



सत्यमेव जयते



# National REDD+ Strategy INDIA



**Ministry of Environment, Forest and Climate Change  
Government of India  
2018**





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Ministry of Environment, Forest and Climate Change  
Indira Paryavaran Bhawan  
Jor Bagh Road, Aliganj  
New Delhi – 110 003

2018

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Expert Committee constituted by Director General, ICFRE in October 2017 for drafting of the National REDD+ Strategy of India:

1. Dr. Suresh Gairola, Director General, ICFRE
2. Dr. Jagdish Kishwan, Former ADGF (WL), MoEFCC
3. Dr. Promode Kant, Director, Institute of Green Economy, New Delhi
4. Dr. Subhash Ashutosh, PCCF, Meghalaya
5. Dr. Mohit Gera, Director, IFGTB Coimbatore
6. Mr. Rajesh Kumar, Dy. Director General, FSI
7. Mr. Noyal Thomas, DIGF (FP), MoEFCC
8. Mr. V.R.S. Rawat, ADG (Biodiversity and Climate Change) ICFRE

Document approved by Ministry of Environment, Forest and Climate Change, Government of India, vide letter F.No. 18-16/2013-FP (Vol.2) dated 7<sup>th</sup> June, 2018

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डॉ. हर्ष वर्धन  
Dr. Harsh Vardhan



भारत सरकार  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्री  
GOVERNMENT OF INDIA  
MINISTER OF ENVIRONMENT, FOREST &  
CLIMATE CHANGE



## MESSAGE

Climate change affects us all. In the developing countries climate change will be added to existing challenges, with far fewer resources to cope with the problems. Scientific findings indicate that risks associated with changes in climate are real, and the impacts are being witnessed in many systems and sectors essential for our well being. Along with global community, India is equally concerned about the impacts of climate change. The integration of climate change into the national development planning process in India is guided by the Prime Minister's Council on Climate Change. India's National Action Plan on Climate Change (NAPCC) reflects the importance India attaches to mobilizing its national energies in meeting the challenge of climate change.

Globally forests are considered to have great potential for mitigation of climate change. UNFCCC programme on 'Reducing emissions from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks' in developing countries (collectively known as REDD+) aims to achieve climate change mitigation by incentivising forest conservation in developing countries.

As well-being of forests is considered essential for healthy environment, sustainable livelihoods of local communities, and also for conservation of biodiversity and meeting the raw material needs of the forest-based industry, REDD+ attracts highest attention in developing country like India where local communities, forest dwelling tribal communities have high dependency on forests for their livelihoods.

In accordance with UNFCCC decisions on REDD+, India has prepared its National REDD+ Strategy. The Strategy builds upon existing national circumstances which have been updated in line with India's National Action Plan on Climate Change, Green India Mission and India's Nationally Determined Contribution (NDC) to UNFCCC.

I have great pleasure in presenting this National Strategy for REDD+. I thank Expert Committee members and invited experts for their contribution for preparing this National REDD+ Strategy. I also acknowledge the efforts put up by the Director General, Indian Council of Forestry Research and Education (ICFRE) for coordinating the preparation of this document.

I am hopeful that the National REDD+ Strategy of India will be a guiding document for effective implementation of REDD+ activities in India.

Date: 01.05.2018

  
(Dr. Harsh Vardhan)





सत्यमेव जयते

डॉ. महेश शर्मा  
Dr. Mahesh Sharma



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ENVIRONMENT, FOREST AND CLIMATE CHANGE  
GOVERNMENT OF INDIA



## MESSAGE

In the recent years, climate change is one of the few global issues that have received tremendous attention of common man, scientists and policy planners. Global climate change is a threat having perceptible and tangible impacts upon human kind and nature. India is a Party to the United Nations Framework Convention on Climate Change (UNFCCC) and the Government of India attaches great importance to climate change issues.

The forestry sector occupies a unique position in so far as climate change is concerned. It contributes significantly to global carbon dioxide emissions, and at the same time also provides significant climate change mitigation and adaptation opportunities. Further, forestry sector is closely linked to socio-economic systems, particularly those of the forest dwellers, forest dependent people, and rural communities in the developing countries.

The progressive conservation-oriented forest policies and afforestation programmes in India is contributing to reduction in carbon emissions, stabilization and improvement of carbon stocks in forests. Today, Indian forestry sector is making positive contribution in checking global climate change and in promoting sustainable development. India has a strong policy framework that it has enforced for conservation of its natural forest. Forest conservation in India has been achieved, and is being sustained at huge costs on account of revenue loss from harvests, and judicious diversion of forests for developmental purpose.

Under UNFCCC, the global programme on reducing emissions from deforestation, forest degradation and role of conservation of forest carbon stocks and sustainable management of forests, aims at addressing climate change mitigation and adaptation in developing countries. In order to take part in this global programme of REDD+, developing countries are required to put in place their National REDD+ Strategy or Action Plans.

India joining hands with global community has prepared its National REDD+ Strategy. I congratulate and wish the Director General, ICFRE and his team for drafting the National REDD+ Strategy for the country. I am sure the Strategy will serve as a guiding document for speedy implementation of REDD+ in India.

(Dr. Mahesh Sharma)

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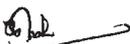
## MESSAGE

Climate change is a major challenge for developing countries like India that face large scale climate variability and are exposed to enhanced risks from climate change. The challenge of climate change calls for extraordinary vision, leadership, compassion and wisdom. The cumulative accumulation of greenhouse gases historically since industrial revolution has resulted in the current problem of global warming. India, even though not a part of the problem, has been an active and constructive participant in the search for solutions.

Keeping in view its development agenda, particularly the eradication of poverty coupled with its commitment to following the low carbon path to progress and being optimistic about the availability of clean technologies and financial resource from around the world, India communicated its Intended Nationally Determined Contribution to the UNFCCC. Besides, reducing the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level, India also communicated creating an additional carbon sink of 2.5 to 3 billion tonnes of CO<sub>2</sub> equivalent through additional forest and tree cover by 2030. National initiatives like Green India Mission, National Agro-forestry Policy, REDD+ programmes, Joint Forest Management, National Afforestation Programme and devolution of about USD 6 billion under Compensatory Afforestation to states will be the important instruments to achieve this task.

In accordance with the requirements of UNFCCC, to be eligible to get result based financial incentives for REDD+, Government of India has prepared its National REDD+ Strategy. The Strategy recognises the role of local and tribal communities in getting fair share of REDD+ benefits. The National REDD+ Strategy of India outlines the facilitative and enabling environment for implementing REDD+, the strategy to be adopted and an implementation framework complying the various REDD+ agreements under the UNFCCC.

I compliment the team of experts from the Ministry, Indian Council of Forestry Research and Education, and other organisations for bringing out the National REDD+ Strategy.

  
(C.K. Mishra)

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CLIMATE CHANGE



## MESSAGE

Forests play an important role in global climate change regulation. Forests are both source and sink of carbon. Their role in maintaining ecological balance, environmental stability and sustainable economic development is well known. With increased concern for climate change in recent decades, the emphasis on reducing the GHG emission from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks have been at the center of discussions under REDD+ agenda of UNFCCC. India has played an important role in REDD+ negotiations from Bali Action Plan where for the first time concept of Conservation was added to the agenda of REDD till the inclusion of REDD+ in Paris Agreement.

India is one of the few countries where forest and tree cover have increased in recent years transforming country's forests into a net sink owing to national policies aimed at conservation and sustainable management of forests. As per the latest assessment, forests and tree cover has increased by 8021 sq.km as compared to previous assessment in 2015, and now is 24.39% of the geographical area of the country. Government of India's long term goal is to bring 33% of its geographical area under forest and tree cover eventually.

India is bracing up for implementing REDD+ at national level in order to attract result based finance for REDD+ activities. India has already submitted its National Forest Reference Level for REDD+ to UNFCCC in January 2018 and now second in this series is the National REDD+ Strategy. I hope the National REDD+ Strategy when implemented in full will be a step forward in achieving India's target of capturing additional 2.5 to 3 billion tones of CO<sub>2</sub> through additional forest and tree cover by 2030.

The National REDD+ Strategy has been prepared by a team of forestry experts from MoEFCC, ICFRE and other organizations of the country. I congratulate the team of experts led by Dr. Suresh Chandra Gairola, Director General, Indian Council of Forestry Research and Education (ICFRE) for preparing the National REDD+ Strategy.

Date: 17.05.2018

  
(SIDDHANTA DAS)



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**डॉ. सुरेश गैरोला, भा.व.से.**  
**Dr. Suresh Gairola, IFS**



## PREFACE

India has always been in the forefront of REDD+ negotiations at the UNFCCC. Cancun Agreements, Warsaw Framework for REDD+ and Paris Agreement have created an enabling environment for implementing REDD+ by the developing countries. India is fully committed to implement REDD+ activities, and, therefore, also to develop a National REDD+ Strategy to be implemented in accordance with the UNFCCC agreements.

Ministry of Environment, Forest and Climate Change, Government of India initiated the preparation of National REDD+ Strategy in the year 2013. A drafting committee was constituted under the Chairmanship of Dr. Jagdish Kishwan former ADG (WL), MoEFCC. Other members included were Prof. Ravindra Nath, IISc., Dr. Rekha Pai, IG Forests, MoEFCC, Mr. Subhash Chandra, DIG Forests, MoEFCC, Rajesh Kumar, JD, FSI, Mr. V.R.S. Rawat, Scientist, ICFRE, Dr. Indu Murthy, IISc. Mr. Arun Bansal, former ADG (FC) and Mr. Harish C. Chaudhary, Director, MoEFCC. The drafting committee had a number of meetings to deliberate upon the contours of the strategy.

Later on in September 2017, ICFRE was mandated by the Ministry to look into the technical aspects of REDD+ activities. ICFRE constituted an Expert Committee under the chairmanship of DG, ICFRE to provide the requisite inputs to the Ministry. The committee had a series of meetings and stakeholders consultations for preparation of this document. I am thankful to the members of Expert Committee for providing vital inputs in preparation of this document and completing the task in a short period. I am thankful to the Ministry of Environment, Forest and Climate Change, Government of India for expressing its faith in ICFRE for drafting the National REDD+ Strategy. ICFRE acknowledges the financial support from ICIMOD-GIZ funded collaborative project 'REDD+ Himalaya' for supporting workshops and stakeholders consultation on developing National REDD+ Strategy for India.

The National REDD+ Strategy indicates Government of India's commitment to implement REDD+ by optimally exploring the mitigation potential of forestry sector in the country. It also recognizes the active participation of local communities and Indigenous people. The Strategy will also contribute towards green skill development and job creation in forestry sector.

National REDD+ Strategy is sincere contribution towards India's preparedness for early and effective implementation of REDD+. I am hopeful that the National REDD+ Strategy for India will serve as a guiding document for effective implementation of REDD+ activities in India and mobilize result based financial incentives.

Date: 30.03.2018

  
(Dr. Suresh Gairola)

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## Abbreviation used

APCCF	Additional Principal Chief Conservator of Forests
A & R	Afforestation and Reforestation
BCC	Biodiversity and Climate Change
BEE	Bureau of Energy Efficiency
CASFOS	Central Academy for State Forest Service
CCF	Chief Conservator of Forests
CF	Conservator of Forests
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> eq	Carbon Dioxide Equivalent
CFM	Community Forest Management
CAMPA	Compensatory Afforestation Fund Management and Planning Authority
COP	Conference of Parties
DG	Director General
EDCs	Eco-development Committees
EFCS	Enhancement of Forest Carbon Stocks
FC	Forest Conservation
FTC	Forest and Tree Cover
FREL	Forest Reference Emission Level
FRL	Forest Reference Level
FRM	Forest Reproductive Material
FSI	Forest Survey of India
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIM	Green India Mission
GoI	Government of India
GIS	Geographical Information System
GS	Growing Stocks
HoFF	Head of Forest Force
ICFRE	Indian Council of Forestry Research and Education
IIFM	Indian Institute of Forest Management
IGNFA	Indira Gandhi National Forest Academy
IPs	Indigenous Peoples
JFM	Joint Forest Management
JFMCs	Joint Forest Management Committees
Kg	Kilogram

Km	Kilometre
LCs	Local Communities
LPG	Liquified Petroleum Gas
LULUCF	Land Use Land Use Change and Forestry
MDF	Moderately Dense Forest
Mha	Million Hectare
MMU	Minimum Mappable Unit
MoEFCC	Ministry of Environment, Forest and Climate Change
MRV	Measurement, Reporting and Verification
MSS	Multispectral Scanner System
mt	Million Tonnes
NAEB	National Afforestation and Eco-Development Board
NAP	National Afforestation Programme
NATCOM	National Communication
NAPCC	National Action Plan on Climate Change
NDC	Nationally Determined Contribution
NDE-NGC	National Designated Entity- National Governing Council
NFI	National Forest Inventory
NFMS	National Forest Measurement System
NFP	National Forest Policy
NGOs	Non Governmental Organisation
NGRBA	National Ganga River Basin Authority
NHAI	National Highway Authority of India
NRPS	National REDD+ Strategy
NTFP	Non-timber Forest Products
OF	Open Forest
PAs	Protected Areas
PCCF	Principal Chief Conservator of Forests
PAT	Performance Achieve and Trade
PESA	Panchayat (Extension to Scheduled Areas) Act, 1996
REDD+	Reducing emissions from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks
SFDs	State Forest Departments
SIS	Safeguard Information System
SMF	Sustainable Management of Forests
TOF	Tree Outside Forests
TOPS-FTC	Trading of Performance by States in Forest and Tree Cover
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UT	Union Territory
VDF	Very Dense Forest

# 1 Introduction and the Context

## 1.1 General

India is a vast country with a rich biological diversity. Forest is the second-largest land use in India after agriculture. Roughly, 275 million rural people in India depend on forests for at least part of their subsistence and livelihood (World Bank, 2006). As per the India State of Forest Report (FSI, 2017), the forest cover of the country stood at 708,273 km<sup>2</sup>, while it was 701,495 km<sup>2</sup> in 2015 updated assessment (FSI, 2017), recording an increase of 6778 km<sup>2</sup> within two years. The National Forest Policy of India envisages 33% of its geographical area under forest and tree cover. Figure 1.1 provides India's forest cover over successive assessments. The total forest and tree cover of the country is 24.4% of its geographical area.

