



**FORESTRY
AND
INTELLECTUAL PROPERTY RIGHTS**

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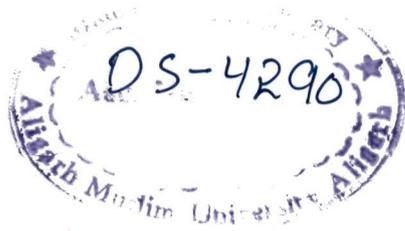
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Certificate

This is to certify that **Ms. Aliya Khatoon** student of **LL.M**, bearing **Roll No. 09-LLM-09** and **Enrollment No. EE-2142** has completed this dissertation entitled **“FORESTRY AND INTELLECTUAL PROPERTY RIGHTS (IPR)”** in partial fulfillment of the requirement for the award of the Degree of Master of Laws under my supervision.

I wish her all success in life.


Dr. Md. Zafar Mahfooz Nomani

Dedicated

to

My Loving Parents

Mr. MOHAMMAD INAM UDDIN (Sb.)

Mrs. NAFISA KHATOON (Saheba)

**IN THE NAME OF ALLAH THE MOST GRACIOUS
THE DISPENSER OF GRACE**

“Mischiefs (Pollution) has appeared on land and in the sea as an outcome of what men’s hands have wrought and so he will let them taste (the evil of some of their doings, so they might return (to the right path))”

(A-QUR’AN, 30:31)

“He (it is who) brings forth the living out of that which is dead, and brings forth the dead out of that which is alive, and gives life to the earth after it had been lifeless.....”

(AL-QUR’AN, 30:19)

TOPIC: FORESTRY AND INTELLECTUAL PROPERTY RIGHTS

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Aliya Khatoon

ABBREVIATIONS USED

ABS	Access and Benefit-sharing
AC	Appeal Cases
AIR	All India Report
All	Allahabad
ATSC	Australian Tree Seed Centre
Bom	Bombay
Cal	Calcutta
CAMPA	Compensatory Afforestation Fund Managemant and Planning Authority
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CEC	Central Empowered Committee
CO ₂	Carbon dioxide
COP	Conference of Parties
CITESC	Convention on International Trade in Endangered species of Wild flora and Fauna
C & I	Criteria and Indicator
CV	Contingent Value
CVM	Contingent Value Method
CE	Choice Experiments
COC	Chain of Custody
DLC	District Level Committee
DUV	Direct Use value
DC	Direct Choice

EPA	Environment Protection Act 1986
EDC	Eco-Development Committees
ECOSOC	United Nation Economic and Social Council
E.g	Example gratia; for example
EPBC Act	Environment Protection and Biodiversity Conservation Act, 1999.
FD	Forest Department
FDA	Forest Development Agency
FSO	Forest Settlement Officer
FCA	Forest Conservation Act
FDSTs	Forest Dependent Schedule Tribes
FRA	Forest Resource Accounting
FAO	Food and Agricultural Organization
FSI	Forest Survey of India
FMUs	Forest Management Units
FSC	Forest Stewardship Council
GATT	General Agreement on Tariffs and Trade
GHG	Greenhouse Gas
GOI	Government of India
GEF	Global Environment Facility
GNP	Gross National Income
GDP	Gross Domestic Product
GR	Genetic Resources
Id	the same (same citation but different place)
i.e	that is
Ibid	in the same place (same citation and page)
IP	Intellectual Property

IPR	Intellectual Property Rights
IT	Information Technology
IFA	Indian Forest Act
ILO	International Labour Organization
ITTA	International Tropical Timber Agreement
ITTD	International Tropical Timber Organization
IPF	Intergovernmental Panel on Forest
IFF	Intergovernmental Forum on Forest
ICFRI	Indian Council of Forest Research and Education
IUV	Indirect Use Value
JFM	Joint Forest Management
JFMC	Joint Forest Management Committee
LFCC	Low Forests Cover Countries
LPG	Liquified Petroleum Gas
MCA	Multi Criteria Analysis
MDGs	Millennium Development Goals
MOEF	Ministry Of Environment and Forest
NAEB	National Afforestation and Eco-Development Board
NUV	Non Use Value
NCA	National Commission on Agriculture
NRER	National Rural Employment Regulation
NREGA	National Rural Employment Guarantee Act
NGO	Non Governmental Organization
NAP	National Afforestation Programme
NVP	Net Present Value
NTFP	Non Timber Forest Product

NWFPs	Non Wood Forest Products
NATCOMs	National Communications
NFAP	National Forestry Action Programme
NFP	National Forest Policy
NDP	Net Domestic Product
OV	Option Value
P	Page
PESA	Panchayat Extension to the Scheduled Areas Act 1996
PA	Protected Areas
PEFC	Programme for the Endorsement of Forest Certification Scheme
PVPC	Plant Variety Protection Certificates
SC	Supreme Court
S. / Sec	Section
SSC	Supreme Court Cases
SCR	Supreme Court Reports
Sub-sec	Sub section
Supra	above
SDLC	Sub-Divisional Level Committee
DLC	District Level Committee
SFM	Sustainable Forest Management
SPS	Sanitary and Phyto-Sanitary
SFRIs	State Forest Research Institutions
SE	South East
SFD	Sustainable Forest Development
SNA	System of National Account
TCM	Travel Cost Method

TRIPS	Trade Related Aspects of Intellectual Property Rights Agreement
TBT	Technical Barriers to Trade
TEV	Total Economic Value
U.K	United Kingdom
U.S	United States
UN	United Nations
UV	Use Value
UT	Union Territories
UPOV	<i>Union internationale pour la protection des obtentions Végétales</i> (International Union for the Protection of New Varieties of plants)
UNCED	United Nation Conference on Environment and Development
UNCCD	United Nation Convention to Combat Desertification
UNFF	United Nation Forum on Forest
UNCTAD	United Nation Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
Vol	volume
WWW	World Wide Web
WTO	World Trade Organization

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<i>Sachidanand Pandey vs. State of West Bengal</i>	AIR 1986 SC 1109, 1114-15
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INTRODUCTION

(A) Statement of Problem

This dissertation work is prepared for analyzing the significance of Forest Laws and how Forest Laws are effective in repairing the loss cause to the environment. It also covers the intellectual property rights influence in the field of forest laws how it is affecting it and what is the scope of IPR in the area. Meaning of the term Forest is highly debated among the social scientists. Social interaction with the forest has been part of human existence since time immemorial. Industrial societies are in contact with the forest in some form. It has been a dilemma for the social scientists to define the meaning of forests as the uses of forest have been culture specific and therefore the perception of forest has been different in different cultures. Conservation of natural environment has become a major human concern. It is only recent decades that the man has realized that there is some limit to its activities of alteration. The setting and enforcement of these issues has become the major issue now. Natural resources are being depleted by mankind more rapidly than the earth can regenerate them. To ensure ecological stability atleast 30% of the nation should be under adequate Forest cover. Forest management always gives rise to conflict of values, all sectors of economy and development demand forest resources where as environment protection demands conservation of forests.

(B) Objective of Study

The major focus of this dissertation work is intellectual property rights and forestry. Its objective is to study the intellectual property rights provisions in the national and international laws relating to forestry or forest products. And how far the law is developed in India with comparison to the other countries?

(C) Research Methodology

The methodology adopted by the researcher is purely doctrinal in nature. It involved in depth study of source materials, text review, case study and comparative study. The research is based on two types of material that is primary materials and secondary materials. Primary material consists of text of laws, declarations, conventions, rules etc on the issue. Secondary materials consist of books, articles, encyclopedia, research papers, newspapers and magazines. The research also includes study of case laws. Use of internet has also been made to gather important and relevant information relating to subject of study. The research is analytical and descriptive in nature mode of citation is uniform throughout the work. Articles from journals are cited as suggested by respective journals themselves while citing a text book; the author's name is cited first followed by the title of the book, volume, edition and year of publication and at last page number of the book from where material has been taken.

(D) Scheme of Study

The present dissertation work namely "*Forestry and Intellectual Property Rights*" has been broadly divided in into six chapters. The **chapter.1** namely *Forest and Forestry* is an introductory chapter providing the definition and meaning of the term Forest and Forestry. It elaborates the importance of forest what role has been played by the forest in maintaining the ecological balance. It further recognizes the importance of conservation of forest and what are the factors responsible for the degradation of forest. The role which the government both at central and state level is playing in conserving the forest and refers to the various plans and schemes so initiated by the respective governments. It also covers the role played by the

forestry sector in the economy of the country in generating revenue, employment and poverty alleviation. It further provides the meaning of forest eco-system and how it has been protected in India. Lastly, discusses the various international conventions which are binding on India in respect of the conservation of forest and other forest related aspects.

Chapter. 2 namely *Forest Laws* discusses in detail the development of laws relating to forest, its conservation, management, rights of forest dwellers etc. before and after independence. Firstly, it covers the Indian Forest Act 1927, when it was enacted what was the object behind its enactment, the rights provided and process of settlement under the Act. Then, it provides about the development that takes place after independence mainly the 42nd constitutional amendment of the constitution 1976, what were the changes brought about by the amendment. Then, it covers the Forest Conservation Act 1980, its objective, implementation and effects. Lastly, it discusses at length the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. Its object, extension of beneficiaries, the rights recognized the obligations and implementation under the Act.

Chapter. 3 namely *Forest Policy of India* deals with the pre-independence and post independence forest policies adopted by the government, mainly the Forest Policy of 1894, the Forest Policy of 1952 and the National Forest Policy 1988. It also covers the National Forestry Action Plan 1991 and Coimbatore Charter on Environment and Forest 2001. It further provides how the national forest policies have been affected by the international conventions from time to time.

Chapter. 4 namely, *Forest Commission of India* covers the constitution of National Forest Commission of India by the Government of India upon the recommendation of Indian Board of Wild Life. It describes in details the recommendations made by the national forest commission with regard to current

status of forests, the forest policy, legal framework, institutions, and the administrative structure of the forestry sector. Goals and constraints of the forestry sector, approaches to forest, wildlife and nature conservation, farm and agroforestry, centre-state relations, forests and local communities and peoples' participation, all aspects have been considered in depth. Then provide the effect of such recommendations of the forest commission.

Chapter. 5 - *Sustainable Development and Forestry* contain the meaning and concept of sustainable development, how it evolved and implemented in India and why sustainable management of forest is the need of the time. It discusses in detail the importance and valuation of forest cover and the various methods for calculating the forest benefits. It further talks about the various challenges which the forestry sector is facing in India. Lastly it provides the meaning concept of certification and why the developing countries are facing problem in developing the certification system in their markets and the position in India with respect to certification of forest products.

Chapter. 6 i.e. *Forestry and Intellectual Property Rights* elaborately discusses the development of intellectual property rights in India. It covers the various aspects of intellectual property laws which have some relation with forestry. How the forestry sector is influenced by the intellectual property rights and how far the law is developed in this field in India in comparison with some developed nations in the world.

Lastly, conclusion is drawn and some suggestions are forwarded which is followed by the bibliography.

CHAPTER

1

**FOREST AND
FORESTRY**

1.1 INTRODUCTION

Forests are a major natural resource and are also recognized as a colourful expression of nature. They are also recognized as guardians and protectors of the wildlife of the country. Forests are valued not only for various kind of flora and fauna but also for minerals, water sheds, crades of rivers, check on desertification and as an important recreational resource and for their scenic beauty.¹

It was irrefutably proved that they have the unique capacity of neutralizing man's negative impact on the environment, thus supporting the peculiar ecological balance. Forest plays an important role in shaping the chemical and bacteriological composition of fresh water bodies, rivers, thermal regime, atmospheric gas balance, in maintaining soil fertility and protecting croplands. The dust catching, anti-microbial and anti-radiation properties of forests have no analogous in nature. Inspite of knowing all this, man intrudes into the life of the forest without caring for the effects.²

Deforestation gives birth to several problems encompassing environmental degradation through accelerated rate of soil erosion, increase in the sediment load of the rivers, siltation or reservoirs and river beds. Increase in the frequency and dimension of floods and distribution of precipitation, intensification of green house effects. Increase in the destructive force of the atmospheric storms etc. economic loss through damages of agricultural crops due to increased incidence of floods and draughts, decrease on agricultural production of loss of fertile top soils, decrease in the supply of raw materials to the industries and building matters etc. thus deforestation cause a chain of effects which adversely affect the natural environment.³

Forestry is the art and science of managing forests, tree plantations, and related natural resources. The main goal of forestry is to create and implement systems that allow forests to continue a sustainable continuation of environmental supplies and services. Today a strong body of research exists regarding the management of forest ecosystems and genetic improvement of tree species and varieties. Forestry also includes the development of better methods for the planting, protecting, thinning, controlled burning, felling, extracting, and processing of timber. One of the applications of modern forestry is reforestation, in which trees are planted and tended in a given area.

In many regions the forest industry is of major ecological, economic, and social importance. Third-party certification systems that provide independent verification of sound forest stewardship and sustainable forestry have become commonplace in many areas since the 1990s.⁴

1.2 MEANING OF FOREST AND FORESTRY

1.2.1 Definition of Forest

A large extent or precinct of country, generally waste and woody, belonging to the sovereign, set apart for the keeping of game for his use, not inclosed, but distinguished by certain limits, and protected by certain laws, courts, and officers of its own.⁵ The Australia's National Forest Inventory's definition of forest is:

' . . . an area, incorporating all living and non-living components, that is dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding 2 metres and with existing or potential crown cover of overstorey strata about equal to or greater than 20 per cent. This definition includes Australia's diverse native forests and plantations,

regardless of age. It is also sufficiently broad to encompass areas of trees that are sometimes described as woodlands.'⁶

A forest, also referred to as a wood or the woods and less often as a "wold" (or "weald"), "holt", or "frith" (or "firth"), is an area with a high density of trees. There are many definitions of "forest" based on various criteria. These plant communities cover approximately 9.4% of the Earth's surface (or 30% of total land area), though they once covered much more (about 50% of total land area), in many different regions and function as habitats for organisms, hydrologic flow modulators, and soil conservers, constituting one of the most important aspects of the biosphere. Although forests are classified primarily by trees, the concept of a forest ecosystem includes additional species (such as smaller plants, fungi, bacteria, and animals) as well as physical and chemical processes such as energy flow and nutrient cycling.

Forests are central to all human life because they provide a diverse range of resources; they store carbon, aid in regulating our climate, purify water and mitigate natural hazards such as floods. Forests also contain roughly 90% of the world terrestrial biodiversity.⁷

In the Indian context, the highest authority for tenable definitions, the Supreme Court of India, ruling in the context of the Forest (Conservation) Act, 1980, in *T. N. Godavarman Thirumulkpad vs. Union of India*⁸, choose the following words:

“The word ‘forest’ must be understood according to its dictionary meaning. This description covers all statutorily recognized forests, whether designated as reserved, protected or otherwise for the purpose of section 2 (1) of the Forest (Conservation) Act. The term ‘forest land’, occurring in section 2, will not only include ‘forest’ as understood in the dictionary sense, but also any area recorded as forest in the Government record irrespective of ownership...”

India's forests have long been an important part of her culture and a defining feature of her landscape: India has more than 70 million hectares under Forest Cover, which is more than twice the entire geographical area of Finland. While most developing countries lost forest cover, India added around 3mn hectares of forest and tree cover over the last decade. Forests neutralize ~11% Of India's GHG emissions. India is one of the 17 mega diverse countries with 4 global biodiversity hotspots. 200 million people are dependent on forests for livelihood in India. Concerted programmers are making them partners in conservation. India enacted a Forest Rights Act, 2006 to vest forest rights and titles on traditional forest dwelling communities.

India has one of the most advanced forest mapping programmes in the world, with the Forest Survey of India conducting a biennial cycle of forest and tree cover assessment. India recognizes that conserving, expanding and improving the quality of our forests is a major National priority. This has enormous domestic and transnational mitigating benefits. Not only is it a cost-effective and efficient way to mitigate the effects of climate change but it also improves India's water security, safeguards rich biodiversity and provides livelihood security for millions of Indians.⁹

1.2.2 Meaning of Forestry

American Heritage Dictionary defines forestry as:

“The science and art of cultivating, maintaining, and developing forests and the management of a forestland.”

Forestry is the art and science of managing forests, tree plantations, and related natural resources. The main goal of forestry is to create and implement systems that allow forests to continue a sustainable continuation of environmental supplies

and services. The challenge of forestry is to create systems that are socially accepted while sustaining the resource and any other resources that might be affected.¹⁰

Forestry, the management of forest lands for wood, water, wildlife, forage, and recreation. Because the major economic importance of the forest lies in wood and wood products, forestry has been chiefly concerned with timber management, especially reforestation, maintenance of the extant forest stands at prime condition, and fire control.¹¹

Silviculture, a related science, involves the growing and tending of trees and forests. Modern forestry generally embraces a broad range of concerns, including assisting forests to provide timber as raw material for wood products, wildlife habitat, natural water quality management, recreation, landscape and community protection, employment, aesthetically appealing landscapes, biodiversity management, watershed management, erosion control, and preserving forests as 'sinks' for atmospheric carbon dioxide. A practitioner of forestry is known as a forester. Note that the word "forestry" can also refer to a forest itself.¹²

1.2.3 The Goal of Forestry

It is the chief goal of forestry to devise methods for felling trees that provide for the growth of a new forest crop and to ensure that adequate seed of desirable species is shed onto the ground and that conditions are optimal for seed germination and the survival of saplings. The basic rule of timber management is sustained yield; that is, to cut each year a volume of timber no greater than the volume of wood that grew during that year on standing trees. Desirable timber species are usually those of the native climax vegetation that can perpetuate themselves by natural succession, although at times (intentionally or unintentionally) a forest may not represent the climax vegetation—such as the pine

of the SE United States, which grows faster than, and has replaced, the hardwoods destroyed by fire and logging.¹³

Thus, three distinct medium term forestry sector goals are to:

1. meet the subsistence requirement of the forest-fringe communities for fuelwood, fodder, small timber and non-wood forest products through a system that ensures prevention of further degradation of the well stocked areas and regeneration of the degraded areas;
2. meet the ecological requirements of biodiversity conservation, wildlife preservation and ecological goods and services (soil conservation, fertility management, maintenance of hydrology, disease and storm protection, culture, recreation, etc.); and
3. meet the market requirements, including the needs of forest-based industries, through increased productivity of the existing forests and expansion of forest and tree cover by encouraging investments by all stakeholders, especially on private land holdings.¹⁴

1.3 CONSERVATION OF FOREST

INDIA is a large developing country known for its diverse forest ecosystems and is also a mega-biodiversity country. Forest ecosystems in India are critical for biodiversity, watershed protection, and livelihoods of indigenous and rural communities. The National Communication of the Government of India to the UNFCCC has reported that the forest sector is a marginal source of CO₂ emissions. India has formulated and implemented a number of policies and programmes aimed at forest and biodiversity conservation, afforestation and reforestation. Further, India has a goal to bring one-third of the geographic area under forest and tree cover by 2012.¹⁵

Degradation

It is believed that the continuous degradation is taking place in most of our forests. FSI estimate indicates that India's 40% forests are degraded.¹⁶ Degradation encompasses forests in their totality, including soil condition, moisture regime, nutrient availability, micro organisms, crop composition, biomass production, capacity to regenerate, etc., it is necessary that scientific studies are carried out to assess the various kinds of degradation of our forests, so that remedial measures could be taken. Some of the causes of degradation are mentioned below:¹⁷

- *Fuelwood*: Consumption of wood (timber and fuelwood) in India is considerably (4 to 5 times) higher than what can sustainably be removed from the forests. Fuelwood collection for household energy significantly contributes to pressure on forests. In 1990, estimated excess (mostly unrecorded) removal of fuelwood was about 250 million cu. m with an expected increase to 310 million cu. m by 2000. Even though, some fuelwood may come from household plots and non-forest sources, a substantial quantity of fuelwood is obtained by unrecorded over-cut.¹⁸
- *Grazing*: Forests have been an important source of grazing in the absence of a viable policy for fodder development. It is estimated that over half the livestock population of India, some 270 million, graze in forests. These include village livestock and migratory animals herded by ethnic graziers. Additionally, graziers collect an estimated 175 to 200 million tonnes of green fodder annually. This results in forest degradation, damages to regeneration and compaction of soil. A sample survey by FSI further estimates that the impact of grazing occurs in approximately 78 per cent of India's forests, of which some 18 per cent suffers high incidence and 31 per cent medium. Grazing occurs even in Protected Areas. In another survey, 67

per cent of national parks and 83 per cent of wildlife sanctuaries surveyed reported grazing.¹⁹

- *Fire in forest:* Crown fires in coniferous forests and ground fires in the rest, which annually affect some 35 million ha of forest area, are mostly man-caused. Fires are purposely set to promote new flush of grass or tendu leaves, to facilitate collection of honey, sal seeds, mahua and chiraunji or to prepare land for shifting cultivation. An FSI sample survey conducted in 1995 found that annually fires affect some 53 to 54 per cent of forest areas. 51 per cent of forest area in Assam, 93 per cent in Arunachal Pradesh, 67 per cent in Bihar, 51 per cent in Gujarat, 46 per cent in Jammu and Kashmir, 45 per cent in Karnataka, 76 per cent in Madhya Pradesh, 37 per cent in Sikkim, 58 per cent in Uttar Pradesh, and 33 per cent in West Bengal are affected by fire.²⁰

A centrally sponsored scheme of 'Modern Forest Fire Control Methods' for prevention, detection, suppression and hazard reduction of forest fires, as well as for fire suppression, mopping up, is under implementation in eleven States. Extension of these methods to the whole country and establishment of a comprehensive forest fire plan are delayed due to lack of funds.²¹

- *Shifting cultivation:* Shifting cultivation refers to a farming or agricultural system in which a short but variable cultivation phase (on slash-and-burn cleared land) alternates with a long and equally variable fallow period. The clearing of forest, secondary bush, and woodland or grassland vegetation for cultivation is accomplished with simple hand tools.²²

Different estimates for the area involved under shifting cultivation in India range from 5 million ha to 11.5 million ha. The estimate of 10 million ha reported by World Bank appears more reasonable. There is also no consensus on the number of people involved in shifting cultivation. Estimates range from

3 to 26 million. Shifting cultivation is practiced at least in 16 States and is seen predominantly in the North-Eastern States where shifting cultivation accounts for most of the deforestation.²³

With increasing pressure on forestlands, and shortening of the fallow period, this practice of farming which was, once, in balance with nature has become disorderly, causing considerable change to farming practices. The fallow cycle has decreased from about 20 years to about three years in most cases.²⁴

- *Encroachment*: No figures are available for the cumulative deforested area resulting from past forest encroachments. Illegal occupation in forest still continues. Currently, people illegally occupy about 1.5 million ha of forest area for agriculture and other uses. Due to their illegal status, they are unable to receive extension services and improve their farming system, further accelerating land degradation.²⁵
- *Mining and quarrying*: Mining in forest areas is another cause of forest degradation. As per the Indian Bureau of Mines, Nagpur, on 31 March 2004, 6941 mines over an area of 0.454 million ha were in operation.²⁶ Though the total area under mining in forestland is less than 1%, the degradation is mostly because of open cast mining, which results in a huge quantity of overburden and debris to be managed scientifically so that the other areas are not degraded.²⁷

Along with the above there are some other causes responsible for the degradation of forests, such as, faulty roads construction in hills, use of pesticides, and effecting developmental projects.

1.3.1 Afforestation and Reforestation Programmes:

Forest conservation directly implies the soil conservation against erosion. The process of deforestation is believed to initiate the aridity conditions, as the forest biota is perceived to be a vital parameter in hydrological cycle.²⁸

India has been implementing an aggressive afforestation programme. The country initiated large-scale afforestation under the social forestry programme starting in the early 1980s. Afforestation and reforestation in India are being carried out under various programmes, namely social forestry initiated in the early 1980s, Joint Forest Management Programme initiated in 1990, afforestation under National Afforestation and Eco-development Board (NAEB) programmes since 1992, and private farmer and industryinitiated plantation forestry.²⁹

It is encouraging that the afforestation of India figures prominently in the new government priorities. Five million hectares of degraded land is to be brought under tree cover annually. This exceeds the total area reforested in the last 30 years and does seem to be a most ambitious target.³⁰

The National Forest Policy, 1988 envisages a massive need-based and time bound programme of afforestation and tree planting with particular emphasis on fuelwood and fodder development, on all degraded and denuded lands, whether forest or non-forest. The Policy also encourages planting of trees alongside of roads, railway lines, rivers, streams and canals, and on other unutilized lands under village and community or private ownership. It also provides for green belts and woodlots to be raised in urban/industrial areas as well as in arid tracts to check erosion and desertification and to improve the microclimate.³¹

There is some variation in the total area of forest plantations reported at different periods. One reason leading to interpretational differences is that people/communities, with seedlings supplied free of cost, carried out part of the planting. In such cases (where about 9309 million seedlings were distributed till 1997-98)

areas were computed by equating 2000 seedlings to one hectare, while certain other estimates were based on interpreting satellite images. Seedling distribution and tree planting are undertaken through a large number of projects/programmes, under the control of SFDs and other agencies. These programmes are:

A. MoEF Programmes

- 20-point programme, NAEB/MoEF.
- Integrated Afforestation and Eco-development projects.
- Association of scheduled tribes and rural poor in regeneration of degraded forests on usufruct sharing basis.
- Area oriented fuelwood and fodder production scheme.
- Plantation of non-wood forest species including medicinal plants. Grants in aid to voluntary agencies
- Externally assisted social forestry projects

B. Other Programmes

- Integrated Wasteland Development Scheme and Desert Development Programme.
- Grants-in-aid scheme of Ministry of Rural Areas and Employment
- Programmes of the Department of Poverty Alleviation and Rural Employment.
- Soil conservation, watershed management and other integrated programmes of the Department of Agriculture and Cooperation.³²

1.3.2 Main Obstacles to Sustainable and Just Forest Management:

Forest conservation in India has got stuck in a deadly quagmire of contradictory policies, legislation and executive/judicial action, none of which addresses the basic causes of forest degradation. Unless these underlying causes are tackled,

neither conservation nor social justice objectives can be achieved on a sustainable basis. These causes may be grouped into the following three broad categories:

1. *Poor procedures and unsound premises for defining and identifying forests:* The national forest estate has been assembled through unsound processes, resulting in serious tenurial and land use conflicts, unclear boundaries, jurisdictional disputes between different departments and inappropriate management objectives for non-forest lands declared state 'forests' through sweeping notifications. Unless these conflicts are addressed and the forest estate rationalised, forest conservation cannot be placed on a sound footing.

