

# Chapter X

CONTEMPORARY ISSUES IN THE  
FORESTRY SECTOR







# CONTEMPORARY ISSUES IN THE FORESTRY SECTOR

## 10.1 FOREST SECTOR AND CLIMATE CHANGE

Forests uniquely play a close and important role in mitigation and adaptation to climate change. At global level, forest sector especially deforestation and forest degradation in developing countries accounts for 9-11% of total GHG emissions (IPCC, 2014). Deforestation, forest degradation, fragmentation and diversion of forest land for non-forest purposes are the main sources of CO<sub>2</sub> emissions and also the key issues in developing countries. In forest ecosystems, CO<sub>2</sub> is retained in live biomass and in decomposing organic matter and soil too plays an

important role in the global carbon cycle. Forests help in adaptation to climate change and, at the same time, also provide CO<sub>2</sub> mitigation opportunities by removal of CO<sub>2</sub> from the atmosphere through carbon sequestration in vegetation and soil. Harvested wood products also continue to lock carbon for long periods of 70-100 years or more. Humans can also add to the carbon sink by increasing earth's vegetative cover through afforestation, reforestation and farm-forestry practices.

### 10.1.1 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 ton (Mt) of carbon for the decade ending in 2004. Carbon stocks in India's

#### Impact of climate change on forest ecosystems in India

The Indian Institute of Science assessed the impacts of climate change on forests in India using dynamic vegetation model 'Integrated Biosphere Simulator (IBIS)'. The study indicates that about 39 and 34% of the forested grids are likely to undergo shifts in vegetation type under A2 and B2 climate scenarios, respectively with a trend towards increased occurrence of the wetter forest types. Approximately, 47 and 42% of tropical dry deciduous grids are projected to undergo shifts under A2 and B2 scenarios, respectively, as opposed to less than 16% grids comprising of tropical wet evergreen forests. Similarly, the tropical thorny scrub forest is projected to undergo shifts in majority of forested grids under A2 (more than 80%) as well as B2 scenarios (50% of grids).

Source: Chaturvedi *et al.* (2011).

#### Forest and tree cover: Contribution as a carbon sink in India

Over the past decades, national policies of India aimed at conservation and sustainable management of forests have transformed India's forests into a net sink of CO<sub>2</sub>. According to an ICFRE study, from 1995 to 2005, carbon stocks stored in India's forests have increased from 6,244.78 to 6,621.55 Mt registering an annual increment of 37.68 Mt of carbon = 138.15 Mt of CO<sub>2</sub> eq. This annual removal by forests was enough to neutralize 9.31% of India's total annual emissions of 2000 (ICFRE, 2009).



forests were estimated to be 6,071 Mt in the year 1994 and 6,663 Mt in 2004. In 2015, estimated carbon stock in forest was 7,082 Mt (FSI, 2017) while in 2013 it was 7,044 Mt (FSI, 2015) which is a net increase of 38 Mt in country's carbon stock within two years. Various national programmes and policies have converted India's forest from net source of to net sink of CO<sub>2</sub>. The land use land use change and forestry (LULUCF) sector was a net source of CO<sub>2</sub> in the year 1994 accounting for 1.16% of CO<sub>2</sub> eq of total national 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 Mt of CO<sub>2</sub> eq which is about 12% of India's total GHG emission (MoEF&CC, 2015 and 2018). Thus, forestry sector in India is making positive contribution for climate change mitigation. Table 10.1.1.1. gives LULUCF contribution to India GHG emission profile.

**Table 10.1.1.1. LULUCF contribution to India GHG emission (Gg CO<sub>2</sub>eq) profile.**

Sector	Year							
	1994		2004		2010		2014	
	Emission	Share (%)	Emission	Share (%)	Emission	Share (%)	Emission	Share (%)
Energy	7,43,820	62	10,27,016	67	15,10,121	71	19,09,765.74	73.2
Industrial process and product use	1,02,710	7	88,608	6	1,71,503	8	2,02,277.69	7.8
Agriculture	3,44,485	29	3,55,600	23	3,90,165	18	4,17,217.54	16.0
<b>LULUCF</b>	<b>14,292</b>	<b>1.16</b>	<b>-2,22,567</b>	<b>-17</b>	<b>-2,52,532</b>	<b>-12</b>	<b>-3,01,192.69</b>	<b>-11.55</b>
Waste	23,233	2	52,552	4	65,052	3	78,227.15	3
Total (without LULUCF)	12,14,248		15,23,777		21,36,841		26,07,488	
<b>Total (net emission)</b>	<b>12,28,540</b>		<b>13,01,209</b>		<b>18,84,309</b>		<b>23,06,295</b>	

Source: MoEF (2004 and 2012) and MoEF&CC (2015 and 2018).



