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Ministry of Environment & Forests
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FORESTS FOR SUSTAINABLE LIVELIHOODS

Forests for Sustainable Livelihoods

India is one of the 14 mega diverse countries of the world. Forests act as a repository of our unique flora and fauna. Over 200 million people in India, mainly the very poor, are dependent on forests for their sustenance and livelihood needs.

Forests are the heritage and the permanent assets of any country. Forest can also be defined as an area set apart for the production of timber or other forest produce, or maintained under woody vegetation for certain indirect benefits. A forest includes all uncultivated and uninhabited land.

Today, a forest is any land managed for the diverse purposes of forestry, whether or not covered with trees, shrubs, climbers or other vegetation. Technically, a forest can be defined as an area set aside or maintained under vegetation for any indirect benefits, namely climatic, protective or environmental for production of wood and non-wood products. Legally, a forest is an area of land notified to be a forest under a forest law.

The United Nations has recognized “that forests and sustainable forest management can contribute significantly to sustainable livelihood, poverty eradication and the achievement of internationally agreed development goals” and emphasized “the need for sustainable management of all types of forests, including fragile forest ecosystems.” The United Nations has declared 2011 as “**The Year of Forests**”. It has called upon governments, regional and international organizations and major groups to support activities related to the International Year of Forests.

India is the seventh largest country in the world and Asia’s second largest, covering a total area of 328.7 million hectares (www.envfor.nic.in) with varied landscapes rich in natural resources. India has a great diversity of natural ecosystems ranging from the cold and high Himalayan regions to the sea coasts; from the wet north-eastern green forests to the dry northwestern arid deserts; with different types of forests, wetlands, islands and the oceans. India is one of the richest nations in terms of biological diversity. India owes this to its position in the tropical and subtropical latitudes. According to the India State of Forest Report (2009), the forest cover is 69.09 million ha (2009) which is 21.01% of the geographical area. The seven north eastern states of India have nearly 25% of the country’s forest cover. Several attempts have been made to value the services provided by forests. The indicative value is 0.5 to 0.9 million rupees per hectare.

Sustainable development implies use of natural resources such that future generations can attain the same level of well being as enjoyed by the present generation. Sustainable livelihood of forests means utilizing, in a tangible way, how to use it today to ensure similar benefits, health and productivity in the future also. Many conflicting factors - commercial and non-commercial values, environmental considerations and community needs – must be kept in mind while developing a sustainable forest management plan.

Status of Forest Cover in India

Forest type / Class	Area (km ²)	Geographical area (%)
Forest Cover		
Very Dense Forest	83,510	2.54
Moderately Dense Forest	319,012	9.71
Open Forest	288,377	8.77
Total Forest Cover (including mangroves)	690,899	21.02
Non-Forest		
Scrub	41,525	1.26
Non-Forest (including water bodies)	2,554,839	77.72
Total Geographical Area	3,287,263	100.00

(Source – India State of Forest Report, 2009)

In India, there are 15 types of forests which are as follows:-

1. **Tropical wet evergreen forest** - Wet evergreen forests are found in the south, along the Western Ghats, the Nicobar and Andaman Islands and along the north-eastern region. It is characterized by tall, straight evergreen trees that have a buttressed trunk or roots on three sides like a tripod that helps to keep the tree upright during a storm. The common trees that are found here are the jackfruit, betel nut palm, jamun and mango.
2. **Tropical semi-evergreen forest** - Semi-evergreen forests are found in the Western Ghats, Andaman and Nicobar Islands, and the Eastern Himalayas. Such forests have a mixture of wet evergreen trees and moist deciduous trees. The forest is dense and is filled with a large variety of trees of both types.
3. **Tropical moist deciduous forest** - Moist deciduous forests are found throughout India except in the western and the north-western regions. The trees have broad trunks, are tall and have branching trunks and roots to hold them firmly to the ground. These forests are dominated by sal and teak, along with mango, bamboo and rosewood.
4. **Littoral swamp forest** - Littoral and swamp forests are found along the Andaman and Nicobar Islands and the delta area of the Ganga and the Brahmaputra. They consist mainly of whistling pines, mangrove dates, palms and bullet wood.
5. **Tropical dry deciduous forest** - Dry deciduous forests are found throughout the northern part of the country except in the North-East. They are also found in Madhya Pradesh, Gujarat, Andhra Pradesh, Karnataka and Tamil Nadu. The canopy of the trees does not normally exceed 25 meters. The common trees are the sal, a variety of acacia and bamboo.

