

A photograph of a forest path. The path is dirt and leads into a dense forest of tall, thin trees. Sunlight filters through the canopy, creating a dappled light effect on the ground and the path. The overall tone is green and serene.

FOREST- THE PROTECTOR AND THE PROVIDER

Forests are in fact the world's air-conditioning system the very lungs of the planet and we are on the verge of switching it off
- Prince Charles

Forest Cover 2015-16



CHAPTER 2

FOREST - THE PROTECTOR AND PROVIDER

Introduction

The term 'Forest' is generally defined as a large area covered chiefly with trees and undergrowth. The services provided by forests cover a wide spectrum of ecological, economic, social and cultural considerations and processes. A multitude of benefits are received from them which includes goods such as timber, food, fuel and bio-products; ecological functions such as carbon storage, nutrient cycling, water and air purification, and maintenance of wildlife habitat; and social and cultural benefits such as recreation and spirituality. The contribution of forest resources in protecting top soil, watershed and irrigation structures, reclaiming land from the sea, protecting coastal areas from storm damage and in maintaining and upgrading the environmental quality is much beyond quantification. The range of essential ecosystem services provided by forests further extend to other aspects such as health (through disease regulation), livelihoods (providing jobs and local employment), water (watershed protection, water flow regulation, rainfall generation), nutrient cycling and climate security.

Intergovernmental Panel on Climate Change (IPCC), 2013 specifically mentions that “protecting tropical forests therefore not only has a double-cooling effect, by reducing carbon emissions and maintaining high levels of evaporation from the canopy, but is also vital for the continued provision of essential life-sustaining services”. Though these services are obviously essential for the well-being of people and the planet, they remain undervalued and therefore, cannot compete with the more immediate gains delivered from converting forests into commodities (Mitchel et al., 2008)¹. Recognizing that ecosystem services operate from local to global scales and are not confined within national borders and that the existence of mankind relies on them, it is in collective interest to ensure their sustained provisioning into the future.

It is no surprise, therefore, that economic, social and environmental importance of ecosystem services provided by forests is increasingly recognized globally and forms the core of many discussions and resolutions worldwide. The primary challenge for

¹ Mitchell, A.W., Secoy, K., Mardas, N., Trivedi, M., Howard, R. and Parker, C. (2008). Forests NOW in the Fight Against Climate Change. Forest Foresight Report 1.v4 Global Canopy Programme, Oxford. pp.23;

<https://theredddesk.org/sites/default/files/resources/pdf/2009/Forests Now version 4.pdf>;

<https://theredddesk.org/what-redd>

sustainable forest management is finding ways to continue to benefit from ecological services without compromising the forest's ability to provide those services. Owing to factors such as over exploitation, conversion of forestland into cropland, forest fires and uncontrolled grazing, there is a need to enhance or maintain the forest resources both in terms of their area and quality so as to ensure that these essential services continue to be received by mankind in a sustainable manner.

The “*2030 Agenda for Sustainable Development*” adopted by countries across the world, lists out the Sustainable Development Goals, an intergovernmental set of aspirations with 17 goals and 169 specific targets to be achieved over the next 15 years. Of these global goals and targets, as many as 21 targets spread over 8 SDGs are directly or indirectly related to forestry activities. But forests are linked to the other SDGs as well – this can be exemplified by defining ‘forestry’ to include all of the ways that forests and trees contribute to sustainable development (CIFOR, 2016²). With the forest cover in India occupying more than 20% of the total geographical area of country, forests play an important role in sustainable development, especially due to their role in providing livelihood to a significant portion of the population and hence in income generation.

Concept of Forest Accounts in SEEA-CF

Forests are at the centre of many environmental and economic issues including climate change, biodiversity protection, tourism, soil erosion, stability of water cycles etc. Forest accounts provide a framework in this context to capture the economic contribution of forests and their connection with the economy. Recognizing the fact that timber is a prime economic resource, SEEA-Central Framework prescribes the compilation of physical asset accounts for forest and other wooded land (*the term ‘forests’ would be used to refer to ‘forest and other wooded land’ in the rest of this chapter for the sake of simplicity*) in conjunction with the compilation of asset accounts for timber resources. In principle, however, accounts for forests are a type of land account.