The issues related to forest and environment management have been given adequate importance in the overall policy and planning for balanced development of the country.

The basic approach is development without destruction. This can be easily accessed from the fact that the Constitution of the country, fountainhead of all national laws, provides space for dealing with matters related to environment and forest. Article 48 A of the Constitution under Part IV- Directive Principles of State Policy prescribes for protection and improvement of environment and safeguarding of forests and wildlife. The subjects of 'prevention of cruelty to animals', 'forests', and 'protection of wild animals and birds' respectively at S. No. 17, 17A & B, in the Concurrent List of Schedule VII of the Constitution, thereby empowering both the Central Government and State Government to legislate on the subject in the interest of citizens of the country with overarching objective of protecting country's environment and ecology.

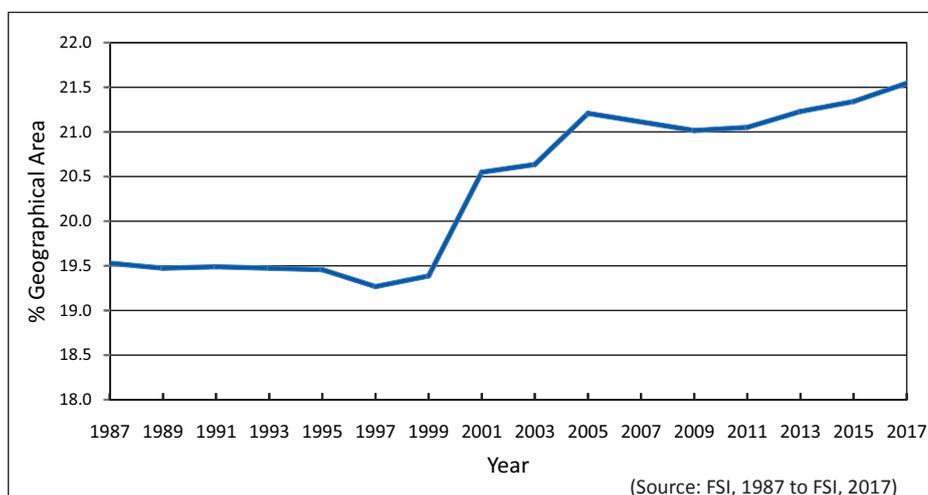


Figure 1.1: India's forest cover estimates from 1987 to 2017



**Carbon mitigation services of India’s forests:**

With its focus on sustainable management of forests, afforestation and regulating diversion of forest lands for non-forest purposes, India has been successful in improving carbon stock in its forests by as much as 10% amounting to 592 million tons of carbon for the decade ending in 2004. Carbon stocks in India’s forests were estimated to be 6071 million tonnes in the year 1994 and 6663 million tonnes in 2004. In 2015, (FSI, 2017 assessment) estimated carbon stock in forest was 7,082 million tonnes (FSI, 2017) while in 2013 it was 7044 million tonnes (FSI, 2015) which is a net increase of 38 million tonnes in country’s carbon stock within two years. Various national programmes and policies have converted India’s forest from net source to net sink of CO<sub>2</sub>. The land use,

land use change and forestry (LULUCF) sector was source of CO<sub>2</sub> in the year 1994 accounting for 1.16% of CO<sub>2</sub>eq emissions when India submitted its first National Communication (NATCOM) to UNFCCC in 2000 (MoEF, 2004). In its second National Communication, LULUCF sector was a net sink of 17 % of total national emissions (MoEF, 2012). India’s first biennial update report to UNFCCC has reported that the LULUCF sector was a net carbon sink offsetting 252.5 million tonnes of CO<sub>2</sub>eq which is 12% of India’s total GHG emission (MoEFCC, 2015). Thus, forestry sector in India is making positive contribution for climate change mitigation. Table 1.1 gives Land use land use change and forestry (LULUCF) contribution to India GHG emission profile.

**Table-1.1.** LULUCF contribution to India GHG emission profile

Sector	Year	GHG Emission (Gg CO <sub>2</sub> eq)					
		1994		2004		2010	
		Emission	Share (%)	Emission	Share (%)	Emission	Share (%)
Energy		743820	62	1027016	67	1510121	71%
Industrial Process & Product use		102710	7	88608	6	171503	8
Agriculture		344485	29	355600	23	390165	18
<b>LULUCF</b>		<b>14292</b>	<b>1.16</b>	<b>-222567</b>	<b>-17</b>	<b>-252532</b>	<b>-12</b>
Waste		23233	2	52552	4	65052	3
Total (Without LULUCF)			1214248		1523777		2136841
Total (Net Emission)			1228540		1301209		1884309

(Source: MoEF, 2004, 2012 and MoEFCC, 2015)

**1.2 Concept of REDD+**

Globally anthropogenic emissions from land use, land use change and forestry contributes 9-11% of GHG emissions owing to large scale deforestation and forest degradation in developing countries (IPCC, 2014). The agenda of “Reducing emissions from deforestation and forest degradation in developing countries (REDD)” was first introduced in UNFCCC as a climate change mitigation option to

address the emission from deforestation and forest degradation in 2005. With India’s intervention for inclusion of policy approach of conservation and sustainable management of forests, the concept of “*forest conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries*” was added and the concept is now collectively referred as ‘REDD+’.

## 1.3 Scope of REDD+

REDD+ decision in Cancun (COP16), Governments agree to boost action to curb emissions from deforestation and forest degradation in developing countries with technological and financial support. Developing country Parties, in accordance with their respective capabilities and national circumstances are encouraged to contribute to mitigation actions in the forest sector by undertaking the following activities, as deemed appropriate by each Party:

- I. Reducing emissions from deforestation;
- II. Reducing emissions from forest degradation;
- III. Conservation of forest carbon stocks;
- IV. Sustainable management of forest; and
- V. Enhancement of forest carbon stocks

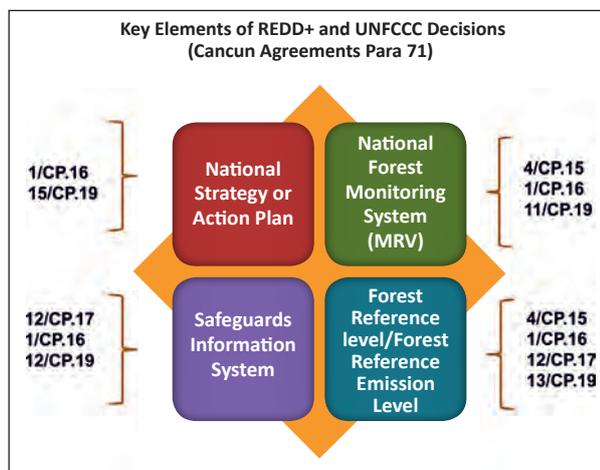
**Prerequisites for REDD+:** The COP decision (Decision 1.CP/16) requests developing country parties aiming to undertake REDD+ activities, in the context of the provision of adequate and predictable support, including financial resources and technical

and technological support to developing country Parties, in accordance with national circumstances and respective capabilities, to develop the following elements (Figure 1.2):

- (a) A national strategy or action plan,
- (b) A national forest reference emission level and/or forest reference level or, if appropriate, as an interim measure, sub-national forest reference emission levels and/or forest reference levels (FREL/FRL),
- (c) A robust and transparent national forest monitoring system for the monitoring and reporting of the REDD+ activities, if appropriate, sub-national monitoring and reporting as an interim measure, in accordance with national circumstances and
- (d) A system for providing information on how the safeguards are being addressed and respected throughout the implementation of the REDD+ activities, while respecting sovereignty.

## 1.4. Broad Elements of National REDD+ Strategy

In accordance with the COP decision the national REDD+ strategy or action plans, should address, *inter alia*, the drivers of deforestation and forest degradation, land tenure issues, forest governance issues, gender considerations and the safeguards identified, ensuring the full and effective participation of relevant stakeholders, *inter alia* indigenous peoples and local communities.



**Figure 1.2:** Key elements of REDD+ to be developed by developing country Parties



## 1.5 National Forest Reference Level

COP decision on REDD+ encourages developing countries to develop a “National Forest Reference Emission Level (REL) and/ or National Forest Reference Level (RL) or, if appropriate, as an interim measure, sub-national REL and/or RL, in accordance with the national circumstances”. REL and or RL serve as benchmark for assessing performance of implementation of REDD+ in a country.

For India, in accordance with its strategy of increasing the forest and tree cover, this

### India's proposed Forest Reference Level as submitted to UNFCCC

Historical average for the year 2000-2008 is: -49.70 million tonnes of CO<sub>2</sub> equivalent

decision necessitates the development of a National Forest Reference Level (RL). The developing countries are required to submit on voluntary basis the proposed forest reference levels to the UNFCCC Secretariat. Government of India has submitted the National Forest Reference Level to UNFCCC in January 2018.

## 1.6 National Forest Monitoring System

National Forest Monitoring System (NFMS) is synergy of processes that support strategic decision making by systematic and repeated measurement and observation of forest resources, efficacy of their management, uses and users; and most importantly to deliver periodically valid, representative and relevant information on comprehensive status and trends of the resource for the country with reasonable scale of accuracy.

India started forest cover assessment in 1987 using LANDSAT-MSS satellite data with a spatial resolution of 80 meter. Since 1995, FSI started using indigenous remote sensing satellite data and mode of interpretation was partly shifted from visual to digital. Since 2001, there were major technological and methodological advancements in the techniques of forest cover mapping in terms of satellite data, scale of mapping and interpretation. Since then, the forest cover mapping has been carried out at a

scale of 1:50,000 with mode of interpretation completely shifted from visual to digital. LISS-III data having spatial resolution of 23.5 meter has been used since then. As a result of this advancement, the Minimum mappable unit (MMU) has been further reduced to one hectare from 25 ha. Thus, during last 30 years, there has been a significant advancement in the remote sensing technology and India has kept pace with it as far as forest resources assessment is concerned, and is fully capable of computing quantum of forest carbon stocks.

In 2016, the National Forest Inventory (NFI) was reoriented keeping its focus to generate information which are used in i) Forest policy making at national and international levels; ii) National and State forest management planning; iii) Planning of forest investments; iv) Assessing sustainability of forests v) Evaluation of greenhouse gas emissions and changes in carbon storage; and vi) Research, etc.

## 1.7 REDD+ Safeguards

The REDD+ mechanism agreed in Cancun Agreements (1/CP.16), also includes a number of principles concerning safeguards. These principles are: (a) That actions complement or

are consistent with the objectives of national forest programmes and relevant international conventions and agreements; (b) Transparent and effective national forest governance



structures, taking into account national legislation and sovereignty; (c) Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples; (d) The full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities, in the REDD+ actions; (e) That actions are consistent with the conservation of natural forests and biological diversity, ensuring that the REDD+ actions are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other

social and environmental benefits; (f) Actions to address the risks of reversals; and (g) Actions to reduce displacement of emissions.

COP Decision 12/CP.17 on Guidance on systems for providing information on how safeguards are addressed and respected, COP, *inter alia*, agreed that systems for providing information on how the safeguards are addressed and respected should be country-driven, implemented at the national level, and can be built upon existing systems. Additionally, COP in Durban vide its decision 12/CP.17 prescribed that each Party is required to submit “a summary of information on how all the agreed safeguards are being addressed and respected throughout the implementation of the REDD+ activities”.

## 1.8 Rationale for REDD+

All five activities of REDD+ being aligned with the precepts of the National Forest Policy (NFP), constitute a common thread running through all programmes, schemes and projects of forestry sector in the country. REDD+ brings all actions and activities by all stakeholders on a common platform making it feasible to ensure a comprehensive monitoring and assessment of the performance of forest management and development at

different levels of administration. REDD+ implementation with its coverage of natural forests as well as trees outside forest (TOF), synergizes well with the socio-economic development of local communities, raw material requirement of wood-based industry, need for conservation of biodiversity including plants and animals, providing a green environment for people, and enhancing the forest carbon sink.

