diversion and compensatory afforestation in lieu of forest area diverted.

The Wild life (Protection) Act, 1972 provides for declaration of protected areas in the country and its management, protection to various species listed in the five schedules and empowers authorized officers to carry out the duties under the Act, Management of Zoos and National Tiger Conservation Authority.

Towards safeguarding Forest Rights of local communities: The Government of India has promulgated the **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest rights) Act, 2006** also known as **Forest Rights Act, 2006** to recognise and vest forest rights of STs and Other Traditional Forest Dwellers/ Communities whose rights could not be recorded earlier. The rights of the forest dwelling Scheduled Tribes and other traditional forest dwellers also include the responsibilities and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance and thereby strengthening the conservation regime of the forests, while ensuring their livelihood and food security. As per the information collected till 30th June, 2013, total 32, 56,367 claims have been filed out of which 28, 27, 582 claims have been disposed(86.83%). Against settled claims total of 13,08,626 titles have been distributed. So far forest land of 19,87,919.84 Ha has been covered against total 13,01,207 titles which includes both individual as well as community rights. (Source: Status of implementation of FRA, MoTA)

Forestry Institutions: India has a good network of national institutions on forestry and wildlife playing an important role in capacity building in scientific and technical field & research for sustainable forest management in the country.

- Indian Council of Forestry Research and Education (ICFRE), Dehradun with 8 forestry research institutes in different parts of the country under its umbrella providing forestry research support
- India Gandhi National Forest Academy (IGNFA), Dehradun trains Indian



Forest Service Officers, State Forest Service colleges train of State Forest Service Officers, Training colleges for Forest Rangers and Forest Schools for front line staff.

- Forest Survey of India (FSI), Dehradun carries out forest inventory and remote sensing based monitoring and resource mapping.
- Wildlife Institute of India, Dehradun handles wildlife research in the country
- Indian Institute of Forest Management (IIFM), Bhopal provides forest management education and research.

Forests for Sustainable Future: Forestry sector has an important role to play in the country's Sustainable Economic Development. The challenge lies in better and effective integration of forestry sector in national development programmes of various sectors for sustainable development. Forest products are essential for sustainable future. Wood and wood products can significantly contribute to livelihood and prosperity of forest dependent and rural communities and in real transformation to greener economy. The use of wood products, from sustainably managed forests, being renewable, reusable and biodegradable will store carbon and offset some of the emissions from manufacturing, concrete, plastics and steel sectors. Wood products including furniture, panel products, large number of artefacts can revive traditional art and trade and help large number of artisans. The demand for wood & wood products in construction of buildings and other infrastructure will encourage private investment in tree plantation outside natural forests.

Forestry sector has emerged as a critical sector to achieve sustainable development. Economic development, social inclusion and environmental sustainability are the three pillars of sustainable development. Wide range of products and services encompassing economic, social, and environmental services that forests provide, create opportunities to address many of the most pressing sustainable development challenges like reduction of poverty and hunger, employment generation and most importantly improvement of environment and ecology, thus benefitting whole society. The degradation of forests and ecosystems has negative impacts on productivity reducing the resilience of forest dependent communities. The Twelfth FY Plan of the Government has a vision for Managing Environment, Forests, Wildlife and challenges due to Climate Change for faster and equitable growth, where ecological security for sustainability and inclusiveness is restored, equity in access to all environmental goods and ecosystem services is assured through institutionalisation of people's participation. Some important targets that have been set for the Twelfth Plan to achieve above vision include:-

- Greening 5 million ha under Green India Mission including 1.5 m ha of degraded lands, afforestation and eco restoration of 0.9 m ha of ecologically sensitive areas, and



- Technology-based monitoring of forest cover, biodiversity and growing stock including change-monitoring on periodical basis and establishment of open web-based National Forestry and Environmental Information system for research and public accessibility by 2015.

Forests and Rural Livelihood: Role of NTFPs as a vital source of livelihood of large number of rural communities has already been recognised. Forests and trees on farm (Orchards) also act as a vital source of food, fuel and nutrient supplement including providing insurance against bad crop seasons. The Ministry of Tribal Affairs has recently formulated a scheme to provide Minimum Support Price and processing and marketing facilities to some of important MFPs which is expected to benefit large number of primary collectors. However there is a need to invest in NTFP development on much larger scale for realising its full potential. Forestry can assist in expanding economic growth in rural areas and increasing reliance on renewable resources. Forestry with agriculture can be a building block of environmentally and economically sustainable future strategies. Improving quality and quantity of forests by making appropriate investment in afforestation & strengthening conservation, promoting small and medium forest based enterprises, increasing long term values of various forest products by reusing and recycling, wood for energy is required for realising full potential of forestry sector.