2. *Dissonance between tribal and conservation laws:* There has been widespread negation of communal tenures and the role of forests in tribal livelihoods and culture through rigid application of conservation laws superimposed over tribal areas. This is in violation of the constitutional provisions for safeguarding tribal cultures, livelihoods and resource rights. Implementation of tribal welfare and conservation laws needs to be harmonised if the symbiotic relationship between tribal people and forests is to be restored.

3. *Neglect of democratic decentralisation of forest governance:* Centralised forest administration and management designed for revenue generation cannot achieve the revised forest policy objectives of biodiversity and ecological conservation while upholding social justice and equity. Achieving these objectives requires the democratic decentralisation of forest governance. Provisions of the *Panchayat (Extension to the Scheduled Areas) Act (PESA), 1996* as well as section 28 of the Indian Forest Act (IFA) provide legal opportunities for such devolution of forest management. Ignoring these legal options, however, the Ministry of Environment and Forests (MoEF), promotes Joint Forest Management which is characterised by imbalances in power and authority with one-sided expectations of transparency and accountability by the forest department (FD). The lack of any tenurial security or

clear common property rights and insensitivity to the diverse livelihood functions of forest lands are undermining the effectiveness and sustainability of JFM approaches.³³

The supreme court of India played an active role in the conservation of forest in *T.N Godavarman Thirumulpad vs. union of India*³⁴, in this case the petitioner challenged the allotment of land of 15 hectare by way of lease to M/S Maruti coal and power ltd, for setting up coal washery. It was claimed that the land leased out was a forest land, which could not be used for non-forest purpose i.e. for coal washery.

With reference to the conservation, preservation and protection of forests and ecology and use of forest for non-forest purpose following principles were laid down.

- A) The principal aim of the forest policy is to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which is vital for sustenance of all life forms, human, animal, and plant. The derivation of direct economic benefit must be subordinated to this principal aim. The forest policy has a statutory flavour. The non fulfillment of aforesaid principle would be violative of article 14 and 21 of the constitution.
- B) Compensatory Afforestation Fund Management and Planning Authority (CAMPA) created by the Ministry Of Environment And Forests with the concurrence of the Central Empowered Committee (CEC) was essential. It shall allocate money to the states for their site specific schemes out of Compensatory Afforestation Fund. This fund is created having regard to the intergenerational justice.

- C) If it is at all necessary for economic development to use forest for non-forest purpose, then before permission is granted by CEC, there should be some scheme (including short term and long term measures) for regeneration of forests. Constitution of CAMPA under sec. 3[3] of the Environment Protection Act, 1986 is a laudable step in this direction.
- D) Money received towards compensatory afforestation additional, compensatory afforestation, penal compensatory afforestation, net present value (NVP) of forest land, catchment area, treatment plan fund, etc. shall be deposited in compensatory afforestation fund.
- E) Fund received from the user agencies shall be used exclusively for undertaking the conservation activities.
- F) Artificial regeneration activity must be started at the earliest. Local and indigenous species must be used in plantations.
- G) Independent system of concurrent monitoring and evaluation should be evolved.
- H) Forest management planning involves a blend of ecological, economic and social systems with the economic and social sides of planning.

1.4 IMPORTANCE OF FOREST

Forests play a vital role in social, cultural, historical, economic and industrial development of any country and in maintaining its ecological balance. They are the resource base for sustenance of its population and a storehouse of biodiversity. Other vocations of land use, such as agriculture and animal husbandry, are dependent on forests and forestlands. Forests not only maintain and improve the

moisture regime and provide clean air but also produce humus and maintain soil fertility.³⁵

The premium on forests can be understood by recognizing them as the primary producers and protectors of several natural resources. As long as the economic benefits in terms of climate control, pollution abatement, and wildlife maintenance are not satisfactorily calculated, timber and pulp are regarded the chief economic products of forests. But the economic importance of non-timber forest products (NTFP) and efforts to evaluate them are on the rise. Forests are also vital as watersheds. Because of the thick humus layer, loose soil and the soil-retaining powers of tree-roots, forests are vitally important for maintaining and regulating water flows and sub-soil water regimes.³⁶

In addition, forests are habitats for diverse species; they sustain the majority of diversity in nature. The wild counterparts of our food plants and livestock, the genetic importance of which is being increasingly realized, occur in the forests and grasslands. They also harbour our wild medicinal plants. They provide recreation and aesthetic refreshment for people, and irreplaceable supplies of oxygen and soil nutrients. Forests clean the environment by muffling noises, buffering strong winds and trapping dust and gases. They also moderate extremes of temperature. The most important benefit that the human race has been deriving from these ecosystems is the security of life-support systems.³⁷

1.4.1 Social Functions of Forest – Protective and Recreational

Under these functions it is understood those kinds of services that have a significant impact on the quality of the natural environment and the living conditions of its inhabitants. In literature these functions are also called indirectly-productive, non-productive, social or infrastructural. These also include:

- *Forest as a regulator of water management:* Forests retain and store excess waters, slow down their run-off after winter or long-lasting rainfall. Forest soils with their typical humus layer easily absorb and store water. Woodlands are characterized by a generally more uniform water run-off capacity. Forests perfectly counteract water contamination acting as an excellent natural filter. Forests accumulate all civilization waste produced by man, absorb impurities and release pure water to the environment.
- *Protection against negative industrial effects:* Having a huge leaf and needle area, forests absorb industrial emissions from the air. These contaminants are washed down by rain waters into the soil. Because of climate warming, discussions intensify on the role of forests in the accumulation of carbon dioxide.
- *Protection against natural disasters:* Forests protect people, lands, buildings and structures against landslides, snow and stone avalanches, or mountain torrent flooding. This function is particularly visible in montane and piedmont areas.
- *Nature protection function:* Forest is the richest environment for plants and animals. It is frequently the only refuge for some species. For that reason the role of forests for maintaining biodiversity is extremely important.

To quote an instance about the capacity of trees to control air pollution experiments conducted in west Germany show that one large tree can in one season absorb the lead content of 130 litres of petrol from the atmosphere. The poisonous metal is converted by the trees into lead phosphate which is insoluble in water and is stored in the trunk, where it can damage neither itself nor people and animals.³⁸ Among social functions, worth mentioning are also recreational, wind-protecting and defence functions, those stimulating production in non-forest

economic sectors, as well as soil-protecting and landscape functions. Without forests and their predominant impact on air humidity and volatile oil content, no health resorts will be possible.³⁹

Mitigation Service by India's Forest and Tree Cover

India's forests serve as a major sink of CO₂. Estimates show that the annual CO₂ removals by India's forest and tree cover is enough to neutralize 11.25 % of India's total GHG emissions (CO₂ equivalent) at 1994 levels, the most recent year for which comparable data is available for developing countries based on their respective National Communications (NATCOMs) to the United Nations Framework Convention on Climate Change (UNFCCC). This is equivalent to offsetting 100% emissions from all energy in residential and transport sectors; or 40% of total emissions from the agriculture sector. Clearly, India's forest and tree cover is serving as a major mode of carbon mitigation for India and the world.⁴⁰

As per formal estimates, forestry and logging contributed Rs. 23,798 crores in 2001-02, which was roughly 1.5% of the total GDP of the country. However, since most of the trade and use of forest products is informal and if one takes into account all the kinds of removals of forest products, the estimate of the contribution from forest is greatly enhanced. It increases even further if the non-tangible benefits, e.g. ecological services of the forests, for which there has been renewed interest and increasing demand in recent years, are also taken into consideration. Forests are increasingly being looked upon as major performers in poverty alleviation programmes.⁴¹

1.5 ROLE OF FORESTRY SECTOR IN ECONOMY & REVENUE

Forests were not looked at as significant factors in maintaining ecological balance, but as a source of revenue and raw materials. Mechanism such as levy of duty on timber or forest produce, control over the products in transit, criminal sanction against violation of rules relating to timber and forest produce and conferment of police powers on forest personnel, establish that the law was initially formulated towards revenue collection.⁴²

This revenue oriented approach later transform to participatory approach. In view of the deteriorating forest resources and their importance to the national economy and environment, the Government has been emphasizing for the sustainable development of forest resources, as well as conservation of ecosystems.

The Government revised the National Forest Policy in 1988 and emphasised on conservation and environmental stability. Later on, it decided to undertake the preparation of a National Forestry Action Programme (NFAP) with the aim of addressing the issues of the forestry sector in line with the National Forest Policy (NFP 1988).⁴³

Forest provide many different economic benefits, both tangible and intangible. Forest benefits can be grouped into direct and indirect uses, option and non-use values. Only some of these values are reflected in market prices, due to widespread market imperfections and policy failures. Both private land users and public policy makers typically focus on tangible, marketed uses, and often neglect non-market environmental benefits, in particular. This results in excessive conversion of forest land to other uses, or excessive damage to non-market forest services in the process of extracting marketed timber and other goods.⁴⁴

1.5.1 Contribution to GDP

The present system of national accounts (SNA) is primarily focused on growth rates of Gross Domestic Product (GDP) and it fails to capture several important elements of natural wealth – both qualitative and quantitative. Despite making significant contribution to India's economic and ecological systems, forests of the country do not get proper recognition in the national income (GNP) of the country. In 2002-03, forests contributed Rs.27,013 crore to India's GDP at the current prices, which was 1.2 % of the GDP. The contribution of forests to India's GDP has varied from 1.0 to 1.5 per cent during the nine-year period from 1993-94 to 2002-03. Similarly, the contribution of forestry and logging to India's Net Domestic Product (NDP) also varied from 1.6 per cent to 1.3 per cent during the same period.⁴⁵ Forestry is the second largest land use after agriculture and accounts for about 1.5 percent of the nation's GDP (World Bank, 2006).⁴⁶

On account of absence of any framework for estimation of such values, the present system of income accounting in the forestry sector only takes note of contributions such as industrial wood, fuelwood and minor forest products.⁴⁷ Forest products play a very important role in rural and tribal economy as many of the non-timber forest products (NTFP) provide sustenance to the rural poor. For landless families and marginal farmers forest related activities often provide the primary source of income.⁴⁸ Non-wood forest products (NWFPs) are an important source of livelihoods for millions of forest-dependent people and account for 75 percent of total forest export revenue. Yet as their economic potential has improved, they have become overexploited.⁴⁹

Some of the key goods and services provided by forests which are not accounted for in the GDP include:

- Provisioning of water and its recharge and purification
- Prevention of soil erosion,
- Regulation of flood control

- Provisioning of nutrients through rivers and streams to enhance agriculture productivity
- Storm protection services, particularly by mangroves
- Safeguards against natural disasters
- Provisioning of oxygen, grass and fodder, fruits, tubers, honey and medicinal plants
- Provisioning of livelihood factors such as Kosa silk, kendu/tendu leaves, sal seed and even salt and minerals
- Provisioning of fish and other aquatic resources and safe havens for propagation of such resources
- Microclimatic functions, Carbon store and carbon sequestration, Nitrogen fixing and Biodiversity.
- Recreational, cultural and aesthetic services⁵⁰

The low estimate of contribution to the GDP resulted in low priority for forestry investments in five year plans. Efforts are needed for monitoring the services provided by the forests so as to appreciate their contribution to human well being. Over 50% of the revenue earned by the forest departments comes from NWFPs. Their growth is generally 40% higher than timber (MOEF 2000). Nearly 350 million people living in and around forests in India depend on NWFPs for their sustenance and supplemental income which is worth Rs.400 billion annually⁵¹.

1.5.2 Employment Generation

Of the total wage employment in the forestry sector, NWFPs account for more than 70% of the opportunities for self-employment for the forest dwellers as farm mechanization has not developed well in India. According to an ILO estimate, one hectare of forest plantation creates nearly 630 mandays, from the raising of

nurseries to the harvesting stage. 70% of the budget allocated to plantations or afforestation is spent on providing direct wages to the workers and only 30% goes towards purchase of seeds, planting materials, equipment etc. It would not be out of place to mention that 50% of the workforces on forest plantations are women and tribal. Rural women use 70-80% of the mandays in collection of NWFPs, fuel and fodder. Activities related to NWFPs provide employment during slack periods and a buffer against risk and household emergencies. In the remotest areas, sometimes the forest is the only source of employment and income. Research is needed to evolve forest based entrepreneurial endeavours to produce multiplier effects through the forward and backward linkages.⁵²

India is the fourth largest economy in the world by gross domestic product (GDP, measured on a purchasing power parity basis) and has achieved an average annual growth rate of 7.5 percent in GDP in the current decade. However, despite this extraordinary growth, the overall unemployment rate in the formal sector increased from 6.1 percent in 1994 to 8.3 percent in 2005 (Ministry of Finance, 2009). Although job opportunities increased, the labour force grew faster, at a rate of 2.8 percent between 2000 and 2005, leaving about 35 million unemployed as of 2005.⁵³

1.5.3 Duty on Timber

The power to levy duty on timber and other forest produce and the regulation of timber and other forest produce in transit vests with the central government and state government respectively [sec.39, 41 of IFA]. However, the duty levied by the states at the time of commencement of the IFA is deemed to have been duty levied under the provisions of this Act [sec.39 (3) of IFA]. Notably, while the power to levy duty is entrusted to the central government the regulation of transit of timber and forest produce lies with the respective state governments. It is important,

however, to bear in mind that this does not prevent the state government to levy duty as forest is a concurrent list subject and the state governments can adopt variants to central Act.⁵⁴

The power of state government to regulate the transit of timber and other forest produce provided under sec.42 was challenged in *State of Tripura vs. Sudhir Ranjan Nath*⁵⁵, as violative of freedom of trade and commerce. The Supreme Court declared that the Forest Act is primarily enacted to preserve, protect and promote the forest wealth of the country and collection of revenue is a regulatory measure to achieve this objective. Similarly, to regulate cutting, removal, transport and possession of forest produce is in the interest of the state and its people. Therefore, control of state over forests and over collection of forest produce and movement of drift and standing timber is a right in consonance with the provisions of the constitution.

The Bihar High Court declared in *Sarup Singh & Co. vs. State of Bihar*⁵⁶, that there cannot be any movement or transport of timber or other forest produce without any transit permit. Once the timber is brought to the state from another state, transit permit rules would apply.

Almost 33 million hectares of forest plantations were established from 1951 to 1999. Yet wood-based industries are plagued by severe shortage of raw material to meet steeply rising demand. India is a net importer of forest products. The deficit in timber supply, which was estimated to be about 39 million cubic metres in 2006, is also partially met from unrecorded removals from natural and planted forests.⁵⁷

1.5.4 Medicinal Plants

The NWFPs play a very important role in the modern economy. They form the basic raw material for the phytopharmaceuticals and various other industries. Herbal medicines in use today are derived from nearly 8,200 species of medicinal plants. NWFPs offer an excellent potential international trade.⁵⁸

India's exports and the demand for phytochemicals are expected to increase in future as a new frontier for trade and sustainable commercialization of biological resources at international level with secured intellectual property right.⁵⁹

The major task before the country, therefore, is to rehabilitate the degraded forests and to enhance the area under forest/tree cover to 33% of total area as envisaged in the National Forest Policy (1988). Despite continuous efforts the desired results could not be achieved because of the ever-increasing demand for forest products and the limited funds available (less than 1% of the total Plan allocation). To reverse the process of degradation and to achieve the goal of the National Forestry Policy (1988), the government formulated the National Forestry Action Programme (NFAP), a comprehensive strategic plan to address the key issues underlying the major problems of the forestry sector in line with the National Forest Policy (1988).⁶⁰

1.6 PROTECTING FOREST ECO-SYSTEM

An eco-system is a subject of nature's global economy, a local or regional system of plants, micro-organism, and animal working together to survive. These are the living [biotic] components of an eco-system and their functioning in this way provides the services upon which life on earth depends.⁶¹

Forest ecosystems are areas of the landscape that are dominated by trees and consist of biologically integrated communities of plants, animals and microbes,

together with the local soils (substrates) and atmospheres (climates) with which they interact. Forests are much more than the present population or community of trees.⁶²

India has an unparalleled range of natural ecosystems because of her wide latitudinal range, varied physiognomic features, diverse climatic regimes, long coastlines and tropical islands, and because of the coming together of three of the eight global 'Centres of Origin of Life' (Biogeographic Realms).⁶³

1.6.1 Protected Areas

The Indian Board for Wildlife was constituted in 1952 to advise the Government on measures to be adopted for the conservation of our wildlife resources. In order to protect critical ecosystems and also to preserve the genetic resources of unquantifiable commercial as well as non-commercial values, 95 national parks and over 500 wildlife sanctuaries, and two conservation reserves have been created in India, over the years, with the prime objective of preserving them as samples of interdependent ecological gene-pool combinations and a gene-bank capital.⁶⁴

The contributions of the Indian Board for Wildlife have been widely admired and respected. Following a decision taken under the National Wildlife Action Plan, adopted by the country in 2002 for meeting the new challenges in wildlife conservation, the National Board for Wildlife was constituted in September 2003 as a statutory authority, with full strength of law of the land behind it and is now entrusted with the responsibility for providing thrust to conservation activities.⁶⁵

1.6.2 Joint Forest Management

The Ministry of Environment and Forests, Government of India issued policy guidelines for the involvement of village communities and voluntary agencies in the regeneration of degraded forestlands on 1 June 1990 under the JFM (Joint

Forest Management) programme. This resolution was in tune with the Forest Policy announced in 1988, which was fundamentally different from the two of the previous policies in the sense that it aimed to shift the focus from commerce and investment to ecological conservation and satisfying people's basic needs.⁶⁶

There are two major reasons behind introducing JFM: one that the government's management system was not succeeding in arresting growth of forest degradation and deforestation. Second a new management paradigm was evolving in which the local people's participation was found to be an appropriate and promising tool in arresting forest degradation.⁶⁷

In addition, the Ministry of Environment and Forests, in view of the recommendations of the "Standing Committee on JFM", issued supporting circulars dated 21 February 2000 and 24 December 2002 for strengthening the JFM programme in the country. In the field, the constitution of JFM committees and assigning forests to them for management purposes is undertaken under the respective State Government resolutions/ orders. All 28 State Governments and Andaman and Nicobar Islands have adopted JFM by July 2005. It is estimated that 21.43 million ha forestlands are being managed under the JFM programme, through around 99 thousand committees in 28 states.⁶⁸

The State Governments' resolutions/ orders make provisions for broadly three kinds of committees, i.e. committees for protection of well-stocked forests, committees for rehabilitating degraded forests, and committees for participatory biodiversity conservation in and around PAs (National Parks, Sanctuaries, etc.). The latter are usually called Eco- Development Committees (EDC), and stand at a slightly different footing in the sense that sharing of forest produce, which is the basis of JFM in other areas, is not followed for EDCs in view of the restrictions imposed upon removal of any forest produce from the PA areas.⁶⁹

As per available information, around 84 thousand committees were looking after 17 million ha of forestlands in September 2003, which numbers have significantly risen since then because of institutional funding under the Ministry of Environment and Forests' (MoEF) National Afforestation Programme (NAP) and externally-aided forestry sector projects. NAP, which is being implemented through a two-tier decentralized setup of the Forest Development Agency (FDA) at the forest division level and Joint Forest Management Committee (JFMC) at the village level, intends to operationalise FDAs in all 811 forest divisions of the country by the end of 10th Five Year Plan. In order to give a fillip to JFM, a component, "Strengthening of Joint Forest Management", was added in NAP in 2004, with a view to constitute JFMCs in all 1.73 lakh forest fringe villages in the country and work these forests through participatory micro-plans. With the 10th Five Year Plan allocation of Rs. 1,115 crores, NAP has emerged as the single largest forestry intervention instrument in the country.⁷⁰ By February 2007, 100 000 local village institutions were managing 22 million hectares of forests.⁷¹

Till March 2004, the Ministry received 14,621 proposals from the State/Union Territories for getting approval under the Forest (Conservation) Act 1980 for diversion of forest land for non-forestry purpose.

Some of the other major activities / achievements of the Forest conservation division during the year include:

- General Guidelines issued under Forest (Conservation) Act, 1980 have been revised.
- To promote investment in power sector "Wind Energy Policy" under Forest (Conservation) Act, 1980 has been put into place.
- In conformity with the National Forest Policy, 1988 and to provide boost to the development of tribal areas, new guidelines for "Development projects in

tribal areas” have also been formulated and one time clearance has been granted for public utility development projects like drinking water, electricity etc.

- The period of general approval under section – 2 of Forest (Conservation) Act, 1980 for public utility development projects has been extended upto 15/10/ 2005.
- A road map has been provided to the State/UT Government to expedite action for conversion of forest villages into revenue villages.
- Guidelines have been issued for regularization/ recognition of tribal rights on forest lands. The implementation of these Guidelines have been stayed by the Hon’ble Supreme Court vide their order dated 23.2.2004 in IA No. 1126 of 2004 in Writ Petition (C) No. 202 of 1995.
- A Monitoring Cell has been created for data base management, up-dating the website for Forestry Clearance, monitoring the movement of proposals in the State and at the Central Government level and also to monitor the compliance of the stipulated conditions of the approved cases.⁷²

The Ministry of Environment and Forests has set a goal of enhancing forest and tree cover to 33 percent of the nation’s geographical area. The government spends roughly 4 percent of the national GDP (in nominal terms) towards this end, through the flagship National Afforestation Programme (US\$250 million invested during the tenth Five Year Plan, 2002–2007) and other national initiatives such as the Grants-in-Aid for Greening India scheme and the recently launched Gram Van Yojana to support tree planting on community and non-forest public lands. State governments have also taken up afforestation, reforestation and biodiversity conservation projects.⁷³

1.7 INTERNATIONAL INITIATIVES

There are numerous instruments both legally binding and non-legally binding, agreements and processes. There are approximately 40 legally binding instruments related to forests. Some of them are discussed below:

1.7.1 United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) which was adopted in 1992 at UNCED, aims at stabilizing the concentration of greenhouse gases in the atmosphere so as to prevent dangerous human-induced changes to the global climate system. Parties to the UNFCCC committed themselves to carrying out national inventories of greenhouse gas emissions and carbon sinks.⁷⁴

These obligations were intensified and specified in the Kyoto Protocol, which was adopted at COP-3 of the UNFCCC, held in Kyoto, Japan in December 1997. As of 15 April 2004, 84 Parties had signed and 122 Parties have ratified or acceded to the Kyoto Protocol. The Protocol entered into force on 16 February 2005. There are mechanisms under the Kyoto Protocol which allow for some flexibility in how countries make and measure their emissions reductions. These include the Joint Implementation and the Clean Development Mechanism (CDM) which includes forestry projects.⁷⁵

The Marrakech Accord (signed at COP-7 in November 2001) acknowledged four major roles of forests in climate change: 1) as a source of carbon dioxide when destroyed or degraded; 2) as a sensitive indicator of a changing climate; 3) as a source of bio-fuels to replace fossil fuels; and 4) as a carbon sink, when managed sustainably. The use of forests and trees as carbon sinks and other forest-related issues were discussed further at both the COP-8 (2002) and COP-9 (2003). Parties

reached an agreement on the inclusion of afforestation and reforestation in the CDM, as well as on a common reporting format for land use, land-use change and forestry in national communications⁷⁶.