### 10.1.2 REDD+ and India

Reducing Emission from Deforestation and Forest Degradation (REDD) in Developing countries along with conservation, sustainable management of forests and enhancement of forest carbon stocks is collectively referred to as REDD+. UNFCCC agreements on REDD+ 'encourages developing country Parties to contribute to mitigation actions in the forest sector by undertaking the activities, i.e.,(a) reducing emissions from deforestation, (b) reducing emissions from forest degradation, (c) conservation of forest carbon stocks, (d) sustainable management of forest and (e) enhancement of forest carbon stock. REDD+ is now widely recognized as financial incentive to the communities for their contribution in reducing greenhouse gas emissions from forests by encouraging aforesaid activities. In order to partake in global programme on REDD+, developing countries are required to develop their national REDD+ strategy or action plan on REDD+ and to develop national REDD+ reference level/reference emission level, national forest monitoring system and a safeguard information system while implementing REDD+. India submitted its forest reference level for REDD+ to UNFCCC in December 2017 which has been technically assessed by UNFCCC.

#### 10.1.2.1 REDD+ Opportunities to Synergize Between Mitigation and Adaptation

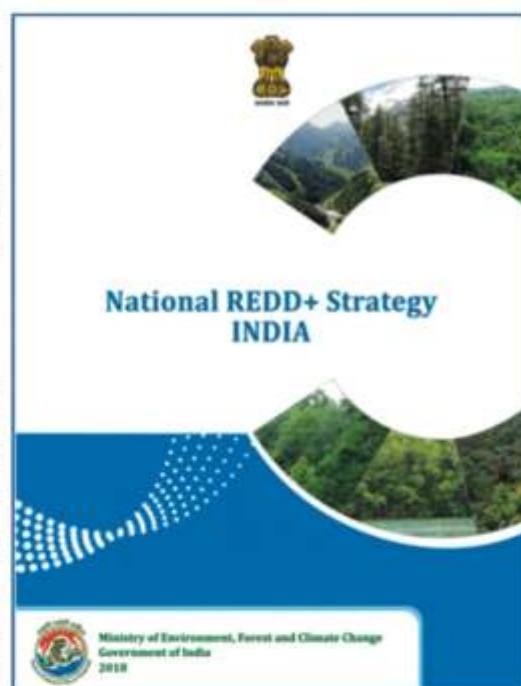
REDD+ is primarily a climate change mitigation effort. However, an effective REDD+ programme will provide a variety of income generation opportunities, livelihoods, security, resilience and social wellbeing. Ecosystem services provided by forests and their continuous supply are now becoming increasingly important in the context of adaptation to climate change. REDD+ programmes and actions contribute towards mitigation and adaptation to climate change and at the same time providing financial incentives to the participating communities.

#### 10.1.2.2 Scope of REDD+ Implementation in India

With nearly 1,47,000 villages classified as forest fringe villages inhabited by an estimated 350 M rural people, there is obviously large dependence of communities on forest resources. About 33% of India's forests are being managed through more than 48,000 JFMCs. There is ample scope and opportunities for integrating REDD+ initiative with the community managed forest and JFM. Promoting and integrating REDD+ actions in JFM activities to increase sequestration of carbon stock will meet both national objectives of climate change mitigation and international obligations as a responsive member of international community.

#### 10.1.2.3 India's National REDD+ Strategy

Complying with the 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. National REDD+ Strategy India has been submitted to UNFCCC in Sept 2018<sup>1</sup>. India's



National REDD+ Strategy has been aligned with the precepts of the National Forest Policy (NFP). The overarching objective of National REDD+ Strategy 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.