## 1.9 Dependence of Local Communities on Forest Resources and Concept of JFM

Presently, around 1,73,000 forest fringe villages in the country exist (MoEF, 2006) where local communities are highly dependent on forests for their *bona fide* needs especially those of energy, food supplement, fodder, livestock grazing, construction material, NTFP, traditional medicines, etc.

In 1990 India initiated a very successful programme involving local communities in

forest protection and management. The concept of Joint Forest Management (JFM) recognizes the share of the protecting communities over forest produce. The local communities and the State Forest Department jointly plan and implement forest regeneration and development activities, and the communities are rewarded with substantial share in forest produce in return



for their efforts in protection and management of forests. JFM based on principle of “Care and Share” now has more than 1,18,213 JFM Committees (JFMCs) involving around 20 million people managing over 25 mha of forest area. JFM has enabled protection and regeneration of existing forests, and raising of indigenous forest plantations, which is contributing in conservation of existing forests as also in increasing the carbon stocks. This approach matches well with the objectives of National Environment Policy, 2006 which, *inter-alia*, emphasizes the identification of climate change impacts on forests, and the need to internalize the mitigation and adaptation measures with respect to forest management.

The concept of JFM in India is a step towards the conversion of low-productivity forests to productive forests. Improving the stocking of poorly stocked forests will also in turn increase carbon stocks. Currently, JFM covers approximately 29.8% of the total forest area of the country. Over the years, the involvement of the local communities in the management of forests has increased manifold due to setting up of JFMCs in many parts of India. The implementation of JFM programme aims to improve quality of forests besides improving the economic status of local people involved in the protection and management of forests.

### 1.10 Eco-development in Community Areas

Eco-development programmes are being implemented in and around Protected Areas in the country with the objectives of reducing dependency of rural communities

on the resources of Protected Areas, their involvement in conservation of biological resources, capacity building and alternative employment generation interventions.

### 1.11 Involvement of Local Communities in REDD+

In India tribals, forest dwellers and other local communities have always enjoyed legal safeguards to exercise their customary rights and traditions. Acknowledging the importance of indigenous communities in maintaining forest ecosystems, the Government of India has recognized the forest rights of the indigenous communities through enactment of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights)

Act, 2006. The Act bestows on the local indigenous communities the responsibilities and authority for sustainable use of forest, conservation of biodiversity and maintenance of ecological balance. This is intended to strengthen the conservation regime of the forests, along with ensuring the livelihood and food security of the forest dwelling Scheduled Tribes and other traditional forest dwellers.

### 1.12 Need for Increase and Improvement in Forest and Tree Cover

All five activities of REDD+ coalesce in the single objective of increase and improvement in forest and tree cover (FTC), which is in tune with the goal of National Forest Policy of bringing 33% of country's land area under FTC. Scope for increase and improvement

in forest cover is supported by the fact that country's significant extent of forest areas fall in the categories of moderately dense, and open forests being subjected to continuous degradation and to a much smaller extent to drivers of deforestation. According to

FSI (2017), country's forest cover presently comprises Very Dense Forest (VDF) having canopy density >70%, Moderately Dense Forest (MDF), having canopy density of 40-70%, and Open Forest (OF) with canopy density of 10-40%, spread over 98,158 km<sup>2</sup> (2.99%), 301,318 km<sup>2</sup> (9.38%), and 301,797

km<sup>2</sup> (9.18%) respectively. A large number of programmes and schemes of the MoEFCC and State Governments including the Green India Mission, National Afforestation Programme, and Integrated Forest Protection Scheme are aimed at development of FTC in the country.

### 1.13 Addressing Drivers of Forest Degradation and Deforestation

To successfully and effectively address the drivers of deforestation and forest degradation, it will be imperative to first identify these drivers. In India, such drivers, *inter alia*, besides dependence of local communities on forest resources include uncontrolled forest fires, insect and pest infestation, and rampant spread of invasive species. Providing alternatives for various forest products being collected and used by the local communities mostly residing on the fringes of the forest for sustaining their livelihoods, will be one important step for addressing the drivers. Quick detection of forest fires and their control using modern

technology and equipment will be essential to obviate the avoidable loss of forest biomass. Continuous and systematic monitoring of insect and pest infestation, and status of invasive species, and deploying effective and timely management techniques to counter the negative impacts of these afflictions will be necessary. The strategy proposes to develop an institutionalized system for addressing drivers of deforestation and forest degradation in collaboration with State Forest Departments and forestry institutions with active involvement of local communities and voluntary agencies at ground level.

### 1.14 India's NDC to UNFCCC: Forestry Sector Targets

Forest and tree cover besides meeting the goal of the national Forest Policy, and livelihood needs of the local communities are also crucial to meeting the country's Nationally Determined Contribution (NDC) to UNFCCC under Paris Agreement. To meet the NDC target, improvement and increase in cover of natural forests will need to be supplemented by a concerted focus on trees outside forests (TOF), which contribute significantly to the country's carbon sink. Action with respect to TOF will form a significant part of the REDD+ strategy aimed at creating additional forest carbon sink by 2.5 to 3 billion tonnes of CO<sub>2</sub> equivalent by 2030 as communicated in the country's NDC to UNFCCC. Forest and tree cover while essential for NDC, additionally

provides a spin-off service by providing non-carbon benefits, other ecosystem services and by abating industrial pollution.

REDD+ is now well matured at international level. India is fully committed to implement the REDD+ activities and therefore has developed its National REDD+ Strategy. The National REDD+ Strategy of India outlines the facilitative and enabling environment for implementing REDD+, the strategy to be adopted and an implementation framework complying the various REDD+ agreements under the UNFCCC. The strategy has been developed with due diligence involving inputs from various expert committees and stakeholders consultations.

The process involved in the developing National REDD+ Strategy is given in Annex I.



# 2 Existing Legal and Policy Framework in India

The policy and legal framework that has evolved in tune with the Constitutional provisions are effectively attuned to safeguarding the natural resources of the country including forests, wildlife and biodiversity in general. This framework guides and directs the sustainable management of forests ensuring the conservation of biodiversity and also respecting and upholding the rights of the local communities on lands and forest products.

Various acts and legislations in India are a strong testimony of country's commitment to the philosophy of forest conservation. Provisions of the Policies and Acts described hereafter are in tune with the constituents of REDD+. Further, the people centric approach adopted in the management of forests for

almost over three decades supports the important precept of REDD+ that natural resources are to be conserved and protected for enhancement of ecosystem services for the benefit of local community dependent thereon. The other safeguards inherent in the concept of REDD+, i.e., conservation and preservation of biodiversity, enhancement of ecosystem services, respect for knowledge, traditions and rights of local communities, and open and transparent forest governance, etc. are fully covered under various legislations mentioned below. A brief mention of the relevant legislations in the following paragraphs brings out clearly the synergy and support of the legislations for implementation of REDD+ in India.

## 2.1 Indian Forest Act, 1927

This is the country-wide Act to consolidate the law relating to forests, the transit of forest-produce and the duty leviable on timber and other forest-produce. Proper implementation of the provisions of this Act is capable of

ensuring conservation of biodiversity of the natural forests as also enhancing the quality and extent of the forest and tree cover in the country, which, in turn, contribute to enhance REDD+ performance.

## 2.2 Wild Life (Protection) Act, 1972

As this Act provides for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto, it perfectly synergises with the

adherence to safeguards of REDD+ relating to conservation of biodiversity and non-conversion of natural forests into plantations.



### 2.3 Water (Prevention and Control of Pollution) Act, 1974

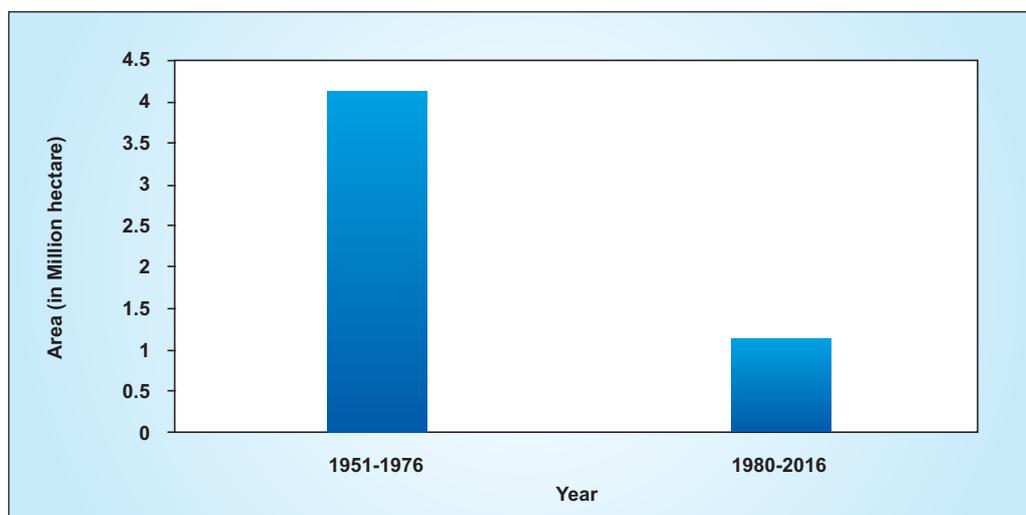
This is the Act to provide for the prevention and control of water pollution and maintaining or restoring wholesomeness of water. REDD+ implementation will need to ensure soil and

water conservation, and to avoid activities that would adversely impact the quality of natural or stored water.

### 2.4 Forest (Conservation) Act, 1980

The Forest (Conservation) Act, 1980 is one of the most effective legislations contributing to reduction in deforestation. This was enacted to reduce indiscriminate diversion of forest lands for non-forestry purposes, and to help regulate and control the land use changes in forests. The Act empowers only the Union Government to allow the diversion of forest for non-forestry use. With the enactment of this act, the deforestation and conversion of forest lands to non-forest use has been drastically reduced. The pace of diversion of

forest land for non-forest purposes was around 1,60,000 hectares per annum from 1951 to 1976. It came down drastically to 32,000 ha annually (MoEFCC, 2016) during 1980-2011 after the implementation of this Act (Figure 2.1). Being an Act for regulating diversion of forest land for non-forestry purposes, and to strike a balance between conservation and development, it helps to enhance performance of REDD+ implementation in the country by supporting conservation and improvement of natural forests.



(Source: MoEFCC, 2016)

Figure 2.1: Impact of Forest (Conservation) Act, 1980 on pace of forest diversion for non forest purpose

### 2.5 Air (Prevention and Control of Pollution) Act, 1981

This Act provides for the prevention, control and abatement of air pollution making it

obligatory on REDD+ activities not to give rise to or abet air pollution.

## 2.6 Environment (Protection) Act, 1986

An act to provide for protection and improvement of environment and for matters connected therewith, it empowers the Central Government to establish authorities to prevent pollution in all its form and to tackle specific

environmental problems that are peculiar to different parts of the country. REDD+ activities need to ensure that their implementation does not result in any abatement of pollution of air, water, land or any other natural resource.

## 2.7 National Forest Policy, 1988

The principal aim of National Forest Policy (NFP), 1988 is to ensure environmental stability and maintenance of ecological balance. The policy aims for maintaining one-third of the country's geographical area under forest and tree cover and calls for massive afforestation and social forestry programmes with people's participation for increasing the forest and tree cover in the country. The core aim of NFP perfectly synergises with REDD+ objective of climate change mitigation in forestry sector. More the area under forest, more the mitigation service it will provide.

The National Forest Policy (1988) is presently under revision. The overall objective and goal of the draft National Forest Policy (2018) is to safeguard the ecological and

livelihood security of people, of the present and future generations, based on sustainable management of forests for the flow of ecosystem services. In order to achieve the national goal for eco-security, the country should have a minimum of one-third of the total land area under forest and tree cover.

The draft National Forest Policy (2018) also lays emphasis on Integrating climate change mitigation and adaptation measures in forest management through the mechanism of REDD+ so that the impacts of the climate change are minimised. Under the draft policy strategic actions especially sustainable forest management will be taken to strengthen forest-based climate change mitigation and adaptation.

## 2.8 Panchayat (Extension to Scheduled Areas) Act, 1996

The Panchayat (Extension to Scheduled Areas) Act, 1996 also known as PESA, was enacted to enable tribal self rule in these areas. The Act extended the provisions of *Panchayats* to the tribal areas of nine states that have Fifth Schedule Areas. Most of the North eastern states under Sixth Schedule Areas

(Assam, Meghalaya, Tripura and Mizoram where autonomous councils exist) are not covered by PESA, as these states have their own Autonomous Councils for governance. PESA gives special powers to the *Gram Sabhas* in scheduled areas especially for the management of natural resources.

## 2.9 Biological Diversity Act, 2002

The Act provides for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources

knowledge and for matters connected therewith or incidental thereto. Essence of this Act is manifested in the core concept of REDD+ implementation, which provides for



uncompromising safeguards for conservation of biological diversity of natural forests, and also for upholding the rights of the local

communities who are privy to the knowledge about different uses of forest biodiversity.