1.7.2 Convention on Biological Diversity

In 1998 CBD adopted the CBD Work Programme for Forest Biological Diversity, which focused on research, cooperation and technology development. It established an ad hoc technical expert group on forest biological diversity to make further progress on the issues.⁷⁷

CBD has expanded the focus of the Convention's programme of work on forest biological diversity from research to action-oriented activities. CBD has encouraged the application of the ecosystem approach and noted the importance of supporting work on taxonomic, ecological and socioeconomic issues for the restoration of forest ecosystems and forest resources.⁷⁸

In 2002, CBD adopted an expanded Programme of Work on Forest Biological Diversity, composed of three elements: conservation, sustainable use and benefit sharing; an enabling institutional and socio-economic environment; and knowledge, assessment and monitoring. It also refers to strategies on *in situ* and *ex situ* conservation, sustainable resource use, the need to establish, evaluate and strengthen protected area networks, forest law enforcement, national coordination and the need to facilitate the participation of local and indigenous communities in the management of protected areas. The CBD work programme on forest biological diversity is voluntary and not binding, there are no time-bound commitments or targets in its programme of work.⁷⁹

1.7.3 United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa

The UNCCD, which entered into force in 1996, aims to combat desertification, mitigate the effects of drought and contribute to the achievement of sustainable development. This involves long-term strategies that focus on improved productivity of the land and its rehabilitation, conservation and sustainable management of land and water resources, and work leading to improved living conditions.⁸⁰

The most important recent development for this instrument is the designation of the GEF as a financial mechanism to the UNCCD. In May 2001, the GEF Council decided to pursue the designation of land degradation as a focal area, and the second Global Environment Facility Assembly adopted this in October 2002. This led in 2003 to the allocation of more than US\$18 million by the GEF to new projects under the category of land degradation. The UNCCD has adopted a decision on “collaboration with the GEF”, which addresses the arrangements for establishing a working relationship with the GEF. COP-6 paid attention to the issue of synergies and to promote such synergies, UNCCD is supporting, with the UNFF, the UNFCCC and the CBD, the activities with Low Forest Cover Countries (LFCCs) for a joint approach on forests.⁸¹

1.7.4 Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)

The Ramsar Convention, which is concerned with the conservation and wise use of wetlands and their resources, includes in its mandate a range of forested wetland. Parties have agreed to give priority to designating under-represented wetland types, including mangroves and peatlands. Guidelines for Global Action on Peatlands were adopted in 2002.⁸²

A Joint Work Plan for 2000-2001, developed between the Ramsar Convention and the Convention on Biological Diversity, reflected an increased emphasis on the conservation of biological diversity in wetlands and continued the collaboration that was formalized between the two conventions in 1996.⁸³

In November 2002 the Convention took note of the “Progress report on the implementation of the second Joint Work Plan (2000-2001) of the Convention on Biological Diversity and the Convention on Wetlands” and of the “Third Joint Work Plan”, covering the period 2002-2006, of the CBD and the Ramsar Convention. The latter Plan includes Activity 4 on forest ecosystems, in which under ‘*Actions to be taken*’ it states that the CBD Secretariat will invite the Ramsar Bureau to explore ways and means on how Ramsar “can contribute to the implementation of the new programme of work on forest biological diversity”, particularly on issues related to peatlands and wooded wetlands.⁸⁴

1.7.5 International Tropical Timber Agreement

The International Tropical Timber Agreement (ITTA), 1994 came into force on 1 January 1997. The ITTA is a commodity agreement under the auspices of the United Nations Conference on Trade and Development (UNCTAD). The ITTA also established the International Tropical Timber Organization (ITTO). Its member States account for 80 per cent of the world’s tropical forests and 95 per cent of world trade in tropical timber.⁸⁵

The ITTA 1994 aims to provide an effective framework for consultation, international cooperation and policy development with regards to the world timber economy, timber trade and Sustainable Forest Management. Among others, the ITTA 1994 contains the Objective 2000, under which all ITTO member countries committed themselves to export tropical timber and timber products only from sustainably managed forests by the year 2000. ITTO has played a catalytic role in

supporting efforts in Sustainable Forest Management through its Criteria and Indicators, which broke new ground when they were published in 1992. They have stimulated initiatives by producer countries at the national level, as well as at the level of forest management units and have provided a focus for ITTO-funded fieldwork.⁸⁶

Some non-legally binding instrument was as follows:

1.7.6 United Nations Forum on Forests

One highly significant development in recent years was the establishment of the international arrangement on forests in 2000, with the United Nations Forum on Forests (UNFF) as the main body of that arrangement. In October 2000, the ECOSOC, through its Resolution E/2000/35, established the United Nations Forum on Forests, as a subsidiary body of the Council. The main objective, based on the Rio Declaration, the Forest Principles, Chapter 11 of Agenda 21 and the outcome of the IPF/IFF Processes is to promote "... the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end...". UNFF functions under the rules of procedure of the functional commissions of ECOSOC, and reports to General Assembly through ECOSOC.⁸⁷

In order to achieve its main objective, the following principal functions have been identified for the UNFF:

- To facilitate implementation of forest-related agreements and foster a common understanding on sustainable forest management;
- To provide for continued policy development and dialogue among Governments, international organizations, including major groups, as identified in Agenda 21 as well as to address forest issues and emerging areas of concern in a holistic, comprehensive and integrated manner;

- To enhance cooperation as well as policy and programme coordination on forest related issues;
- To foster international cooperation;
- To monitor, assess and report on progress of the above functions and objectives;
- To strengthen political commitment to the management, conservation and sustainable development of all types of forests.⁸⁸

1.7.7 Millennium Development Goals

The Millennium Development Goals (MDGs) summarize the development goals agreed on at international conferences and world summits during the 1990s. At the end of the decade, world leaders summed up the key goals and targets in the Millennium Declaration, which was adopted in September 2000. The MDGs, which includes 8 goals, 18 targets and over 40 indicators, have significantly focused the work of the United Nations over the last few years. The UN General Assembly has approved the MDGs as part of the Secretary-General's Millennium Roadmap. The UN strategy for the MDGs includes:

- The Millennium Project, which analyzes policy options and will develop a plan of implementation for achieving the Millennium Development Goals.
- The Millennium Campaign, which mobilizes political support for the Millennium Declaration among developed and developing countries.
- Country-level monitoring of progress towards achieving the Millennium Development Goals.
- Operational country-level activities, coordinated across agencies through the UN Development Group, which helps individual countries to implement policies necessary for achieving the Millennium Development Goals.⁸⁹

Of the 19 international forest-related legally binding instruments, 18 deal with forests only as part of another issue; 16 focus on sectoral or very specific issues and two deal only with specific forest types. Only one is dedicated exclusively to forests, namely the International Tropical Timber Agreement, focusing on tropical timber. However, of the 21 regional forest-related legally binding instruments, few limit themselves to narrow aspects of forests, even if they are addressing other subjects. Three deal exclusively with forests, while several of the others treat forests in a more holistic manner than many of the global instruments. In this regard, it should be noted that the United Nations Forum on Forests is the only one intergovernmental body that is addressing, in a comprehensive manner, all policy and management aspects of all types of forests.⁹⁰

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CHAPTER

2

FOREST LAWS

2.1 INTRODUCTION

The discipline of forestry has been traditionally identified with either ecological stability or as a source of industrial raw material, and not with the incomes of rural poor or tribal. Afforestation has so far remained a government programme in which participation of the tribals beyond getting wage labour has been limited. The rural population has been seen as users of forest produce and in that capacity has often been commented upon as destroyers of forests through over utilization and over grazing. And it was the need of the situation that laws should be there to regulate the activities regarding the forests, forest resources, forest products, management of forest etc.

The first attempt on Forest legislation was made in 1865 with the enactment of Indian Forest Act. The Act was not comprehensive and mainly provided for the protection of trees, prevention of fire, and prohibition of cultivation and grazing in the forest areas. This Act was later revised in 1878, which extended to most provinces of British India. The 1878 Act provided for the constitution of 'Reserve' and 'Protected' Forests.

Before the formulation of a comprehensive Indian Forest Act in 1927, several Acts and amendments covering forest administration in British India were enacted – the Indian Forest Act 1878, the Act of 1890; the amending Act of 1891; 1901 and 1911; the repealing and amending Act, 1914; the Indian Forest Amendment Act, 1918; and the Devolution Act, 1920. After that came the Indian Forest Act in 1927, Forest Conservation Act 1980 and recently the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.

2.2 FOREST ACT 1927

Prior to the formulation of a comprehensive Indian Forest Act in 1927, several acts and amendments covering forest administration in British India were enacted - the Indian Forest Act, 1878; the Act of 1890; the amending Acts of 1891; 1901 and 1911; the repealing and amending Act, 1914; the Indian Forest Amendment Act, 1918; and the Devolution Act, 1920.¹

The 1927 Act provided enabling provisions to make rules and regulations, which makes it quite distinct from other acts of that time. It is this distinct provision that enabled this Central Act to continue when the item “forest” was made a subject of the Provincial Governments. The Act has 86 sections, in 13 chapters - preliminary; reserved forests, village forests, protected forests, control over forest and lands not being the property of the Government, duty on timber and other forest produce, control of timber and other forest produce in transit; collection of drift and stranded timber, penalties and procedure; cattle trespass, forest officers, subsidiary rules, and miscellaneous regulations.²

The 1927 Act deals with four categories of forests, namely, reserved forests, village forests, protected forests, and non-governmental [private] forests. A state may declare forest lands or waste lands as reserved forests, and may sell the produce from these forests. Any unauthorized felling of trees, quarrying, grazing and hunting in reserved forests is punishable with a fine or imprisonment, or both. Reserved forests assigned to a village community are called village forests. The state governments are empowered to designate protected forests and may prohibit the felling of trees, quarrying and the removal of forest produce from these forests. The preservation of protected forests is enforced through rules, licenses and criminal prosecutions.³

The Forest Act is administered by forest officers who are authorized to compel the attendance of witnesses and the production of documents, to issue search warrants and to take evidence in an inquiry into forest offences. Such evidence is admissible in a magistrate's courts.⁴

The Supreme Court in *T.N. Godavarman Thirummalpad vs. Union of India*⁵, while reiterating its earlier direction that prior approval of the central government is required for any non-forest activity in forest area. Application received by the state government should be sent to 'the central empowered committee', who will grant the license. Further, if the consent is not granted to establish saw mill in forest area, there is no presumption that it may be deemed to have been granted. In this case saw mills applied for license and deposited required fee, but no license was issued to them within prescribed time limit of 60 days, following the direction of the Supreme Court, the central empowered committee [CEC] by an order dated 3-6-2002. When the saw mills applied to CEC for renewal of license, the CEC observed that since these saw mills had no license, these cannot be permitted to continue in forest area.

2.2.1 Rights and claims under the Act:

The Indian Forest Act anticipates three types of claims in the forests proposed to be reserved.

First, a forest dweller might lay claim to ownership of land. The forest settlement officer shall pass an order admitting or rejecting that claim. In the event the claim is admitted, the forest settlement officer can either exclude that land from the forest, can come to some agreement with the owner, or can proceed to acquire such land under land acquisition Act.⁶

Second, a claim may be asserted for the rights to pasture or forest produce. Again the forest settlement officer shall decide whether to admit such a claim, and if he does so, then he is to record the 'extent' to which it is admitted. The forest settlement officer shall then take such steps as are necessary to ensure the continued exercise of the right including removing such practice to another forest or allowing the user to continue subject to appropriate rules. However, if the officer determines that it is impossible, having due regard to the maintenance of the reserved forest, to make any settlement that would allow the practice to continue, he may commute the rights by the payment of money or grant of land or in such other manner as he thinks fit. (Section 16 of the IFA)⁷

Finally, special provision applies to the practice of shifting cultivation, which the forest settlement officer may prohibit without any compensation. While dealing with the claim for shifting cultivation, the FSO is required to record a statement setting forth the particulars of a claim and any local rule/order under which the practice is allowed or regulated he shall then submit the statement to the state government, together with his opinion, as to whether the practice should be permitted or prohibited, wholly or in parts. If the practice is partly or wholly permitted, FSO may arrange for its exercise by altering the limits of land or by separating and demarcating land portions while giving permissions to the claimant to practice shifting cultivation therein.⁸

The Allahabad High Court in, *Mohd. Siddiq vs. State of Uttar Pradesh*⁹ has also affirmed that their practice of shifting cultivation is deemed be a privilege in all cases.

2.2.2 Process of Settlement under the Act:

The settlement procedure require the FSO to consider the claims of local inhabitants to certain usages rights, but leave ample discretion for him to relocate ,

revise or discontinue such practice. The state is first required to issue a notification declaring its intention to reserve a certain tract of land, and appoint an FSO to inquire into the existence of any alleged rights in favour of local inhabitants.¹⁰

As per *Section 6 of the Act*, the FSO may call for an examination of any person who, he may think, has the knowledge of the facts, including the evidence of any person likely to be acquainted with the same.

No new rights in the notified land may arise after such a notification has been issued, and those claiming any pre-existing right have a period of at least three months to appear and assert such a right, and to make a case for compensation. Generally, rights which are not asserted during that period are extinguished, although there are provisions in extraordinary cases for the later assertions until the final reservation order is published.¹¹

*Bansi Sewa Ashram vs. State of U.P.*¹², raised an important question relating to the right of the state to notify an area as a reserved forest and its effect on the people already living there. In this case, the state government declared the area of Dudhi in Robertsganj tehsil to be a reserved forest under Sec. 20 of the IFA. Some Adivasis and other backward people had been living inside this area for a long time. A letter written by the Bansi Sewa Ashram about the rights of these people was treated as writ petition by the court. It was contended that these people had been collecting forest produce, and using the forest for the purpose of grazing and fuel wood etc. for generations and now they have been deprived of these rights which constituted their right to livelihood. Moreover, criminal cases of trespassing and encroachment were registered against them. The state pleaded that forest land has been acquired to set up a thermal power station and provide cheaper electricity to the people. The court declared that the land which had been acquired already would not be part of the writ petition and gave elaborate instructions as to how the

interests of the ousted adivasis and land owners should be safeguarded. The court also directed that wide publicity be given to this process and that an Additional District Judge be appointed to exercise the powers of appellate authority in such matters. The court did not protect the rights of the Adivasis and freed the land from ban on dispossession of the adivasis. The developmental activity i.e. the setting of thermal power station was given priority in comparison to the rights of the tribals. Certain provisions in the law such as reserved and protected forests, the bar of certain rights in forest and prohibition of clearings, the extent of offences and penalties, reservation of trees in protected forests and the restrictions of forest envisaged to be introduced by the state government through delegated legislation, may give an impression as if the Indian Forest Act 1927 is oriented towards protection of environment. A deeper scrutiny will unveil a different picture. It is said that the main concern of the bureaucracy over the years was revenue and forest produce.¹³

2.3 FORTY SECOND CONSTITUTION AMENDMENT ACT 1976

As part of the natural environment and life-support system, forests have engaged the attention of all sections of society. The Constitution of India has given due recognition to forest and wildlife and the tribal communities dependent on forests.¹⁴

Under Section 10 of the Constitution (Forty-second Amendment) Act 1976, amendments were made in Article 48, which reads as under:

48 A Protection and improvement of environment and safeguarding of forests and wildlife – “The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country”¹⁵.

Similarly, under Section 11 of the Constitution (Forty-second Amendment) Act 1976, a new Article 51 A under Part V-A, was added to the Constitution in 1976 which imposes a similar duty upon every citizen. This Article reads as under:

51 A Fundamental Duties – “It shall be the duty of every citizen of India - (g) To protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures”¹⁶.

Although the language in the two articles differs, the differences appear to relate to form rather than to substance. Together, the provisions highlight the national consensus on the importance of environmental protection and improvement and lay the foundation for a jurisprudence of environmental protection.¹⁷

The directive principles are policy prescriptions that guide the government. Some of them are in the nature of economic rights that could not guarantee when the constitution was enacted, but that were expected to be realized in succeeding years. Although unenforceable by court, the directive principles are increasingly being cited by judges as complementary to the fundamental rights. In several environmental cases the court is guided by the language of Article 48A.¹⁸

In *Sachidanand Pandey vs. State of West Bengal*¹⁹, the Supreme Court has held: “whenever a problem of ecology is brought before the court, the court is bound to bear in mind Art.48A of the constitution and Art.51 A[g]. When the court is called upon to give effect to the directive principle and the fundamental duty, the court is not shrug its shoulders and say that priorities are a matter of policy and so it is a matter for policy making authority. The last that the court may do is to examine whether appropriate considerations are borne in mind and irrelevancies excluded. In appropriate cases the court may go further, but how much further will depend upon the circumstances of the case. The court may always give necessary

directions. However the court will not attempt to nicely balance relevant considerations. When the question involves the nice balancing of relevant considerations the court may feel justified in resigning itself to the acceptance of the decision of the concerned authority.”

In addition to the above two Articles, the Honorable Supreme Court of India has also adjudicated cases concerning forest and environment under Article 14 – Equity before Law, and Article 21 – Protection of Life and Personal Liberty. So far as protection of tribal communities is concerned, it has been provided under Article 46 which states:

*Article 46- Promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes and other weaker sections – “The State shall promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation”.*²⁰

The Forty - Second Amendment also expanded the list of concurrent powers in the constitution. The amendment introduced a new entry, ‘population control and family planning’ while ‘forest’ and ‘protection of wild animals and birds’ were moved from the state list to the concurrent list.²¹

2.4 FOREST CONSERVATION ACT 1980

This Act was enacted with twin objectives of restricting the use of forest land for non forest purposes and preventing the de-reservation of forests that have been reserved under the Indian Forest Act²².

Under this legislation, approval of the Central Government is required before any forestland (noted as such in Government records) is diverted for non-forestry

purposes. Moreover, the transfer is allowed only with the provision that compensatory plantations/ afforestation in an equivalent area of non-forestland, or double the area in degraded forestlands, are raised. In 1988, the Act was amended to make existing provisions more stringent. Some procedural difficulties were, however, experienced in implementing the Act. In order to streamline disposal of applications under the Act, the process of decision-making has been decentralized and procedures and requirements have been rationalized. Revised and comprehensive rules and guidelines under the Act were issued in 1992.²³

The Act empowers the central government under *Section 3*, to constitute a committee to advise the government with the grant of approval under *Section 2*, as also on any other matter connected with the conservation of forests and referred to it by the central government. Contravention of the provisions of the Act could entail simple imprisonment extendable to 15 days [*section 3A*]. The Act also provides for punishment of offenders from the government departments, including head of departments and authorities.

However, these persons can escape criminal liabilities if they can prove that:

- A] The offences was committed without their knowledge, and
- B] They had exercised all due diligence to prevent the commission of such offence.²⁴

The Forest Conservation Act of 1980 represents an attempt by the central government to slow deforestation caused by the conversion of forest lands for non-forest purposes. Under this Act, no state government can authorize such conversion without securing the central government's approval. The Act has been given credit by some for slowing the rate of deforestation in India, part by providing a defense against political pressures for converting forest areas to other uses and against state

governments that may be overly enthusiastic about revenue generation through natural resources exploitation.²⁵

The restrictions of certain activities under the FCA are not an absolute but qualified one. As in *Shri Bhagwati Tea Estate Ltd vs. Government of India*²⁶ the supreme court of India reconciled the need to conserve the forest while upholding the livelihood concern of the marginalized community. In this case the role of FCA vis-à-vis the Kerala Private Forests [vesting and assignment] Act 1971 was examined in some detail. The Kerala legislature enacted the Act to acquire forest land held on *janmam* rights as a measure of agrarian reform. The forest lands so vesting in the government were intended to be assigned to landless agriculturist and agricultural labourers for cultivation. It was alleged by the petitioner that the enactment of FCA placed a hurdle in the way of implementation of the objectives of the Kerala Act. This was done on three grounds. One, that the government had failed to act under the said Act inspite of more than 20 years having lapsed. Second, the assignment of the said forest land for cultivation meant clearance of forest growth and no such clearance was possible without the prior approval of the central government, and finally the amended FCA, in 1988, prohibited the leasing of forest land or any portion thereof to any private person or to any authority etc.

The court rejected all these contention and held that although the government of Kerala, to a large extent, had failed in carrying out the objective of the enactment; it is no ground for holding that such failure of the government renders the enactment void. Further it was held that FCA does not prohibit the clearance of forests all together. All it says is that no such clearance shall take place without the prior approval of the central government. This bar is not absolute one but qualified. Also, the Kerala Act does not contemplate the assignment or distribution of entire

private forest land, but only a portion of it. All this can be done without violating the provisions of FCA.

To implement the Act, the Government of India issued guidelines to all States and Union Territories on 25/1/92. These guidelines were subsequently amended in the year 2003. Making use of powers vested in Section 4 of Forest (Conservation) Act 1980, Government of India formulated the Forest (Conservation) Rule 2003. These rules have also been subsequently amended in 2004. In addition, Government of India has been issuing executive instructions from time to time, on various issues covering the Forest (Conservation) Act.²⁷

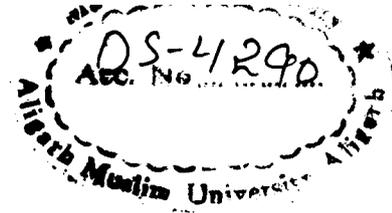
The Rajasthan High Court in *Om Prakash Choudhary Vs. State Of Rajasthan*²⁸, made it clear that construction of 'interpretation centre' in forest area is not covered under the term non-forest purpose as the national wildlife action plan prepared in 1982 makes a provision for the establishment of model interpretation centres at wildlife units for educating the visitors and creating awareness in them 'about the wildlife'. Conservation of wildlife and protection of forest is possible only when the people are alive to the fact that conservation, protection and development of wildlife and forests are essential for the sustenance of human life and they are part of nature's great plan in which they have a role to play'. Therefore there was no need to take the prior approval of the central government.

This Act is, by far, the most important tool the Government of India has to regulate and control the change in the land use of recorded forestland. On the positive side, this Act has helped reduce diversion of forestland for non-forestry purposes. On the negative side, it is alleged that it has delayed developmental projects in forested districts, where the availability of land other than forestland for roads, bridges, etc., is severely restricted. In general, there is urgent need for public awareness

regarding this Act that it seeks to find alternatives and to compensate or minimize losses due to developmental activities and not put a stop to developmental activities altogether.²⁹

2.5 THE SCHEDULED TRIBES AND OTHER TRADITIONAL FOREST DWELLERS (Recognition of Forest Rights) ACT, 2006

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 is a result of the protracted struggle by the marginal and tribal communities of our country to assert their rights over the forestland over which they were traditionally dependent. This Act is crucial to the rights of millions of tribal and other forest dwellers in different parts of our country as it provides for the restitution of deprived forest rights across India, including both individual rights to cultivated land in forestland and community rights over common property resources³⁰. Tribals have been residing in forest land for generations, cultivating and collecting forest produce like firewood and fruits. They, however, do not have a legal document showing that they are owners of the land. Ever since the Forest Conservation Act, these tribal have been seen as encroachers or illegal occupants. After the enactment of the Act, these tribals will now have the legal right to own, collect, use and dispose of minor forest produce. This is expected to undo the historical injustice done to forest-dwelling Scheduled Tribes who were living at the whims of the forest department, so far.³¹ The notification of Rules for the implementation of the Forest Rights Act, 2006 on 1st Jan 2008, has finally paved the way to undo the 'historic injustice' done to the tribal and other forest dwellers. The livelihood of perhaps 100 million poorest of the poor who stands to improve if implementation can succeed.



This Act is perceived as a potential tool .

- To empower and strengthen the local self governance
- To address the livelihood security of the people, leading to poverty alleviation and pro poor growth
- To address the issues of Conservation and management of the Natural Resources and conservation governance of India.³²

However, the law has also been the subject of considerable controversy in the English press in India. Opponents of the law claim it will lead to massive forest destruction and should be repealed.³³

2.5.1 Object of The Act:

The Preamble of the Act

The Act's aim is declared in the Preamble as follows:

“to recognise 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 so vested and the nature of evidence required for such recognition and vesting in respect of forest land.”³⁴

The following paragraphs of the Preamble then outline the Act's radical mandate of major institutional reform in the governance of India's forests through empowerment of the country's tribal and other forest dwelling communities by stating:

“.....the recognised rights include the responsibilities and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance thereby strengthening the conservation regime of the forests while

ensuring livelihood and food security;the forest rights on ancestral lands and their habitat were not adequately recognized in the consolidation of State forests during the colonial period as well as in independent India resulting in historical injustice to the forest dwelling Scheduled Tribes and other traditional forest dwellers who are integral to the very survival and sustainability of the forest ecosystems;it has become necessary to address the long standing insecurity of tenurial and access rights including (of) those who were forced to relocate their dwelling due to state development interventions."³⁵

These statements represent a milestone in Indian legislative history. Parliament has not only acknowledged the historical injustice done to India's forest dwelling communities due to non-recognition of their rights on ancestral lands, but has also effectively overturned the inherited colonial framework of the forest bureaucracy's exclusive territorial control and management of enclosed forested landscapes.³⁶

2.5.2 Expansion of the Beneficiaries of the Act

Eligibility to get rights under the Act is confined to those who "primarily reside in forests" and who depend on forests and forest land for a livelihood. Further, either the claimant must be a member of the Scheduled Tribes scheduled in that area or must have been residing in the forest for 75 years.³⁷

The Bill had initially identified FDSTs as the sole beneficiaries of the Act and excluded the non-tribal forest-dependent population, which stayed in or depended on forests for livelihoods, but had never been recognised as forest-dwellers. Social activists apprehended that this exclusion would lead to societal conflict between people who have historically lived in a mutually beneficial relationship vis-à-vis the Forests. It was, therefore, proposed that the distinction should be drawn between those who are in the forests for survival and livelihood reasons and those

who are there for commercial purposes and profit making. The Bill also raised the question of equity, recognizing that a tribal community could be subjected to differential treatment in two different States simply because it was categorized as a Scheduled Tribe in one State but not in the other. Further, in many cases, tribal communities had migrated from their place of origin and settled in other areas for livelihood purposes. Given the limited scope of the Bill, it was feared that they could be disentitled from claiming rights to forest land, which they had traditionally inhabited and cultivated. The most significant feature of the revised Bill (and the Act), which resulted from the incorporation of a JPC recommendation, was an expansion of the beneficiaries of the Act to include ‘other traditional forest dwellers’³⁸

Further, the Act defines a ‘generation’ to mean a period comprising of twenty-five years. Hence, in order to qualify for forest rights under the Act, the ‘other traditional forest dwellers’ must prove that they have primarily resided in and depended on the forest or forest lands for *bona fide* livelihood needs since the year 1930.³⁹ The discriminatory nature of this provision is borne out by the fact that no such requirement is imposed on the FDSTs.

The Act fails to provide any guidance on the nature of admissible evidence to prove the beneficiaries’ claims to forest rights. Given the stringent time requirement, which requires proof of residence for a period of seventy-five years, which would commence in the pre independence period, it was argued that if oral evidence and spot verification were not included as admissible evidence, a large section of genuine claimants would be deprived, as government officials would rely on colonial records for the settlement of rights.⁴⁰

Similarly, the Act fails to explain the requirement to ‘reside in... forests or forest land’, which is applicable to both categories of beneficiaries. This could be

interpreted to mean living in areas recorded as forest land whereas most forest dwellers live in areas recorded as revenue lands and cultivate forest land and use forest resources.⁴¹

2.5.3 Rights recognised under the Act:

Section 3 of the Act provides for the grant of several heritable, inalienable and non-transferable ‘forest rights’ to the beneficiaries.

The key section of the Act listing the rights which may be recognised is Chapter II, Section 3: Forest Rights. The listed rights are to be recognised on all categories of forest land, including in wildlife sanctuaries and national parks.