#### 10.1.2.4 Institutional Mechanism: Roles and Responsibilities of Stakeholders

India's REDD+ Strategy proposes to establish a national governing council for REDD+ (NGC-REDD+) to coordinate and guide REDD+ related actions at the national level under the Chairmanship of Union Minister, MoEF&CC. A national designated entity for REDD+ (NDE-REDD+) shall also be established at MoEF&CC to liaise with UNFCCC and states. The strategy devolves major responsibility for execution of REDD+ activities on the SFDs. Each state will create a REDD+ cell in the SFD. In line with National REDD+ Strategy, states are also encouraged to develop their state action plan for REDD+. The strategy proposes to revisit the objectives of GIM and time frame in the light of new developments under global climate change regime, especially India's NDCs to UNFCCC.

#### 10.1.2.5 Capacity Building

The strategy focuses on creation of trained human resource capable of carrying out forest related measurements at all levels of REDD+ implementation. The strategy will support empowerment of youth cadres as community foresters to lead the charge at the local level. Green Skill Development programme for imparting forestry related specialised skill will be implemented. 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.

##### Green Skill Development Programme

MoEF&CC, Gol 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 MoEF&CC 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.

#### 10.1.2.6 Centrality of Local Community

Forest management now in India is people centric. Civil society will collaborate with ICFRE and SFDs in organising capacity building trainings for the local communities including *Gram Sabha* (village council) and JFMCs. Local communities will discharge the responsibility of protecting, regenerating and managing forests, and share the responsibility of measuring forest carbon with the SFDs.

The National REDD+ Strategy addresses a road map for addressing drivers of deforestation and forest degradation and issues like safeguards for rights of local community, first right of use with local community, gender equity, creation of green jobs to the local youths, etc.



### National REDD+ Strategy: Roadmap and Action Plan

- (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.
- (ii) Creation of a REDD+ Cell in each SFD.
- (iii) Capacity building of all cadres of the SFDs including Forest Working Plan Officers on assessment of forest carbon stocks and other REDD+ related activities.
- (iv) Green skill development of community youths for various forestry activities.
- (v) Creation of additional infrastructure for SFDs comprising technical expertise, trained manpower and latest equipment and facilities for forest carbon measurement.
- (vi) Expansion of the technical and technological capability of ICFRE, FSI and the SFDs by upgrading its existing technical capacity.
- (vii) 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.
- (viii) 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.
- (ix) A Forest Reproductive Material Certification Policy-cum-Strategy shall be developed.

### 10.1.3 Forestry Sector Contribution to India's NDC to UNFCCC

#### 10.1.3.1 The Paris Agreement and NDCs

The Paris Climate Agreement of 2015 under UNFCCC: 196 country parties agreed on limiting global temperature to 1.5°C to 2°C above pre-industrial levels. Through the Paris Agreement, parties also agreed to a long-term goal for adaptation - to increase the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production. Additionally, they agreed to work towards making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

Nationally Determined Contributions (NDCs) are at the heart of the Paris Agreement and the achievement of these long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement (Article 4, paragraph 2) requires each Party to prepare, communicate and maintain successive NDCs that it intends to achieve. The Paris agreement requests each country to outline and communicate their post-2020 climate actions, known as their NDCs. Each Party's NDC reflects the country's ambition for reducing emissions, considering its domestic circumstances and capabilities. India communicated its Intended Nationally Determined Contribution (INDC) for the period 2021 to 2030 on 2<sup>nd</sup> October 2015 which became NDC consequent upon India's signing the Paris Climate Accord<sup>2</sup>.

#### 10.1.3.2 Highlights of India's NDC to UNFCCC

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 sanguine about the unencumbered availability of clean technologies and financial resource from around the world, the highlights of India's INDC to UNFCCC are:

1. to put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation,
2. to adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development,
3. to reduce the emissions intensity of its GDP by 33 to 35% by 2030 from 2005 level,
4. to achieve about 40% cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF),
5. to create an additional carbon sink of 2.5 to 3 B t of CO<sub>2</sub> equivalent through additional forest and tree cover by 2030,
6. to better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management,
7. to mobilize domestic and new and additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap and
8. to build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technology in India and for joint collaborative R&D for such future technologies.