6. **Tropical thorn forest** - This type is found in areas with black soil: north, west, central and south India. The trees do not grow beyond 10 meters. Spurge, caper and cactus are typical of this region.
7. **Tropical dry evergreen forest** - Dry evergreens are found along the Andhra Pradesh and Karnataka coast. They include hard-leaved evergreen trees with fragrant flowers, along with a few deciduous trees.
8. **Sub-tropical broadleaved hill forest** - Broad-leaved forests are found in the Eastern Himalayas and the Western Ghats, along the Silent Valley. In the Silent Valley, the ponspar, cinnamon, rhododendron and fragrant grass are predominant. In the Eastern Himalayas, the flora has been badly affected by shifting cultivation and forest fires. These wet forests consist of evergreen trees with a sprinkling of deciduous. There are oak, alder, chestnut, birch and cherry trees. There are also a large variety of orchids, bamboo and creepers.
9. **Sub-tropical pine forest** - Pine forests are found in the steep dry slopes of the Shivalik Hills, Western and Central Himalayas, Khasi, Naga and Manipur Hills. The trees predominantly found in these areas are the chir, oak, rhododendron and pine. Sal, sandal, amla and laburnum are abundant in the lower regions.
10. **Sub-tropical dry evergreen forest** - These forests are found in the Shivalik Hills and in the foothills of the Himalayas, up to a height of 1000 meters. They generally have evergreen trees with shining leaves that have a varnished look. Some of the common ones are the pomegranate, olive and oleander.
11. **Montane wet temperate forest** – This type of forest is found in the east of Nepal into Arunachal Pradesh in the North and in parts of the Nilgiri Hills to higher reaches in Kerala in the south. Rhododendrons and a variety of ground flora can be found here.
12. **Himalayan moist temperate forest** - This type spreads from the Western Himalayas to the Eastern Himalayas. The trees found in the western section are broad-leaved oak, brown oak, walnut, rhododendron, etc. In the eastern Himalayas, there are a large variety of broad-leaved trees, ferns and bamboo.
13. **Himalayan dry temperate forest** - This type of forest is found mainly in Lahul, Kinnaur, Sikkim and other parts of the Himalayas. There are predominantly coniferous trees that are not too tall, along with broad-leaved trees such as the oak, maple and ash. At higher elevations, fir, juniper, deodar and chilgoza can be found.
14. **Sub-Alpine forest** – Sub-Alpine forests extend from Kashmir to Arunachal Pradesh, between 2900 and 3500 meters. In the Western Himalayas, the vegetation consists mainly of juniper, rhododendron, willow and black currant. In the eastern parts, red fir, black juniper, birch and larch are the common trees. Rhododendron of many species cover the hills.
15. **Alpine forest** - Moist Alpine forests are found all along the Himalayas and on the higher hills near the Myanmar border. It is made up of low scrub and dense evergreen forest, consisting mainly of rhododendron and birch. Mosses and ferns cover the ground in patches. Dry dwarf plants predominate, mainly the black juniper, drooping juniper and honeysuckle.