“3. (1) For the purposes of this Act, the following rights which are secure individual or community tenure or both, shall be the forest rights of forest dwelling Scheduled Tribes and other traditional forest dwellers on all forest lands, namely:-

- *3(1)(a) right to hold and live in the forest land under the individual or common occupation for habitation or for self cultivation for livelihood by a member or members of a forest dwelling Scheduled Tribe or other traditional forest dwellers;⁴²*
- *3(1)(b) community rights such as nistar⁴, by whatever name called, including those used in erstwhile Princely States, Zamindari or such intermediary regimes;”*

This aims to restore customary usufruct rights over adjoining forests which were often legally recognised prior to independence.⁴³

- *“3(1)(c) right of ownership, access to collect, use, and dispose of minor forest produce which has been traditionally collected within or outside village boundaries;”*

The Act grants the right of ownership, access to collect, use and dispose of minor forest produce (which includes all non-timber forest produce of plant origin),

which has been traditionally collected within or outside village boundaries, even in protected areas. However, as a concession to the conservationists who had expressed concern about the adverse effects of grant of rights over forest resources, the definition of ‘minor forest produce’ does not incorporate the JPC’s recommendation to include ‘fuel wood and the like, stones, slates and boulders and products from the water bodies including fish, weeds and the like’ and the right to transport it.⁴⁴

- *“3(1)(d) other community rights of uses or entitlements such as fish and other products of water bodies, grazing (both settled or transhumant) and traditional seasonal resource access of nomadic or pastoralist communities;”*
- *“3(1)(e) rights, including community tenures of habitat and habitation for primitive tribal groups and pre- agricultural communities;”*
- *“3(1)(f) rights in or over disputed lands under any nomenclature in any State where claims are disputed;”*

This is based on MoEF’s FP(2) guideline of September 18, 1990 and is meant to enable people to reclaim their rights over lands disputed between them and forest departments arising out of faulty or non-existent forest settlements. This is particularly relevant to forested tribal areas in central and eastern India, which were declared ‘deemed’ state forests after Independence without following the due process of enquiring into pre existing rights. This can include both individual and communal claims over customary lands without any limit over the claimable area. The notified Rules, however, have not clarified this and the wording of this right does not make the link with disputed claims arising out of forest settlements clear.⁴⁵

- *“3(1)(g) rights for conversion of Pattas or leases or grants issued by any local authority or any State Government on forest lands to titles;”*
- *“3(1)(h) rights of settlement and conversion of all forest villages, old habitation, unsurveyed villages and other villages in forests, whether recorded, notified, or not, into revenue villages;”*

At present, over 60 years after Independence, residents of ‘forest villages’ and other settlements and unsurveyed villages in forests remain deprived of access to most development programmes due to the land on which these are located continuing to be recorded as ‘forest’. As no agency other than forest departments can undertake any development work on forest land, most of these settlements remain outside the jurisdiction of any local government, and their residents in some states cannot obtain even domicile certificates (as only the revenue department can issue these, but it does not have jurisdiction over forest land) or even voting rights. Due to their residents lacking any legal rights over the land, they are treated like ‘non-citizens’ ever vulnerable to eviction or displacement without entitlement to compensation or rehabilitation.⁴⁶

- *“3(1)(i) right to protect, regenerate, or conserve or manage any community forest resource, which they have been traditionally protecting and conserving for sustainable use;”*

The right to protect, regenerate or conserve or manage any community forest resource which communities have been traditionally protecting and conserving for sustainable use, has the potential to enhance conservation. But as ‘community forest resource’ was not defined in the Bill, it was unclear whether this right would extend to government owned forests. Section 2(a) of the Act clarified this ambiguity by including resources within reserved forests, protected forests and

protected areas such as Sanctuaries and National Parks to which the community had traditional access.⁴⁷

- *“3(1)(j) rights which are recognised under any State law or laws of any Autonomous District Council or Autonomous Regional Council or which are accepted as rights of tribals under any traditional or customary law of concerned tribes of any State;”*
- *“3(1)(k) right of access to biodiversity and community right to intellectual property and traditional knowledge related to biodiversity and cultural diversity;”*

This was included to secure the rights of forest dwelling communities over their rich indigenous knowledge of biodiversity. The absence of any provision elaborating how such protection shall take place is another major lacuna in the Act. It was recommended that the rules should consider that the right can be made effective only if communities are permitted to continue to freely use and exchange genetic resources and their associated knowledge, as well as to apply measures to protect the knowledge, as they feel appropriate.⁴⁸

- *“3(1)(l) any other traditional right customarily enjoyed by the forest dwelling Scheduled Tribes or other traditional forest dwellers, as the case may be, which are not mentioned in clauses (a) to (k) but excluding the traditional right of hunting or trapping or extracting a part of the body of any species of wild animal;”*

This provision provides space for claiming any traditional right not specifically listed such as rights over sacred areas, right to practice shifting cultivation, and so on.

- *“3(1)(m) right to in situ rehabilitation including alternative land in cases where the Scheduled Tribes and other traditional forest dwellers have been illegally evicted or displaced from forest land of any description without*

receiving their legal entitlement or rehabilitation prior to the 13th of December 2005.”

It is laudable from the perspective of those who have been displaced or dispossessed by ‘development’ projects, natural disasters, or the failure of the state to provide for them. However, combined with the expanded definition of ‘traditional forest dwellers’, it expands the potential for State governments, land mafia and local elites to exploit the situation.⁴⁹

Recognition of Forest Rights:

The recognition of rights is subject to the following conditions:

- That the forest lands over which rights are claimed had been under occupation of the claimants before the 13th day of December, 2005 (*Section 4.3*)
- That the rights shall be heritable but not alienable or transferrable and shall be registered jointly in the name of both spouses in case of married persons and in the name of the single head in the case of households headed by single persons (*Section 4.4*)
- That no potential claimant shall be evicted or removed from forest land under their occupation till the recognition and verification procedure is complete (*Section 4.5*)
- That the “... forest rights recognised under sub-section 3(1) a ... shall be restricted to the area under actual occupation and shall in no case exceed an area of four hectares” (*Section 4.6*)
- That the recognition of rights will not require central government clearance under the Forest Conservation Act, 1980 or the payment of ‘net present value’ or ‘compensatory afforestation’ for the diversion of forest land. This is a major relief for the claimants of rights and the only major provision in

the Act clearly providing for the complementary adaption of an existing law and Court orders.⁵⁰

2.5.4 Obligation under the Act:

Section 5 of the Act embodies a major institutional reform by changing the existing balance of power between the forest bureaucracy and right holding communities. It statutorily empowers holders of forest rights and their Gram Sabhas to protect wildlife, forests and biodiversity as well as their habitats from destructive practices affecting their cultural and natural heritage:

“Sec.5- The holders of any forest right, Gram Sabha and village level institutions in areas where there are holders of any forest right under this Act are empowered to-

(a) protect the wild life, forest and biodiversity;

(b) ensure that adjoining catchments area, water sources and other ecological sensitive areas are adequately protected;

(c) ensure that the habitat of forest dwelling Scheduled Tribes and other traditional forest dwellers is preserved from any form of destructive practices affecting their cultural and natural heritage;

(d) ensure that the decisions taken in the Gram Sabha to regulate access to community forest resources and stop any activity which adversely affects the wild animals, forest and the biodiversity are complied with;”

Given the failure of the government’s traditional command and control approach, this provision offers an opportunity for the communities to adopt a transparent and participatory approach to biodiversity management. However, these provisions will be rendered meaningless unless empowerment includes responsibilities for conservation.⁵¹

Moreover, both the Act and the Rules are silent as to redressal mechanisms in cases where the Gram Sabha fails to fulfil its responsibility.⁵²

2.5.5 Procedure for vesting of Forest Rights:

Essentially, three authorities are specified for the purpose (these are: [1] Gram Sabha (village assembly); [2] Sub-Divisional Level Committee (SDLC); and [3] District Level Committee (DLC). A State Level Monitoring committee (SLMC) is charged with monitoring the process of recognition of rights.

“Sec.6 (1) The Gram Sabha shall be the authority to initiate the process for determining the nature and extent of individual or community forest rights or both.....”

The village Gram Sabha is thus the authority to initiate the process of inviting, verifying and consolidating claims for rights and preparing a map showing the area of each recommended claim. A resolution of the Gram Sabha approving the verified claims is then to be forwarded to the next authority at the Sub-Divisional level for further processing.⁵³

The Sub-Divisional Level Committee (SDLC) is the next authority responsible for preparing the records of forest rights based on examining the Gram Sabha resolutions. The SDLC is to forward these to the District Level Committee (DLC) which is the authority for taking a final and binding decision on the claims for rights.⁵⁴

The Act also provides for persons aggrieved by the decision of the Gram Sabha or the Sub-Divisional Level Committee to petition the next level committee (SDLC or DLC) within 60 days of a decision. No such petition can be disposed of against the aggrieved person without giving them a reasonable opportunity to be heard.

Finally, each state government is to constitute a State Level Monitoring Committee (SLMC) to monitor the process of recognition and vesting of forest rights and

report to the nodal GoI ministry. The Sub-Divisional Level Committee, the District Level Committee and the State Level Monitoring Committee are to consist of officers of state Revenue, Forest and Tribal Welfare departments and three members of the Panchayati Raj Institutions at the corresponding levels.⁵⁵

2.5.6 Implementation of the Act:

Section 11 provides that the nodal central ministry responsible for implementing the Act shall be the Ministry of Tribal Affairs. Initially proposed by the Campaign, this found support from many non-forest bureaucrats at the highest level who accepted that impoverished forest dwellers were unlikely to receive justice from the forest bureaucracy as it was an interested party in the reform, having a range of land, powers and revenue streams to lose. Contested fiercely by the forest bureaucracy and hardcore conservationists through MoEF till the end, this is another major institutional reform embodied in the Act.⁵⁶

2.5.7 Relation with Other Laws:

The issue of the relationship of the FRA with existing laws is crucial; for determining the scope of its applicability, as the parallel continuation of existing but contradictory laws and policies may threaten the efficacy of the Act.

However *Section 13* of the Act states unambiguously:

*“Save as otherwise provided in this Act and the Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996, the provisions of this Act shall be in addition to and not in derogation of the provisions of any other law for the time being in force.”*⁵⁷

The provisions of the Act are in addition to and not in derogation of other laws that are in force, such as the Forest Act, the FCA etc. As a result, while FDSTs and/ or

other traditional forest dwellers may be vested with certain forest rights under the Act, they may be unable to exercise them because they may be subject to the provisions of the other applicable laws. Problems may also arise regarding the jurisdiction of the various authorities under these separate but overlapping laws. It is also important to note that the application of this provision is subject to the other provisions of the Act. Therefore, in case the provisions of the other laws contradict the process of recognition of forest rights stipulated in the Act, the latter will prevail.⁵⁸

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CHAPTER

3

**FOREST POLICY
OF
INDIA**

3.1 INTRODUCTION

Before the advent of the East India Company and subsequent establishment of British Raj in India, though there was no formal forest policy, various princely states had different approaches to forestry resources available in their areas. Generally speaking, the approach was twofold. While no protection was afforded to the forest area in general, and rulers tried to encourage agrarian extension by remitting revenues and providing credit to those peasants who cleared fresh land for agriculture, certain specific pockets of forests were protected, either as hunting areas or for defence purposes. Most of the rulers maintained their hunting areas in which no one was allowed to disturb the fauna and flora and accordingly, these areas were well preserved.¹

It is important to bear in mind that a policy document, though not legally enforceable is a guiding legal document that influences the decisions of the courts.² The National Forest Policy advocates the use of miscellaneous policy instruments including legislation and regulation, voluntary agreements, fiscal incentives, research and educational and extension campaigns for the conservation and sustainable development of forests. The administrative framework of the forestry sector has changed significantly from regulatory to participatory.³

3.2 PRE-INDEPENDENCE FOREST POLICY OF INDIA

After the establishment of a structured forestry set up in 1864, with the appointment of Dr. Dietrich Brandis as the first Inspector General of Forest, the first National Forest Policy was formulated in 1894. This document, which was

circular No.22-F dated 19th October 1894, was based on 8th and 9th Chapters of Dr. Voelcker's Report on Improvement of Indian Agriculture and Review of Forest Administration in British India for 1892-93. These documents differed in their approach considerably. However, efforts were made to accommodate both viewpoints and to produce a document, which lays down the general policy regarding management of forests in British India.⁴

The first national forest policy of 1894 emphasised the commercial use of forest, but also significantly asserted its ecological role. The policy classified the forests in the state as:

- 1] Forests, whose preservation is essential on climatic or physical grounds;
- 2] Forests, which afford a supply of valuable timbers for commercial purposes;
- 3] Minor forests; and
- 4] pasture lands.

The classification was useful only as affording a basis for indication of the broad policy that should govern the treatment of each class respectively. It was made clear that 'in applying the general policy, the fullest consideration must be given to local circumstances'.

The policy also mentioned the local user's rights over forests. It stated that 'it will be generally possible to lease or otherwise manage the unoccupied land of a village through the agency of village community'. The policy said that in almost all cases, the constitution and preservation of forest involve the regulation and restrictions of rights and privileges of forest dwellers. However, it was also clarified that the regulation of rights and the restriction of privileges of user in the forest area are 'justified only when the advantage to be gained by the public is great'. These provisions notwithstanding, the only rationality behind this policy was commercial need of the furtherance of cultivation and revenue collection.⁵

The 1894 policy, when viewed as a policy enunciated by a colonial government, is surprisingly broad-based and capable of interpretation to suit local interests. The role of forests as essential on climatic and ecological grounds is realized, the significance of local user's rights is also pointed out.⁶

3.3 POST-INDEPENDENCE FOREST POLICY OF INDIA

The development of forest policy in post independence period is crucial to the understanding of present thinking on forest management. There have been three forest policy announcements in independent India: the forest policy of 1952, the national commission on agriculture 1976[NCA] and the 1988 forest policy.⁷

3.3.1 National Forest Policy of 1952:

This policy identified vital national needs; which included a system of balanced and complementary land use, need of checking of denudation of mountainous regions, erosion of river banks and invasion of sea-sands on coastal tracts and the need of ensuring supply of fodder and small wood, etc. This policy also classified forests in four groups, namely, protected forest, national forest, village forest and tree lands. On the point of relinquishment of forestland for agriculture purposes, the policy under paragraph 8, clearly mentioned:

“The notion widely entertained that forestry, as such, has no intrinsic right to land but may be permitted on sufferance on residual land not required for any other purpose, has to be combated”.

The policy also dealt upon the proportion of forest areas and for the first time, a target was identified –

*“India, as a whole, should aim at maintaining one-third of its total land area under forests”.*⁸

The forest policy 1952 declared that village communities should in no event, be permitted to use forests at the cost of 'national interest', which was identified with defence, communications and vital industries. The policy emphasized scientific conservation, which involved regulation of local rights and restrictions of privilege users of forests. Emphasis was laid on conservation of low value mixed forests to high value plantation of commercial species.⁹

The protective and productive aspects of forest are referred to and needs of future generations also receive a mention; the production of good timber in the national interest receives priority. 'Each type of land is to be allotted to that form of use under which it produces the most and deteriorates the least'. With a number of decades of scientific forestry behind it, the government's view of production was, fairly obviously, timber production.¹⁰

3.3.2 The National Commission on Agriculture 1976 [NCA]

The National Commission on Agriculture was created to study and recommend the basis for revised national policy on the recommendation of the Central Board of Forestry [CBF]¹¹.

The recommendations of the NCA are based on recognizing the protective and aesthetic functions of the forests which include regulation of grazing and shifting cultivation, satisfying the domestic needs of the people for various forest products, undertaking large scale industrial plantations, carrying out forestry operations either departmentally or through forest labour cooperative societies, adoption of social forestry and preference to socially backward and unemployed in providing employment through forestry operations.¹²

Regarding minor forest produce, the NCA recommended that development of minor forest produce should be the responsibility of the Forest Department. For protection of forests and wildlife management, the NCA was of the view that there should be sufficient buffer zone at the boundary of the national park and the Wildlife Division in the Government of India be headed by an officer of the rank of Additional Inspector General of Forests. On forest protection and law, the Commission suggested soliciting support of voluntary associations, issuing letter of appreciation and cash reward to panchayats, undertaking large scale social forestry programme and creating *nistar bhandar* (depots) to supply timbers to villagers and the enactment of an All India Forest Act by Parliament.¹³

Based on the recommendation of the NCA, the Government of India took the following important steps:

1. Creation of Forest Corporations by various State Governments for harvesting the forest produce and thereby eliminating the middleman as a contractor.
2. Establishment of the Indian Institute of Forest Management to produce managers managing the resource as a business concern.
3. Initiating the programme of social forestry on village and forestlands.
4. Formulating a new National Forest Policy in 1988, thereby replacing the Forest Policy of 1952.
5. Making Forestry a subject of concurrent jurisdiction, whereby both the Centre and States have the powers to legislate, through the 42nd Amendment of the Indian Constitution in 1976. Since then the Central Government generally sets the broad national policy and legal framework, and supporting statutes. These, at the national level, act as a guiding framework for the States.
6. Creating a separate Ministry of Environment and Forests in 1984.
7. Ensuring people's participation through a resolution issued in 1990 for adoption of Joint Forest Management as a tool of managing the forest resource.

8. Conferring ownership right of minor forest product to Panchayats through constitutional amendment.

9. Enactment of Panchayati Raj (Extension to Scheduled Areas) Act, 1996.¹⁴

3.3.3 National Forest Policy 1988

The principal aim of the National Forest Policy (1988) is to ensure environmental stability and maintenance of ecological balance including atmospheric stability, which is vital for sustenance of all life forms, human, animal and plant. It unambiguously states that the derivation of direct economic benefit must be subordinated to this principal aim, and that conservation includes preservation, maintenance, sustainable utilization, restoration and enhancement of the natural environment.

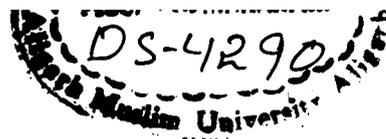
Creating a massive people's movement including the involvement of women and indigenous people for forest conservation is an integral feature of the policy. The policy underscores the full protection of customary rights and concessions of tribal communities and other rural poor living within and near forests. It recognizes their requirements for fuelwood, fodder, NWFPs and construction timber the 1988 policy envisages the following objectives:

- Conserving the natural heritage of the country by preserving the remaining natural forests with the vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the country.
- Checking soil erosion and denudation in the catchments areas of rivers, lakes, reservoirs in the interest of soil and water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs.
- Checking the extension of sand-dunes in the desert areas of Rajasthan and along the coastal tracts.

- Increasing substantially forest/tree cover in the country through massive afforestation and social forestry programmes, especially on all denuded degraded and unproductive lands.
- Meeting the requirements for fuel wood, fodder, NWFPs and small timber of the rural and tribal populations;
- Increasing the productivity of forests to meet essential national needs.
- Encouraging efficient utilization of forest produce and maximizing substitution of wood.
- Creating a massive people's movement with the involvement of women, for achieving these objectives and to minimize pressure on existing forest.¹⁵
- Maintaining environmental stability.¹⁶

The policy after enumerating the essentials of forest management, mentions a strategy which included area under forest afforestation of state forests, rights and concessions, diversion of forestlands for non-forest purposes, wildlife conservation, tribal people and the forest, shifting cultivation, damage from encroachment, forest-based industry, forest extension, forestry education and forestry research, personnel management, forest survey and database, legal support and infrastructure development and financial support for forestry. This policy also maintained that national goal, should be to have a minimum of one-third area of total land area under forest or tree cover.¹⁷

- *Rights and concessions*- The Forest Policy of 1988 was the most rational of all the three policies as regards the rights and concessions of the forest-dependent communities. It duly recognized the rights and concessions of the tribals and other poor, living near the forests and advocated their protection.



It also recognized their domestic requirements as the first charge on the forest produce. However, it also mentioned that the rights and concessions should remain related to the carrying capacity of the forests and should be enjoyed only by the communities living within and around the forest areas.¹⁸

- *Grazing*- The current Forest Policy of 1988 is in consonance with the views in the previous policy on the issue of grazing, except for an important qualification that the grazing in forest areas should be regulated with the involvement of the community. It also laid special emphasis on raising of fodder trees and grasses by the farmers to reduce grazing pressure on forests.¹⁹
- *Fuelwood*-The realization that the demands for fuelwood could not be met alone from existing forests and additional sources of supply need to be developed had dawned upon the Government by the early 1970s. It had ultimately led to the conception of the social forestry programme. However, the 1988 Policy differed from the social forestry programme in one respect – it recommended that denuded and degraded forests should also be developed as fuel and fodder reserves unlike social forestry, which proposed tree planting only on private holdings. This policy also recommended bridging the gap between the demand and supply of fuelwood by enhancing the productivity of the forests.²⁰
- *Shifting cultivation*-Similar to the two previous policies, the Policy of 1988 too was critical of shifting cultivation and held it guilty of affecting the environment and productivity of the land. It advocated checking of shifting agriculture by popularizing alternative agricultural practices in the regions already affected by it. It also recommended that the areas damaged by such cultivation should be rehabilitated through social forestry and energy plantations.²¹

The 1988 policy emphasized the environmental protection and conservation role of forests, stated that organized industry must meet its needs from private lands and asked for an increase in participatory management of forests. In a sense it constituted a small beginning in trying to create an enabling rather than a policing role for government. This general direction was pursued further in the form of the issue of a circular from the ministry of environment and forests to state forest secretaries in June 1990 providing guidelines for the involvement of village communities and voluntary agencies in the regeneration of degraded forests.²²

The national forest policy of 1988 also laid down that forest-based industry should meet its raw material needs by establishing a direct relationship with the farmers rather than depending on forests, which would hence forth be maintained primarily for ecological functions and for meeting the subsistence needs of people.²³

The basic objectives and strategies defined in the policy are still relevant, and guide forest conservation in India. In 1997, a task force constituted to revise the policy agreed that the present policy takes into account relevant ecological, economic and socio-cultural aspects of forest management, and encompasses SFM. In addition to the National Forest Policy, the policy directives are also implicit in the National Conservation Strategy and Policy Statement on Environment and Development (1992) and various provisions and amendments of the Indian Forest Act (1927), the Wildlife (Preservation) Act (1972) and the Forest (Conservation) Act (1980).²⁴

3.4 NATIONAL FORESTRY ACTION PROGRAMME 1999

The NFAP is a comprehensive long-term strategic plan for the next 20 years. It identifies the issues and programs for achieving sustainable forestry development

in India by harmonizing the activities of different stakeholders. The NFAP evolved through coordinated centre-state strategic planning with inputs from many national and international consultants. It identifies five programs: (1) *protect existing forest resources*, (2) *improve forest productivity*, (3) *reduce total demand*, (4) *strengthen the policy and institutional framework*, and (5) *expand the forest area*. As resources are inadequate efforts are being made to mobilize resources both from external and internal sources for implementing the NFAP. The MOEF, with FAO and UNDP, organized a conference of international donors for this purpose. Some funds have been mobilized through discussions with interested donor agencies of developed countries.²⁵

- *The Protect Existing Forest Resources program* encompasses forest protection, soil and water conservation, and conservation of protected areas and biodiversity. The proposed activities include forest boundary management, settlement of tenurial issues, JFM, ecodevelopment, ecotourism, watershed protection, control of desertification and strengthening working plans.
- *The Improve Forest Productivity program* consists of four items, (i) rehabilitation of degraded forests, (ii) research and technology development, (iii) development of NWFPs and (iv) assisting private initiatives with community participation. Integrated management for wood and NWFPs and other forms of multiple-use management and forest development through technology improvement are considered important.
- *The Reduce Total Demand program* focuses on reducing the demand for forest products through technological interventions and other measures that increase the efficiency of forest products use. Superior cook stoves, improved cooking practices and alternative fuels, rotational grazing, stall

feeding, value-added downstream processing, market manipulation and pricing mechanisms are some of the approaches.

- *The Strengthen Policy and Institutional Framework program* aims at strengthening the central and the state forestry administrations and institutions. It covers forest policy and legislation, research, safeguarding intellectual property rights, development of information systems, extension and public education, and dissemination of information.
- Tree plantations on forest- and non-forestlands with people's participation are envisaged under the *Expand Forest Area program*.²⁶

3.5 COIMBATORE CHARTER ON ENVIRONMENT AND FOREST 2001

The National Conference of the Ministers of Environment and Forests held at Coimbatore in January 2001 resolved to protect and improve the environment and forests, and outlined the strategies for realizing the goals of the National Forest Policy. The resolutions address the following issues:

- *Forest cover and afforestation:* The target of bringing 109 million ha or one-third of the total area under forest and tree cover is to be achieved during the next 20 years. States will increase investments in afforestation substantially. The budgetary process will be simplified for schemes related to enhancing the forest cover of the country. As practised in the past, the Planning Commission will be persuaded to earmark one-fifth of the rural development funds for afforestation.
- *Approaches to forest rehabilitation:* JFM will be the main approach for regenerating degraded areas with natural rootstock, and technology-based

plantations with substantial investment will be established in degraded or treeless areas. Bamboo plantations, medicinal plantation projects and coastal shelterbelt plantations are identified as the thrust areas.

- *Forest fire control:* States will adopt the project approach for controlling forest fires in accordance with the National Fire Prevention and Control guidelines of 1999. JFM committees will be engaged in forest fire prevention and control.
- *Strategy in drought-prone areas:* Special measures for drought-prone areas will include tree plantations on non-forestlands, water-harvesting measures on forest- and non-forestlands, a fodder development program and organizing cattle camps.
- *Infrastructural strengthening:* Priorities for strengthening infrastructure include filling vacant field positions and provisions for forest roads, buildings, communication equipment, vehicles and arms required for forest protection.
- *Long-term operational planning:* Preparation and implementation of working plans for management including boundary demarcation, prevention of encroachment, control of pests and diseases, natural regeneration, felling and other silvicultural operations; this will be carried out with the approval of the central government.
- *Controlling wildlife offences:* An effective mechanism for intelligence gathering and a database of habitual offenders as well as investigation and prosecution of offenders will be developed for reducing wildlife offences. An effective enforcement infrastructure will be created to prevent poaching within and outside protected areas.²⁷

3.6 REPORT OF NATIONAL FOREST COMMISSION 2006

Pursuant upon the recommendation made by the Indian Board of Wildlife in its 21st meeting held on 21 January 2002 under the chairmanship of Honorable Prime Minister of India, Government of India resolved to constitute a National Forest Commission to review the working of the forest and wildlife sector. The resolution recalled that the livelihood issue of around seven crore tribal and more than 20 crore non-tribal rural population is linked with the forest. The necessity of meeting the demand for wood for commercial and industrial purposes through agroforestry and plantations, and the desirability of evolving appropriate strategy and knowledge base for in situ conservation and ex situ propagation of medicinal plants in view of their increasing demand, were further recognized.²⁸

The resolution emphasized the paradigm shift in the tenets of forest management from timber primacy to ecological and stakeholder-oriented forestry taking cognizance of the recommendations of the Forest policy of 1988, of the Stockholm conference (1972) and Rio de Janeiro Conference (1992), and of the continued pressure of encroachers and poachers on the forest and wildlife despite the enactment of the Wild Life (Protection) Act, 1972, and the Forest Conservation Act, 1980. The resolution also underlined the importance of joint forest management and community/people's participation, with gender equality, for providing for the growing demand of forest products particularly to the population of four crore humans living in 1.73 lakh villages in or around the forest, along with the desirability of working out special measures for the attainment of tree and forest cover to 25% of the land area of the country by 2007 and upto 33% by 2012.²⁹

The Report examines the current status of forests, reviews the forest policy, legal framework, institutions, and the administrative structure of the forestry sector. Goals and constraints of the forestry sector, approaches to forest, wildlife and nature conservation, farm and agroforestry, centre-state relations, forests and local communities and peoples' participation have been considered in depth. The Report also examines forest-related international instruments, forestry research, relation between forests and industries, and financial support to the forestry sector. Emerging thoughts on the place of forests in national resource accounting have been discussed. The above considerations have led to an array of recommendations which need to be implemented so that the goals of ecologically sustainable forest and wildlife management, enhancing ecological security, meeting needs of the civil society, and establishing a meaningful partnership between forest management and local communities can be realized³⁰.