A key distinction between the asset accounts for forests and those for timber resources is that the scope of timber resources is not limited to timber from forests. For example, depending on their significance, orchards would fall within scope of timber resources but are not considered areas of forests. In addition, while the asset account for timber

² Centre for International Forestry Research (CIFOR)- 2016

resources is focused on the volume of timber resources rather than on the area of land covered by forests, the focus of the asset accounts for forests is on changes in the area due to activities like deforestation and afforestation. Nevertheless, despite having the clear distinction in purpose and scope, there are strong connections between asset accounts for timber resources and those for forests. This is because the majority of timber resources are found in forest areas.

Asset Accounts for Forests

Forest land, as per FAO Global Forest Resources Assessment 2010, is defined as land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 per cent, or trees able to reach these thresholds in situ. The scope of the asset accounts for forests follows a land use perspective. Thus, it does not include land that is predominantly under agricultural or urban land use and is not strictly defined on the basis of changes in tree-covered areas.

Forest land is classified according to different types of forest. Forest land can be further classified as naturally regenerated forest (including primary forest) and planted forest. **Other wooded land** is land not classified as forest land, spanning more than 0.5 hectares; with trees higher than 5 metres and a canopy cover of 5-10 per cent, or trees able to reach these thresholds in situ; or with a combined cover of shrubs, bushes and trees above 10 per cent. It does not include land that is predominantly under agricultural or urban land use.

The structure of physical asset account for forests as per the SEEA-CF is given in the **Table 2.1** below. It shows the opening and closing stock by area and changes in the area of forests. The area of forests should be measured inclusive of relevant access roads, rivers and streams.

Table 2.1: Physical asset account for forests

	Type of forests				Total
	Primary forest	Other naturally regenerated forest	Planted forest	Other wooded land	
Opening stock of forests					
Additions to stock					
Afforestation					
Natural expansion					
Total additions to stock					
Reductions in stock					

Deforestation					
Natural regression					
Total reductions in stock					
Closing stock of forests					

Forests in India

In India, the term ‘Forest Cover’³ refers to all lands more than one hectare in area with a tree canopy of more than 10% irrespective of land use, ownership and legal status. It may include even orchards, bamboo and palm and is assessed through remote sensing. In India, forest cover has been classified in terms of the following tree canopy density:

Very Dense Forest(VDF)	• All lands with tree canopy density of 70% and above
Moderately Dense Forest(MDF)	• All lands with tree canopy density of 40% - 70%
Open Forest (OF)	• All lands with tree canopy density of 10% - 40%
Scrub	• Degraded forest lands with canopy density less than 10%

In addition, the term ‘Recorded Forest Area’ or ‘Forest Area’ refers to all the geographical areas recorded as ‘Forests’ in government records. Recorded forest area consists of Reserved Forest, Protected Forest or any area notified under the provision of Indian Forest Act, 1927 or any state act or local laws. The recorded forest area may also include all such areas which have been recorded as forests in the revenue records.

As per Champion and Seth, 1968 classification, Indian forests can be classified into four major classes namely tropical, sub-tropical, temperate and alpine. These major classes are further divided into 16 type groups. The regional distribution of the forest type is given in the **Table 2.2**.

³ As per India State of Forest Report (ISFR), Forest Survey of India (FSI)