## 2.10 National Environment Policy, 2006

This policy which builds on the existing policies related to preservation of natural resources is intended to guide action in developing regulatory reforms, and programmes and projects for environmental conservation by the Central and State Governments. The dominant theme of the policy is that the people dependent on natural resources for their livelihood obtain better livelihood

from conservation than from degradation of resource. The policy emphasises partnership of different stakeholders. If local communities are motivated to enhance and conserve the forest and wooded areas, they get the benefit of enhanced goods and services generated from the forest ecosystems. Mitigation is one of the services provided by a forest ecosystem, and thus add quantum to REDD+ performance.

## 2.11 The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

This is the important Act to recognise and vest the forest rights and occupations in forest land in forest dwelling scheduled tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded; and to provide for a framework for recording the forest rights so vested and

the nature of evidence required for such recognition and vesting in respect of forest land. Implementation of this Act contributes towards adherence to the safeguards related to rights of the local communities with respect to their proprietorship of land and non-timber forest products.

## 2.12 The National Green Tribunal Act, 2010

This Act enables creation of a special tribunal to handle the expeditious disposal of the cases pertaining to environmental issues. The stated objective is to provide a specialized forum for effective and speedy disposal of cases pertaining to environment protection,

conservation of forests and for seeking compensation for damages caused to people or property due to violation of environmental laws or conditions specified while granting permissions.

## 2.13 National Water Policy, 2012

The objective of the National Water Policy is to take cognizance of the existing situation, to propose a framework for creation of a system of laws and institutions and for a plan of action with a unified national perspective. The policy

also stated that conservation of rivers, river corridors, water bodies and infrastructure should be undertaken in a scientifically planned manner through community participation.

## 2.14 National Agroforestry Policy, 2014

The policy underlines the environmental contribution of agroforestry by preventing deforestation, and promoting carbon storage, biodiversity conservation, and soil and water conservation. Agroforestry provides employment to rural as well as urban people through production, industrial processing and

value addition of the tree products. The policy perfectly synergises with objectives of REDD+ implementation in the country by explicitly supporting the coverage of trees outside forest (TOF), and by preventing decimation of natural forests.

## 2.15 National Working Plan Code-2014

According to National Working Plan Code-2014 (for Sustainable Management of Forests and Biodiversity in India) the forest management planning must provide for sustainable management of forests and its biodiversity as enshrined in the National Forest Policy, encompassing the ecological (environmental), economic (production) and social (including cultural) dimensions. The objectives for attaining this goal include conservation of forests and reducing forest degradation, maintenance and enhancement of ecosystem services including ecotourism, enhancement of forest productivity together with establishment of regeneration to improve forest health and vitality as per ecological and silvicultural requirements of the species, progressively increasing the growing stock and carbon sequestration potential, maintenance of biological diversity, sustainable yield of forest produce, prevention of soil erosion and stabilization of the terrain; improvement and regulation of hydrological regime; people's

involvement in planning and management of forests fulfilling socio-economic and livelihood needs of the people.

Chapter 2 of the National Working Plan Code-2014, refers to REDD+ at paragraph 17 of National Working Plan Objectives and other Management Planning. Paragraph 17 states, *".....Implementation of REDD+, therefore requires efforts/mechanisms to measure forest carbon, interventions and payments to local people in addition to alternative activities such as fodder development to avoid lopping of tree branches, and efficient cooking energy devices, etc."* The linkage of REDD+ with forest measurements in the Code is mentioned at para 26, which, *inter alia*, reads, *".....A robust and dynamic national carbon MRV based on forest resource assessment of working plan can also be realized for REDD+ provided sufficient resources are made available to the States for estimating carbon from different pools of forest carbon"*.

## 2.16 National Action Plan on Climate Change

India has launched National Action Plan on Climate Change (NAPCC) in 2008 and identifies a number of measures that simultaneously advance the country's development and climate change related objectives of adaptation and mitigation. The

implementation of the NAPCC is designed to take place through eight National Missions, which form the core of the National Action Plan and incorporate multi-pronged, long-term and integrated strategies for achieving India's key goals in the context of climate change.

### National Action Plan on Climate Change: Eight National Missions

1. Jawaharlal Nehru National Solar Mission
2. National Mission for Enhance Energy Efficiency
3. National Mission on Sustainable Habitat
4. National Water Mission
5. National Mission for Sustaining the Himalayan Ecosystems
6. National Mission for a Green India
7. National Mission for Sustainable Agriculture
8. National Mission for Strategic Knowledge for Climate Change

National Mission for a Green India also called Green India Mission (GIM) is one of the key missions under NAPCC dealing with mitigation

and adaptation of climate change in the forestry sector (MoEFCC, 2014).



## 2.17 National Mission for Empowerment of Women, 2010

The Government of India has undertaken various initiatives over the years including policy reforms, programmes and action plans at various levels for empowering women and facilitates their active participation in the social, economic and political life of the country. Some of major policy measures of Government of India include *inter alia*, reservation of one third to 50% of seats for women in the local Governments for ensuring equal representation of women and to bring gender parity. National Environment Policy (2006) seeks *inter alia*, elimination of gender disparities. National Policy on Education (1986) provides for universal access and enrolment. National Mission for Empowerment of Women (2010) aims to strengthen processes that promote all round development of women. The New National Policy for Women (Draft 2016) is more focused on 'from being recipients of welfare benefits to the need to

engage them in the development process'. The mission of this policy is to create an effective framework to enable the process of developing policies, programmes and practices, which will ensure equal rights and opportunity for women in the family, community, workplace and in governance. From aforesaid, it can be concluded that the present legal and policy framework is quite consistent and supportive of women's participation in the REDD+.

Thus, the entire policy and legal framework as detailed heretofore, supports the conceptualization and implementation of REDD+ in India. However, constant review and monitoring of REDD+ implementation as also amendments in present legislative framework in future will be required to ensure continuation of synergy between the general legal framework and the REDD+ execution.

# 3 The Strategy

## 3.1 Objective

The overarching objective of National REDD+ Strategy (NRPS) of India is to facilitate implementation of REDD+ programme in the country in conformity with relevant decisions of UNFCCC, in particular the Cancun

Agreements, Warsaw Framework for REDD+, Paris Agreement, and the national legislative and policy framework for conservation and improvement of forests and the environment.

## 3.2 Definition of Forest for REDD+

The definition of forest in Indian context for REDD+ will be the same as used by the Forest Survey of India (FSI) for preparation of national GHG inventory. The definition of forest followed by FSI is “all lands, more than one hectare in area, with a tree canopy

density of more than 10 percent irrespective of ownership, land use and legal status. Such lands may not necessarily be a recorded forest area. It also includes orchards, bamboo and palm.”

### Warsaw Framework for REDD+

In order to access results based finance through implementation of national REDD+ strategies was the key outcome of COP19. The set of following seven key decisions is known as Warsaw Framework for REDD+:

1. Work programme on results-based finance (Decision 9/CP.19)
2. Coordination of support for the implementation of activities in relation to mitigation actions in the forest sector by developing countries, including institutional arrangements (Decision 10/CP.19)
3. Modalities for national forest monitoring systems (Decision 11/CP.19)
4. The timing and the frequency of presentations of the summary of information on how all the safeguards are being addressed and respected (Decision 12/CP.19)
5. Guidelines and procedures for the technical assessment of submissions from Parties on proposed forest reference emission levels and/or forest reference levels (Decision 13/CP.19)
6. Modalities for measuring, reporting and verifying (Decision 14/CP.19)
7. Addressing the drivers of deforestation and forest degradation (Decision 15/CP.19)



## 3.3 Coverage of REDD+

### 3.3.1 Forests

REDD+ will cover all trees within forest areas and tree outside forests (TOF) also irrespective of the legal status or ownership of land. All forest areas including TOF which qualify under the definition of forest as given in the sub-section 3.2 will be covered under REDD+ programmes. This will facilitate measurement

and reporting of the REDD+ performance at the national level and sub-national level. To start with, the coverage or eligibility of forests is considered in the context for different land categories in India, in the context of their eligibility to qualify as one of the five activities of REDD+.

### 3.3.2 Trees Outside Forests

Agroforestry, urban and peri-urban forestry, avenue plantations, orchards and plantations on wasteland are included in this component. Broad land categories, the sub-categories under each land category, the suitability of the particular land category to qualify as a particular REDD+ activity, the mode of carbon benefit accrual and the feasibility or potential in India are given in Annex II. The land categories considered for assessing

the coverage or eligibility, include forest land, cropland, wetlands, settlements and wastelands. The eligibility of land categories to qualify as a given REDD+ activity will depend on the definition of the five REDD+ activities. In Annex II, based on the common understanding of the components of REDD+ and its relevance to India, the eligibility of land categories for REDD+ activities is determined.

## 3.4 Future Coverage

Present scope under REDD+ mechanism is to cover the forests. Research is being undertaken to assess the potential of carbon sequestration by grasslands, and coastal sea grasses, etc, and to develop methodologies to

monitor the change in carbon stocks in these ecosystems. Therefore, with an eye on future, grasslands, blue carbon and phytoplankton are included as potential sinks of carbon.

### 3.4.1 Grasslands

Presently, pristine natural grasslands are not eligible to qualify as a REDD+ activity as these do not meet the eligibility criterion of definition of a REDD+ forest. However, since these are potential sink of biomass carbon, sequestering more and more carbon and adding to the pool of soil organic carbon, it is considered worthwhile to include these as a land use with high mitigation potential. Grasslands are being flagged in the NRPS

with a view to working on and developing methodologies in future for MRV of the carbon accumulation these lands. India with its vast natural grasslands in the mountains, plains and deserts of the country can contribute substantially in enhancing its land carbon sinks by investing technological, financial and human resources in effective management of its grasslands resource.

### 3.4.2 Blue Carbon

Mangroves, coastal sea grasslands and salt marshes are also an important sink of carbon of biomass origin. These ecosystems are not only important for their contribution in addressing climate change mitigation, but also for the valuable ecosystem services they provide to the local communities. Presently, some of these systems are also not covered

under REDD+ for the same reason as natural grasslands as these do not qualify the definition of a REDD+ activity. However, if these are protected and managed scientifically, these have the potential of capturing and locking huge quantities of CO<sub>2</sub> from the atmosphere in their vegetative parts and organic soil.

### 3.4.3 Phytoplankton

Phytoplanktons are huge sinks of atmospheric CO<sub>2</sub>. Efficient scientific management of phytoplankton ecosystems has the potential of substantially enhancing the mitigation capability of this resource. Presently, such

ecosystems do not qualify to be a REDD+ activity, but seeing their large mitigation potential, it is considered apt to flag these for future consideration as a potential sink.

### 3.4.4 Others

Forest or tree cover in less than one hectare area and having less than 10% canopy growth

will also be considered for REDD+ being a potential sink of carbon.

## 3.5 Phased Approach of REDD+

In accordance with the Cancun Agreements, REDD+ activities are defined and implemented in three phases:

- (i) Phase 1 is the development of national strategies or action plans, policies and measures, and capacity-building;
- (ii) Phase 2 is the implementation of national policies and measures and national strategies or action plans that could involve further capacity-building, technology development and transfer and results-based demonstration activities;

- (iii) Phase 3 is the evolution into results-based actions that should be fully measured, reported and verified.

Massive capacity building is needed for implementing all phases of REDD+ actions including result based actions. India would like to seek financial support for these actions from variety of sources domestic, bilateral, multilateral and other instruments available under UNFCCC agreed financial arrangements.