3.7 EFFECT ON GROUND

With the release of the 'India State of Forest Report 2009' so far eleven cycles of forest cover assessment have been completed since 1987. Over the year with the advancement of technologies of image processing and data quality of remote sensing, the methodology of forest cover assessment has improved to provide more accurate data products for better operational management and planning. In addition to forest cover, assessment of tree cover of the country is also being carried out using the Tree Outside Forest (TOF) inventory data.³¹

Six Regional Offices have been set up at Bangalore, Bhopal, Bhubaneswar, Lucknow, Shillong and Chandigarh, with the Headquarter unit in the Ministry at New Delhi to carry out the following roles and functions (Objectives):

- To monitor and evaluate all ongoing forestry development projects and scheme with specific emphasis on conservation of forests;
- To assist the State/UT Governments in preparation of the proposals involving diversion of forests land for non-forestry purposes under the provisions of Forest(Conservation) Act, 1980;
- To undertake physical inspection of site in cases of diversion of forestland involving an area of more than forty ha.
- To monitor the implementation of conditions and safeguards stipulated by Central Government in the proposal approved under Forest (Conservation) Act, 1980.
- To assist the State/UTs in the preparation of management plans for working of forest under their control within the framework of guidelines issued by Central Government from time to time;
- To assist the State/UTs in streamlining collection, collation, storage and retrieval of data/ covering all forestry activities and to transmit such data to the Central Government/ Central Data Processing Unit.
- To dispose of proposal for diversion of forestland up five ha. & to examine / process the proposal above five ha to forty ha; accept regularization of encroachment and mining.
- To render assistance in preparation of the National Forestry Action Plan.
- To assist Paryavaran Vahinies in the capacity of observers as well as technical advisors;
- To monitor implementation of conditions and safeguards laid down by the Ministry for Environmental clearance under EPA 1986.

The Headquarter Unit in the Ministry at New Delhi is responsible for administration, supervision and co-ordination of all the activities relating to the

function assigned to the Regional Offices as enumerated above under the overall control of the Ministry of Environment & Forests³².

3.7.1 Actions Undertaken To Achieve Sustainable Forest Management

In pursuance towards achieving sustainable forest management in the country, the following actions have been undertaken by the Government:-

- An SFM Cell has been constituted in the Ministry of Environment & Forests, Government of India. This would act as Nodal Body for policy matter at the Central level.
- An SFM Cell has also been created in all the State Forest Departments on the similar lines of Central level 'SFM Cell' headed by Working Plan in the respective States / UTs.³³

3.7.2 Action taken with respect to Convention on Biological Diversity

The CBD, which has near universal membership with one hundred ninety two countries as its Parties, sets out commitments for maintaining the world's ecological underpinnings, while pursuing economic development. The Convention, while reaffirming sovereign rights of nations over their biological resources, establishes three main goals: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the use of genetic resources. India is a Party to the CBD.

In pursuance of various decisions of COP- 9 to the CBD held in May 2008, India has been responding to various notifications being received from the CBD Secretariat, interalia by making submissions, and nominating experts for various expert group meetings. India has prepared its Fourth National Report through a consultative process and submitted it to the CBD Secretariat. India hosted two meetings for the CBD, an Expert Meeting on Traditional Knowledge in Hyderabad

from 16-19 June 2009, and an Asia Pacific Regional Workshop on Protected Areas in Dehradun on 12-15 October, 2009. Indian delegations participated actively in various meetings held under the aegis of CBD, including in two important negotiation meetings for development of an international regime on access and benefit sharing, in Paris in April 2009 and in Montreal in November 2009.

3.7.3 National Biodiversity Action Plan

The National Biodiversity Action Plan (NBAP) prepared by the Ministry of Environment and Forests and released formally in February 2009, has been sent to all concerned Ministries/Depts specialized agencies, and to all units within the Ministry, with a request to initiate follow-up action on the action points listed in the NBAP.³⁴

3.7.4 UNDP-GOI-CCF-II Programme on Promoting Conservation of Medicinal Plant and Traditional Knowledge for Enhancing Health and Livelihood Security Project has an outlay of US\$30,00,000 (Three Million US\$) (Rs 12.90 Crores) and was initiated in May 2006. The project is being undertaken in nine States viz. Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu and West Bengal US\$2.97 Million has been released so far. The main objective of the project is supporting conservation of medicinal plants and traditional knowledge for enhancing health and livelihood security. The key thrust of the project is to promote conservation of medicinal plants and related traditional knowledge with local people and mainstreaming these into the existing policies and programmes of the forestry and health sector.³⁵

3.7.5 Action as to CAMPA

During the period, in order to operationalize CAMPA, Guidelines in conformity with Supreme Court's directions and as per consultation with the State Government was prepared and circulated to all State/UTs. Most of the State have constituted State Level Compensatory Afforestation Fund Management and Planning Authority (CAMPA) in accordance with the guideline and have opened the State CAMPA account. Taking into account the need to commence Compensatory Afforestation in the States/UTs without further loss of any planting season, already 10% of fund remitted by the State Government to the Ad-hoc CAMPA by the respective State Government have been released to the respective States/UTs. National Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Advisory Council was constituted to facilitate the working of State CAMPA. It has already started its working with its first meeting on 29th September, 2009. A new initiative in the form of GPS based monitoring system has been envisaged firstly for CAMPA work and later on for other works like monitoring of different conditions stipulated in Forest and environmental clearances, different programmes of NAEB etc.³⁶

3.7.6 Action Taken To Create Environmental Awareness

MoEF has hence, embarked upon a major initiative for creating environmental awareness among children by launching National Green Corps (NGC) in 2001-02. In less than nine years, that the programme has been in operation, it has been catapulted into a mass movement of children for maintaining and preserving the environment. 1,12,844 Ecoclubs have so far been established in NGC Schools across the country. During financial year 2009-10 (as on 23.02.2010), 87,117 Eco-clubs were supported by the Ministry across the country. A country wide training programme for Teachers-incharge of Eco-clubs initiated during 2007-08 was

continued during the year at a cost of Rs. 0.90 Crores. A total of 12,000 Teachers-in-charge of Eco-clubs have been trained during the year.³⁷

3.7.7 National Green Tribunal (NGT)

The National Green Tribunal has been established on 18.10.2010 under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto. It is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues. The Tribunal shall not be bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of natural justice. The Tribunal's dedicated jurisdiction in environmental matters shall provide speedy environmental justice and help reduce the burden of litigation in the higher courts. The Tribunal is mandated to make and endeavour for disposal of applications or appeals finally within 6 months of filing of the same. Initially, the NGT is proposed to be set up at five places of sittings and will follow circuit procedure for making itself more accessible. New Delhi is the Principal Place of Sitting of the Tribunal and Bhopal, Pune, Kolkata and Chennai shall be the other 4 place of sitting of the Tribunal.³⁸

3.8 INTERNATIONAL CONVENTIONS AND NATIONAL FOREST POLICY

India is signatory to the following international conventions that affect forest management:

- Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), 1973;
- Convention on Wetlands of International Importance especially as Waterfowl Habitat, (Ramsar, 1971);
- United Nations Framework Convention on Climate Change (UNFCCC), 1992;
- Convention on Biological Diversity (CBD), 1992;
- United Nations Convention to Combat Desertification (UNCCD), 1994;³⁹

The international conventions have a significant impact on the planning process in the forestry sector. India prepared the National Forestry Action Programme (NFAP) in 1999 (MOEF 1999) and prepared a National Action Programme to Combat Desertification in 2001. The latter is consistent with the UNCCD, and will be implemented over the next 20 years (MOEF 2001c). In response to the CBD, a National Policy and Macro-level Action Strategy for conservation and sustainable use of biodiversity has been formulated, and a National Biodiversity Strategy and Action Plan for micro-level (state and local) action is under preparation (MOEF 2000c).⁴⁰

The CBD highlighted the need for a comprehensive statute dealing with the subject. In pursuance with the convention, the government drafted the Biodiversity Bill in 2000. The objectives of the convention are mirrored in the preamble of the bill, which states that the proposed legislation is to provide for conservation of biodiversity, sustainable use of its components and equitable sharing of benefits arising there from. The bill has been submitted to parliament⁴¹ and now it is legislation.

International conventions have influenced India's wildlife laws significantly. CITES in particular has influenced the provisions of the Wildlife (Protection) Act, 1972 and the Export-Import Policy. The MOEF has drafted a proposal to include new provisions in the act for regulating possession and trade of the species listed in the convention. The impact of CITES on wildlife conservation is exemplified in the country's stand on ivory trade.⁴²

India is concerned about the impact of international economic and trade policies on forest management particularly the non-tariff barriers under the WTO. The Technical Barriers to Trade (TBT), Sanitary and Phyto-sanitary (SPS) measures and other measures related to the environment have potential implications on forestry product exports from developing countries.

Although SPS measures are meant to protect domestic forest resources from introduced pests and diseases, its use by developed countries as a disguised restriction on forest product imports cannot be ruled out. It potentially threatens exports from developing countries. Similarly TBTs prevent deceptive or illegal practices, protect human health and safety and prevent environmental degradation. However, the rising concern about forest degradation may express itself in unreasonable demands for environmental safeguards with negative implications for forest products exports from developing countries. For example, the export potential of Indian handicraft products may not be realized if western buyers demand rigorous certification. The Ministry of Textiles and its promotional agencies have already initiated the certification process for wood-based handicraft products to meet buyer's demands.⁴³

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CHAPTER

4

**SUSTAINABLE
DEVELOPMENT AND
FORESTRY**

4.1 INTRODUCTION

THE intense global debate on sustainable development and sustainable management of natural resources can be traced back to the 1970s, when there was a growing concern regarding their depletion and degradation. Sustainable development is commonly defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable forest management has been considered as an integral component of sustainable development since the UNCED Conference at Rio de Janeiro in 1992, also called the Earth Summit.¹

Sustainable development implies use of natural resources such that the future generations can attain the same level of well being as enjoyed by the present generation. It is in context of the need for conservation of the stock of natural resources that sustainable management of forests (SFM) has gained importance. Sustainable Forest Management ensures that values derived from forests meet present day requirements and at the same time the quantity and quality of long term development goals are maintained.²

Sustainable forest management encompasses all the three components of sustainability, viz. ecological, economic and socio-cultural well-being. It has been defined by the International Tropical Timber Organization (ITTO) as ‘the process of managing permanent forest land to achieve one or more clearly specified objectives of forest management with regard to the production of a continuous flow of desirable forest products and services without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment’.³

Sustainable Forest Development aims at use and conservation of forest resources while at the same time meeting the development goals of an economy. At present,

in India, this objective is met almost entirely through the use of legal & administrative controls rather than encouraging voluntary compliance⁴.

4.2 SUSTAINABLE FOREST MANAGEMENT IN INDIA

Sustainable forest management has been considered as an integral component of sustainable development since the UNCED Conference at Rio de Janeiro in 1992, also called the Earth Summit. After the summit, where international forest principles were formulated for the first time by world leaders and the first global policy on sustainable forest management was adopted, the notion of sustainable forest management rapidly gained interest. Accordingly, the forest resources and lands should be managed sustainably to meet the social, economic, ecological, cultural and spiritual functions, and for the maintenance and enhancement of biological diversity. The concept got support and recognition in various international fora for the management, conservation and sustainable development of all types of forests. There have been numerous initiatives and processes in the world to streamline the efforts towards sustainable forest management.⁵

The forestry sector in India is among the first in the world to be managed on the lines of modern scientific management. Establishment of forest management from the middle of the eighteenth century incidentally coincided with the industrial revolution in the West. The forests emerged as important resources during the pre-independence period, as the demand for raw materials increased, and a need was felt to expand the railway network. Forestry was thus production-oriented at that time. However, the basic change in perception was brought by the National Forest Policy of 1952, from production forestry to focus on meeting objectives of

maintaining ecological balance on the one hand and meeting the needs of stakeholders in the best possible way on the other. The 1988 National Forest Policy focused on the maintenance of environmental stability, conservation of natural heritage by preserving the natural forests and meeting the basic needs of people, and also maintaining the relationship between the tribals and other dependent people, thus encompassing ecological, economic and social aspects of forest management.⁶

4.2.1 Criteria and Indicators Approach For Sustainable Forest Management

There have been many international initiatives with potential application to define and assess sustainable forest management, such as criteria and indicators, life cycle assessment, cost–benefit analysis, knowledge-based systems and environmental impact assessment. The criteria and indicator method has been widely accepted and immense work has been done towards its refinement and practical application.⁷ The criteria and indicators approach presents a tool for assessing the magnitude and direction of change in given forestry situations, and this provides critical information to the forest managers and other actors for forest-related decision-making. It is an important framework to assist countries collect, store and disseminate reliable science based forest information needed to monitor and assess forest conditions. Criteria define and characterize the essential elements, as well as a set of conditions or processes, by which sustainable forest management may be assessed.⁸

4.2.2 Indian Initiatives

The Bhopal-India Process (B-I Process), in 1998, was the Indian initiative to synchronize India's SFM efforts with the rest of the world. It was conceptualized that development of C&I for SFM in India would provide an effective way to set the management targets, in harmony with the National Forest Policy, 1988, and for providing a mechanism to monitor targets and by providing feedback for deciding on the direction of sustainable forest development. The Government of India constituted a National Task Force in November, 1999, which recognized eight criteria and forty-three indicators of B-I Process and recommended a two-pronged strategy for adoption and operationalising C&I for SFM. India, though a late beginner on this front, has made substantial progress since 1998, in evolving a national level set of C&I, synchronizing her SFM efforts with the rest of the world.⁹

India, being a producer member country of International Tropical Timber Organization (ITTO), is committed to objective 2000, which states that "the total exports of the tropical timber products should come from sustainably managed forests by the year 2000". In order to achieve this objective, it was imperative to redefine forest management in the light of C&I and operationalise them at all levels, viz. local, state and national level.¹⁰

Similarly, a well-defined set of C&I system for SFM/SFD and a 10-year C&I plan for the States of Madhya Pradesh and Chhattisgarh and for each of the eight Forest Management Units (FMUs) were also prepared under the project. Manuals and guidelines prepared with active participation of the community have proven to be indispensable tools for implementation and extension of SFM in the entire country. Workshops organized at FMU, regional and national level, have not only created awareness and capacity for implementation and extension of SFM but have also propagated in both vertical and horizontal dimensions. National and regional level

workshops were attended by international experts, senior officials, senior state forest officers, veteran forest officials, academicians (varied background), scientists, researchers, NGO personnel and consultants in different capacities. Similarly, FMU level workshops were attended by frontline staff of the Forest Department, village level workers and members of the JFMCs and from adjoining villages. Documentation in the form of research publications, proceedings of the workshops and quarterly newsletter has been an integral part of the project and has been instrumental in dissemination of information to the stakeholders. Similarly, web-based information dissemination system has been developed and regularly updated. Efforts have also been initiated to incorporate C & I in the course curriculum of Indian Forest Services and in the forestry course curriculum at graduate and postgraduate levels in educational institutions across the country.¹¹

Recently, as a result of increasing public awareness and various treaties and conventions all over the world, there is a movement towards accepting only those forest products which have originated from sustainably managed forests. It has emerged as a market-based mechanism in support of sustainable forest management. Certification and eco-labelling are such new mechanisms enhancing forest- product positioning for a premium price on the one hand, and ensuring better managing practices for forests on the other.¹²

There have also been many efforts for institutionalization of the criteria and indicators approach. The forests in India are managed according to a scientifically sound, written management plan known as the 'Working Plan', and every division has a working plan which is revised after every ten years. Incorporating the monitoring and evaluation frameworks for sustainable forest management in working plans itself is imperative for institutionalization. The National Working

Plan Code 2004 mentions incorporation of criteria and indicators in working plans for monitoring and evaluation of sustainable forest management. Some working plans have already incorporated the aspects of criteria and indicators of sustainable forest management, like the Working Plans of Haldwani and Tarai East Forest Divisions of Western Circle of Uttarakhand (2006–07 to 2016–17). Many other State Forest Departments are also working towards incorporation of criteria and indicators in their working plan.¹³

The implementation of sustainable forest management in a diverse country like India is a challenging task. To be more effective, criteria and indicators should be incorporated into national forestry legislations and regulation; not only as voluntary application. Being analogous with sustainable development, sustainable forest management also has important implications in the global economic scenario. Besides contributing to environmental, social and economic well-being of the communities, it also facilitates market-oriented tools like certification and ecolabelling. This requires active participation and coordination among the stakeholders for proper implementation. A wider application of criteria and indicators shall require a long maturity process.¹⁴

The Ministry of Environment and Forests, Government of India has already created a Sustainable Forest Management (SFM) Cell in the Ministry in 2006. It is expected to act as a national-level focal point towards SFM in the country.¹⁵ The SFM cell will act as a nodal agency for all matters related to SFM in the country and to encourage the development of national programmes aimed at sustainable utilization and conservation of forest, and maintaining there ecological balance. The SFM cell at centre can take the responsibility of coordinating the output of IIFM research project on SFM with states and UT's and also enhance in the member countries of regional initiatives of Dry Zone Forests of Asia.¹⁶

4.3 IMPORTANCE AND VALUATION OF FOREST COVER

There has been increasing realization that forests provide numerous benefits to mankind including improvement of the quality of environment. Forests provide goods and services and maintain life support systems like timber, fuelwood, fodder, and a wide range of non-timber products. Further, forests are a source of natural habitat for biodiversity and repository of genetic wealth; provide means for recreation and opportunity for eco-tourism. In addition, forests help in watershed development, regulate water regime, conserve soil, and control floods. They contribute to process of carbon sequestration and act as carbon sink, which is important for reduction of green house gases and global warming. In ecologically sensitive areas like mountains, as well as river catchments, forests play an important role for prevention of floods, etc. Degradation of forest resources has a detrimental effect on soil, water and climate, which in turn affects human and animal life. This has created global concern for protection and preservation of forests.¹⁷

It is important to recognize that the benefits of natural forests are rather different than man-made forests. The ecological benefits of natural forests are difficult to replicate in a man-made forest. Functions like carbon-sequestration, would depend on topography, soil conditions, density of forests, etc¹⁸.

Valuation of Forest Cover

While the value of any resource can be assessed by its demand behaviour, in case of forests, markets may not exist for all types of products while forest 'services' providing public goods have no market place at all. Moreover, they have the peculiarity of inter-generational use. As a result of this, standard static economic

analysis may not serve the purpose of decision making on issues regarding pricing and distribution of forest products. Also, such resources are subjected to a variety of property rights systems, different from individual or private property rights. In such a scenario alternative methods are required to value the forests.¹⁹

In the case of natural and environmental resources a concept of Total Economic Value (TEV) is perhaps the most complete measure to express the full range of value of benefits – both tangible and intangible. Natural resources provide a variety of goods and services to the users for their current or future benefits or welfare and are said to have use values. Examples include timber from forests, water from rivers or underground, coal from fossilized earth, etc.²⁰

Use values (UV) can be further broadly classified into three groups; viz. direct, indirect and option values.

Direct uses of forests include both commercial and non-commercial activities. Commercial uses such as timber production may be significant in both domestic and international markets. Non-commercial direct uses, on the other hand, are often mainly local but can be very important for the subsistence needs of rural populations and poorer groups, e.g. fuelwood, game, edible and medicinal plants. Direct uses also include important services such as forest recreation, education and research, which are often conducted on a non-commercial basis.²¹

Indirect use values comprise the many ecological functions of forests. Their value derives from supporting or protecting economic activities that have directly measurable market benefits. For example, some forest may have indirect use value through controlling sedimentation and flood damage that affects downstream agriculture, fishing, water supplies and other economic activities. Likewise the micro-climatic function of certain forests may have indirect use value by

maintaining or enhancing the productivity of crop cultivation in neighbouring areas. Another important indirect use value associated with forests is the storage or “sequestration” of carbon in trees, offsetting the atmospheric accumulation of so-called “greenhouse” gases that are implicated in global warming²².

Option value (OV) is associated with the benefits received by retaining the option of using a resource in the future by protecting or preserving it today.²³

Non-use values (NUV) are generated without any direct link with the use of natural resource under question. These values are often revealed through peoples’ perceptions and concerns towards conservation, culture, aesthetics and so on. The bequest value (BV) originates when people are willing to pay to conserve a resource for the use of future generations. Existence value (EV) is a concept associated with peoples’ willingness to pay simply for the pleasure they derive from knowing that a natural area or particular species or characteristic exist, irrespective of any plans they may have to use these resources. People’s willingness to pay for the preservation of endangered species is an example of existence value.²⁴

The *Total Economic Value* (TEV) of a forest system refers to the sum of (compatible) values: i.e. direct and indirect use (and their associated option values), plus non-use values. Different forest land use options will be characterized by a different combination of direct, indirect and non-use values, and thus a different total economic value. Only part of this value is reflected in market prices, however, creating a risk that forest planners and land users will ignore or understate certain important forest benefits.²⁵

The Total Economic Value is the sum of use values and non-use values.

This can be expressed as :

$$\mathbf{TEV = UV+NUV = (DUV+IUV+OV) + (BV+EV)}$$

While the above classification would help to estimate the total economic value of natural and environmental resources, it is possible that some of the goods and services may fall in more than one category, and hence it is in such cases that it is essential to avoid double counting.

Economic value measures provide a common metric of value for the different services provided by the forests viz., timber, biodiversity, carbon sequestration, watershed values, etc. in monetary units, say Rs/hectare. All types of values mentioned above are converted into monetary terms in order to help in decision making on alternative scenarios for the use of forests.²⁶

4.4 METHODS OF VALUATING FOREST BENEFITS

Methods for Valuing Forest Benefits

To help private firms and government policy-makers make more informed decisions about activities with significant environmental impacts, economists have devoted considerable effort in recent years to developing and applying methods for valuing non-market benefits in monetary terms. All of the methods attempt to express consumer demand, i.e. the willingness-to-pay (WTP) of consumers for a particular non-marketed benefit in monetary terms, or their willingness-to-accept (WTA) monetary compensation for the loss of the same. In short, these valuation methods attempt to express the utility derived from non-market goods and services

in the metric of the market, which is considered to provide an accurate reflection of the relative preferences of producers and consumers for different goods and services. The resulting values may be used in cost-benefit analysis or as input to more elaborate economic models.²⁷

Techniques for estimating non-market or non-timber forest values vary in their theoretical validity and acceptance among economists, their data requirements and ease of use, and the extent to which they have been applied in (and perhaps their relevance to) different countries. For convenience, we have divided the different techniques into five broad groups:

- *market price* valuation, including estimating the benefits of subsistence production and consumption;
- *surrogate market* approaches, including travel cost models, hedonic pricing and the substitute goods approach;
- *production function* approaches, which focus on bio-physical relationships between forest functions and market activities;
- *stated preference* approaches, mainly the contingent valuation method and variants; and
- *Cost based* approaches, including replacement cost and defensive expenditure.²⁸

4.4.1 Valuation Using Market Prices

The simplest valuation methods are those which rely on market prices. Many goods and services from tropical forest land uses are traded, either in local markets or internationally, including wood products (timber and fuel), non-wood forest products (food, medicine and utensils), crops and livestock products, wildlife (meat and fish) and recreation. For those products that are commercially traded, market

prices can be used to construct financial accounts to compare the costs and benefits of alternative forest land use options. In some cases, it may be necessary to adjust market prices to account for market or policy failures²⁹.

Prices are derived within the market place through interaction between consumers and producers over the demand and supply of goods and services. In an “efficient” market goods and services will be priced at their marginal value product and reflect the full opportunity costs of resource use³⁰.

When using market prices for the purpose of financial valuation it is important to determine the *appropriate* market price for the various goods and services of the alternative forest land uses. There may be a variety of ways to obtain the relevant market prices, including existing economic and social studies, published or privately held statistics, socio-economic surveys and consultation with agricultural extension officers, forestry service personnel, government market specialists and statisticians. In many cases, it will be necessary to carry out new market surveys to collect the prices of so-called minor non-timber forest products, which may be traded on a small-scale or occasionally, and which are typically neglected by official economic statistics. It may also be necessary to take account of seasonal variations that lead to fluctuations in market prices³¹

4.4.2 Surrogate Market Approaches

A second group of methods rely on the fact that certain non-market values may be reflected indirectly in consumer expenditure, in the prices of marketed goods and services, or in the level of productivity of certain market activities. These techniques statistically sophisticated methods, such as travel cost models and hedonic pricing, as well as simpler techniques such as the substitute goods method. The theoretical basis for all of these approaches is the household production

function, which describes how households attempt to maximize their well-being by allocating time and resources to different activities³².

4.4.2.1 Travel Cost Method

The travel cost method (TCM) is based on the assumption that consumers value the experience of a particular forest site at no less than the cost of getting there, including all direct transport costs as well as the opportunity cost of time spent traveling to the site (i.e. foregone earnings). This survey-based method has been used extensively, especially in richer countries, to estimate environmental benefits at recreational sites (including wildlife reserves, special trekking areas and beaches). TCM has recently been applied in several developing countries, particularly where higher incomes and rapidly developing markets have been associated with growing demand for amenities such as scenic views and recreational areas.³³

Three basic steps are involved in travel cost models. First, it is necessary to undertake a survey of a sample of individuals visiting the site to determine their costs incurred in visiting the site. These costs include travel time, any financial expenditure involved in getting to and from the site, along with entrance (or parking) fees. In addition, information on the place of origin for the journey, and basic socioeconomic factors such as income and education of the individual is required. The resulting data is manipulated to derive a demand equation for the site. This relates the number of visits to the site to the costs per visit. The third step is to derive the value of a *change* in environmental conditions. For this, it is necessary to determine how willingness to pay for what the site has to offer alters with changes in the features of the site. By comparing the willingness to pay for sites with different facilities it is possible to determine how the total benefits derived from the site change as the facilities of the site change³⁴.