Table 2.2: Regional distribution of the forest types in India

S. No.	Forest Type Group	General Composition	Regional Occurrence (States of India)
Temperate Forests			
1	Himalayan Dry Temperate Forests (HDTF)	Coniferous forests with sparse xerophytic under-growth	Jammu & Kashmir and Himachal Pradesh
2	Himalayan Moist Temperate Forest (HMTF)	Evergreen forests mainly sclerophyllous oak and coniferous species	Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh
3	Montane Wet Temperate Forests (MWTF)	Evergreen without coniferous species	Arunachal Pradesh, Manipur and Nagaland
Sub-alpine & Alpine Forests			
4	Sub-Alpine	Stunted deciduous or evergreen forests, usually close formation with or without conifers	Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh
5	Moist Alpine Scrub	Low but often dense scrub of evergreen species	Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh
6	Dry Alpine Scrub	Xerophytic scrub in open formation mostly of deciduous in nature	Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh
Sub-tropical Forests			
7	Sub-Tropical Broad-Leaved Hill Forests (STBLHF)	Broad-leaved largely evergreen high forests	Assam and Meghalaya
8	Sub-Tropical Dry Evergreen Forests (STDEF)	Low xerophytic forest and scrubs	Himachal Pradesh and Jammu & Kashmir
9	Sub-Tropical Pine Forests (STPF)	Pine associated predominates	Arunachal Pradesh, Haryana, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Nagaland, Punjab and Uttar Pradesh
Tropical Forests			
10	Littoral and Swamp Forests (L&SF)	Mainly evergreens of varying density and height but always associated predominantly with wetness	Andhra Pradesh, Gujarat, Maharashtra, Odisha, Tamil Nadu, West Bengal and Andaman & Nicobar Islands.
11	Tropical Dry Deciduous Forests (TDDF)	Entirely deciduous or nearly so top canopy uneven rarely over 25 m high	Andhra Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Jammu & Kashmir, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.
12	Tropical Dry Evergreen Forests (TDEF)	Hard leaved evergreen trees predominates with some deciduous emergent often dense but usually under 20 m high	Andhra Pradesh and Tamil Nadu
13	Tropical Moist Deciduous Forests (TMDF)	Dominants mainly deciduous but sub-dominants and lower story largely evergreen top canopy even and dense but 25m high	Andhra Pradesh, NEER excluding Arunachal Pradesh & Sikkim, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu, Uttar Pradesh, West Bengal, Andaman & Nicobar Islands, Goa and Dadra & Nagar Haveli.
14	Tropical Semi-Evergreen Forests (TSEF)	Dominants includes deciduous species but evergreens predominant	Assam, Karnataka, Kerala, Maharashtra, Nagaland, Odisha, Sikkim, Tamil Nadu, Andaman & Nicobar Islands and Goa.
15	Tropical Thorn Forests (TTF)	Deciduous with low thorny trees and xerophytes predominant top canopy more or less broken, less than 10 m high	Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh.
16	Tropical Wet Evergreen Forest (TWEF)	Dense tall forests, entirely evergreen or nearly so	NEER excluding Meghalaya and Tripura, Karnataka, Kerala, Tamil Nadu, Andaman & Nicobar Islands and Goa.

India is one of the few countries which have a National Forest Policy since 1894. The policy has been revised twice – in 1952 and 1988 – to account for the changing circumstances. It is currently under revision and the draft National Forest Policy 2018 aims to integrate the vision of sustainable forest management by incorporating elements of ecosystem security, climate change mitigation and adaptation, forest hydrology, participatory forest management, urban forestry, robust monitoring and evaluation framework and establishment of mechanisms to oversee multi-stakeholder convergence in forest management, while building on the rich cultural heritage of co-existence and relying on the rich and diverse forest resources. The new draft policy has the objective to safeguard the ecological and livelihood security of people, of the present and future generations, based on sustainable management of the forests for the flow of ecosystem services. The new policy also aims to bring a minimum one-third of India's total geographical area under forest cover through scientific interventions and enforcing strict rules to protect the dense cover. Unlike the previous policies, which focused on environmental stability and maintenance of ecological balance, the 2018 policy focuses on the international challenge of climate change.

Forest Cover

Forest Survey of India, under the MOEF&CC, has been bringing out a biennial publication, 'India State of Forest Report' (ISFR), since 1987. The report provides state/district-wise forest cover of the country and changes thereon with respect to the previous assessment, with a specific reference to the forest cover in hill and tribal areas, as also in the north-eastern states. It also provides the estimates of growing stock within and outside the forest areas, carbon stock and tree, bamboo & mangrove cover. In addition, the report includes information on water bodies in the forest and forest fires.

As per India State of Forest Report 2017, the total forest cover of the country is 7, 08,273 sq. km. which is 21.54% of the total geographic area of the country. From the distribution of forest cover given in the **Table 2.3** and **Figure 2.1**, it can be seen that the total forest cover has marginally increased by 0.54% from 2004-05 to 2015-16. This increase is notable since an area of 24187 sq. km. of forest land has been diverted during the period under the Forest (Conservation) Act 1980 for various developmental works such as road and railway construction, mining activities, power & irrigation projects as also industrial requirements.