## 3.6 Sub-national REDD+ Approach

As per UNFCCC decisions, REDD+ can be implemented at sub-national level as an

interim measure. This provision can be usefully employed in India to seek financial

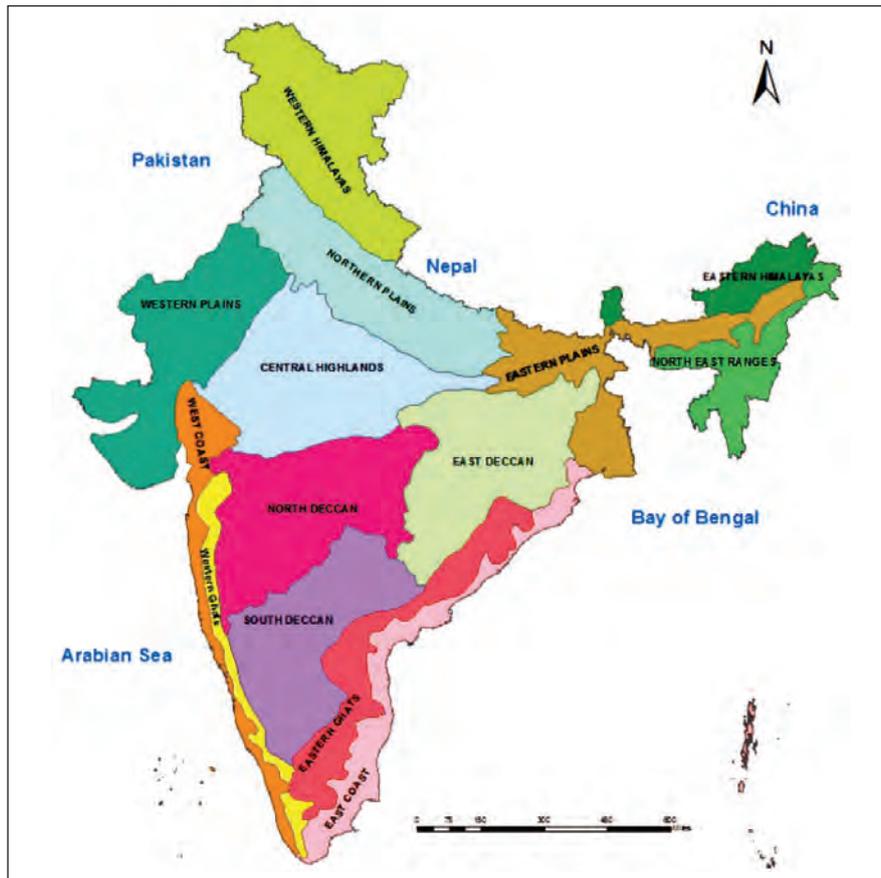


Figure 3.1: Physiographic zones of India

(Source: FSI, 2001)

support for REDD+ implementation in a physiographic zone comprising more than one State. State Governments may collaborate and develop REDD+ Action Plan in a physiographic zone. The country has been divided into 14 physiographic zones by the FSI (Figure 3.1). A physiographic zone, on the basis of topography, latitude and altitude, besides climatic and soil properties, constitutes geographical areas that exhibit broad similarities in factors responsible for the growth of tree vegetation. Physiographic zones classified by the Forest Survey of India (FSI, 2001) are given below in Table 3.1. However, in order to seek REDD+ finance at sub-national level, collaborating States will need to develop, as an interim measure, a sub-national FREL/FRL with corresponding Forest Monitoring System with technical support from Forest Survey of India and other relevant institutions. States or a group of States at

regional level falling in same physiographic zone, e.g., Himalayan States, Northeastern States, Western Ghats, etc. can benefit from sub-national approach for REDD+.

Table-3.1 Physiographic Zones of India	
1. Western Himalayas	8. North Deccan
2. Eastern Himalayas	9. East Deccan
3. North East	10. South Deccan
4. Northern Plains	11. Western Ghats
5. Eastern Plains	12. Eastern Ghats
6. Western Plains	13. West Coast
7. Central Highlands	14. East Coast

Following physiographic zonal approach, with respect to Phase II of REDD+ implementation, India can initiate pilot/ demonstration REDD+ activities on (i) reducing emissions from forest degradation, (ii) conservation of forest carbon stocks, (iii) sustainable management of forests (SMF), and (iv) enhancement of forest carbon stocks (EFCS). Subject to availability of funding,

India may launch pilot/ demonstration projects, on aforesaid REDD+ activities to understand the intricacies of maintaining baseline forest carbon stocks, forest carbon

stocks changes, and forest carbon accounting. These projects may be taken at locations covering different physiographic zones of the country.

## 3.7 REDD+ Activities

### 3.7.1. Reducing Deforestation

Deforestation occurs only when forest land is converted to non-forest purposes. This does not, however, include forest areas subjected to harvesting as a part of forest management, where the harvested plots recover and forest regenerates. In Decision 16/CMP.1, deforestation is defined as 'the direct human-

induced conversion of forested land to non-forested land'. In India there is no large scale deforestation happening except in a few states. All the same, there is scope of increasing the performance of REDD+ by further reducing the deforestation.

### 3.7.2 Reducing Forest Degradation

Forest degradation is a complex process and its drivers may be completely different than those for deforestation. A degraded forest may not become totally deforested. Degradation refers to changes within forest which negatively affect the structure or function of the forest stand or site and thereby lower the capacity of the forest to supply products or services.

Thus, in the Indian context, degradation may be defined as "Transition from higher to lower tree crown density and/or removal of lower canopy biomass or disturbance of soil, leading to reduction in forest carbon stocks". Monitoring of tree crown density is the most cost-effective and practical alternative for monitoring degradation.

India has been monitoring and reporting forest cover according to tree crown density classes.

### 3.7.3 Conservation of Forest Carbon Stocks

Conservation could be defined as "Maintenance of area under existing forests (and tree cover) to conserve, maintain, and possibly enhance the forest carbon stocks" through conservation efforts. This could involve, i) consideration of forests with

high carbon density and its maintenance through conservation and development to reduce pressure on forests, and ii) banning or regulation of extraction or harvesting of biomass, protection of forests and improved fire management.

#### Carbon Sequestration estimates in Protected Areas

Avoided emissions from deforestation and forest degradation through conservation of existing Protected Areas (PAs) covering 16 mha of forest land and accounting for 5 percent of the geographical area of the country are capable of adding 2 tonne of dry biomass per ha on an average every year. Continued protection of PAs will add 47 mtCO<sub>2</sub>eq to forest carbon sink every year. (16\*2.0\*0.4= 12.8 mtC= 47.0 mtCO<sub>2</sub>eq)

Source: Planning Commission (2014)



The area under Protected Area (PA) management is increasing in India and has potential for REDD+ activity on 'Conservation of Forest Carbon Stocks'. Since in the PAs, all extraction is regulated or highly restricted, the forest vegetation, biodiversity and in turn forest carbon stocks are potentially conserved. With the addition of biomass due to annual increment, the biomass as well as the forest

carbon stocks are not only conserved but also grow with the time. REDD+ can be considered as a financing or resource mobilization tool to strengthen management of PAs in future. Himalayan regions where green felling is banned over past three decades can also be considered as candidate region for developing REDD+ concept of 'Conservation of forest carbon stocks'.

### 3.7.4 Sustainable Management of Forests

Sustainable management of forests (SMF) in the context of Cancun Agreements refers to the application of forest management practices for the primary purpose of sustaining constant levels of carbon stocks over time. SMF aims to minimize reduction in carbon stocks in forests and plantations through sustainable harvesting practices. SMF could be defined as "management of forests to sustain the biomass productivity, even if subjected to harvest or other management practices for prevention of long-term loss of carbon stocks". By adopting sustainable harvesting practices, carbon stock or biomass productivity could be maintained. In due course of time when harvests become less than annual increments, SMF areas could register a net increase in carbon stocks.

Sustainable management of forests (SMF) is practiced by implementing the Forest Working

Plan approved by the Government of India. The working plans are prepared following a strict National Forest Working Plan Code. The concept of Sustainable Management of Forests assures that allowable cut should not exceed the growth during the period, rather it should be less than the actual increment for the period. Thus, SMF contributes towards increase in the forest carbon stocks and also ensures continuous flow of other goods and services. Also, another essential requirement of SMF is to ensure that natural forests are not converted into plantations, but are maintained and managed as natural vegetation.

SMF activities can be used to incentivize maintenance of forest carbon stocks, by means of improvement in the quality of existing stocks and sustainable extraction of biomass.

### 3.7.5 Enhancement of Forest Carbon Stocks

This approach could involve restoring carbon stocks in degraded forests, or creating forests in non-forest areas and approaches may include afforestation, reforestation, restoration (through natural regeneration, assisted natural regeneration or planting), rehabilitation, or forest landscape restoration. Thus, in the

Indian context, enhancement of carbon stocks could be defined as "conversion of non-forest or degraded forests to forests through afforestation, reforestation, restoration forestry and forest management practices, leading to enhancement of carbon stocks".

Large potential for implementing these activities exists in India. Agroforestry and farm forestry also have a potential to be included

under this category of REDD+ activities. National Agroforestry Policy 2014 creates an enabling environment for this action.

## 3.8 New Initiatives for Enhancement of Forest Carbon Stocks

### 3.8.1 Namami Gange

National Ganga River Basin Authority (NGRBA) has appraised the Detailed Project Report on 'Forestry Intervention in River Ganga'. The project will focus on augmenting water flow together with abating the pollutants loads of river Ganga through appropriate forestry intervention along the banks of river Ganga.

The programme aims to rejuvenate the river Ganga through massive plantation exercise, in five Ganga Basin states - Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal on 83,946 sq km (or 83,94,600 ha) of identified diverse forest areas over the next five years.

### 3.8.2 Forestry Interventions for Other Major River Catchments

This holistic approach of appropriate forestry interventions by way of protection, habitat management, afforestation, catchment treatment-soil and moisture conservation work, ecological restoration of vital riparian forest buffer, bioremediation, improved livelihood of forest dependent communities and forest dwellers, and alternate income

generation activities through regulated tourism and awareness for other major river catchments like Brahmaputra, Yamuna, Narmada, Tapti, Godavari, Krishna, Kaveri and Mahanadi will also be proposed for implementation. The enhancement of forest carbon stocks attained through these actions shall also be considered for REDD+ actions.

### 3.8.3 Green Highways (Plantation, Transplantations, Beautification & Maintenance) Policy - 2015

India has launched the Green Highways (Plantation, Transplantation, Beautification and Maintenance) Policy - 2015. Under this policy there will be four columns of trees alongside highways. According to new policy, road

developers will need to earmark 1 per cent of a project's total cost for planting of trees and shrubs along national highways. Under this policy, around 1,40,000 kilometres of national highways will be lined with trees .

### 3.8.4 Innovative Programmes

Innovative programmes like Green Army of Maharashtra, an initiative of the State Government of Maharashtra to assist that state to execute massive plantation program intended to increase the forest cover in the state from the current 20% to the nationally mandated 33% of Maharashtra's land area. Insufficient manpower with the Forest

Department called for the initiative of Green Army. To ensure partnership from people of all walks of life, this initiative has been taken for an on-line channel for public engagement, partnership, sharing and dissemination. Such initiatives by other state Governments will also motivate people to support REDD+ Programmes in the states.

### 3.9 Drivers of Deforestation and Forest Degradation

Dependency of the communities on forest for livelihood or commercial needs results in deforestation and forest degradation. Understanding of the drivers of deforestation and forest degradation is important for developing sub-national action plans at physiographic zone level, and implementation of REDD+ programme. The REDD+ Reference Document of the country stated two types of drivers—one, that are planned and projected in accordance with policies, legal framework and management plans, and second, that are spontaneous, beyond government and management control (MoEF, 2013):

(i) Planned drivers include developmental activities, management initiatives and projected uses such as road and railway construction; coal, iron and other mining activities; hydroelectric power and

irrigation projects; industrial requirements; expansion of cities and towns and removals from forests as per silvicultural requirements.

(ii) Unplanned drivers comprise mainly unauthorized activities, which include unregulated anthropogenic removals by nearby households for consumptive uses like extraction of fuelwood, small timber and NTFP; illegal logging and uncontrolled felling; social causes such as encroachment of forest land for agriculture and housing; unregulated livestock grazing and fodder collection; natural disturbances caused by forest fires, insect attack, disease outbreak, forest dieback; and illegal mining operations.

#### Pradhan Mantri Ujjwala Yojna (PMUY)

The Government has launched “Pradhan Mantri Ujjwala Yojna” for providing free LPG connections to 50 million women belonging to the 'Below Poverty Line' families over a period of 3 years starting in 2016. Objective of the scheme is to provide clean cooking fuel to poor households especially in rural areas. Use of fossil fuels and conventional fuel like cow dung, kerosene, biomass, etc. has serious implications on the health of rural womenfolk and children. Use of LPG as a cooking fuel helps in effectively addressing health hazards associated with the use of conventional sources of cooking fuels. It took the big step of Ujjwala and provided gas to 33 million families by September 2017.

### 3.10 Strategies for Addressing Deforestation and Forest Degradation

Identification of drivers will help in devising suitable strategies for addressing the drivers, and states shall be encouraged for identification of drivers of deforestation and forest degradation and develop appropriate strategies to address the identified drivers. The REDD+ Reference document stated

the following for addressing the drivers of deforestation and forest degradation (MoEF&CC, 2014):

- Key to sustainability will be, meeting the challenge of addressing and managing the unplanned drivers and activities which are mainly the anthropogenic removals of



forest products by local people from the adjoining forest, and the illegal logging and mining activities within forest, besides losses caused due to occurrence of natural calamities.

- Strategy to address the drivers has to be two pronged- it should ensure the protection of the existing forests, and simultaneously should make arrangements for providing the desired goods and services to the people through alternatives. The effective implementation of regulation will help to minimize the unplanned drivers. The natural calamities are unavoidable, but attempts can be made to minimize the impacts. The effective policy, legal and management framework for managing these drivers include various Policies, Legislations, Acts, and regulations as mentioned in Chapter 2 of this document. Implementation of REDD+ in India should, *inter alia*, take into account the need for a workable strategy to address the drivers of deforestation and forest degradation. This strategy should be chalked out in a transparent manner in consultation with the stakeholders including the local community, whose greater involvement, in any case, will be required in the management of forests. Drivers of deforestation and

forest degradation will be addressed by providing alternatives of forest use to the local community, income generation activities and also by ensuring sustainable management of local forest resources through preparation and implementation of community centered micro plans. *Pradhan Mantri Ujjwala Yojna* to provide free LPG connections to poor families will be big leap in this direction as it will relieve rural people's dependence on firewood as cooking fuel.