4.4.2.2 Hedonic Pricing

Hedonic pricing attempts to isolate the specific influence of an environmental amenity or risk on the market price of a good or service. Hedonic pricing is based on the assumption that the value of an asset is related to attributes it possesses or the stream of net benefits derived from it. A particular buyer may be willing to pay for certain environmental attributes in some area that he may not be willing to pay in another area.³⁵

Application of the hedonic pricing approach to property values involves observing systematic differences in the value of properties between locations and isolating the effect of environmental quality on these values. The market value of a residential property, for example, is affected by many variables including its size, location, construction materials, and also the quality of the surrounding environment. With sufficient data on property values and characteristics it may be possible to control for size, location, construction materials and other factors, such that any residual price differential may be imputed to differences in environmental quality. The hedonic pricing method requires large data sets, in order to account for and eliminate the influence of all other variables which affect market prices. The approach also assumes that markets for land are competitive, and that both buyers and sellers are fully informed of the environmental amenity or hazard.³⁶

4.4.2.3 Substitute Goods Approach

For those forest resources which are non-marketed or which are used directly by the harvester (e.g. fuelwood), value may be approximated by the market price of *similar goods* (e.g. fuelwood sold in other areas) or the value of the next best *alternative or substitute good* (e.g. charcoal). The extent to which the value of the alternative marketed good reflects the value of the non-market good in question depends, to a large extent, on the degree of similarity or substitution between them.

That is, if the two goods are perfect substitutes then their economic values should be very close. As the level of substitution decreases so does the extent to which the value of the marketed good can be taken as an indication of the value of the non-marketed forest good.³⁷

4.4.3 Production Function Approaches

A third type of valuation method is variously called the *change-in-production* technique, the *inputoutput* or *dose-response* method, or the *production function* approach. Whatever the name used, all involve an attempt to relate human well-being (or more narrowly, the incremental output of a marketed good or service) to a measurable change in the quality or quantity of a natural resource. The production function approach may be used to estimate the indirect use value of ecological functions of forests, through their contribution to market activities. The approach is referred to as the production function method because many studies estimate impacts on economic production. However, the same approach can be used to estimate consumption losses directly, e.g. siltation of bathing areas.

Use of this approach involves a two-step procedure. Firstly, the physical effects of changes in the environment on economic activity are determined. This may be done through laboratory or field research, observation or controlled experiments, or statistical techniques. The second step consists of valuing the resulting changes in production or consumption, usually using market prices. In this way the monetary value of the ecological function is derived indirectly.³⁸

4.4.4 Stated Preference Approaches

Price-based, surrogate market and production function approaches all rely on the use of market prices (revealed preference) to estimate the value of forest goods and

services. An alternative is to ask consumers to state their preferences directly, in terms of hypothetical markets or payments. In this approach, information on the value of an environmental benefit is obtained by posing direct questions to consumers about their willingness to pay for it or, alternatively, their willingness to accept cash compensation for losing the benefit. The most widely used and well-developed stated preference technique is the contingent valuation method (CV or CVM). Alternative but less widely used stated preference methods include choice experiments (CE) and the use of participatory or “focus group” approaches to elicit preferences.³⁹

4.4.4.1 Contingent Valuation

CV elicits individual expressions of value from respondents for specified increases or decreases in the quantity or quality of a non-market good. Most CV studies use data from interviews or postal surveys. Valuations produced by CVM are “contingent” because value estimates are derived from a hypothetical situation that is presented by the researcher to the respondent. The two main variants of CV are open-ended and dichotomous choice (DC) formats. The former involves letting respondents determine their “bids” freely, while the latter format presents respondents with two alternatives among which they are asked to choose. Open-ended CVM formats typically generate lower estimates of WTP than DC designs.⁴⁰

4.4.4.2 Contingent Ranking

A variant of contingent valuation, this method involves asking respondents to rank a series of alternative non-market goods. One advantage of contingent ranking is that monetary bids may or may not be used. Some have suggested that the use of hypothetical cash payments in CVM may be inappropriate in remote rural communities in the developing world, where people may have relatively little

exposure to the market economy. In such cases monetary values can be assigned indirectly, by including in the contingent ranking one or more “anchor” goods with known market values.⁴¹

The contingent ranking method is conceptually simple, easy to administer and able to generate rough estimates of value for a number of forest goods and services at once, without conducting separate WTP surveys for each use and non-use value. On the other hand, contingent ranking may not provide accurate estimates of WTP.⁴²

4.4.4.3 Choice Experiments

Another stated preference method for valuing environmental goods is the use of choice experiments (CE). This approach involves asking individual respondents to choose among alternative bundles of non-market goods, which are described in terms of their attributes, including a hypothetical price. In the case of forests, for example, a CE survey may present respondents with alternative landscapes (in the form of images), which vary by species mix, age diversity, percentage of open area, the presence of roads and the hypothetical price (given a particular payment vehicle) to the individual. CE shares many features with Dichotomous Choice CV models and the results should be directly comparable with estimates based on DC/CV models. A particular strength of CE is the ability to estimate characteristic values for environmental goods.⁴³

4.4.4.4 Participatory Methods

CVM and CE rely on interviews or questionnaire surveys to collect data on individual WTP for environmental benefits. Contingent ranking may also involve individual interviews. Survey design and administration has been a major focus of concern in all of these methods, with the aim of minimizing biased or strategic

responses. Some researchers argue that the use of participatory or “focus group” techniques in both data collection and analysis can reduce bias and generate more accurate information. These and related concerns have led researchers to develop variants of CVM which use participatory survey techniques.⁴⁴

4.4.5 Cost-based Valuation

In addition to the methods described above for estimating WTP or WTA for non-market forest benefits, some other cost-based approaches may be used to shed light on the costs of maintaining nonmarket forest benefits, or trade-offs with market values. Three alternative methods focus on the costs of providing, maintaining or restoring environmental goods and services. The most common methods are:

- *replacement cost* methods, which measures environmental values by examining the costs of reproducing the original level of benefits;
- *preventive expenditure* methods, which estimate the cost of preventing or defending against degradation of the environment; and
- *opportunity cost* approaches, which use estimated production costs as a rough proxy for the value of non-market benefits⁴⁵

4.4.5.1 Replacement Cost

The replacement cost technique generates a value for the benefits of an environmental good or service by estimating the cost of replacing the benefits with an alternative good or service.²⁸ For example, where logging or road construction in upland forest areas leads to increased runoff and sedimentation, some studies use information on the costs of dredging or flood control as a rough estimate of the non-market benefit of watershed protection. The technique rests on the availability

of such an alternative, which should - as nearly as possible - produce the same type and level of benefits as supplied by the resource or environmental function being valued. When developing a replacement cost scenario, it is normal practice to select the least cost option among all possible technologies, so as not to over-estimate the value of the environmental benefit.⁴⁶

4.4.5.2 Preventive Expenditure

The preventive expenditure approach (also sometimes called “mitigation” or “defensive” expenditure) places a value on environmental goods and services by estimating the costs of preventing a reduction in the level of those benefits derived from a particular area. This approach may be most applicable for assessing the indirect use values of forests.⁴⁷

4.4.5.3 Opportunity Cost of Labor

Another valuation approach focuses on the employment opportunities foregone in order to secure or protect a particular non-market benefit. As with other cost-based approaches, the focus is on the costs of providing a non-market benefit, rather than the magnitude of the benefit *per se*. The basic idea is that a non-market benefit is worth at least as much as the return that could be obtained by private producers if they were to devote the same effort (i.e. the labour used to secure the non-market benefit) in some alternative use.⁴⁸

The opportunity cost approach is most often used to value the subsistence benefits of NTFP collection, where labour is the main input and prices are not available because all or most output is consumed directly by producers. In such cases, the implicit assumption is that a producer’s decision to spend time collecting non-timber forest products is weighed against alternative uses of household labour. The opportunity cost of time spent harvesting NTFPs is thus taken as a proxy for the

value of the product(s) in question. The only data required are the amount of time spent on the harvest, the resulting yield and the prevailing (rural) wage rate.⁴⁹

In many cases, the above suggested methods are unable to arrive at a reasonable values for certain stake holders. This is particularly relevant in case of villagers and tribals whose livelihood is considerably dependent on various benefits from forests. In such situations technique like Multi Criteria Analysis (MCA) have to be used. MCA uses mathematical programming techniques to select option based on objective functions including weighted goals of decisionmaker, with explicit consideration of constraints and cost. The following statement gives the relevant techniques that can be used to measure specific benefits of the forests.

4.5 CHALLENGES FOR INDIAN FORESTRY SECTOR

The rapidly growing Indian economy has implications for all sectors of the economy, including forestry. The societal demands on forests are becoming more diversified and rising faster than the capacity of forests to supply them on a sustainable basis. The widening gap is one of the main causes of forest degradation and loss of forest. Biodiversity that is taking place on an unprecedented scale, fast eroding the very basis of the livelihood of forest dependent Communities.⁵⁰

The Forest Commission of India 2006 provides that the future challenge to the forestry sector in India is to create an enabling environment to facilitate assessment, monitoring and reporting on national level criteria and indicators. These should be assessed periodically, through a set of simple formats to assess changes. Sustainable forest management (SFM) and its threshold also need to be defined.⁵¹

The existing administrative structure and functions, planning and control system, and research and training methods are all geared toward securing a sustained supply of timber, mainly from state forest reserves. A move toward more comprehensive multiple use forestry would require reorientation of forestry institutions by bringing within their mandate the production of goods and environmental services, both in and outside forests. A mismatch between the changing societal demands on forests and non-changing forestry institutions could slow down the growth or even allow the sector to stagnate, thereby accelerating forest degradation.⁵²

This assessment of the Indian forest sector identifies four interlinked themes as an approach that offers the greatest possibility of ensuring the sustainable development of the Indian forestry system. The themes are:

- The future of Indian forestry will depend on the provision of reliable data and inventories covering all aspects of the Indian forestry system.
- New data and inventories must be based on integrated assessments that take account of issues far beyond traditional forest sector analysis and map the root causes of the degradation and depletion of forest resources.
- These integrated assessments can then feed into an ongoing, institutionalized strategic planning process that result in integrated strategies and policies.
- The successful implementation of this strategic plan will require the restructuring of existing governance and institutions with respect to the forest sector.

In essence, Indian forestry experts point to the need for an integrated concept for analysis, planning, and management of the Indian forest sector.⁵³

4.6 CHALLENGES FACING CERTIFICATION OF FOREST PRODUCTS IN DEVELOPING COUNTRIES

The basic concept of eco-label is derived from the word *eco*, which means natural environment, and *label*, which means a sign on a product that differ from other product. Ecolabel helps consumers in selecting environmentally-friendly products as well as a tool for producers to inform the consumers of their environmental-friendly production.⁵⁴

4.6.1 Definition of Forest Certification

*Certification is the process of independent third party verification that forest management has reached he level required by a given standard.*⁵⁵

*Forest management certification is a formal, voluntary procedure, under which a certifier –a third-party inspector – makes a written assurance that the quality of forest management practiced by a defined manager or group conforms to specified standards*⁵⁶.

Forest certification is a mechanism for forest monitoring, tracing and labeling timber, wood and pulp products and non-timber forest products where the quality of management from environmental, social and economic perspectives is judged against a series of agreed standards. It is a process that leads to the issuing of a certificate by an independent party, which verifies that an area of forest is managed to a defined standard.⁵⁷ Certification provides a mechanism for independent validation of sustainability in markets where forest products are subject to consumer resistance on environmental grounds⁵⁸.

Forest certification refers to two separate processes viz., forest management unit certification (FMU) and chain of custody certification (COC). Forest management certification is a process which verifies that an area of forest /plantations from where the wood, fiber and other non-timber forest products is extracted is managed to a defined standard. COC certification is a process of tracking forest products from the certified forest to the point of sale to ensure that product originated from a certified forest.⁵⁹

Certification is envisaged as a market-driven mechanism that promotes sustainable forest management in three main ways:

- By establishing standards for forest practices and management that guarantee a certain level of management performance;
- By enhancing marketing opportunities for products from sustainably managed forests; and
- By promoting public education about improved forest management, for both producers and consumers.⁶⁰

Despite heightened interest in forest certification over the years, the total area of certified forests presently stands at 271 million hectares which is 7 percent of the global forest area of 3 952 million hectares (FAO 2006), or about 20 percent of the total production forest area of 1 347 million hectares.⁶¹ The disparity between developed and developing countries appears to stem from five major constraints, viz.:

- Insufficient demand for certified products in global markets;
- Wide gaps between existing management standards and certification requirements;

- Weak ability to formulate appropriate sector policies and ensure their effective implementation;
- Insufficient capacity to develop national certification standards and certification procedures; and
- The high direct and indirect costs of obtaining certification in developing countries.

Despite these difficulties, many developing countries remain interested in promoting forest certification, to the extent that several have initiated their own national certification schemes⁶².

4.6.2 The State of Forest Certification

In the years since certification was initially developed, two main international forest certification schemes have emerged: Forest Stewardship Council (FSC) certification and the Programme for the Endorsement of Forest Certification schemes (PEFC). Meanwhile, numerous national certification schemes have also emerged (e.g., Sustainable Forest Initiative, Malaysia Criteria & Indicators [MC&I], Lembaga Ekolabel Indonesia [LEI], etc.), or are in the process of being developed. Globally, some 271 million hectares of forest had been certified as of January 2006. Combined, FSC (25.14 percent) and PEFC (68.69 percent) account for 93.8 percent of all certified forest area. The vast majority of certified forests are in the temperate and boreal regions of North America and Europe, which together account for 91.8 percent of the total. Developing countries account for just 13 percent of certified forests, while tropical forests – the original focus of certification – harbour just 4.7 percent. Tropical developing countries with the largest areas of certified forests include Brazil, Bolivia, Mexico and Guatemala.

The vast majority of certified forest areas (both tropical and non-tropical) are industrial forests.⁶³

4.6.3 Constraints Faced By Developing Countries

The slow uptake of certification in many developing countries can be attributed to five main constraints.

4.6.3.1 Insufficient demand for certified products in global markets

North America and Europe currently offer the only markets for certified wood products. There is little or no local demand in developing producer countries at present, nor in the major importing countries of Asia. Currently most demand for certified products is coming from businesses and government agencies wanting to pursue an appropriate environmental policy towards sustainability.⁶⁴

To date, certified timber has failed to deliver the price premiums that many expected or hoped for. To a significant extent, this can perhaps be attributed to insufficient and ineffective marketing of certified wood products to final consumers. If certified products are to become more popular among the general public, then a greater emphasis will need to be placed on marketing among final consumers to effectively differentiate certified from non-certified timber.⁶⁵

4.6.3.2 Wide gap between existing management standards and certification requirements

This problem is exacerbated by the fact that there are often insufficient financial and human resources to effectively raise standards. The shortages of high-quality trained forest managers are particularly acute in many developing countries. The staffing situation in the Democratic Republic of Congo illustrates the crisis of

forest management capacity; the country has only 100 professional foresters to manage a forest area of 133.6 mill ha (FAO 2005).⁶⁶

Another problem faced by many tropical developing countries is that the basic standards required for certification are often more difficult to achieve in tropical forests than in temperate forests. An example of this is related to biodiversity, which tends to be considerably more diverse in the tropics compared to temperate regions.⁶⁷

4.6.3.3 Weak ability to formulate appropriate forest sector policies and ensure their effective implementation

The weak ability to formulate appropriate forest sector policies and ensure their effective implementation is exacerbated by a host of related constraints, including:

- Ineffective implementation of national forest legislation and policies
- Weak governance
- Inadequate forest law enforcement
- Uncertain and/or disputed land tenure
- Conflicting socio-economic and extra-sectoral policies⁶⁸

4.6.3.4 Insufficient Capacity to Develop National Certification Standards and Certification Procedures

In general, there has been insufficient capacity to develop national forest certification standards and delivery mechanisms in many developing countries. This has resulted in the limited availability of national certification standards by which to certify. This means that in many cases, developing countries are forced to rely on the generic international standards in order to become certified, which increases costs (international experts need to be contracted, which are relatively

more expensive than local experts) and are not always relevant to the local situation.⁶⁹

4.6.3.5 The High Direct and Indirect Costs of Certification

While estimates of the costs of certification vary widely, it is generally agreed that the costs continue to be a substantial inhibiting factor in many developing countries. Costs can be categorized as direct or indirect. The direct costs of certification include activities such as preparation for audits, actual forest management audits, chain-of-custody audits, and yearly monitoring audits. Such direct costs tend to be higher for developing countries, due to the fact that most certifiers are located in Europe and North America, need to be flown in and demand very high fees and wages, relative to locals. The indirect costs of forest certification include the costs incurred to improve forest management and wood-processing systems to levels that are certifiable. These costs are considerable if the company is significantly lagging behind required certification standards.⁷⁰ The size of the forest management unit is also important when considering the costs of certification. The smaller is the management unit, the greater are the costs of certification on a per unit (hectare) basis.⁷¹

4.7 Position in India

The increased demand for forest certification is likely to affect the economic prospects of many farm forestry/agro-forestry areas in India unless these areas are certified. The Ministry of Environment and Forest recognized the need to promote forest certification in the country and recently constituted a committee to develop a

national forest certification system. The success of such a system largely depends on its credibility at both local and global contexts⁷².

However, forest certification in India is still at an early stage and therefore the nation has not been able to make use of the benefits of forest certification. So far, India has secured one FSC Forest Management Unit Certificate (644 ha of rubber plantations in Tamil Nadu State) and a few COCs mainly by small and medium companies to meet export demand. But the situation is likely to change due to the increased demand for forest certification in the global market and the high growth of the Indian economy. The impact of such demand on forest based industries and growers, particularly those of small and medium scale in India will be severe unless they secure forest certification. To address this situation, there is a need to ensure adequate FMU certifications in the country.⁷³

The export promotion council of handicrafts (EPCH) set up by the Ministry of Textiles is concerned about the adverse effects of increased demand for forest certification on export prospects of Indian wooden handicrafts industry and initiated several approaches to promote forest certification.⁷⁴

India is well poised to join the certification league, having already arrived at a national set of Criteria and Indicators under its very own Bhopal-India (Dry Zone) Process. All that remains desirable is the institution of a nodal accreditation agency under any of the recognized certification schemes.⁷⁵

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²⁸ *Ibid.*

²⁹ *Ibid.*

³⁰ *Id.* at 11

³¹ *Ibid.*

³² *Id.* at 12

³³ *Ibid.*

³⁴ *Ibid.*

³⁵ *Supra note 21*, at 9

³⁶ *Id.* at 13

³⁷ *Ibid.*

³⁸ *Id.* at 14

³⁹ *Id.* at 15

⁴⁰ *Ibid.*

⁴¹ *Id.* at 16

⁴² *Id.* at 17

⁴³ *Ibid.*

⁴⁴ *Ibid.*

⁴⁵ *Id.* at 18

⁴⁶ *Ibid.*

⁴⁷ *Id.* at 19

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

⁵⁰ *The Challenges for the Indian Forestry Sector*, International Institute for Applied Systems Analysis (IIASA) available at: < <http://www.iiasa.ac.at/Admin/PUB/policy-briefs/pb05-web.pdf>> (Last retrieved June 19, 2011)

⁵¹ *Supra note 9*, at 80

⁵² *Supra note 50*, at

⁵³ *Ibid.*

⁵⁴ *Supra note 16*, at 37

⁵⁵ *Id.* at 39

⁵⁶ *Supra note 9*, at 77

⁵⁷ Consultative meeting on “Forest Certification in India” 1, *WWF-India*, available at: <http://assets.wwfindia.org/downloads/forest_certification_meeting__background_1.pdf> (Last retrieved June 19, 2011)

⁵⁸ P.B.Durst, P.J.Mckenzie, C.L.Brown & S. Appanah, “Challenges Facing Certification And Eco-Labeling Of Forest Products In Developing Countries”, Vol.8(2) *International Forestry Review* 194 (2006) available at: <<http://docserver.ingentaconnect.com/deliver/connect/cfa/14655489/v8n2/s1.pdf?expires=1335807506&id=68561763&titleid=41000064&accname=Guest+User&checksum=9492774199F1F27BBE11CEC28D278F54>> (Last retrieved June 19, 2011)

⁵⁹ *Supra note 57*

⁶⁰ *Supra note 58*, at 194

⁶¹ *Ibid.*

⁶² *Ibid.*

⁶³ *Ibid.*

⁶⁴ *Id.* at 196

⁶⁵ *Ibid.*

⁶⁶ *Ibid.*

⁶⁷ *Ibid.*

⁶⁸ *Id.* at 197

⁶⁹ *Ibid.*

⁷⁰ *Ibid.*

⁷¹ *Ibid.*

⁷² *Supra note 57*

⁷³ *Ibid.*

⁷⁴ *Ibid.*

⁷⁵ *Supra note 9, at 77*

CHAPTER

5

**FORESTRY
AND
INTELLECTUAL
PROPERTY RIGHTS**

5.1 INTRODUCTION

Intellectual property is a property that is the outcome of our intellect and with regard to such property we are having certain rights which are known as intellectual property rights. Intellectual property rights are the rights which we are having over things, objects or innovations which are the result of our intellect or mind, whatever is the creation of our mind in whatever way we have an exclusive right over that and this right is protected and regulated by law.

“Intellectual property refers to creations of mind: inventions, literary and artistic work, and symbols, names, images and designs used in commerce”.¹

Intellectual property right is a universal concept which is followed all over the world and it is not a new concept it was always there though the areas it covered varies from time to time. “Intellectual property rights as a collective term includes the following independent IP rights which can be collectively used for protecting different aspects of an inventive work for multiple protection:-

- Patents
- Copyrights
- Trademarks
- Registered (industrial) design
- Protection of IC layout design,
- Geographical indications, and
- Protection of undisclosed information”²

The importance of framing some sort of an internationally recognized agreement for co-operation among nations for the protection of intellectual property rights was realized as early as the year 1883 when the Paris Convention for protection of industrial property came into existence.³ The convention used the term industrial property in the widest sense, Art. 1(2) states: “the protection of industrial property

has as its objects patents, utility models, industrial designs, trade-marks, service marks, trade names, indication of source or appellations of origin and the repression of unfair competition". Further, Art.1 (3) says that "Industrial property shall be understood in the broadest sense and shall apply not to industry and commerce proper but likewise to agricultural and extractive industries and to all manufactured or natural products, for example wines, grains, tobacco leaf, fruit, cattle, minerals, mineral water, beer, flowers and flour".⁴ The Paris Convention dealt with Patents, Trade Marks, Designs, and Utility Models but not with Copyright. There were various convention and treaties which were made for the protection and regulation of intellectual property rights. The most important among them was the TRIPS Agreement, consisting of seven parts:- First Part consist of general provisions and basic principles, Second part deals with the standards concerning the availability, scope and use of intellectual property rights. This part covers the copyright and related rights, trade marks, geographical indications, industrial designs, patents, layout designs of integrated circuits, protection of undisclosed information and lastly with control of anti-competitive Practices in Contractual Licenses. Third Part provides for the enforcement of intellectual property rights, fourth part for acquisition and maintenance of intellectual property rights, fifth about dispute prevention and settlement, sixth about transitional arrangements and lastly seventh part contain institutional arrangements and final provisions.

IPR are largely territorial rights except copyright, which is global in nature in the sense that it is immediately available in all the members of the Berne Convention. These rights are awarded by the State and are monopoly rights implying that no one can use these rights without the consent of the right holder. It is important to know that these rights have to be renewed from time to time for keeping them in force except in case of copyright and trade secrets. IPR have fixed term except

trademark and geographical indications, which can have indefinite life provided these are renewed after a stipulated time specified in the law by paying official fees. Trade secrets also have an infinite life but they don't have to be renewed. IPR can be assigned, gifted, sold and licensed like any other property. Unlike other moveable and immoveable properties, these rights can be simultaneously held in many countries at the same time. IPR can be held only by legal entities i.e., who have the right to sell and purchase property. In other words an institution, which is not autonomous may not in a position to own an intellectual property. These rights especially, patents, copyrights, industrial designs, IC layout design and trade secrets are associated with something new or original and therefore, what is known in public domain cannot be protected through the rights mentioned above. Improvements and modifications made over known things can be protected. It would however, be possible to utilize geographical indications for protecting some agriculture and traditional products.⁵

IPR is developing very fast and it is influencing all the fields, in whatever field any new innovation is made it is tried that it could be protected under IPR. Similarly any innovation relating to plants, forestry and forest product is tried to be protected by IPR. Those who are developing any new method of developing new breeds of plants by using gene technology are being covered under IPR.

5.2 POSITION IN INDIA WITH REFERENCE TO OTHER COUNTRIES

India is a member of WTO is obliged to comply with all the requirements of TRIPS Agreement within the stipulated time periods. In the last few years the IPR legislations have either been amended or new legislations related to copyright, trademarks, industrial design registrations, geographical indicators, protection of

plant varieties have been amended. The Indian Patent Act 1970 has been amended three times in the recent years. With the third amendment, India has entered into the product regime making its Patents Act TRIPS compliant with effect from 1-01-2005.⁶

According to India law, plants, seeds, animals and other forms of life can be brought under patents or other kind of intellectual property protection. However our patent laws are being changed now because the government has given in to GATT demands and accepted patents for micro-organism and a sui generis system for seeds. This sui generis system is called as the Plant Variety Act and it is more or less the same as the plant Breeders Right as practiced in Europe and America.⁷

There are basically two intellectual property laws that dealt with plants and forest products which are Patent Act and Protection of Plant varieties and Farmers' Rights Act.

5.2.1 The Patent Act 1970

The Patent Law recognises the exclusive right of a patentee to gain commercial advantage out of his invention. An invention is the creation of intellect applied to capital and labour, to produce something new and useful. Such creation becomes the exclusive property of the inventor on grant of Patent. "The Act conveys to the inventor substantive rights and secures to him the valuable monetary rights which he can enforce for his own advantage either by using it himself or by conveying the privileges to others."⁸

The Patents Act 1970 highlights the invention that satisfies the universally accepted requirements of patentability such as novelty, inventive step and industrial application. The Patents Act 1970 had undergone several amendments in 1999, 2002 and finally the Patents (Amendment) Act 2005 (hereinafter referred to as the Patents Act) with introduction of product patents on substances capable of

use as medicine, drug, or food could be obtained when India completed implementation of TRIPS required amendments to its Act.