To achieve the above contributions, India is determined to continue with its on-going interventions, enhance the existing policies and launch new initiatives in the priority areas.

#### 10.1.3.3 Forestry Sector Contribution to NDC

India's forestry sector NDC aims to create an additional carbon sink of 2.5 to 3 Bt of CO<sub>2</sub> eq through additional forest and tree cover by 2030. To achieve the above contributions, India is determined to continue with its on-going interventions, enhance the existing policies and launch new initiatives in the priority areas *inter alia* full implementation of GIM and other programmes of afforestation. In India, forestry sector is a net sink of CO<sub>2</sub>. It plays a major role in mitigation and adaptation to climate change in India.

Planned afforestation has been seen as a major mitigation strategy in forestry sector. India is one of the few countries where forest and tree cover has 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 from 23.4 in 2005 to 24.4% of the geographical area in 2017. Forestry contribution to India's NDC can be achieved through effective implementation of following policies and programmes.

##### 10.1.3.3.1 Achieving Forestry NDC Targets

With its focus on sustainable forest management, afforestation and regulating diversion of forest land for non-forest purpose, India has been successful in improving carbon stock in its forest by about 5%,



from 6,621.5 in 2005 to 6,941 Mt in 2013. Between 2015 and 2017 India's forests added another 39 Mt of carbon.

Initiatives like GIM aim to further increase the forest/tree cover to the extent of 5 Mha and improve quality of forest/tree cover on another 5 Mha of forest/non-forest lands along with providing livelihood support. It is expected to enhance carbon sequestration by about 100 Mt CO<sub>2</sub> eq. annually. These efforts have been further augmented by policies like National Agro-forestry Policy, National REDD+ strategy, Joint Forest Management; National Afforestation Programme, *Namami Gange* programme (afforestation along the riverside of Ganga) Green Highway Mission and proposed devolution of about USD 6B under Compensatory Afforestation to states.

Agro-forestry Policy (2014) has acknowledged carbon sequestration as one of the major pathway for achieving deliverables. The policy *inter alia* affirms 'to create an enabling environment to implement strategies for quantifying carbon sequestration and other environmental services for economic benefit of farmers'. In order to create safe, smart and sustainable green transportation network among other policy options, India has recently formulated Green Highways (Plantation & Maintenance) Policy to develop, 1,40,000 km long 'tree-line' with plantation along both sides of national highways. One per cent of total civil cost of projects is to be set aside to implement the policy.

Forestry is one of the major sectors in various State Action Plans of Climate Change (SAPCC). All the 29 states and 7 union territories in India are preparing a state level action plan to deal with the challenges of climate change incorporating local needs and priorities. SAPCCs are envisioned to encompass the vision of the NAPCC and align with the 8 national missions. SAPCCs describe in detail the impact of climate and vulnerability assessment, adaptation, mitigation options and financing and capacity building needs to implement the identified interventions.

#### 10.1.3.3.2 Contribution to NDC from Conservation and Sustainable Forest Management

India is one of the few countries where forest and tree cover has increased in recent years transforming country's forests into a net sink owing to national policies aimed at conservation and sustainable management of forests.

Practices for management of wildlife protected areas and other specifically conserved forest areas resulting in saving and maintenance of existing forest carbon stocks can be grouped under conservation forests. Other forest areas which are subject to harvests and are managed according to prescribed working or management plans can be put under sustainably managed forests. Conservation and sustainable management of forests over a period of time would not only result in maintaining existing forest carbon stocks, but would also affect an increment in their quantum due to natural process of growth of forest vegetation. Use of improved and more energy efficient wood-burning cooking stoves can also contribute towards conservation of forests. Enhancement of forest carbon stocks can be achieved by increasing the forest area, or the carbon density and/or increasing the pool of carbon stored in a given forest or wooded area. In this case, the basic actions would comprise afforestation, reforestation, agro-forestry and energy plantations (fuel wood and biodiesel). Summary of carbon sequestration estimates of different forestry mitigation options is given in Table 10.1.3.3.2.1. (Planning Commission, 2014).