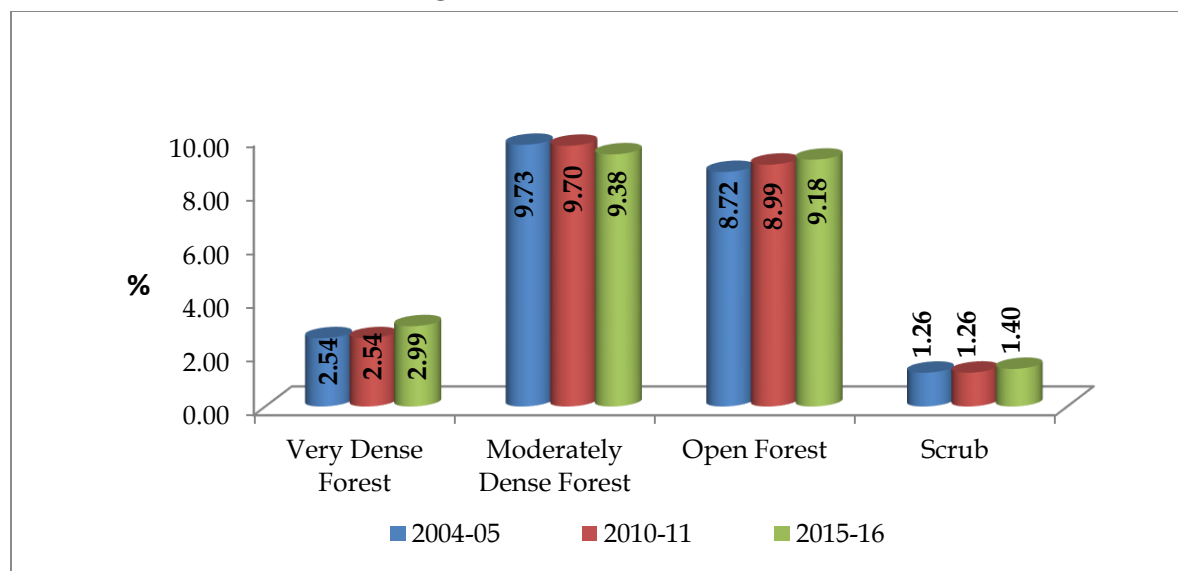
The state-wise distribution of forest cover of the same period is given at **Annexure 2.1**.

Table 2.3: Forest Cover of India in terms of canopy density cover

(sq. km.)

Forest Classes	Assessment Period (2004-05)	Assessment Period (2010-11)	Assessment Period (2015-16)
	ISFR 2005	ISFR 2013	ISFR 2017
Very Dense Forest	83,472	83,502	98,158
Moderately Dense Forest	3,19,948	3,18,745	3,08,318
Open Forest	2,86,751	2,95,651	3,01,797
Mangroves	4445	4629	4921
Total Forest Cover	6,90,171	6,97,898	7,08,273
Scrub	41,286	41,383	45,979
Non-Forest	25,55,806	25,47,982	25,33,217
Percentage to Total Geographic Area (%)			
Very Dense Forest	2.54	2.54	2.99
Moderately Dense Forest	9.73	9.70	9.38
Open Forest	8.72	8.99	9.18
Total Forest Cover	21.00	21.23	21.54
Scrub	1.26	1.26	1.40
Non-Forest	77.75	77.51	77.06

Figure 2.1: Forest Cover in India



The ISFR 2017 report also reveals that 15 States/UTs have more than 33 per cent of the geographical area under forest cover. Out of these States and Union Territories, seven States/UTs have more than 75% forest cover namely Mizoram, Lakshadweep, Andaman & Nicobar Islands, Arunachal Pradesh, Nagaland, Meghalaya and Manipur, while 8

states namely Tripura, Goa, Sikkim, Kerala, Uttarakhand, Dadra & Nagar Haveli, Chhattisgarh and Assam have forest cover between 33% and 75%. The total forest cover in the North-Eastern Region is 1,71,306 sq. km., which is 65.34% of its geographical area in comparison to the national forest cover of 21.54%. Madhya Pradesh (77,414 sq. km.) has the largest forest cover in the country in terms of area, followed by Arunachal Pradesh (66,964 sq. km.) and Chhattisgarh (55,547 sq. km.). In terms of percentage of forest cover with respect to the total geographical area, Lakshadweep with (90.33%) has the highest forest cover, followed by Mizoram (86.27%) and Andaman and Nicobar Island (81.73%).