Section 3 of Indian Patent Act, 1970 stipulates inventions which within the meaning of the Act are unpatentable. The list includes- ‘a method of agriculture or horticulture’⁹ and ‘plants and animals in whole or any part thereof other than micro organisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals’.¹⁰

Hence the Indian Patent Act has given scope for patent in case of any invention relating to micro organisms but leaves no scope for plants and animal related inventions to be patented.

5.2.2 The Protection of Plant Varieties and Farmers’ Rights Act of India

The Protection of Plant Varieties and Farmers’ Rights Act was passed by the Indian Government in 2001. After India became signatory to the Trade Related Aspects of Intellectual Property Rights Agreement (TRIPs) in 1994, a legislation was required to be formulated. Article 27.3 (b) of this agreement requires the member countries to provide for protection of plant varieties either by a patent or by an effective sui generis system or by any combination thereof. Thus, the member countries had the choice to frame legislations that suit their own system and India exercised this option. The existing Indian Patent Act, 1970 excluded agriculture and horticultural methods of production from patentability. The sui generis system for protection of plant varieties was developed integrating the rights of breeders, farmers and village communities, and taking care of the concerns for equitable sharing of benefits.¹¹

The Indian sui generis plant variety protection (PPV) law has a blend of IPR savvy and public interest provisions. There is no provision for the sale of farm-saved seed as branded seed as well as the presence of genetic use restriction technology (GURT) or ‘terminator technology’ in the varieties to be registered.¹²

PGRs were treated as the ‘heritage of mankind’ and were shared freely among nations, till the concerns for conservation of biological diversity were raised by the Convention on Biological Diversity (CBD), which came into force in 1993. The conservation and sustainable utilization and access to biological diversity were considered as national sovereignty by CBD. Consequently, many issues regarding the rights of the conservers, users, breeders, farmers and intellectual property have emerged.¹³ Earlier there was no such Act in India to protect such rights but after India became signatory to the TRIPS Agreement this Act was passed.

The objectives of the Act are as follows:

- a) To provide for the establishment of an effective system for protection of plant varieties.
- b) To provide for the rights of farmers and plant breeders.
- c) To stimulate investment for research and development and to facilitate growth of the seed industry.
- d) To ensure availability of high quality seeds and planting materials of improved varieties to farmers.¹⁴

Such protection is likely to facilitate the growth of the seed industry which will ensure the availability of high quality of seeds and planting material to the farmers.¹⁵

5.2.2.1 Who can apply- According to sec.16 of the Act an application for registration under sec.14 shall be made by:

- a) Any person claiming to be the breeder of the variety; or
- b) Any successor of the breeder of the variety; or

- c) Any person being the assignee of the breeder of the variety in respect of the right to make such application; or
- d) Any farmer or group of farmers or community of farmers claiming to be the breeders of the variety; or
- e) Any person authorized in the prescribed manner by a person specified under clauses (a) to (d) to make application on his behalf; or
- f) Any university or publicly funded agricultural institution claiming to be the breeder of the variety.¹⁶

5.2.2.2 Definition of Variety

A plant grouping except microorganisms within a single botanical taxon of the lowest known rank, which can be

- i. defined by the expression of the characteristics resulting from a given genotype of a plant of that plant grouping;
 - ii. distinguished from any other plant grouping by expression of at least one of the said characteristics; and
 - iii. considered as a unit with regard to its suitability for being propagated, which remains unchanged after such propagation and includes propagating material of such variety, extant variety, transgenic variety, farmers' variety and essentially derived variety.¹⁷
- *Extant variety*: A variety available in India which is
 - (i) notified under section 5 of Seeds Act, 1966, or
 - (ii) farmers' variety, or
 - (iii) a variety about which there is common knowledge, or
 - (iv) any other variety which is in public domain.¹⁸

- *Essentially derived variety*: A variety shall be said to be essentially derived when it:

- (i) is predominantly derived from such initial variety, or from a variety that itself is predominantly derived from such initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety;
- (ii) is clearly distinguishable from such initial variety, and
- (iii) conforms (excepting for the differences which result from the act of derivation) to such initial variety in the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety¹⁹.

- *Farmers' variety*: A variety which

- (i) has been traditionally cultivated and evolved by the farmers in their fields, or
- (ii) is a wild relative or land race of a variety about which the farmers possess common knowledge.²⁰

For the purposes of the Act, a new variety shall be deemed to be:

- (a) *Novel*, if, at the date of filing of the application for registration for protection, the propagating or harvested material of such a variety has not been sold or otherwise disposed of by or with the consent of its breeder or his successor for the purposes of exploitation of such variety
 - (i) in India, earlier than one year,
 - (ii) or outside India, in the case of trees or vines earlier than six years, or, in any other case, earlier than four years, before the date of filing such applications.

Provided that a trial of a new variety which has not been sold or otherwise disposed off shall not affect the right to protection.

Provided further that the fact that on the date of filing the application for registration, the propagating or harvested material of such variety has become a matter of complete knowledge other than through the aforesaid manner shall not affect the criteria of novelty for such variety.

(b) *Distinct*, if it is clearly distinguishable by at least one essential characteristic from any other variety whose existence is a matter of common knowledge in any country at the time of filing of the application.

(c) *Uniform*, if subject to the variation that may be expected from the particular features of its propagation, it is sufficiently uniform in its essential characteristics.

(d) *Stable*, if its essential characteristics remain unchanged after repeated propagation or, in the case of a particular cycle of propagation, at the end of each such cycle.²¹

5.2.2.3 Period of protection

The certificate of registration issued under Sec. 24 or Sub-Sec. 98 of Sec. 23 shall be valid for nine years in the case of trees and vines and six years in the case of other crops, and may be reviewed and renewed for the remaining period on payment of such fees as may be fixed by the rules made on this behalf subject to the conditions that the total period of validity shall not exceed

- (i) in the case of trees and vines, eighteen years from the date of registration of the variety;
- (ii) in the case of extant varieties, fifteen years from the date of the notification of that variety by the Central Government under Section 5 of the Seed Act, 1996, and

- (iii) in the other case, fifteen years from the date of registration of the variety.²²

5.2.2.4 Breeders', Farmers' and Communities rights

Breeders' rights

The certificate of registration for a variety issued under this Act shall confer an exclusive right on the breeder or his successor or his agent or licensee, to produce, sell, market, distribute, import or export of the variety [Section 28 (1)].²³

Farmers' rights

The farmers' rights of the Act define the privilege of farmers and their right to protect varieties developed or conserved by them [Chapter VI]. Farmers can save, use, sow, resow, exchange, share and sell farm produce of a protected variety except sale under a commercial marketing arrangement (branded seeds) [Section 39 (1), (i)–(iv)]. Further, the farmers have also been provided protection of innocent infringement when, at the time of infringement, a farmer is not aware of the existence of breeder rights [Section 42 (1)].²⁴

A farmer who is engaged in the conservation of genetic resources of landraces and wild relatives of economic plants and their improvement through selection and preservation, shall be entitled in the prescribed manner for recognition and reward from the Gene Fund, provided the material so selected and preserved has been used as donor of genes in varieties registrable under the Act.²⁵

Communities' rights

The rights of the communities as defined, provide for compensation for the contribution of communities in the evolution of new varieties in quantum to be determined by the PPVFR Authority [Section 41 (1)].²⁶

5.2.2.5 Notification of crops species

As a first step towards implementation of the Act, the Government shall have to notify the crops in order to establish the system of listing of plant varieties for the purpose of registration. The criteria for selecting the crops could be the crops on which we are dependent for food and nutritional security, including major cereals, pulses, oilseeds, vegetables and fruits crops. Crop species important for India in the world trade, species of Indian origin, crops where India could benefit from introduction of new germplasm and foreign investment, could be the other priorities for consideration.²⁷

Most significantly, more than 67% of the total farming population in india constitutes small and marginal farmers. It was in this background that the farmers' rights regime (in addition to and distinct from the farmers' privileges under the UPOV system) was introduced under the Indian PPV & FR act. The newly adopted farmers' rights regime of india also included the element of 'farmers' privilege' based on the UPOV, 1978 model (rather than UPOV, 1991) giving a very broad leeway to farmers to save, exchange and re-sow seeds saved from the harvest of a season, in the next season.²⁸

5.2.3 Biotechnology Patenting In India

The term "biotechnology" is defined broadly to include not only the old biotechnology such as the traditional method of manufacturing fermented products but also the new biotechnology represented by genetic engineering and recombinant technology.²⁹

Ever since a genetically engineered micro-organism was granted patent, the field of biotechnology gained enormous significance and patents have been granted on genetically engineered plant and human genetic material. Though evolution of

patent law on biotechnology dates back to seventh century, the global adoption of the patent system started in Venice as the first patent law was enacted in 1494, which regarded as the foundation for the world's patent system.³⁰

Earlier nobody thought that biotechnology could manipulate either plant or animal or human being and therefore none thought of the need for evolving a comprehensive law on biotechnology for regulation. TRIPS agreement provided protection and regulation of various biotechnology inventions as well. Under the patent regime around the world the significance of biotechnology and its inventions are recognized and protected.³¹

Though inventions in this biotechnology category filed were mostly of the foreign origin but there was considerable increase in Indian applications. Inventions were mostly in the field of recombinant DNA molecule, recombinant vaccine, monoclonal antibodies, recombinant therapeutic molecules, diagnostic kits, stem cells, recombinant vectors, Isolated Nucleic acid encoding a gene, Method of preparation of recombinant hormones, DNA related inventions such as preparing plasmids, vectors etc, bioleaching, biotransformation, biological treatment of waste, gene and somatic cell therapy, pluripotent stem cells derived from regenerative tissue, recombinant microbes expressing chimeric HIV protein, regulation of cell mediated immune response, recombinant interleukin IL-18 inhibitors, plastid transformation vectors, Waste water and sewage treatment using microorganism, conjugate vaccine against cholera and tetanus, peptide based immunotherapy for atherosclerosis, mixed cell gene therapy, bone regeneration by gene therapy and treatment of flower.³²

Following are some instances of non patentable subject matter *per se*; however fulfilling certain criteria like functions the biotechnological inventions are patentable.

5.2.3.1 Non-patentable inventions

- A. Order public and morality exception - Section 3 (b)- . As per the section an invention would not be patentable if it is immoral or against public order, harmful to human, animal or plant life or harmful to environment.
- B. Discovery of living things or non living substances in nature - Section 3 (c)
- C. Plants and animals in whole or any parts thereof other than micro-organisms but including seeds, varieties and species - Section 3 (j)
- D. Essentially biological processes for the production or propagation of plants and animals– Section 3 (j)
- E. Any Process for the medicinal, surgical, curative, prophylactic, diagnostic or therapeutic or other treatment of human beings or animals to render them free of disease or to increase their economic value or that of their products – Section 3(i)
- F. New use or new property of known substance – Section 3(d)
- G. Methods of agriculture or horticulture – Section 3(h)
- H. Traditional knowledge – Section 3(p)

5.2.3.2 Patentable inventions

- A. The MPPP regards claims to ‘genetically modified Gene Sequence/Amino Acid Sequence, a method of expressing the sequence, an antibody against the protein/sequence, a kit containing such antibody/sequence as having a single inventive concept and capable of being granted a patent
- B. Gene sequences, DNA sequences without having disclosed their functions are not patentable for lack of inventive step and industrial application

- C. Living entities of artificial origin such as micro-organism, vaccines are patentable
- D. Biological material such as rDNA, plasmids are patentable provided they are produced by substantive human intervention
- E. Processes for producing chemical and biological substances using microorganisms including lower plants and animals are patentable
- F. Modified Microorganism & process therefor
- G. Process for modification/ isolation of microbes.
- H. Isolated nucleic acids encoding gene, first time isolation of a molecule; novel peptides, novel peptide analogs, proteins, vaccines, antibodies, recombinant: DNA, RNA, Amino Acids, antibodies, primers, recombinant oligonucleotides and primers, genes and process therefore; DNA related inventions such as preparing plasmids, vectors etc.; composition/formulation thereof.
- I. Cell lines-A cell line is patentable if artificially produced.
- J. Hybridoma technology: patents are also allowed on hybridoma technology, but not on protoplast fusion.
- K. rDNA, cDNA, r-RNA, r-antibodies
 - a. Expressed sequence tag's, or ESTs, are small fragments of genetic material
 - b. obtained by reverse transcriptions of messenger RNA (mRNA) from expressed
 - c. genes. The gene sequence, or expressed sequence tags (ESTs), can be patented if it
 - d. has a use, such as if it works as a probe.
- L. Bioprobes, biosensors

- M. Diagnostic/Equipment kits, Research Tools
- N. Methods of enzyme Purification.
- O. Environment cleaning using biological materials such as solid or liquid waste
- P. (industrial/domestic) treatment, water treatment, mitigation of air pollution, bio-
- Q. Remediation Treatment of plants³³

5.2.3.3 Patent Law and Conservation of Biological Diversity (CBD)

India enacted the Biological Diversity Act to address the issues of prior informed consent, disclosure and access and benefit sharing. This Act primarily aims at regulating access to biological resources and associated traditional knowledge so as to ensure equitable sharing of benefits arising out of their use.³⁴

In the Biological Diversity Act, 'Biological resources' mean plants, animals and micro-organisms, their genetic material and by-products with actual or potential use or value. Human genetic material is outside the purview. However, extracts of bacterial and fungal strains and all value added products are not encompassed in the definition of 'biological resources' and thus do not require approval of the NBA. The Indian collaborating company of a foreign entity is only required to give prior intimation to the concerned State Biodiversity Board about obtaining such material for commercial purposes. The fees payable for export permits will be regulated by EXIM policies.³⁵

The Biological Diversity Act forbids an application for any IPR in or outside India without prior approval of NBA. The Gate keeping for this is envisaged at several stages:

1. Section 6(1) provides that prior approval of NBA is necessary before applying for any kind of IPRs (in or outside India) based on any research or information on a biological resource obtained from India.

Such approval, however, is not required where IPR rights relating to protection of plant varieties are applied for [Section 6(3)]. This is because in such cases, it is the Plant Varieties and Farmers' Rights Authority, established under the Protection of Plant Varieties and Farmers' Rights Act, 2001, which grants the right and determines the benefit sharing. This Authority, in turn, endorses the grant of right to NBA;

2. In case of Patents, one can procure such approval after the publication of the patent application and before the grant of patent.
3. In case of assignment of IP rights to third persons, the persons who have been granted approval for access to biological resource and associated knowledge may transfer the same by taking approval from NBA.

While granting such permission, the NBA is most likely to impose benefit sharing conditions such as monetary benefit like royalty, joint ventures, technology transfer product development. The parameters involved for payment of such compensation are extent of use, sustainability aspect, impact and expected outcome levels, short term and long term benefits etc.

NBA drafted new guidelines on access and benefits sharing particularly on International Regime on Access and Benefit Sharing; Evolving *sui generis* system for the protection of Traditional Knowledge and Amendments to the Biological

Diversity Act, 2002 and Biological Diversity Rules, 2004 and opened for public hearing.³⁶

For flora such as bacterial or fungal strains habitant from reserved and protected forests, notified sanctuaries and national parks are regulated by Indian Forest Act, 1927 and Wildlife Protection Act, 1972. The Indian Forest Act and Forest (Conservation) Act deal with management of forests and conservation of forest land respectively. Wildlife (Protection) Act is for the protection of wild animals, birds and plants, and basically aims at protecting, propagating or developing wildlife or its environs through national parks, sanctuaries etc. In addition, the Act has a provision to prohibit picking and uprooting etc. of specified plants.

5.2.5 Forest and IPR

In India there are around 100 million forest dwellers and most of them belong to tribal communities. The forests provide them with sustenance and in turn, the forest dwellers have over the centuries gathered knowledge from the natural environment around their community. This community gives India an abundant traditional knowledge about the traditional value of various forest products.

The way Intellectual Property Rights have been designed in modern commerce, traditional knowledge cannot be protected. For instance, Traditional Knowledge cannot be patented because such knowledge lacks inventive character, because of the inherent lack of novelty.³⁷

This Traditional Knowledge is information that is transmitted from generation to generation generally within the community or within families within the community in an oral form without any adequate documentation. This has caused traditional knowledge to be undervalued and marginalized.³⁸

The Forest Act itself acknowledges this fact and provides a framework for documentation of such knowledge and the nature of evidence required for

recognition of the rights of these communities in the intellectual property in respect of such knowledge. The provisions of the Biological Diversity Act and Forest Rights Act, 2006 provide a shield for tribal Traditional Knowledge, by, on the one hand, respecting and protecting the knowledge of the local communities related to biodiversity, and on the other, declaring that the intellectual property rights in such knowledge belongs primarily to members of the community collectively.³⁹

The two Acts acknowledge that the Traditional Knowledge of the tribal/forest dwellers is to be considered as equal to that of documented scientific and technological information otherwise prevalent in the community, and thereby redressing the historical injustice done to the forest dwellers that are integral to the very survival and sustainability to the ecosystem. As a corollary, the Amendments made in the Indian Patents Act in 1970, echo this sentiment. For instance, the amendments to section 25 and section 64 provide for additional grounds for opposing or revoking a patent on the grounds that what is claimed as an invention is already known within the realms of traditional knowledge. It is envisaged that in the application of these provisions, the standards of evidence required to prove these grounds will be considerably less rigorous than those required for establishing the other grounds of opposition or revocation such as lack of novelty and inventive step.⁴⁰

The Recognition of Forest Rights Act of 2002 provides for the fact that the Intellectual Property Rights (IPRs) in all forest produce belongs to forest dwellers themselves whereas the Biological Diversities Act of 2002 has provisions by which the forest dwellers and other individuals and communities conserving biological resources and holders of knowledge and information relating to the use of biological resources will secure and share benefits from these IPRs.⁴¹

The Act specifically provides (Section 6 of the Act) that if any person applies for a patent within or outside India for an invention based on any research or

information on a biological resource obtained from India, such a person will have to obtain approval from the National Biodiversity Authority for making such an application. This approval may be delayed up to the time of sealing of the patent. At the time of granting of the approval the National Biodiversity Authority may impose benefit sharing fee or royalty or both or impose conditions including the sharing of financial benefits arising out of the commercial utilization of such rights.⁴²

The Act also has provisions for the equitable distribution of any benefits arising out of inventions and innovations and practices associated with the use and applications of knowledge. The benefit sharing includes the following:

1. Grant of joint ownership of Intellectual Property Rights to the benefit claimers which include all the conservers of the biological resources, creators and holders of knowledge and information and individuals or communities practicing such benefits;
2. Transfer of technology for adequate consideration from the benefit sharers to bodies wanting to use the technology;
3. Locating of production, research and development facilities which will provide employment to and otherwise facilitate the betterment of living standards of the benefit claimers;
4. Asking upon the bodies who are applying for a patent to associate Indian Scientists, benefit claimers and the local people with the research and development in the biological resources, bio-surveys and bio-utilization and finally;
5. Direct payment of monetary compensation and other non-monetary benefits to the benefit claimers.⁴³

5.3 POSITION IN ENGLAND

Forestry is a devolved matter in the UK and forest policy is developed and implemented independently by the countries which make up the UK (England, Scotland, Wales and Northern Ireland.) Following the Forest Devolution Review, a committee involving Ministers from England, Scotland, Wales and Northern Ireland was established to discuss international issues and any cross-cutting issues where collaboration would be advantageous.⁴⁴

The UK Government's involvement in international forestry developments is led by the Forestry Commission (FC) and the Department for International Development (DFID) and is co-ordinated through the International Forestry Group. This group comprises representatives from the FC, DFID, the Department for Environment, Food and Rural Affairs, the Department of Trade and Industry, the Foreign and Commonwealth Office, Cabinet Office, Treasury, the Prime Minister's Office, the Northern Ireland Department of Agriculture and Rural Development, the Scottish Executive and the Welsh Assembly Government.⁴⁵

Forestry policy in the UK is the responsibility of devolved administrations. The key programmes and actions for delivering sustainable forest management are set down in individual country strategies for England, Scotland, Wales and Northern Ireland. Among the individual key programmes and priorities for action, the Strategies have a number of common themes including:

- Effective exchange of information,
- improving the environment,
- promoting wood as a renewable resource,
- Recreation and tourism, and
- empowering communities.⁴⁶

The FC in England, Scotland and Wales have established Woodland/Forestry Forums to help underpin the implementation of the Strategies.⁴⁷ The Forums have been chaired by the relevant Forestry Minister, which has helped to give them a powerful mandate in Government.

The UK Forest Partnership for Action, launched in October 2002, brings together government, the forest industry and environmental groups to promote sustainable development in the forest sector, both in the UK and internationally. Partners are continuing to work together, meeting three or four times a year, and focussing on four priority issues: forest certification, forest restoration and protection, illegal logging and timber procurement.⁴⁸

At the 4th Ministerial Conference on the Protection of Forests in Europe in Vienna in April 2003, the UK signed the Vienna Declaration and five Resolutions, including Resolution V3 - *Preserving and Enhancing the Social and Cultural Dimensions of Sustainable Forest Management in Europe*.⁴⁹

5.3.1 Biotechnology patenting in UK

In the UK the Patents Regulations 2000 confirmed and clarified that inventions concerning biological material, including gene sequences, may be legitimately the subject of patent applications. In other words, these Regulations have established beyond doubt the legitimacy of biotechnology patents in the UK.⁵⁰

It is easy to focus on the contentious issues surrounding biotechnology patenting, such as the criteria for patenting plants and animals, the patenting of gene sequences and morality issues and forget that the majority of biotechnology patent applications will be decided on the basic issues of novelty, inventive step and industrial application, as well as on the requirements that the description should be sufficient and should support the claims. The Manual of Patent Practice is the

examiner's main source of information regarding current practice in the Intellectual Property Office under the Patents Act 1977.⁵¹

As confirmed by the EC Directive plant and animal varieties are not patentable. Plant varieties are currently protected under the Plant Varieties Act 1997. Both the 1997 Act and a separate European Community regime (Council Regulation (EC) No. 2100/94) are based on the 1991 UPOV Convention. In the UK the system for granting plant variety rights is administered by the Plant Variety Rights Office (PVRO) at Cambridge. This system differs substantially from the patent system and to gain protection a variety must be tested for distinctness from other varieties, uniformity and stability.⁵²

Plant variety rights are confined to individual varieties. Patents may claim plant genera or species but they cannot claim individual varieties.

In the early days of granting plant patents neither the EPO nor the Intellectual Property Office had a problem with granting claims to plants in general even though it could be argued that such claims could be regarded as covering, in reality, a number of plant varieties. The EPO's Enlarged Board of Appeal was eventually called on to consider this issue. The Enlarged Board found-

- (i) A claim wherein specific plant varieties are not individually claimed is not excluded from patentability under Article 53(b) EPC even though it may embrace plant varieties;
- (ii) When a claim to a process for the production of a plant variety is examined, Article 64(2) EPC is not to be taken into consideration;
- (iii) The exception to patentability applies to plant varieties irrespective of the way in which they were produced. Therefore, plant varieties containing genes introduced into an ancestral plant by recombinant gene technology are excluded from patentability.

Thus, claims to transgenic plants are perfectly acceptable, unless expressed in plant variety terms or the invention is confined to modifying a particular plant variety. It may be, therefore, that if all the examples in an application are directed towards modifying a single variety, there could be a presumption that the invention is specifically for a plant variety.⁵³

5.3.1.1 GM technology

In May 1999, WWF International commissioned a short report entitled *Genetic Modification in Tropical Forestry*, whose aim was to establish whether biotechnology was an emerging “forest” issue. The report concluded that biotechnology was indeed an emerging “forest” issue and highlighted that although transgenic trees are not yet being grown commercially, a series of GM field trials are already under way. The report also drew two more general conclusions concerning biotechnology and the environment: first, that although concern over GM technology at present tends to concentrate on health risks, the more serious environmental and social impacts are being under-estimated. Second, that high profile campaigns (eg Greenpeace) on GM technology should be complemented by scientifically-based lobbying and advocacy for watertight monitoring and regulation of GM field trials and international trade.⁵⁴

Both the marketing and deliberate release of GMOs in the United Kingdom is subject to the Environmental Protection Act and the Genetically Modified Organisms (deliberate release) Regulations. Release into the environment may only take place if there is prior consent from the Secretary of State for the Environment and from the Ministry of Agriculture, Fisheries and Foods. Fifteen advisory committees have been established to assist the government on various aspects of biotechnology. The Advisory Committee on Releases to the Environment (ACRE) is responsible for determining the safety of GMO field trials and the marketing of GMOs. ACRE is required to assess each new application and

provides advice on the risks that it may pose to human health and the environment.⁵⁵

5.3.2 Plant variety rights in UK

Plant variety rights are a form of intellectual property designed specifically to protect new varieties of plants. The International Convention for the Protection of New Varieties of Plants (the UPOV Convention) is the international basis for plant variety protection. This was substantially revised in 1991, to strengthen the breeder's right, primarily to reflect changes in plant breeding technology such as the introduction of genetic modification of plants. The Plant Varieties Act 1997 gives effect to the 1991 Convention in the UK. The Plant Variety Rights Office (PVRO) administers UK plant variety rights. Plant variety rights issued by the PVRO are exercisable only in the United Kingdom.⁵⁶

Plant variety rights entitle the holder to prevent anyone doing any of the following acts as respects the propagating material of the protected variety without authority:

- Production or reproduction (multiplication)
- Conditioning for the purpose of propagation
- Offering for sale Selling or other marketing
- Exporting Importing Stocking for any of the purposes mentioned above

The holder of rights can authorise others to carry out these acts on whatever terms and conditions he/she wishes to impose, subject to the safeguard of compulsory licensing. Rights may also extend to harvested material obtained from the unauthorised use of propagating material, but only where the holder has not had reasonable opportunity to exercise his rights. Plant variety rights do not extend to

any act done for private and non-commercial or experimental purposes or for the purpose of breeding another variety.⁵⁷

5.3.2.1 *Who can apply?*

The person who bred or discovered and developed the variety, or his successor in title, (referred to as the ‘breeder’) must make the application for plant variety rights. The breeder may assign the rights in the variety to another person or company and thus forfeit any future claim on the variety. An applicant for plant variety rights may make his application through an agent if he so wishes. An applicant from outside the EU must nominate an address for service or agent within the EU.