- Creation of proper awareness amongst stakeholders can also play a key role in deciding the level of participation and commitment of different stakeholders in addressing the drivers. Government supported relevant initiatives, such as supply of cheap cooking fuel; improved cook stoves; promoting non-conventional energy sources; low cost housing; improving agricultural and livestock productivity; effective and quality education for children; better infrastructural facilities including health; and effective use of modern communication, i.e., audio-video tools for creating awareness among community can mobilize public opinion in favour of protection and conservation of forests.

### Improved Cook Stoves for Addressing Forest Degradation

Avoided emissions from excessive use of fuel wood in cooking stoves in rural areas (800 million people or 160 million families) can significantly contribute to increase in forest carbon stocks by replacing ordinary cooking stoves with improved fuel efficient cooking stoves. Presuming that 75 percent of the fuel biomass used in rural areas comes from forest, and also that cooking stoves can reduce the fuel wood consumption by about 30 percent by improving energy efficiency, each rural family using fuel wood for energy can save about 300 kg of fuel wood annually, and consequently will not extract that much quantity of biomass from the forests. Forests from where the fuel wood is extracted are usually degraded, the entire quantum of fuel wood saved would result in equal amount of biomass left intact in the forests, thereby offsetting corresponding amount of emissions equal to 58.2 mtCO<sub>2</sub>eq. ( $160 \times 0.75 \times 0.3 \times 0.4 = 14.4 \text{ mtC} \times 44/12 = 52.8 \text{ mtCO}_2\text{eq}$ ).

Source: Planning Commission (2014)



### 3.11 Forest Productivity Enhancement through Research

Improving the productivity of plantation forests through use of quality seeds and seedlings of improved genotypes through tree improvement program will help in enhancing productivity of forests/plantations. Production of quality seeds, seedlings, development and deployment of a fairly large number of genetically diverse clones in large scale clonal plantation programs, long term breeding support, sound silvicultural management of plantations and continuous research and development support will be amongst the important strategies for achieving the targets of Green India Mission and other afforestation programmes. Research inputs on these activities will strategically contribute to advantage of REDD+ programmes.

Focus of forestry research on productivity enhancement will be undertaken in an integrated and multidisciplinary manner on forests and forest products aiming at increasing livelihood support and economic growth. The strategy also proposes to

undertake intensive and need-based research on (i) forest inventory including growth yield assessment of forest products, (ii) increasing forest productivity through forest genetic resource management and tree improvement (iii) ecosystem services (iv) biodiversity conservation, (v) reclamation of degraded and mined areas for ecological security, (vi) integrated pest management, (vii) invasive alien species management, (viii) forest fires, (ix) forest hydrology and (x) carrying capacity of ecosystems etc. These actions will further enhance the capacity of the forest ecosystems for carbon sequestration and community benefits, and will further complement the REDD+ activities.

A Forest Reproductive Material (FRM) Certification Policy-cum-Strategy shall be developed to encourage and ensure production and use of certified forest reproductive material to enhance productivity of Indian forests.

### 3.12 Capacity Building and Trained Human Resource

Trained human resource capable of carrying out forest related measurements at all levels of implementation of REDD+, including at local grassroots level will be created. This will be

achieved by building a cadre of trained local community members, staff of all levels of SFDs and other relevant line departments, and civil society.

#### Green Skill Development Programme

Government of India, Ministry of Environment, Forest and Climate Change has taken up an initiative for skill development in the environment and forest sector to enable India's youth to get gainful employment and/or self employment, called the Green Skill Development Programme. The programme endeavours to develop green skilled workers having technical knowledge and commitment to sustainable development, which will help in the attainment of the Nationally Determined Contribution, Sustainable Development Goals and National Biodiversity Targets. Realizing the demand for green skilled youth, the Green Skill Development Programme has been conceptualized and developed in MoEFCC in consultation with the National Skill Development Agency, the nodal agency for synergizing skill development initiatives in the country, under the Ministry of Skill Development and Entrepreneurship.

ICFRE will be designated as a nodal organisation for discharging the responsibility of building the capacity of all levels of the staff of the forest and other relevant line departments, institutions, civil society, and local communities. ICFRE will collaborate

with SFDs, FSI, IGNFA, CASFOS, IIFM, State Universities and civil society to execute the capacity building programme of all cadres of government, institutions, civil society and local communities.

### 3.12.1 Building a Cadre of Community Foresters

Support for REDD+ activities will also necessitate developing extra hands from within the community, mainly youths from the community who on one hand would provide service to the community, and on the other hand would link to a large number of other service providers, including the Forest Department and other agencies.

Given the fast changing rural scenario with an increasing number of educated unemployed/ under-employed youth, the strategy will support development of youth cadres as Community Foresters to lead the charge at the local level. Green Skill Development programme for imparting various forestry related specialised skill will be implemented with the help of NGOs, voluntary organisations and civil society. Support of the Forest Department, research institutions, universities/colleges from local area and NGOs would help develop this cadre of Community Foresters as self-employed change agents.

A well conceived REDD+ programme will create additional jobs in forestry sector. In order to keep forest well adapted to climate change impacts, some of the activities where “Community Foresters” can be engaged effectively are: (i) assisted natural regeneration, (ii) soil and moisture conservation, (iii) harvesting, thinning, and hygienic removals, (iv) forest nurseries and raising of quality planting stocks, and (v) control of forest fires, pest and disease and invasive species.

This action would require large number of trained human resource. Rural youth will be trained under Prime Minister’s Skill Development Programme of the Ministry of Skill Development and Entrepreneurship. Although the jobs created will be seasonal in nature, but will develop a strong belongingness of community youth with forest protection programmes which will eventually lead to a successful REDD+ implementation with community benefits.

## 3.13 Apportioning Targets

To facilitate implementation of REDD+, and to channelise it towards achieving the NDC target of achieving the additional CO<sub>2</sub> sink of 2.5-3.0 billion tCO<sub>2</sub>eq by 2030, the Government of India in the MoEFCC may in future consider to undertake an exercise in consultation with the State/UT Governments to work out the appropriate targets of afforestation and reforestation (A&R) for each State/UT that would enable the country

meet the objectives of Green India Mission and NDC target. The State targets will also subsume the achievements of tree plantation schemes and projects being implemented by other Ministries and Departments of Central Government (excluding NHAI), like Ministry of Rural Development, Ministry of Agriculture and Farmers' Welfare, Ministry of Panchayati Raj, etc.



### 3.14 Infrastructure Required

Additional infrastructure in shape of trained human capital and state of the art equipment for carrying out forest and carbon measurements at all levels is required. FSI is charged with the overall responsibility of measuring forest goods and services including carbon. In its pivotal role of measuring, FSI will be supported by SFDs and local communities. Building capacity of the forest staff at all

levels and that of the local community will not suffice, and it will need to be complemented by creating modern measuring capability with latest equipment in each State. The existing space application centres and GIS facilities in the States will be strengthened and upgraded to enable these to carry out measurements of forest carbon stocks of the State under guidance of the FSI.

### 3.15 Finance

Finance will be mobilised internally by allocation through GIM, CAMPA, *Namami Gange* Programme, Green Highways Policy, etc. The deficit in finance to meet the NDC commitment on REDD+ implementation will

be sourced through external funding from GCF under UNFCCC mechanism. The budget deficit on this count will be estimated separately and communicated to UNFCCC and GCF in due course of time.

#### 3.15.1 Finance Commission

14<sup>th</sup> Finance Commission has recommended for devolution of funds from the federal pool to the States attaching a weightage of

7.5% of the State's forest cover. A part of this devolution is expected to be ploughed into the forestry sector.

#### 3.15.2 Compensatory Afforestation Fund Act, 2016

This Act has been enacted by the government to systematically channelize the funds accrued from levy on user agencies on account of diversion of forest land under the Forest (Conservation) Act, 1980. The Compensatory Afforestation Fund Management and Planning Authority (CAMPA) funds are to be utilised for raising plantations, undertaking natural

regeneration, protection of forests, Green India Programme, wildlife protection and other related activities. CAMPA funds at present account for an amount of around Rs. 500 billion which mainly will be used by the State Forest Departments for undertaking aforesaid activities.

#### 3.15.3 Green India Mission and National Afforestation Programme

The GIM is one of the eight Missions under the National Action Plan on Climate Change (NAPCC), and was launched in 2014. It aims to enable the forestry sector to play an important role in protection of environment, while enhancing the country's green cover. India needs to revisit the Green India Mission objectives and timeframe in the light of new developments under global climate change

regime, especially India's NDCs to UNFCCC. The actual implementation period of the Mission was to spread over 10 years, coinciding with the 12<sup>th</sup> and 13<sup>th</sup> Five Year Plan periods. The Mission has a preparatory phase (2011-12), a first phase (five years) and a second phase (five years). GIM activities need to be revisited and carry forwarded till 2030 to coincide with achieving NDC forestry targets.

### 3.15.4 Green Climate Fund

Green Climate Fund (GCF) is the funding window of the UNFCCC established in 2010 to limit or reduce the GHG emissions in developing countries, and to help adapt vulnerable societies to adverse impacts of climate change. The developed economies have agreed to mobilise USD 100 billion per year by 2020. A part of this collection will be routed through GCF. The Board of GCF in its eighteenth meeting adopted the terms of reference for the REDD+ Results-Based

Payments pilot program, as well as a scorecard to evaluate countries' submissions to the GCF. GEF also supports REDD+ readiness programmes for phase I (Preparation of National Strategy or Action Plans) and phase II (implementation of National Strategy, Capacity building and demonstration activities) of REDD+. MoEFCC will work out the amount of gap funding required for full implementation of REDD+, and communicate same to UNFCCC for funding support by the GCF.

### 3.15.5 Mobilising Finance for Adaptation

The Green Climate Fund (GCF) is investing in developing countries' efforts to adapt to the effects of climate change. GCF aims to deliver a 50:50 balance between mitigation and adaptation allocations in its portfolio. Forestry activities/actions supporting enhanced livelihoods of the most vulnerable people, communities, and regions by effectively engaging local communities in the forest sector adaptation programmes, shall be developed. Skill development of community youths for various forest sector adaptation activities like assisted natural regeneration,

soil and moisture conservation, fire protection, weed management, management of forest insects and pests, agroforestry, tree fodder production, NTFP management, bioenergy production, and biodiversity and ecotourism management activities shall be provided. This will ensure jobs to the communities and in turn help forest ecosystems to adapt to climate change. Local communities will also be trained to make them capable of assisting the SFDs in carrying out forest related measurements. Such actions will also complement various REDD+ activities.

### 3.15.6 Other External Sources of Funding

COP Decision 9/CP.19 reaffirms that the progression of developing country Parties towards results based actions occurs in the context of the provision of adequate and predictable support for all phases of REDD+ implementation. The result based finance provided to developing country Parties that is new and additional and predictable may come from wide variety of sources referred to in decision 2/CP.17, paragraph 65 (public and private, bilateral and multilateral, including alternative sources), and decision 9/CP.19 (including Green Climate Fund in a key role) to collectively channel adequate and

predictable result based finance in a fair and balance manner. Finance for REDD+ shall be mobilised in accordance with the UNFCCC decisions on REDD+ finance. State REDD+ Cells in collaboration with NDE-REDD+ shall explore the relevant and appropriate financing entity for the support of REDD+ actions in accordance with the laid down principles of the financing entities.



# 4 Implementation Framework

## 4.1 Conformity with UNFCCC Decisions

National REDD+ Policy will follow the provisions laid down by all the relevant UNFCCC decisions. Most prominent among these decisions are the Paris Agreement, Warsaw Framework for REDD+ and Cancun Agreements. These three decisions form the

main source of the implementation guidance for REDD+ in developing countries. Cancun Agreements have a special place amongst all UNFCCC decisions as this provides scope of REDD+ implementation by developing countries.

## 4.2 Conformity with National Policy and Legal Framework

National REDD+ Policy will cover all types of forest areas including TOF irrespective of ownership or control, but meeting the requirement of the definition of forest as adopted by the Forest Survey of India. The Strategy aims at optimisation of all forest ecosystem services, including the sequestration of carbon thereby adding to the existing forest carbon stocks, and reducing pressure on forests by addressing drivers of deforestation and forest degradation. Performance based incentives will be paid to stakeholders particularly local communities

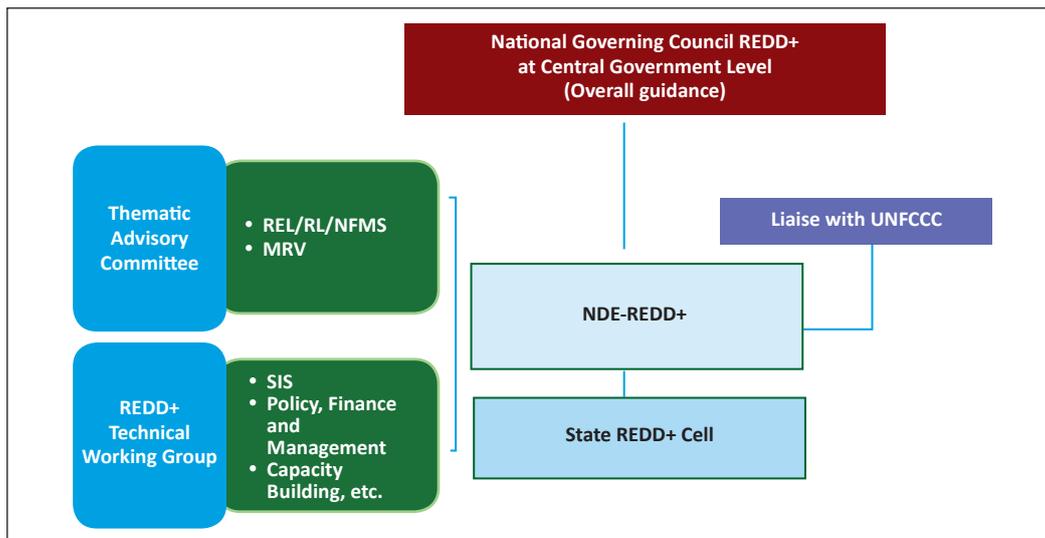
in tune with their contribution to enhance carbon stocks.