Forest Types of India

S. No.	Type of Forest	Forest cover (%)
1.	Tropical wet evergreen forest	8.75
2.	Tropical semi-evergreen forest	3.35
3.	Tropical moist deciduous forest	33.92
4.	Littoral and swamp forest	0.38
5.	Tropical dry deciduous forest	30.16

S. No.	Type of Forest	Forest cover (%)
6.	Tropical thorn forest	5.11
7.	Tropical dry evergreen forest	0.29
8.	Sub-tropical broadleaved hill forest	0.38
9.	Sub-tropical pine forest	5.99
10.	Sub-tropical dry evergreen forest	0.36
11.	Montane wet temperate forest	3.45
12.	Himalayan moist temperate forest	3.79
13.	Himalayan dry temperate forest	0.28
14.	Sub-Alpine and Alpine forest	3.79

(Source - India State of Forest Report, 2009)

ECOSYSTEM SERVICES OF FORESTS

Forests function as protectors of:

- India's cultural wealth
- gene pool for food crops and medicinal plants
- genetic information pertaining to future evolution of life on earth
- natural habitat for biodiversity and a home for indigenous people

Forests:

- Regulate the process of carbon sequestration and act as a carbon sink, thereby reducing green house gases and global warming
- Create the watersheds
- Prevent floods in ecologically sensitive areas like mountains and river catchments
- Regulates the climate
- Prevent soil erosion and landslides

Forests serve as productive agents:

- for recreation and an opportunity for eco-tourism
- in providing aesthetic value
- in maintaining life support systems – timber, fuel wood, fodder and non-timber products
- for domesticated food crops from wild tropical plants
- for medicines from plant extracts

LAWS PERTAINING TO FOREST CONSERVATION

Indian Constitution

The Constitution of India provides certain Articles that safeguard forest environment as stated below:

- **Article 21** – “No person shall be deprived of his life or personal liberty except according to procedure established by law.”
- **Article 48 A** – “The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.”
- **Article 51 A (g)** – “It shall be the fundamental duty of every citizen of India to protect and improve the Natural Environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures.”

Other legislations enacted to conserve and protect Indian Forests are as follows:-

- Indian Forest Act, 1927
- Wildlife Protection Act, 1972
- Biodiversity Act, 2002
- The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006
- National Environment Policy 2006

Indian Forest Policy:

The Forest Conservation Act, 1980, with amendments of 1988

An Act that provides for the conservation of forests and for matters connected therewith or ancillary or incidental thereto in India.

Forest Policy of 1988

This policy is enacted for managing state forests and to prevent serious depletion and diversion of forest land to non-forest use without ensuring compensatory afforestation. Conservation includes preservation, maintenance, sustainable utilisation, restoration and enhancement of the natural environment.

Joint Forest Management – 1990

This policy envisages people's involvement in the development and protection of forests. It is one of the essentials of forest management, in that forest communities should be motivated to identify themselves with the development and protection of forests from which they derive benefits.

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

“An act to recognize and vest the forest rights and occupation 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; to provide for a framework for recording the forest rights to vested and the nature of evidence required for such recognition and vesting in respect of forest land.”

National Mission for a Green India

The **National Mission for a Green India (GIM)** is one of the eight Missions under India's National Action Plan on Climate Change. The Mission aims to **respond to climate change by a combination of adaptation and mitigation measures**, which would help enhancing carbon sinks in sustainably managed forests and other ecosystems; adaptation of vulnerable species/ecosystems to the changing climate; and adaptation of forest-dependent communities. Envisaged outcomes include: *increased forest/tree cover in 5 m ha of land and improve quality of forest cover in another 5 million ha , improved ecosystem services from across 10 million ha of these lands, and increased forest based livelihood income of about 3 million forest dependent households. Key elements of innovations include: focus on both qualitative and quantitative improvement of forests; focus on range of ecosystem services including biodiversity, water, carbon (as co-benefit) and biomass; adoption of landscape-based approach; democratic decentralization; and creation of a new cadre of community youths as foresters.*

ROLE OF COMMUNITIES IN FOREST CONSERVATION

Protecting the forest is everyone's responsibility. There is an urgent need for understanding the destruction of forests brought about because of man's greed. The ever expanding population of the world is leading to increased demand for food, water, air and land. As more forests are cleared, biodiversity is irretrievably lost. The poorer and

over-populated nations must exploit every available resource in their losing battle for survival. The never-ending demands of man will eat into the available natural resources, taking him closer to extinction with each passing day.