The State-wise analysis of forest cover (as per Annexure 2.1) from 2004-05 to 2015-16 shows that the total forest cover area as percentage to the total geographical area has increased in the State of Kerala (8%) followed by West Bengal (4%) and 2% each in the States of Odisha, Tamil Nadu, Goa and Manipur. The majority of increase in the total forest cover area has been contributed by very dense forest and open forest in the States of Kerala and Tamil Nadu; very dense and moderate forest in Manipur; open forest in the States of West Bengal, Odisha and Goa. Similarly, the forest cover has shown decrease in the States of Nagaland (7%), Tripura (4%), Mizoram (2%) and Dadra & Nagar Haveli (2%). This decline in the total forest cover area has been on account of decrease in the moderate and open forests in Nagaland and moderate forest in Mizoram & Dadra & Nagar Haveli. The State of Tripura also shows an increase in the area of very dense and moderate forest accompanied by a simultaneous decrease in the open forest by 44% from 2004-05 to 2015-16.

Growing Stock

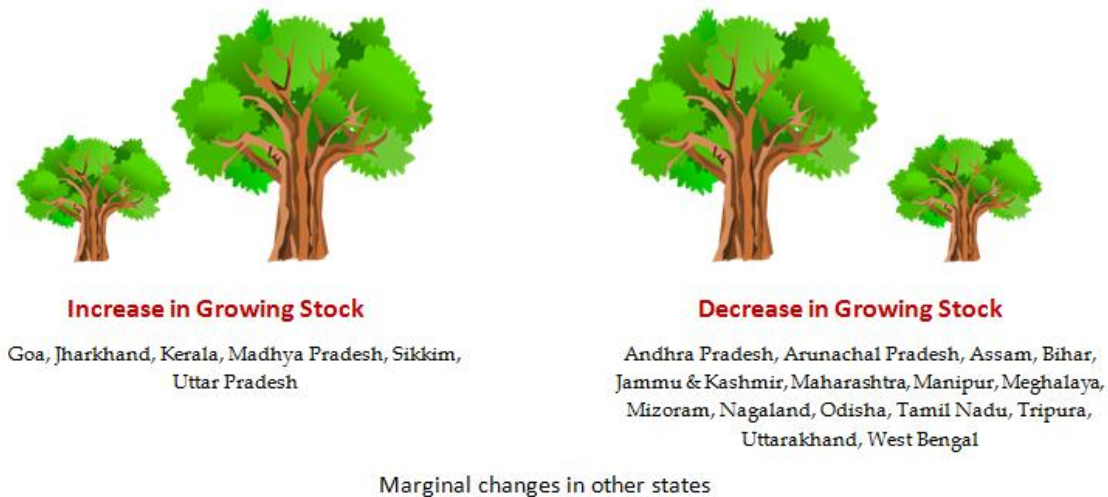
The precise information on growing stock, which is a measure of tree wealth and includes distribution of stems in different diameter class, volume, biomass, carbon stock etc. both within and outside forest area, is required for strategic planning of the forestry sector at various levels. Traditionally, growing stock is considered as an important indicator of forest health and productivity. The growing stock is estimated through forest inventory under which both qualitative and quantitative parameters are recorded. The growing stock at all India level is presented in **Table 2.4** which shows that total growing stock substantially decreased by 7.22% from 2006-07 to 2010-11 but increased by 2.90% in 2015-16. Similarly, the growing stock within forest decreased by 7.23% from 2006-07 to 2010-11 but later increased by 1.07% in 2015-16.