Table 10.1.3.3.2.1. Carbon sequestration estimates of different forestry mitigation options

S. no.	Option	Proposed activity	Net Co <sub>2</sub> eq seq y <sup>-1</sup> (Mt)
1	Protected areas (PAs)	Continued protection of PAs (16 Mha)	47.0
2	Sustainable management of forests other than PAs	Forests subject to sustainable harvests, (53 Mha). However, quantity of wood removed is less than annual increment resulting in net addition of carbon.	62.0
3	Improvement in forest and tree cover	Improving 1 Mha area each of open forests and medium dense forests with a view to upgrading these forests to the next higher category, i.e., open forest to medium dense forest, and medium dense forest to very dense forest category.	7.3
4	Improved wood burning cook stoves	Replacing ordinary cook stove with fuel efficient cook stove will help in avoiding emission from excessive use of fuel wood in cook stove	58.2
5	Increase in Forest and tree cover in forest fringe villages	17 Mha can be added by creating forest and tree cover in and around 1,47,000 forest fringe villages.	12.5
<b>Total</b>			<b>187.00</b>

Source: Planning Commission (2014)

Preliminary estimates indicate that India would need around USD 206 B (at 2014-15 prices) between 2015 and 2030 for implementing adaptation actions in agriculture, forestry, fisheries infrastructure, water resources and ecosystems. Apart from this, there will be additional investments needed for strengthening resilience and disaster management (INDC to UNFCCC)<sup>7</sup>.

## 10.2 SUSTAINABLE DEVELOPMENT GOALS

The 17 Sustainable Development Goals (SDGs) and 169 targets are part of the 2030 Agenda for Sustainable Development adopted by 193 member states at the UN General Assembly Summit in September 2015, and which came into effect on 1<sup>st</sup> January 2016.

These goals are the result of an unprecedented consultative process that brought national governments and millions of citizens from across the globe together to negotiate and adopt the global path to sustainable development for the next 15 years.

The SDGs, otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. SDGs are:

1. **No poverty**- End poverty in all its forms everywhere.
2. **Zero hunger**- End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
3. **Good health and well-being**- Ensure healthy lives and promote well-being for all at all ages.

<sup>7</sup><http://www4.unfccc.int/ndcregistry/PublishedDocuments/India%20First/INDIA%20INDC%20TO%20UNFCCC.pdf>



4. **Quality education**- Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. **Gender equality**- Achieve gender equality and empower all women and girls.
6. **Clean water and sanitation**- Ensure availability and sustainable management of water and sanitation for all.
7. **Affordable and clean energy**- Ensure access to affordable, reliable, sustainable and modern energy for all.
8. **Decent work and economic growth**- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. **Industry, innovation and infrastructure**- Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
10. **Reduced inequalities**- Reduce income inequality within and among countries.
11. **Sustainable cities and communities**- Make cities and human settlements inclusive, safe, resilient and sustainable.
12. **Responsible consumption and production**- Ensure sustainable consumption and production patterns.
13. **Climate action**- Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy.
14. **Life below water**- Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
15. **Life on land**- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
16. **Peace, justice and strong institutions**- Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
17. **Partnerships for the goals**- Strengthen the means of implementation and revitalize the global partnership for sustainable development.

These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another.

The Government of India is strongly committed to the 2030 Agenda, including the SDGs, as evidenced in the statements of the Prime Minister and other senior ministers at national and international meetings. India's national development goals and its '*sab ka saath, sab ka vikas*' or 'development with all, and for all' policy initiatives for inclusive development converge well with the SDGs, and India will play a leading role in determining the success of the SDGs, globally.

#### 10.2.1 National Action on the SDGs in India

NITI Aayog, the Government of India's premier think tank, has been entrusted with the task of

coordinating the SDGs. NITI Aayog has undertaken a 'mapping' of schemes as they relate to the SDGs and their targets, and has identified lead and supporting ministries for each target. They have adopted a government-wide approach to sustainable development, emphasising the interconnected nature of the SDGs across economic, social and environmental pillars. States have been advised to undertake a similar mapping of their schemes, including centrally sponsored schemes.