Forests, Water and Sustainable Agriculture: Role of forests in Watershed management is critically important. Forests help in recharging ground water and maintain optimum water flow in streams/ rivers. Forests and trees add to soil fertility and leaf litter/ forest manure supports agriculture. Trees in farms also help small and marginal farmers in augmenting their income and support in lean season. Forestry interventions are already part of strategies in programmes for water and agriculture sectors, which needs to be strengthened.

Forests and Climate Change: The impacts of climate change are diverse and could be significant to India for the rural and forest dependent communities, who are the most vulnerable. India has played a significant role in the development of a comprehensive REDD+ approach at the international level. At the national level, India has initiated the National Mission for a Green India (GIM) under its National Action Plan on Climate Change (NAPCC). GIM aims at responding to climate change by a combination of adaptation and mitigation measures, which would help (1) enhance carbon sinks in sustainably managed forests and other ecosystems, (2) adaptation of vulnerable species/ecosystems to the changing climate, and (3) adaptation of forest dependent communities. Foresters have an important role in operationalisation of REDD+ in the country.

Forests for sustainable Cities- Urban & Peri urban Forestry: According to the world population prospects by the United Nations, 55% population of India will be urban by the year 2050. However, cities are facing a number of environmental problems. Urban greens and forests improve quality of life for city dwellers by providing recreational



avenues, public space for better social cohesion, significant health benefits as green lungs of the city and provide highly valuable ecological and environmental services. They moderate microclimate, ground water recharge, provide shade and conserve valuable local biodiversity. Forest department are playing an important role in conservation of urban forests and trees in Cities. Cross sectoral approach with involvement of multiple stakeholders will help in integrating forestry sector with urban development for creating liveable and sustainable cities.

Institutional Mechanism Cross Sectoral cooperation in Forestry Sector: The inter- sectoral cooperation to achieve SFM exists primarily with related sectors viz. Agriculture, Climate Change, Tourism, Water and Rural Development etc. Planning Commission of India coordinates between various Ministries and Departments for integrated action of various Ministries in formulation and review of programs including forestry sector. Agriculture Ministry has a role in promotion of Agro-forestry including implementing National Bamboo Mission for promotion of bamboo plantation. Department of Science and Technology supports Bamboo application and its processing through National Mission for Bamboo Application. Medicinal Plants Conservation and propagation is promoted by National Medicinal Plants Board under the Ministry of Health & Family Welfare. Ministry of Tribal Affairs is working on programmes/ scheme with the objective of improving condition of tribals & forest dependent communities together with Forest Departments of various States. Climate Change and forests related issues are dealt within the Environment & Forest Ministry. Forestry sector is an integral part of National Action Plan of Climate Change. Ministry of Environment and Forests is consulted during formulation of schemes and programs of other Ministries, especially in the social and NRM Sectors.

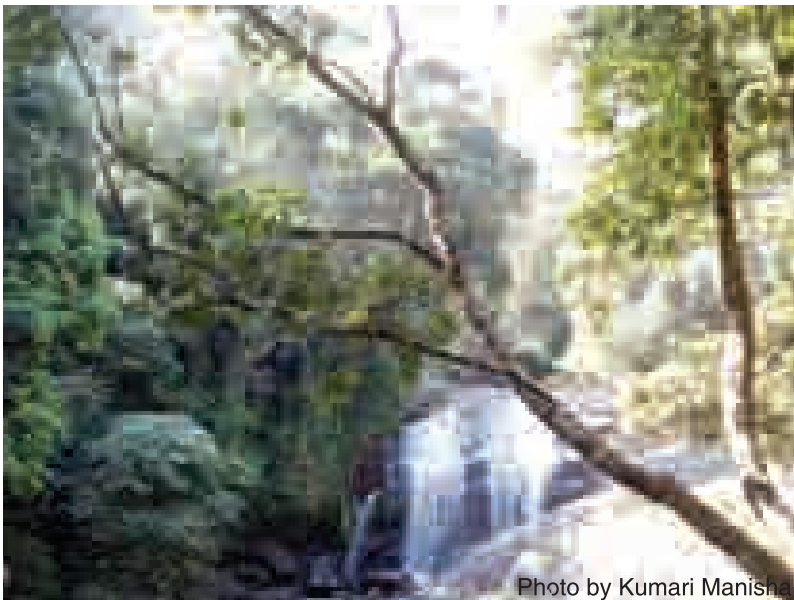


Photo by Kumari Manisha