Table 2.4: All India Growing Stock

	In Forest	In Trees Outside Forest (TOF)	Total (million cum)
2006-07 (ISFR 2009)	4498.66	1599.57	6098.23
2010-11 (ISFR 2013)	4173.36	1484.68	5658.05
2015-16 (ISFR 2017)	4218.38	1603.99	5822.38

The state-wise estimate of growing stock for both within as well as outside forest areas for the years 2006-07, 2010-11 and 2015-16 is given at **Annexure 2.2**. In the North-Eastern region, total growing stock has decreased from 1122.12 million cum in 2006-07 to 958.34 million cum in 2015-16. The States of Arunachal Pradesh and Assam, which contribute around 58% of growing stock within the NE Region, have shown a significant reduction in growing stock within the forest. Most of the remaining states have shown mixed trends in the growing stock during the period. The changes in the growing stocks in the States during 2006-07 to 2015-16 are depicted in the **Figure 2.2**.

Figure 2.2: Change in Growing Stock from 2006-07 to 2015-16



From 2006-07 to 2010-11, almost all the states have shown decline in growing stock except Goa and Sikkim. However, from 2010-11 to 2015-16, even though there was a marginal change in Forest cover in Assam and Uttarakhand, growing stock has significantly reduced by more than 10%. But in case of Jharkhand, Madhya Pradesh,

Maharashtra and Rajasthan despite a marginal change in Forest cover, growing stock has significantly increased by more than 10%.

Carbon Stock

The variability in climate, referred to as climate change, poses a threat to the environment and quality of human life all over the world. The parties to the United Nations Framework Convention on Climate Change (UNFCCC) have undertaken a comprehensive exercise to address the issues of climate change adaptation and mitigation, in which forests play an important role. Forests sequester and store more carbon than any other terrestrial ecosystem and are, therefore, an important natural deterrent to climate change. The total carbon stocked in the forests is divided into five pools by Good Practice Guidance (GPG)⁴ and the emission factors are derived from the assessments of changes in carbon stocks in these carbon pools. The living portion of biomass carbon is classified as 'above ground biomass (AGB)' and 'below ground biomass (BGB)' and stores significant amount of carbon. The 'dead organic matter (DOM)' is classified as 'dead wood' and 'litter'. The fifth pool is 'soil organic carbon (SOC)' which contains substantial amount of organic carbon. The national level estimates of carbon stock for 2004-05 and 2015-16 under different pool is given in the **Table 2.5**.

Table 2.5: Carbon Stock in forests between 2004-05 and 2015-16

(Million tonnes)

Component	Carbon Stock in forests in 2004-05	Carbon Stock in forests in 2015-16	Net Change in Carbon Stock
Above Ground Biomass	2101	2238	137
Below Ground Biomass	663	699	36
Dead wood	25	30	5
Litter	121	136	15
Soil Organic Carbon	3753	3979	226
Total	6663	7082	419

It can be seen from **Table 2.5** that there is an increase of 419 million tonnes of carbon stock in 2015-16 as compared to the estimates of 2004-05, with an average annual increase of carbon stock of about 34.91 million tonnes. Soil organic carbon is the largest pool of carbon followed by AGB, BGB, Litter and Dead Wood. State-wise estimate of

⁴ https://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/Chp3/Chp3_1_Introduction.pdf

carbon stock for the years 2004-05 and 2015-16 is given in **Annexure 2.3 and 2.4**. Around 42% of increased carbon stock at the national level is contributed by five states – Arunachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Odisha and West Bengal. State/ UT-wise analysis shows that Arunachal Pradesh, Sikkim and Andaman & Nicobar Island each have maintained more than 14 thousand tonnes carbon stock per sq. km. Similarly, the States of Karnataka, Kerala, Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Nagaland have maintained 10 to 12 thousand tonnes carbon stock per sq. km.

Physical Asset Account for Forests

The framework suggested in the SEEA CF as mentioned in the Table 2.1 for preparation of physical asset account for forests requires detailed information on the sources of “addition in stock” and “reduction in stock”. In view of the limited availability of such details, an abridged version of the asset account is given in **Table 2.6**.

Table 2.6: Physical Asset Account for Forests

(Area in sq. km.)