In addition, the MoSPI has been leading discussions for developing national indicators for the SDGs. State governments are key to India's progress on the SDG Agenda and several of them have already initiated action on implementing the SDGs.

### 10.2.2 State Governments for SDG Progress

State governments are key to India's progress on the SDG agenda as they are best placed to 'put people first' and to ensuring that 'no one is left behind'. Many of the government's flagship programmes such as *Swachh Bharat*, Make in India, Skill India and Digital India are at the core of the SDGs. State and local governments play a pivotal role in many of these programmes.

The role of local governments is equally important; 15 of the 17 SDGs directly relate to activities undertaken by local governments in the country. State governments are paying keen attention to visioning, planning, budgeting and developing implementation and monitoring systems for the SDGs.

## 10.3 INTERNATIONAL ARRANGEMENT ON FORESTS

The International Arrangement on Forests (IAF) has five main components: UN Forum on Forests (UNFF) and its member states, the UNFF secretariat, the collaborative partnership on forests, the UNFF global forest financing facilitation network, and the UNFF trust fund.

Some of the key objectives of the IAF include:

- Promoting implementation of sustainable forest management, in particular the implementation of the UN Forest Instrument.
- Enhancing the contribution of forests to the post-2015 development agenda.
- Enhancing cooperation, coordination, coherence and synergies on forest-related issues.
- Fostering international cooperation, public-private partnerships and cross-sectoral cooperation.
- Strengthening forest governance frameworks and means of implementation.
- Strengthening long-term political commitment towards the achievement of sustainable forest management.
- Enhancing coherence, cooperation and synergies with other forest-related agreements, processes and initiatives.

### 10.3.1 UN Forum on Forests

- a) In October 2000, the Economic and Social Council of the United Nations established the UNFF, a subsidiary to promote the "management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end"
- b) The Forum has universal membership, and is composed of all member states of the United Nations and specialized agencies.
- c) The UN Forum on Forests is an intergovernmental body to strengthen political commitment and action.



- d) UNFF sets landmark target to increase world's forests by 120 Mha by 2030

Monitoring, assessment and reporting is one of the six principle functions of the Forum. Countries identified three areas related to this function:

- (a) progress in implementation of the proposals for action;
- (b) progress towards sustainable management of all types of forests; and
- (c) review of the effectiveness (i.e., of the international arrangement on forests).

Voluntary reports to UNFF are designed to be useful planning tools for countries. The reporting process is intended to help countries assess their progress in implementing proposals for action, analyze lessons learned, identify gaps and obstacles that the country might wish to address and catalyze enhanced cooperation and coordination on forests among government agencies and other stakeholders in the country. The reports are intended to help identify actions that may be taken at regional and international levels, including by UNFF, to facilitate countries' efforts to achieve sustainable forest management.

### 10.3.2 United Nations Convention on Combating Desertification (UNCCD)

UNCCD is the sole legally binding international agreement linking environment and development to sustainable land management. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands. In the 10-year strategy of the UNCCD (2008-2018), parties to the convention further specified their goals:

"To forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability".

#### 10.3.2.1 India and UNCCD

After ratification in 1996, India prepared its National Action Programme to Combat Desertification and sent it to the UNCCD Secretariat in 2001. National Action Programme 2001 provides an overview of the status of natural resources in the country, the status and impacts of desertification, measures under implementation, and in particular, the initiatives taken for combating desertification.

India is also preparing its new national action programme to combat desertification keeping in view (a) the 10-year (2008-2018) strategy of UNCCD, (b) the fact that India has already undertaken a number of schemes and programs in the recent past to address the issue of DLDD and (c) the aspirational goal of achieving Land Degradation Neutrality.

As a party to the Convention, the country parties are obligated to submit national reports to UNCCD periodically. Till date, India has submitted 6 national reports to UNCCD Secretariat.