There is an increased awareness that the ecologically sensitive forests must be conserved even as they are used by those living in the forests. There are many conservation movements and initiatives in India that have saved the natural resources.

Despite all threats, species diversity and diversity within species still continue to survive. Their continued existence is due to farmers and other communities living within the forest. Their cultural practices and knowledge systems have helped nurture biodiversity and forests preservation.

Nature worship is an ancient tradition based on the premise that all creations of nature have to be protected. Such beliefs have helped preserve several virgin forests in their pristine form, called Sacred Groves (the forests of Gods and Goddesses). These patches of forest or parts of large forests have been left untouched by the local people and any interference with them is banned. The practice dates back to the beginning of civilization. Indian society comprises of several cultures, each with its own set of traditional methods of conserving nature and its creations.

Every individual can make a small and yet significant effort in the race to save our planet and conserve forests:

- Promote use of nature based products.
- Plant and nurture trees wherever possible. Join hands in conserving forests, wetland, grasslands and mangroves.
- Avoid using insecticides, pesticides and inorganic fertilizers and try to use natural plant - based substitutes wherever possible
- Paper and cloth should replace non-biodegradable plastic and polyester which damage the ecosystem
- Curb unregulated and illegal mining activities
- Ban the inflow of industrial effluents as well as domestic waste into rivers and other fragile ecosystems
- Promote natural-farming, which is less intensive and environmental-friendly
- Promote the use of sustainable technologies like smokeless *chulhas*, ground water recharging unit, wind energy, solar power, etc.
- Curb the greed for products made out of animal parts like skin, fur, ivory, bones, nails, etc.

Man has no moral right to destroy nature and other beings that dwell on earth.

AWARENESS TO ACTION

***Awareness Component**

1. Campaign for awareness among the public about forest conservation and sustainable management
2. Campaign to protect sacred groves
3. Campaign against the grazing of animals in forests
4. 'Save the Greens' – campaign in schools and educational institutions
5. Conduct programmes for farmers on bio-farming
6. Promote eco-friendly and organic products
7. Revive traditional herbal remedies among the public / practitioners
8. Campaign against use of wildlife products
9. Capacity building workshops / awareness programmes for panchayat body functionaries

10. Publication and imparting awareness material / eco-literature on sustainable development of forests
11. Promote alternate energy sources like solar and wind energy
12. Use Information and Communication Technology (ICT) to enhance livelihood options

Issues to be addressed during awareness campaign

I Trees

1. Paper means trees - Reduce, reuse, recycle paper
2. Use tree-free / hand-made paper
3. Use the internet and avoid paper
4. Use farmed timber products
5. Plant more trees for food and fodder, timber, medicines, etc.

II Water

1. Forests as watersheds – rivers originate from forests

III Air

1. Forests serve as oxygen factory
2. Forests serve as a carbon sink

IV Wildlife

1. Forests are a home for rich biodiversity of the country
2. Species specific campaign – elephant, tiger, etc.

***Action Component**

1. Setting up 'Community forests' for conservation of forests and sustainable livelihoods
2. Initiating and setting up of seed banks among forest communities and dwellers
3. Collection and propagation of local medicinal species
4. Promotion and revival of traditional medicine practices
5. Creating 'Biodiversity Registers' in forest communities /panchayats / villages
6. Implementing alternatives to chemical pesticides and bio-pesticides
7. Stopping pollution of protected water bodies and forests
8. Establishment of sustainable technologies – Non-conventional energy practices
9. Ecological restoration of degraded forest areas and adjoining lands – Plantation of indigenous species
10. Afforestation of wasteland for fuelwood, fodder, timber, etc.
11. Assisting national level bodies in recording and preserving rare and endemic species

() These are only indicative / suggestive ideas/ action; the RRA's and participating organizations may innovate at their level in order to promote both awareness and action leading to "Forests for Sustainable Livelihood."**