Class	Opening Stock in 2004-05	Changes during the period		Closing stock in 2010-11
		Additions to stock	Reductions in stock	
Very Dense Forest	83472	984	954	83502
Moderately Dense Forest	319948	11047	12250	318745
Open Forest	286751	24638	15737	295652
Scrub	41286	2605	2508	41383
Non Forest	2555806	14291	22116	2547981
Total	3287263	53565	53565	3287263
Class	Opening Stock in 2010-11	Changes during the period		Closing stock in 2015-16
		Additions to stock	Reductions in stock	
Very Dense Forest	83502	19833	5177	98158
Moderately Dense Forest	318745	26958	37385	308318
Open Forest	295651	51607	45461	301797
Scrub	41383	18776	14180	45979
Non Forest	2547982	34810	49575	2533217
Total	3287263	151984	151778	3287469

Some of the salient changes highlighted by the physical asset account of forests is given below:

Changes from 2004-05 to 2010-11

- Under the Very Dense Forest (VDF), more than 90% of the addition was contributed by Moderately Dense Forests. On the other hand, conversion of VDF to MDF and open forest was the major reason for the reduction in this class of forest.
- Under the Moderately Dense Forest (MDF), more than 56% of the addition was contributed by open forest followed by non-forest (36%). On the other side, the degradation of MDF to open forest (46%) and non-forest (45%) was the major reason for reduction in this class of forest.
- Under the Open Forest, more than 70% of the addition was contributed by non-forest followed by MDF (23%). Similarly, conversion of open forest to MDF (35%) and degradation of forest to non-forest (60%) was the major reason for reduction in this class.
- Under the scrub, more than 60% of the addition was contributed by non-forest followed by open forest (34%). On the other hand, conversion of scrub forest to open forest (50%) and degradation of scrub forest to non-forest (46%) was the major reason for the reduction in this class.
- The non-forest area decreased by 2.98% (% of forest area) on account of conversion of non-forest area into forest area. The conversion of major non-forest area into 2.48% open forest followed by 0.51% moderate dense forest. On the other hand, the forest area has also reduced by 2.14% (% of Total Forest Area) on account of diversion of forest area into non-forest area. The major reduction in forest area contributed by open forest (1.35%) followed by moderately dense forest (0.79%).

Changes from 2010-11 to 2015-16

- Under the Very Dense Forest (VDF), more than 88% of the addition was contributed by Moderately Dense Forests. On the other hand, conversion of VDF to MDF (77.32%) was the major reason for reduction in this class of forest.
- Under the Moderately Dense Forest (MDF), more than 69% of the addition was contributed by open forest followed by non-forest (15%). On the other side, the conversion of MDF to VDF (40%) and degradation of MDF to open forest (37%) and non-forest (22%) was the major reason for reduction in this class of forest.

- Under the Open Forest, more than 58% of the addition was contributed by non-forest followed by MDF (26%). Similarly, conversion of open forest to MDF (45%) and degradation of forest to non-forest (45%) was the major reason for reduction in this class.
- Under the scrub, more than 80% of the addition was contributed by non-forest followed by open forest (17%). On the other hand, conversion of scrub forest to open forest (52%) and degradation of scrub forest to non-forest (45%) was the major reason for the reduction in this class.
- The non-forest area decreased by 6.96% (% of Total Forest Area) on account of conversion of non-forest area into forest area. The conversions of major non-forest area into 4.29% open forest followed by 2.048% scrub and 0.63% moderate dense forest. On the other hand, the forest area has also reduced by 4.90% (% of Total Forest Area) on account of diversion of forest area into non-forest area. The major reduction in forest area contributed by open forest (2.86%) followed by moderately dense forest (1.17%) and scrub (0.87%).

Conclusion

Compilation of forest statistics and accounts play significant role in incorporating the forests in the planning processes. In view of their contribution towards food security, livelihoods and the many products and ecosystem services they provide, SDG 15, "Life on land", puts forests and mountains at the centre of the sustainability of terrestrial ecosystems. The targets explicitly refer to forests and sustainable forest management, and also on land degradation and conservation of mountain ecosystems. Accurate information on a country's forest area is crucial for forest policy and planning. Changes in forest area reflect changes in demand for land for other uses and may help in identifying (un)sustainable practices in the forest and agriculture sectors. Monitoring the information can help in identifying negative change factors such as overgrazing, land clearing, urbanization, timber extraction, wood fuel collection and fire as also positive factors such as land restoration, reforestation, afforestation and sustainable agricultural practices.