### 10.3.3 International Tropical Timber Organization (ITTO)

The International Tropical Timber Organization (ITTO) is an intergovernmental organization promoting the sustainable management and conservation of tropical forests and the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests. International Tropical Timber Agreement 2006 (ITTA 2006) is the international treaty under which ITTO operates. It entered into force on 7 December 2011, superseding the ITTA 1994. As of October 2018, there are 74 parties to the agreement. ITTO develops internationally agreed policy guidelines and norms to encourage sustainable forest management, tropical timber industries and trade. It assists member countries to adapt guidelines and norms to local circumstances and implement them through projects

and other activities. The organization also collects, analyzes and disseminates data on the production and trade of tropical timber and promotes sustainable tropical timber supply chains with developing capacity in tropical forestry. Its 36 producing and 38 consuming members represents about 90% of the global tropical timber trade and more than 80% of the world's tropical forests.

ITTO funded and assisted in the implementation of more than 1,000 projects with value of about US\$500M. It supports activities such as, forest restoration; wood-use efficiency; competitiveness of wood products; market intelligence and transparency in the tropical timber trade and tropical timber supply chains; forest law enforcement and governance; illegal logging; biodiversity conservation; climate-change mitigation and adaptation; contributions of NTFPs and environmental services; and livelihoods of forest-dependent communities. The major donors are the governments of Japan, Switzerland and the United States.

Data are available from 1990 onwards which is collected through the Joint Forest Sector Questionnaire in partnership with EuroStat, the FAO Forestry Department, and the UNECE Timber Section. The data is also published and analyzed along with coverage of trade flows, species trade, price trends, secondary processed wood products and other trends in the tropical timber sector in the Biennial Review and Assessment of the World Timber Situation.

#### 10.3.4 International Bamboo and Rattan Organization (INBAR)

The International Bamboo and Rattan Organization (INBAR), founded in 1997, is a multilateral development organization that promotes environmentally sustainable development using bamboo and rattan. The Secretariat headquarters of INBAR is at China with Regional Offices in Cameroon, Ecuador, Ethiopia, Ghana and India. It has 45 member states. INBAR has played an especially strong role in promoting South-South cooperation for the last 20 years.

The Global Assessment of Bamboo and Rattan for green development (GABAR) is the first comprehensive assessment of its kind. It aims to maximize bamboo and rattan's contribution to national economic development and environmental protection. Important activities and outputs under GABAR are (i) providing methodologies for comprehensive assessments of bamboo and rattan species, availability, opportunities and challenges for resource development, particularly in the Global South, (ii) creating a bamboo and rattan database including type, availability, location, management, and potential uses and technologies, (iii) producing maps of bamboo and rattan distribution, (iv) building national profiles of bamboo and rattan's contribution to socio-economic development, climate change mitigation and adaptation, biodiversity conservation and rural energy, (v) recommending policies and strategies for effective management and use in development, biodiversity and climate initiatives and (vi) producing a toolkit of useful, useable reports, studies, tools and data for member states.

INBAR supports a wide range of project work across the world, in collaboration with varied partners. From training and capacity building to raising awareness and setting up pilot sites for new technologies and techniques, INBAR's projects add to understanding of the many uses of bamboo and rattan. A total of 32 projects were completed by INBAR across the world and eight are ongoing. In India, following three projects were completed, with INBAR support, during the reporting period of FSRI 2019.

- (i) **Home-Based Charcoal Production for Women (period 2012):** This project aimed to create an innovative household charcoal production value chain, by using the bamboo charcoal produced as a by-product of daily cooking to generate income for women. The goal of the programme was to develop home-based charcoal production from cooking with firewood into a new livelihood opportunity and sustainable value chain for the economic empowerment of poor rural women.



- (ii) **Bamboo in the Urban Environment (period 2014):** Migration of the rural poor into urban centres places greater pressure on already over-stressed informal urban settlements around the world. This work addresses the global challenges of urbanization and resilience in the face of natural hazards and climate change through facilitating the use of a renewable 'green' material.
- (iii) **Assessing Bamboo Market Potential in North-East India (period 2016):** This project was initiated to address India's challenge to develop full potential of its bamboo sector for economic empowerment, land and forestry rehabilitation and climate change mitigation and adaptation. The main aim of the project was to update information on the bamboo market and resources in the North Eastern Region of India, and to assess the potential of the bamboo sector for sustainable development perspectives in Mizoram State.



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