All actions pursuant to the NRPS will be implemented with due observance of all relevant national laws, policies, rules and regulations. This legal and policy framework provides the guidance and also constitutes the boundary of applicable environmental, social and economic standards to which all the actions, their consequences and implications should conform to. This aspect has been dealt with in detail earlier in Chapter 2.

## 4.3 Institutional Mechanism: Roles and Responsibilities of Stakeholders

The broad institutional framework for implementing REDD+ is already in place in India. However, for REDD+ to be functional, a system capable of forest carbon stocks accounting, Measuring, Reporting and

Verification (MRV), and of enforcing social and environmental safeguards, will be required. The institutional arrangement for the implementation of REDD+ in India is shown in Figure 4.1.



**Figure 4.1:** Institutional Mechanism for REDD+ implementation in India.

An effective REDD+ implementation requires participation of the governments, institutions, civil society and local communities, all

discharging different roles and responsibilities. The roles and responsibilities of different stakeholders are described below:

### 4.3.1 Central Government

Acknowledging the global problem of climate change and India’s commitment to UNFCCC, Government of India gives utmost priority to the issues of climate change at national level as well. In order to give more focus on climate change related issues, the Ministry of Environment and Forests has been re-designated as Ministry of Environment, Forest and Climate Change. National Action Plan on Climate Change, Green India Mission, NDC targets are strong commitments of Government of India for addressing various issues related to Climate Change.

Forest and Climate Change (MoEFCC) having the task of coordinating and guiding REDD+ related actions at the national level. The mandate of NGC-REDD+ includes coordinating and monitoring of REDD+ implementation and developing Sub-national REDD+ Action Plans. The NGC-REDD+ would also guide formulation, development, finance, implementation, monitoring, evaluation and measuring performance of REDD+ activities in the States. It will direct the MoEFCC and its relevant agencies in developing and implementing appropriate policies, methodologies, procedures and technologies relating to REDD+ implementation in the country.

A National Governing Council for REDD+ (NGC-REDD+) at the national level shall be established by the Ministry of Environment,

Composition of the NGC-REDD+ shall be as follows:

1.	Union Minister for Environment, Forest and Climate Change	:	Chair
2.	State Minister for Environment, Forest and Climate Change	:	Co-Chair
3.	Secretary, Ministry of Environment, Forest and Climate Change	:	Member
4.	Director General of Forests and Special Secretary, MoEFCC	:	Member
5.	Director General, ICFRE	:	Member

6.	Additional Director General of Forests (FC), MoEFCC	:	Member
7.	Additional Secretary (Climate Change), MoEFCC	:	Member
8.	Director General, FSI	:	Member
9.	Inspector General of Forests (NAEB), MoEFCC	:	Member
10.	Joint Secretary (Climate Change), MoEFCC	:	Member
11.	Joint Secretary, Ministry of Agriculture and Farmers' Welfare	:	Member
12.	Joint Secretary, Ministry of Tribal Affairs	:	Member
13.	Principal Chief Conservator of Forests (4) (nominated by MoEFCC)	:	Member
14.	REDD+ Experts (2) (nominated by MoEFCC)	:	Member
15.	Inspector General of Forests (Forest Policy), MoEFCC	:	Member Secretary

Tenure of the nominated members will be on one-year basis. NGC-REDD+ will also be mandated to oversee and coordinate implementation of National REDD+ Strategy and suggest amendments as deemed fit.

An important role of the GOI will be to develop the guidance for flow of incentives from Central Government to the State Governments, and also from State Government further down to the local communities. There will be separate set of

guidelines for the two flows: i) GOI to State Governments, and ii) State Government to local communities. The guidelines will be issued by the Government of India for this purpose.

A Thematic Advisory Group shall be nominated by the NGC-REDD+ to advise and oversee the aspects of MRV, National Forest Monitoring System and Forest Reference Level. FSI will have a key role to play in this group.

Constitution of the Thematic Advisory Group shall be as under:

(i)	Director General, FSI	:	Chair
(ii)	Dy. Director General, FSI (I/C Forest Inventory)	:	Member
(iii)	Representative of Director General, ICFRE	:	Member
(iv)	Representative of PCCFs of 2 States	:	Members (2)
(v)	Inspector General (Forest Policy), MoEFCC	:	Member
(vi)	REDD+ Expert (to be nominated by DG, FSI)	:	Member
(vii)	Senior Deputy Director (Forest Inventory), FSI	:	Member Secretary

A REDD+ Technical Working Group constituted by NGC-REDD+ will advise on the matters related to Safeguards, Policy, Finance, Management and capacity building. ICFRE will

play a lead role in this group. Both groups shall also assist State REDD+ Cells in devising their State REDD+ Action Plans.

Constitution of the REDD+ Technical Working Group shall be as under:-

(i)	Director General, ICFRE	:	Chair
(ii)	Dy. Director General (Research), ICFRE	:	Member
(iii)	Representative of DG, FSI	:	Member
(iv)	Representative of Director, IIFM	:	Member



(v) Members of Civil Society/NGO/ Forest User Groups (JFM etc)	:	Members (2)
(vi) Representative of PCCFs of 2 States	:	Members
(vii) REDD+ Experts (to be nominated by DG, ICFRE)	:	Members (2)
(viii) Dy. Inspector General (Forest Policy), MoEFCC	:	Member
(ix) Assistant Director General (BCC), ICFRE	:	Member Secretary

**National Designated Entity for REDD+:**

Government of India has established a National Designated Entity for REDD+ (NDE-REDD+) in the Climate Change Division of the MoEFCC. The composition of the NDE-REDD+ is given at Annex III.

**Revamping of the NDE-REDD+ :** NDE-REDD+ has been constituted to serve as a liaison

between the UNFCCC Secretariat and the relevant bodies under the Convention on REDD+ issues with Joint Secretary (Climate Change) in the Ministry MoEFCC as Focal Point for REDD+. As REDD+ intrinsically is a forestry specific issue, with this fact in view, the strategy proposes to revamp the present structure and functioning of the NDE-REDD+.

The revised composition of the NDE-REDD+ shall be as follows:

1. Director General of Forests and Special Secretary, MoEFCC	:	Chair
2. Additional Director General of Forests (FC), MoEFCC	:	Member
3. Additional Secretary (Climate Change), MoEFCC	:	Member
4. Inspector General of Forests (Forest Policy), MoEFCC	:	National REDD+ Focal Point & Member
5. Inspector General of Forests (NAEB), MoEFCC	:	Member
6. Joint Secretary (Climate Change), MoEFCC	:	Member
7. Joint Secretary (Green India Mission), MoEFCC	:	Member
8. Director General, ICFRE/Representative of ICFRE	:	Member
9. Director General, FSI/Representative of FSI	:	Member
10. External REDD+ Experts (2) nominated by the Chair	:	Member
11. Representative of SFD (2) nominated by the Chair	:	Member
12. Dy. Inspector General of Forests (Forest Policy), MoEFCC	:	Member Convener

The Inspector General of Forests (Forest Policy), MoEFCC will be the National REDD+ Focal Point for UNFCCC.

Key functions of NDE-REDD+ will, *inter alia*, include the following:

- (i) Facilitate the establishment of REDD+ Cells and capacity building for REDD+ in the State Forest Departments and other stakeholders;
- (ii) Identification of possible needs and gaps in coordination of support for REDD+ at National and International levels;

- (iii) Improvement for the effectiveness of finance (results-based finance, technology and capacity-building);
- (iv) Sharing of information of knowledge, experiences and good practices for REDD+;
- (v) Liaison with UNFCCC and other international bodies on REDD+ related issues and mobilizing REDD+ finance;
- (vi) Exchange of information as per UNFCCC requirements;
- (vii) Approval of the national and state level

- REDD+ proposals for submission to UNFCCC for funding;
- (viii) Supervising the effective implementation of National REDD+ Strategy;
- (ix) Overseeing the implementation of the REDD+ safeguard information system
- and its timely periodic communication to UNFCCC in accordance with the COP decisions; and
- (x) Facilitating the development of State REDD+ Action Plans and its implementation by the States.

### 4.3.2 State Governments

The strategy devolves major responsibility for execution of REDD+ activities and measurement of their performance on the State Forest Departments. It places high priority on capacity building of all levels of the SFDs, the line departments, and the local communities to enable proper implementation of REDD+ and accurate assessment and measuring of REDD+ performance. Each State will create a REDD+ Cell in the State Forest

Department, and appoint a Nodal Officer to coordinate the activities of the State REDD+ Cell. Guidelines prescribing role and mandate of REDD+ Cell, and flow of incentives will be issued by the Government of India. States will be encouraged to develop their State Action Plan for REDD+. The proposed constitution and terms of reference of the State REDD+ Cell is given as follows:

**Constitution of State REDD+ Cell:** Composition of the State REDD+ Cell shall be as follows:

1. Principal Chief Conservator of Forests & HoFF	:	Chair
2. Principal Chief Conservator of Forests (Planning/Budget)	:	Member
3. PCCF/APCCF (nominated by Chairman)	:	Member
4. APCCF/ CCF (Monitoring)	:	Member
5. Regional APCCF, MoEFCC or his representative	:	Member
6. Two REDD+ Experts (Nominated by Chairman)	:	Member
7. Representative of prominent NGO	:	Member
8. APCCF/CCF/CF (In-charge of Afforestation)	:	Nodal Officer

**The Terms of Reference of the State REDD+ Cell shall be as follows:**

- a. Facilitate the implementation of National REDD+ Strategy in the State
- b. Preparation of State REDD+ action plan, sub-national/State level reference emission level/reference level, forest monitoring system and Safeguard Information System (SIS)
- c. To oversee REDD+ preparation and implementation by JFMCs, Community Forestry Groups, Van Panchayats/Village Forest Protection Committees
- d. Development of State REDD+ Learning/ Knowledge sharing platform for exchange and sharing of knowledge
- e. Explore the possibilities of REDD+ financing, development of REDD+ projects and facilitate REDD+ benefit sharing mechanism
- f. Arrange technical and institutional supports for implementation of REDD+
- g. Monitoring of REDD+ implementation in the state
- h. To approve and submit the plans and projects for REDD+ implementation to



- the NDE-REDD+, Government of India for financial support
- i. To organize training and capacity building seminars and workshops for the officials of the State Forest Department and village level institutions
  - j. To institutionalize data collection and management, and adherence to safeguards
  - k. To devise mechanisms to absorb lessons from pilots, as an input to the national and international policy processes and development
  - l. REDD+ Cell will meet once in three months.

### 4.3.3 Forest Institutions

Forest institutions will be key players in REDD+ implementation contributing in accordance with their respective mandates, expertise and capabilities. FSI will be responsible for MRV of forest carbon stocks duly supported by the SFDs and local communities whereas ICFRE with its country-wide reach will take on the responsibility of the nodal organisation for

capacity building of all stakeholders in the country. It will coordinate and mobilise the strengths and infrastructure of FSI, IGNFA, CASFOS, IIFM, SFDs, State Forest Research Institutes and Forestry Universities in building capacity of stakeholders at all levels of administration.

### 4.3.4 Civil Society

Civil society will collaborate with ICFRE and SFDs in organising capacity building trainings

for the local communities including *Gram Sabha* and JFM Committees.

### 4.3.5 Local Communities

Local communities will discharge the responsibility of protecting, regenerating and managing forests, and also share the responsibility of measuring forest carbon with the SFDs. A capacity building and skill development programme for communities will be undertaken with an aim of

addressing all REDD+ activities depending on local circumstances. Representation of local communities, indigenous people's organisations will also be encouraged to participate in the National REDD+ Governance Structure (NGC-REDD+).