Once a valid application for plant variety rights is accepted, seed or plant material of the variety will be requested for official tests designed to assess whether the variety is distinct, uniform and stable (DUS)⁵⁸ and new.

5.3.2.2 *Duration of and enforcement of rights*

Both UK and EU plant variety rights are granted for a term beginning with the date of the grant of rights and ending 25 years later for all species except trees, vines and potatoes which have a period of 30 years. Plant variety rights will only remain in force subject to the holder paying a renewal fee each year during the term of the rights. Neither PVRO or CPVO plays any part in enforcing plant variety rights - this is a civil matter for the holder of rights.⁵⁹

5.4 POSITION IN USA & CANADA

5.4.1 USA

The 1930 US Act introduced a special kind of Plant Patent for vegetatively propagated materials, but in the US standard utility patents can also now be granted on plant varieties. Patents are the strongest form of intellectual property protection in the sense that they normally allow the rights holder to exert the greatest control over the use of patented material by limiting the rights of farmers to sell, or reuse seed they have grown, or other breeders to use the seed (or patented intermediate technologies) for further research and breeding purposes. However, patent law can provide for exceptions similar to those in PVP systems.⁶⁰

In the US, the patenting of plant varieties is particularly important because, with appropriate claims in the patent, the holder of the patented variety can prevent others from using it for breeding purposes. This is a significant difference from PVP. Proving that a new variety meets the criteria for patentability is more difficult and more costly than obtaining plant variety protection, where the criteria for protection are lower. Patent protection is also frequently obtained through a broad patent which claims the gene, the vector or carrier for effecting the transformation and so on, which may cover a number of potential varieties or crops incorporating the gene. For practical purposes this may have the same effect as patenting the whole plant, because the patent normally extends to “all material...in which the product is incorporated”⁶¹.

Intellectual property protection for organisms existed in the U.S. if they have been changed from their natural state, using traditional breeding techniques or recombinant DNA technology. By inducing new characteristics, unpatentable products of nature can be transformed into patentable products derived from nature. In the U.S. there are three major legislative acts, under which intellectual

property protection for plants is available as long as such plants are original, novel, useful and nonobvious. However, there is no intellectual property protection for the plant/genetic/biodiversity resources discovered in nature. In the pharmaceutical arena, this lack of patent for naturally-occurring compounds is detrimental to corporate initiative since it allows competitors to copy these formulas and prevents the discoveries from recovering their development/discovery costs and yield a profit for investors.⁶²

The advent of IPRs in agriculture is a relatively recent phenomenon. Hybrid corn varieties first developed in the US in the 1920s represent one of the first major commercial opportunities in seed markets. Because hybrids lose a percentage of their yield upon replanting, the adoption of hybrid varieties involved a shift from the seed saving behaviour of farmers to purchasing new seed from seed companies. Hybrids, in a sense, provide a biological method for protecting the intellectual property involved in the creation of the hybrid.⁶³

The US Plant Patent Act, 1930 reveals the caution with legislators in the US adopted the system of proprietary rights in relation to sexually propagated crops and tuber-propagated crops. The Plant Patent Act, 1930 was limited to asexually reproduced varieties and excluded tuber- propagated plants such as potatoes.⁶⁴ The 1930 Plant Patent Act in the US represents the first statutory intellectual property protection for asexually reproduced plants. In the ensuing decades, a proliferation of IP protection for plants has occurred. The 1961 Convention for the Protection of New Varieties of Plants (UPOV) extended the opportunity of *sui generis* plant variety protection to sexually reproduced plants. A landmark US Supreme Court case in 1980, *Diamond v Chakrabarty*, confirmed that living, human made micro-organisms can be patented as inventions and set the stage for a burgeoning biotechnology industry. The Bayh Dole Act of 1980 altered the incentives to patent

and increased the number of technology transfer offices at US universities. Global strengthening of IPR protection occurred among WTO member countries through implementation of the TRIPs Agreement and subsequent bilateral treaties.⁶⁵

5.4.2 Canada

Forests are one of Canada's major economic resources. Canada has a dominant position in exporting softwood lumber. It is also a highly visible exporter of wood pulp and newsprint. Canada's participation in the forest products industry is concentrated at the low value-added stages of the industry.⁶⁶

Plant patents are not available in Canada. The Plant Breeders' Rights Act came into force in Canada in August 1990. Canada became UPOV harmonised in 1991.⁶⁷

As opposed to the United States, the doctrine of IP protection in Canada does not assume that all inventions which meet traditional criteria for patenting (i.e., those of utility, novelty, non-obviousness and a description of the subject matter which permits (skilled) other to reproduce it) are patentable. Microorganisms can be patentable if they meet the following conditions: (1) they must be new, i.e., they should not have existed previously in nature, (2) they must be useful, (3) they must be produced in sufficiently large quantities and possess uniform properties, (4) they must be sufficiently different from known species that their creation involves elements of inventive ingenuity, and (5) a description of the method of production must be provided with such clarity that others could reproduce it with fidelity. A deposit of a strain of the microorganism in a recognized depository may satisfy the description requirements.⁶⁸

Under the CBD, Canada has a stake in participating in international negotiations for an ABS regime. Bioprospecting activities are already taking place in Canada, with GR being accessed by both Canadian and foreign entities. Since research is key to the well-being of our society, it is important to understand how our GR are

being used, including in specific cases the traditional knowledge associated with, and how benefits derived from their use can be maximized for the well-being of all Canadians. Such an exercise should enable Canada to define its own interests and policies in preparation for international negotiations.

5.4.3 Applications for plant variety IP rights in the USA and Canada

The trend over time in applications for plant variety protection certificates (PVPC), plant breeders' rights in Canada, plant variety patents and utility patents for plant varieties for several species or groups of species is postulated to be a reasonable measure of investment in breeding for the selected crop species. Considering wheat as an example, the increase in PVPC applications from 1971/75 to 2001/05 was over four fold and there was a doubling of entities making application. This suggests that the establishment of a UPOV harmonised system in the USA for sexually propagated plants was very effective in increasing investment in wheat breeding. Also, there does not seem to have been any dominance by one or a few breeders as the trend for providers of 50% and 80% of applications showed an initial increase and then tended to plateau. The same trend was apparent, albeit in a smaller time frame, for Canada. The implementation of a PBR system appears to have attracted more providers, increased the investment in wheat breeding and there does not appear to be domination by a few providers.⁶⁹

5.5 POSITION IN AUSTRALIA

Spanning about 4000 kilometres from west to east and about 3600 kilometres from north to south, Australia is the world's sixth largest country, with an area of about 768 million hectares.⁷⁰ Australia is a biologically rich country with the world's

highest incidence of endemic genetic resources (up to 10% of the world's genetic resources) and has an overriding obligation to pursue the protection and sustainable use of these resources. Moreover, Australia, under the Convention on Biological Diversity (CBD), recognises that the Convention's third primary objective — the fair and equitable sharing of the benefits arising from the use of genetic resources — is fundamental. Australia recognises its responsibility to develop frameworks for the access to, and utilisation of, genetic resources consistent with this Convention, and that these frameworks should also respect Indigenous peoples' special relationship with these resources.⁷¹

Australia has made significant progress in the last decade in meeting these requirements. In addition, Australia has made a significant contribution to the development and adoption of the CBD guidelines for such frameworks — the 2002 *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization*.⁷²

Current arrangements to protect indigenous knowledge on biodiversity, which includes indigenous forest-related knowledge, is outlined in the *Nationally Consistent Approach for Access to and the Utilisation of Australia's Native Genetic and Biochemical Resources* (NCA), and was adopted by all Australian governments in 2002. The Principles established in this framework provide for legislative and administrative action by all Australian governments to deliver on objectives of the *National Strategy for the Conservation of Australia's Biological Diversity* (National Strategy) and to implement the Bonn Guidelines, including by:

- developing the terms of access to resources that encourage local, national and international investment in Australia's biotechnology research and development capabilities, including, biodiscovery research, bioprocessing and product development; and

- recognising the need to ensure the use of traditional knowledge is undertaken with the cooperation and approval of the holders of that knowledge and on mutually agreed terms.⁷³

The development of the *EPBC Act* regulations followed a national public inquiry into access to biological resources. In the course of that inquiry, extensive consultation was undertaken and included Indigenous traditional owners, their statutory representative bodies, national and regional Indigenous organisations and interested Indigenous persons as well as Australian and State and Territory Government departments and agencies with policy responsibilities for Indigenous Australians.

In addition, Australia actively participates in a number of international fora where issues such as intellectual property, genetic resources, traditional knowledge, folklore and their relationship with Indigenous people are currently being discussed. These include the World Intellectual Property Organization Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (WIPO IGC), the Conference of Parties (COP) of the CBD, the United Nations' Food and Agriculture Organization (FAO) Commission on Genetic Resources for Food and the Agriculture and the International Union for the Protection of New Varieties of Plants of the International Convention for the Protection of New Varieties of Plants.⁷⁴

Large areas of forest in Australia that are not used for timber production and not covered by a RFA are subject to the Federal *Environmental Protection and Biodiversity Conservation Act 1999*.

The principal objectives of the Act that relate to Indigenous peoples' participation in land management include:

- to recognise the role of Indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity;

- to promote the use of Indigenous peoples' knowledge of biodiversity with the involvement of, and in cooperation with, the owners of the knowledge; and
- to promote a cooperative approach to protection and management of the environment among governments, the community, landholders and Indigenous peoples.⁷⁵

5.5.1 Forest Genetic resources:

The IU was the first comprehensive international agreement to deal with plant genetic resources. It was adopted at the 1983 FAO Conference as an instrument to promote international cooperation in matters relating to access to plant genetic resources, including forest and tree genetic resources. The IU seeks to ensure that plant genetic resources of economic or social interest, particularly for agriculture, are explored, preserved, evaluated and made available for plant breeding and scientific purposes. The Undertaking is a non-binding intergovernmental agreement, adhered to by 113 countries and monitored by the FAO Commission on Genetic Resources for Food and Agriculture (CGRFA).⁷⁶

Australia is both a major user of exotic forest germplasm (e.g. *Pinus*) and a major source of forest genetic resources (e.g. *Acacia*, *Casuarina*, *Eucalyptus*, *Grevillea* and *Macadamia*).⁷⁷ Australia has a complex pattern of ownership of forest and tree genetic resources involving federal (national), state and local governments, corporations, community-based groups and individuals. Each state is responsible for the policy, legal and administrative framework within which its living and non-living resources are managed. States hold property rights over native flora taken from land under public (government) ownership. However, the broader issue of resource ownership within each state remains unclear. Research seed collections of red cedar (*Toona ciliata*) from the species' natural range in eastern Australia

demonstrate this complex pattern of ownership. ATSC teams assembled germplasm from trees within the jurisdiction of two states, and from land owned or managed by four government departments, five local (municipal) governments, several aboriginal communities and more than 40 private landowners.⁷⁸

The experience of the Australian Tree Seed Centre (ATSC) with IPR issues in Australia concerns mainly the development of Australian acacias. The seeds of these species are traditional seasonal foods of Australian aborigines, as well as novel food crops in dry, tropical regions including Africa and India.⁷⁹

The ATSC's general approach to the issue of indigenous intellectual property has been to engage and involve aboriginal land councils, corporations and communities in collecting seed and conducting field trials on community lands. Some of this work has been conducted under the Australian government's Contract Employment Programme for Aboriginals in Natural and Cultural Resource Management. Experimental, irrigated plantations of acacias have been established next to Aboriginal settlements to explore their potential for food production, as a means of controlling wind-blown irritants responsible for eye disease, and as an incomegenerating activity. Relevant scientific information on *Acacia*, including nutritional and toxicological studies of seed, has been published and disseminated to aboriginal communities.⁸⁰

The international community has agreed to the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). This is an international law governing access and benefit sharing for germplasm of the world's major agricultural and horticultural crop species.⁸¹ Australia's agricultural and horticultural industries, with the exception of macadamia nut production, are entirely based on germplasm from other countries.⁸² The ITPGRFA provides an instrument that will underpin Australia's access to the germplasm.⁸³ The Australian Federal Government and the governments of Queensland and the Northern

Territory have legislation covering access and benefit sharing of genetic resources in their jurisdictions. Other state governments are in the process of implementing similar instruments. However, the protocol for compliance with these provisions, particularly disclosure of the use of genetic resources, is still unresolved.⁸⁴

5.5.2 Plants variety rights

The purpose of the introduction of plant variety (subsequently breeder's) rights into Australia was "to provide a significant boost to Australian agricultural industries and to allow farmers and nurserymen to compete more effectively on world markets". It was also envisaged that PBR would improve export for seed and nursery plants. More specifically, the government anticipated the following outcomes:

- Stimulus to plant breeding effort in Australia,
- improved access to overseas varieties,
- protecting the food supply for consumers,
- Reproductive material may be used for research and breeding without infringing rights,
- Farmers and home gardeners using a PVR/PBR variety will be able to retain seed or other propagating material for their own purposes and
- strong public plant breeding effort for our major crops.⁸⁵

The UPOV Convention is the overriding driver of Australia's PBR system and the Australian Plant Breeder's Rights Office plays a major role in the administration and evolution of this system.⁸⁶

5.6 POSITION IN OTHER DEVELOPING COUNTRIES

The cultural and intellectual heritage of indigenous peoples comprises the traditional practices, knowledge and ways of life unique to a particular people. The guardians of an indigenous peoples' cultural and intellectual property are determined by the customs, laws and practices of the community, and can be individuals, a clan or the people as a whole. The heritage of indigenous people includes:

- language, art, music, dance, song and ceremony;
- agricultural, medicinal, technical and ecological knowledge and practices;
- spirituality, sacred sites and ancestral human remains;
- documentation of the above.⁸⁷

Worldwide, despite international recognition of the right of indigenous peoples to preserve and protect their traditional practices, knowledge and ways of life, the cultural heritage of many indigenous peoples is under threat, and many indigenous peoples are prevented from enjoying their human rights and fundamental freedoms.⁸⁸

One initiative by indigenous peoples' representatives and advocates was the First International Conference on the Cultural and Intellectual Property Rights of Indigenous Peoples held in Aotearoa/New Zealand on 12–18 June 1993. It declared that 'Indigenous peoples of the world have the right to self-determination and in exercising that right must be recognized as the exclusive owners of their cultural and intellectual property.'⁸⁹

The Mataatua Declaration also listed various recommendations. Among them was the recommendation that states, and national and international agencies, must recognize that indigenous peoples are the exclusive owners of their cultural and intellectual property rights. On biodiversity, the Declaration affirms that states, and

national and international agencies, must recognize the ‘traditional guardianship’ of indigenous flora and fauna. The Declaration also provides that indigenous peoples should manage the commercialization of any traditional plants and medicines.⁹⁰

Under the auspices of the Food and Agriculture Organization, the International Treaty on Plant Genetic Resources provides a space for national recognition of farmers’ rights. Several Asian countries including India, fought hard for the inclusion of farmers’ rights in the text. However, the Treaty fails to make international provisions for farmers’ rights, putting the onus instead on national governments to do so. The Treaty also has controversial provisions on intellectual property rights. Within the Asia-Pacific Economic Cooperation organization (APEC), there is an Intellectual Property Rights Experts Group (IPEG). The IPEG is developing Collective Action Plans (CAPs) in the area of intellectual property rights in order to promote the establishment of an internationally harmonized intellectual property system. The IPEG’s CAP-based activities include work on issues associated with genetic resources, traditional knowledge and folklore.⁹¹

5.6.1 Governments’ efforts to protect ICPR on biodiversity

The general trend in Asia is towards the commercialization of genetic resources and the expansion of IPRs over traditional knowledge. This trend is most visible in the adoption of Union for the Protection of New Varieties of Plants (UPOV)-style legislation that does little to recognize and reward farmers’ innovation in plant-breeding.⁹²

In some countries, governments have seemingly made efforts to empower local communities, such as in the Philippines with the Indigenous Peoples’ Rights Act (IPRA); in Thailand, where the indigenous peoples were granted a Peoples’ Assembly and the introduction of the Thai Traditional Medicine Law that seeks to

protect traditional knowledge related to medicinal plants; in Bangladesh, where a Department of Indigenous Peoples Development was created along with the drafting of a Biodiversity and Community Knowledge Act; and in India and Indonesia where an amendment to the Indian Constitution and the decentralization law allow village bodies (*panchayats*) and *adat* villages to take decisions on local biological resources.⁹³

5.6.2 Status of Farmers' right

The farmers' rights has been considered in asian countries which are members of WTO and further sorted in four groups based on whether they are members of UPOV and/or ITPGRFA.⁹⁴ Group A countries consist of those WTO members which are neither members of UPOV nor ITPGRFA (Bahrain, Brunei Darussalam, Hong Kong, Kuwait, Macao, Mongolia, Sri Lanka, Chinese Taipei), Group B countries are those WTO members which are members of ITPGRFA and not the members of UPOV (Armenia, Bangladesh, Cambodia, India, Indonesia, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Philippines, Qatar, Saudi Arabia, Thailand, United Arab Emirates). Group C countries are those WTO members which are members of UPOV only and not ITPGRFA (China, Israel, Japan, Singapore, Turkey, Vietnam), whereas Group D countries are those WTO member countries which are members of both UPOV as well as ITPGRFA (Jordan, Republic of Korea, Kyrgyzstan, Oman).

Of the Group A countries, which have not joined either UPOV or ITPGRFA, only Sri Lanka has drafted a plant breeders rights legislation, known as Protection of Plant Varieties (Breeders' Rights) 2001, which follows the model of UPOV 1991 and does not recognize the farmers' rights.

Of the Group B countries, which are members of ITPGRFA but not UPOV, India, Thailand, Indonesia, Malaysia and Philippines have enacted legislations with respect to farmers' rights; Bangladesh and Pakistan have prepared draft

legislations; and Nepal has prepared a policy document, which discusses the farmers' rights.⁹⁵

Among the Group C countries, which are members of UPOV as well as WTO, china is governed by the UPOV 1978 Act while all the other Asian members of UPOV are governed by the UPOV 1991 Act. China, thus, enjoys a greater liberty to provide farmers privilege in comparison to the others. All the other Asian countries in Group C have provided for plant breeders' right and have recognized only the right of farmer to save and use the seed in his own holding as other rights such as benefit sharing, recognition of farmers' contribution in conservation and preservation and right to protection of traditional knowledge relevant to plant genetic resources for food and agriculture, etc.

The provisions of ITPGRFA guide the status of farmers' right in Group D countries, which are members of WTO, UPOV as well as ITPGRFA. The farmers in these countries enjoy rights such as benefit sharing, and recognition of their contribution in conservation and preservation of plant genetic resources. These countries do not recognize right to seed but have an option to recognize farmers' privilege to seeds.⁹⁶

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⁸³ *Ibid.*

⁸⁴ *Ibid.*

⁸⁵ *Id.* at 2

⁸⁶ *Id.* at 16

⁸⁷ Michael A. Bengwayan, “*Intellectual and Cultural Property Rights of Indigenous and Tribal Peoples in Asia*” 6, available at: <<http://www.unhcr.org/refworld/pdfid/469cbf970.pdf>> (Last retrieved April 20, 2012)

⁸⁸ *Ibid.*

⁸⁹ *Id.* at 10

⁹⁰ *Ibid.*

⁹¹ *Id.* at 16

⁹² *Id.* at 18

⁹³ *Ibid.*

⁹⁴ Anshu Pratap Singh, Padmini Manchikanti and H.S Chawla, “*Sui Generis IPR Laws vis-a-vis Farmers’ Rights in Some Asian Countries: Implications under the WTO*”, Vol. 16 *Journal of Intellectual Property rights* 110 (March 2011)

⁹⁵ *Ibid.*

⁹⁶ *Id.* at 114

CONCLUSION

AND

SUGGESTIONS

Conclusion

It has been concluded that forest has always been recognized as a valuable resource for the development of mankind but this is also true that this resource has been exploited by man in a manner that it leads to serious consequences such as encompassing environmental degradation through accelerated rate of soil erosion, increase in the sediment load of the rivers, siltation or reservoirs and river beds. Increase in the frequency and dimension of floods and distribution of precipitation, intensification of green house effects. Increase in the destructive force of the atmospheric storms etc. economic loss through damages of agricultural crops due to increased incidence of floods and draughts, decrease on agricultural production of loss of fertile top soils, decrease in the supply of raw materials to the industries and building matters etc. Hence, it is very important to ensure the sustainable forest management and for this the art of 'Forestry' is evolved. The main goal of forestry is to create and implement systems that allow forests to continue a sustainable continuation of environmental supplies and services.

India is a forest rich country despite of its growing population it has been able to maintain its forest covers. India has formulated and implemented a number of policies and programmes aimed at forest and biodiversity conservation, afforestation and reforestation. Further, India has a goal to bring one-third of the geographic area under forest and tree cover by 2012. The Ministry of Environment and Forests, Government of India issued policy guidelines for the involvement of village communities and voluntary agencies in the regeneration of degraded forestlands under the Joint Forest Management Programme. India has also passed various legislations to protect and conserve the forest as well as the rights of those who are depended on forest for their livelihood. The Indian Forest Act 1927 covers most of the aspects such as preliminary; reserved forests, village forests, protected

forests, control over forest and lands not being the property of the Government, duty on timber and other forest produce, control of timber and other forest produce in transit; collection of drift and stranded timber, penalties and procedure; cattle trespass, forest officers, subsidiary rules, and miscellaneous regulations. However the Forty Second Constitutional Amendment Act, 1976 triggers the movement for the protection and conservation of environment and forest. Then, the Forest Conservation Act, 1980 was enacted with twin objectives of restricting the use of forest land for non forest purposes and preventing the de-reservation of forests that have been reserved under the Indian Forest Act. This Act has been given credit by some for slowing the rate of deforestation in India, partly by providing a defense against political pressures for converting forest areas to other uses and against state governments that were over enthusiastic about revenue generation through natural resources exploitation. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 was enacted to protect the rights of the tribals who have been the depended on forest for their livelihood and were considered as encroachers for a long time. This Act provides these tribals the legal right to own, collect, use and dispose of minor forest produce.

However the international conventions have a significant impact on the planning process in the forestry sector. India prepared the National Forestry Action Programme in 1999 and prepared a National Action Programme to Combat Desertification in 2001. The latter is consistent with the UNCCD, and will be implemented over the next 20 years. In response to the CBD, a National Policy and Macro-level Action Strategy for conservation and sustainable use of biodiversity has been formulated and India enacted the Biological Diversity Act 2002.

Pursuant upon the recommendation made by the Indian Board of Wildlife, Government of India resolved to constitute a National Forest Commission to

review the working of the forest and wildlife sector. The Forest Commission of India submitted its final report in 2006, covering almost all the aspects and set forth various recommendations. However these recommendations remain recommendation and a few has been implemented.

The implementation of sustainable forest management in a diverse country like India is a challenging task. To be more effective, criteria and indicators should be incorporated into national forestry legislations and regulation; not only as voluntary application. Being analogous with sustainable development, sustainable forest management also has important implications in the global economic scenario. Besides contributing to environmental, social and economic well-being of the communities, it also facilitates market-oriented tools like certification and ecolabelling. This requires active participation and coordination among the stakeholders for proper implementation. A wider application of criteria and indicators shall require a long maturity process. The Ministry of Environment and Forests, Government of India has already created a Sustainable Forest Management (SFM) Cell in the Ministry. SFM cell will act as a nodal agency for all matters related to SFM in the country and to encourage the development of national programmes aimed at sustainable utilization and conservation of forest, and maintaining their ecological balance. However, the forest certification in India is still at an early stage and therefore the nation has not been able to make use of the benefits of forest certification.

The most important and growing field in relation to forest is its relation with intellectual property rights. IPR is developing very fast and it is influencing all the fields, in whatever field any new innovation is made it is tried that it could be protected under IPR. Similarly any innovation relating to plants, forestry and forest product is tried to be protected by IPR. Those who are developing any new method

of developing new breeds of plants by using gene technology are being covered under IPR. India is also protecting its IP rights under various legislation such as Indian Patent Act, 1970; Protection of Plant varieties and Farmers' Rights Act; Geographical Indication Act; Biological Diversity Act, 2002 etc. However the plants and animals were put outside the scope of patent as per the TRIPS Agreement. And the same incorporated by India being a signatory to the TRIPS. But in India the IPR protection with regard to forest, plants and forest products is not as developed as in the developed nations of the world such as USA, UK, Australia etc. India is still in its developing stage with respect to IPR Protection in India with regard to Forest and plants.

Suggestions

The following suggestions are forwarded:

- The Forestry sector needs a substantial increase in funds required for achieving SFM which are not available.
- The multiplicity in the present management of the forestry sector requires effective coordination, including managing obligations arising out of international conventions and among different management levels, and perspectives and commitments arising out of policy pronouncements at the national level.
- New demands by various stakeholders require a greater understanding of the policy process. Institutions for forest policy research should be strengthened and researchers and practitioners working in the forest policy process need to interact frequently, and exchange ideas and experiences. A regional forum should be established in one of India's premier forestry institutions to

facilitate the sharing of experiences by countries that implement participatory forest management.

- JFM has shown positive results, but requires further administrative and legal support that favours local communities. Conflicting demands on forest resources by different parts of society are increasing. Disputes within and among JFM committees as well as between the Forest Department and NGOs and committees are not uncommon and should be addressed. The present formal methods in the forestry sector cannot solve all problems in an efficient, equitable and administratively practical manner. Therefore, the government should take steps to develop a comprehensive strategy for managing conflicts.
- Many policy decisions in the forest sector are based on incomplete information, which affects the quality of decisions adversely. A suitable forest management information system should be developed at all decision-making levels. National institutions like the Indian Institute of Forest Management, the ICFRE and the Forest Survey of India can play important support roles in this activity.
- There is a need to ensure adequate FMU certifications in the country.
- The amendment of the Patent Act, 1970, particularly on patenting of biotechnological inventions should be made more transparent.
- There is a need to develop a policy and law to create new tools and instruments which could effectively ensure countries of origin asserting their rights over their genetic resources, guarantee that there is equitable sharing of benefits arising out of the use of these resources.
- The Indian legislations should not be contradictory to the International treaties, at the same time it should not ignore Indian citizens.

- Trade mark protection is skewed in favour of the traders who buy the farmers' produce, if it is conceived and further designed to allow farmers to brand their production and reap the benefits of their labour and innovation, then the farmers and other innovators would develop products with better yield and quality.

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