## 4.4 Centrality of Local Community

Forest management in India, essentially is people centric. Recognizing importance of contribution and role of local communities in protection and management of forests, the governance has come a long way from the earlier system of policing the forests, and keeping the local communities at an arm's distance, to the present system when people

and forest department work together for conservation of forests. This shift towards involvement of local communities in forest governance did not come about rapidly, but evolved steadily over the last 30 years beginning with enactment of the National Forest Policy in 1988. NFP, for the first time, defined the framework for involvement of local

people in the joint management of forests. The 1990 JFM guidelines are considered a watershed in the history of management of forests in the country. Some States like Odisha and Andhra Pradesh have moved a step farther by experimenting on the concept of community forest management, which devolves almost full responsibility of management of forests on the local community. These models, as deemed appropriate will be replicated to other states/ regions in order to develop a facilitative regime for REDD+ implementation in community forest management.

Various policies, laws, regulations and guidelines at national and sub national level

are not only to encourage participation of local communities in participatory management of forests, but also for safeguarding their traditional rights over use of forests and forest products. NRPS will ensure the continuity and strengthening of the key role of local communities including tribals to implement all phases of REDD+ along with the forest department. Adequate technical and financial resources required for the purpose will be made available to realize this objective, which, *inter alia*, will include capacity building of JFM Committees (JFMCs) and Eco-development Committees (EDCs).

## 4.5 Safeguards for Rights of Local Community

National REDD+ Strategy will adhere to Cancun safeguard principles at all stages of implementation. Additionally, the provisions of NFP, JFM Guidelines, Forest Rights Act, PESA and Panchayati Raj Act detail the prescriptions to be followed for safeguarding the traditional rights of the local communities over forest and forest products, ensuring gender balance, and seeking consent of the communities in certain cases to allow non-forestry use of the forest land. A Safeguard

information System (SIS) shall be developed based on these existing principles.

For safeguarding the economic returns due to the local communities, appropriate mechanism will be developed in due course of time for transfer of the accrued financial incentives to the SFDs and finally to the communities in a fair, equitable and transparent manner and proportionate to their performance, as assessed by the established MRV and result based payments.

## 4.6 Addressing Gender Equity

Gender equity is inbuilt in the relevant laws, policies, rules and regulations dealing with joint management of forests, and local governance structures like *Panchayats* and *Gram Sabhas* influencing the management and health of forests. Reservation for women in JFMCs and EDCs, and to the extent of 50% in Panchayati Raj Institutions (PRIs) are good indicators of Government's intention to ensure meaningful participation

of women in the local decision making mechanisms in all local matters including management and development of forests. REDD+ implementation intrinsically being core of the existing and future management and developmental initiatives and activities in forest, will ensure adherence to gender centred sensitivity and transparency in forest governance.



## 4.7 First Right of Use With Local Community

National Forest Policy recognizes the demands of local communities as the first charge on forest produce, and also provides for their active participation in protection, management and development of forests. In scheduled areas, people's consent is now necessary to change the existing forest land use. These developments indicate the paramountcy of local communities in the matter of recognition and exercise of their rights over forest and forest products. Management of public

forests in India does no longer ignore or undermine the interests and dependency of local communities on the forest resource. No action or activity is to be permitted in the forest that is inimical to the interest of the local communities. Adoption of NFP, JFM Guidelines, Forest Rights Act, and PESA are a pointer towards the primacy accorded to the local communities, and also to respect for their rights.

## 4.8 Flow of Incentives

Results-based finance provided to developing country Parties for the full implementation of the REDD+ activities that is new, additional and predictable may come from a variety of sources, public and private, bilateral and multilateral, including alternative sources. The incentives may be generated internationally, and also at national level. Incentives at national level may be generated in shape of performance-based awards and financial devolution from Government of India (GoI)

to State Governments and down to the local communities.

GOI/NGC-REDD+ will formulate the guidelines for flow of international and national incentives in a transparent and equitable manner. There will be two set of guidelines, one dealing with flow of incentives from GOI to State Governments, and the second dealing with that from State Government to local communities.

## 4.9 Roadmap and Action Plan

For implementation of REDD+ in the country, certain preparations will be required. Preparations for REDD+ include the following:

- (i) Establishment of a National Governing Council for REDD+ (NGC-REDD+) at the national level having the task of coordinating and guiding REDD+ related actions at the national level and revamping of NDE-REDD+
- (ii) Creation of a REDD+ Cell in each State Forest Department (SFD), and appointment of a Nodal Officer to coordinate the activities of the State REDD+ Cell.
- (iii) Capacity building of all cadres of the SFDs to enable it implement and accurately assesses and measure performance of REDD+ and other REDD+ related activities.
- (iv) Capacity building of Forest Working Plan Officers on assessment of forest carbon stocks, MRV and other REDD+ related issues for incorporating REDD+ in Forest Working Plans of the Forest Divisions.
- (v) Skill development of community youths for various forestry activities like assisted natural regeneration, tree nurseries, soil and moisture conservation, fire protection, weed

- management, management of forest insects and pests, agroforestry, tree fodder production, NTFP management, bioenergy production, and biodiversity and ecotourism management activities. Local communities will also be trained to make them ably assist the SFDs in carrying out forest related measurements.
- (vi) Creation of additional infrastructure for SFDs comprising technical expertise, trained manpower and latest equipment and facilities for forest carbon measurement.
  - (vii) Expansion of the technical and technological capability of ICFRE, FSI and the SFDs by upgrading its existing technical capacity, and by creating additional technical infrastructure to enable FSI to cope with the added responsibility of undertaking REDD+ measurements.
  - (viii) Creation of modern measuring capability with latest equipment in each State. The existing space application centres and GIS facilities in the States will be strengthened and upgraded for the purpose.
  - (ix) Focus of forestry research on productivity in an integrated and multidisciplinary manner on forests and forest products aiming at increasing livelihood support and economic growth.
  - (x) A Forest Reproductive Material (FRM) Certification Policy-cum-Strategy shall be developed.

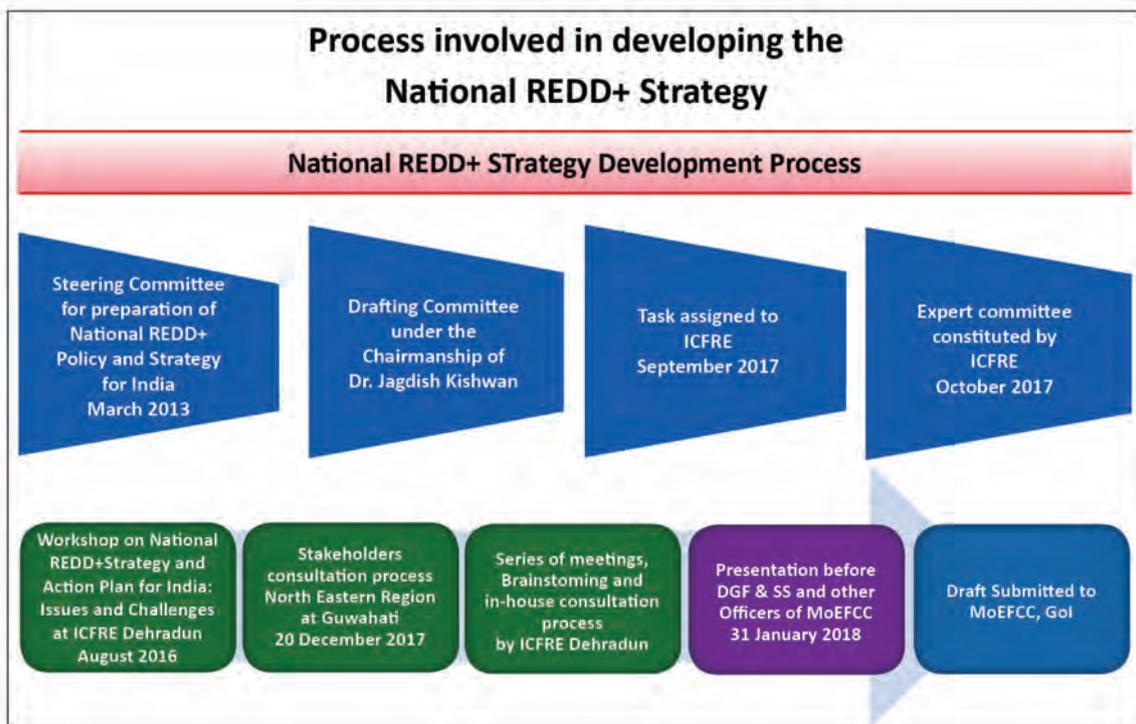




# References

- FSI (2001). India State of Forest Report 2001. Forest Survey of India, Dehradun. Ministry of Environment and Forests, Government of India.
- FSI (2013). India State of Forest Report 2013, Forest Survey of India, Dehradun. Ministry of Environment and Forests, Government of India.
- FSI (2015). India State of Forest Report 2015, Forest Survey of India, Dehradun. Ministry of Environment, Forest and Climate Change, Government of India.
- FSI (2017). India State of Forest Report 2017, Forest Survey of India, Dehradun. Ministry of Environment, Forest and Climate Change, Government of India.
- IPCC (2014). *Climate Change 2014: Mitigation of Climate Change*. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx, eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- MoEF (2004). *India's first national communication to UNFCCC*. Ministry of Environment and Forests, Government of India.
- MoEF (2006). Report of the National Forest Commission. Ministry of Environment and Forests, Government of India.
- MoEF (2009). Asia-Pacific Forestry Sector Outlook Study II: India Country Report. Working Paper No. APFSOS II/WP/2009/06. Bangkok: FAO, pp. 78.
- MoEF (2012). *India's Second National Communication to UNFCCC*. Ministry of Environment and Forests, Government of India.
- MoEF&CC (2014). Reference document for REDD+ in India. Ministry of Environment and Forests, Government of India.
- MoEFCC (2014). *India's Progress in Combating Climate Change. Briefing Paper for UNFCCC COP 20 Lima, PERU, December, 2014*, Ministry of Environment, Forest and Climate Change, Government of India.
- MoEFCC (2015). India's First Biennial Update Report to the United Nations Framework Convention on Climate Change. Ministry of Environment, Forest and Climate Change, Government of India.
- MoEFCC (2016). Annual Report 2015-16. Ministry of Environment, Forest and Climate Change, Government of India.
- Planning Commission (2014). *The Final Report of the Expert Group on Low Carbon Strategies for Inclusive Growth*, Planning Commission, Government of India.
- World Bank (2006). India: Unlocking Opportunities for Forest Dependent People in India. Report No. 34481 - IN, World Bank: South Asia Region, pp.85.

# Annex I



## Annex II

Coverage of different land categories suitable or eligible for REDD+ components, mode of carbon benefits and its feasibility and potential

Land category	Sub-category	Qualification of land category as a REDD+ activity	How carbon benefit accrues?	Feasibility and potential of land category for REDD+
Forests	Protected Area	Conservation of forest carbon stocks	By conserving the existing high carbon density forests	Highly feasible since community extraction is banned and carbon stocks protected; Moderate potential
	Reserve Forests	i) Reducing emissions from deforestation	Halting conversion of forest land to non-forest uses	Moderately feasible due to community dependence on forests for fuelwood, small timber and non-timber forest products; High potential
		ii) Reducing emissions from forest degradation	By reducing tree felling and extraction of forest products	
		iii) Conservation of forest carbon stocks	By conserving existing stocks in high carbon density forests	
	Community Forests	Sustainable management of forests	By harvesting forests sustainably to ensure carbon stock is maintained while meeting the needs of the community	Highly feasible by adopting sustainable harvest techniques and community participation; Moderate potential
	Plantations	Enhancement of forest carbon stocks	Carbon stock enhanced through afforestation and reforestation	High potential for afforestation and highly feasible by involving farmers and private sector
	Mangroves	i) Reducing emissions from forest degradation	Carbon stocks enhanced by reducing tree felling and extraction of forest products	Moderate potential and moderately feasible due to community dependence
ii) Enhancement of forest carbon stocks		Carbon stock enhanced through afforestation and reforestation	High potential and highly feasible	
Trees Outside Forests (TOF)	Agro-forestry, Urban and Peri-Urban forestry, Avenue plantations, Fruit Orchards on farmlands	Enhancement of forest carbon stocks	Carbon stock enhanced through afforestation and reforestation	High potential and highly feasible
	Plantations on wasteland, Shelterbelts		Carbon stock enhanced through afforestation and reforestation in arid zones	Moderate potential due to low carbon sequestration rates, high feasibility



## Annex III

### Composition of National Designated Entity for REDD+ (NDE-REDD+) Central Government Level

1. Secretary, MoEFCC	Chairman
2. Addl. Secretary (Climate Change) and Mission Director (GIM)	Vice Chairman
3. Additional Director General (FC)	Member
4. Joint Secretary (Climate Change)	National Focal Point & Member
5. Joint Secretary (Green India Mission)	Member
6. DG ICFRE/ Representative of ICFRE	Member
7. DG FSI/ Representative of FSI	Member
8. Representative of IIFM, Bhopal	Member
9. Representative of Centre for Ecological Sciences, IISc, Bangalore	Member
10. Two PCCFs to be nominated by Chairman on rotation basis	Members
11. Representative of CII	Member
12. Representative of FICCI	Member
13. Senior Consultant (REDD+ Cell)	Member
14. Deputy Inspector of General (Forests)	Member Convener NDE
15. Scientist (Director/Additional Director Grade)	Secretary REDD+ Cell





