CHAPTER - III

TIMBER TRADE AND MARKET

India has about 16% of the world's population. The geographical area accounts for 2.47% and however, the forest area is only 1.8% of the world's forest. A huge human population, coupled with more than 500 million of livestock, exerts immense pressure on its natural resources, including forests. Natural forests cannot fulfill the timber and timber product demand, which is increasing due to the increase in the living standards. Naturally people have to meet their demands partly from the trees outside the government forests and partly by importing wood.

3.1.1. Wood and Articles of Wood and Wood Charcoal

The details regarding the articles of wood and wood charcoal is available in Annexure. From the list given it could be seen that there is a number of items included in the term as wood. However for the purpose of the study we will mainly deal with timber in the form of round logs particularly for the price trend. The data used for this purpose are largely those collected from various secondary sources particularly from Forest Department of Gujarat.

3.1.2. Production and Supply of Wood from the Private Fields

A sizable number of trees grown out side the legally constituted forest areas, such as boundaries of agricultural fields, rivers, roads, canal banks and block plantations over non-forest lands are generally ignored while reporting production statistics.

A substantial proportion of the increasing demand for timber is met by this source, which is neither reported nor recorded in the country. The supply of wood from trees outside the forest areas is regulated under different acts operated in different states.

3.1.3. Production of Timber in India

As per the report of the International Tropical Timber Organization, (May 2004) the production trend of timber product is given in **Table 3.1.** This is including the Compounded Annual Growth Rate (CAGR) during 1991-2000. As per the report the CAGR has been used to capture the production trend for substantially longer period of time ignoring year-to-year fluctuations. The table clearly suggests the growth in the round wood.

It would be inferred from the table that except for round wood (both coniferous and non coniferous) and plywood, all other categories of wood products have been marked with negative growth rate as presented by CAGR over 1991-2000.

Table3.1: Production of Timber (000' cubic meter)

Item	1991	1994	1996	1997	1998	1999	2000	CAGR 1991-2000
Round Wood C	10055	10636	11495	11545	11454	11516	11540	1.54
Round Wood NC	256782	275615	303062	304901	35709	306670	307958	2.04
Indu. Round WC	2769	2776	2777	2729	2636	2637	2533	-0.70
Indu. Round WNC	21732	22115	22194	22295	21312	20401	19589	-1.75
Indu. Round WC	2500	2500	1200	1200	1200	1200	1100	-8.72
Indu. Round WC	14960	14960	7200	7200	7200	157200	6800	-8.39
Veneer	25024	7	16	15	15	32515	15	-5.09
Plywood	250	217	312	323	331	325	314	2.56

Source: FAO Yearbook, Forest Products, various issues and updates

The domestic production trend is also increasing (**Table 3.2.**).

Table 3.2: Wood Production Trend in India 1980 – 1994

Particulars	Production (million Cubic Meters)			
	1980	1983	1990	1994
Round wood Total	212.1	237.7	273.7	294.0
Pulp wood	192.4	215.6	249.3	269.2
Industrial wood	19.7	22.1	24.4	24.8
Share of saw/ ply logs	15.2	16.7	18.4	18.4
Share of pulpwood/ Particle	1.2	1.2	1.2	1.2

Source: FAO (1996) (quoted in NFEP, 1999).

3.1.4. Import of Timber

Government of India allowed the import of timber under "Open General License" in the year 1996 solely for meeting the shortage of wood and to reduce pressure on the natural forests. The detailed information on the import of wood is available with the Director General of Commercial Intelligence and Statistics, under the Ministry of Commerce, Government of India.

3.1.5. Consumption of Timber

It is worth reviewing the consumption trend of the timber products, which is presented in following tables. As in case of most of the products, reliable data was not available prior to 1996. However, from the report of the International Timber Trade Organization the figures are quoted. These consumption trends have been given in the tables **Table 3.3.**

The consumption trends of wood products in India do not seem to conform to the trend observed globally. Most of it is a derived data rather than the actual. The consumption is computed by the assumption that consumption = production + import – export... The production in terms of the Forest Department is the material produced in the forest after felling of trees. But all such production does not reach the sale depots (Market). Moreover as already mentioned above the material obtained from the private source and that removed illegally is not accounted in the production. Therefore the main difficulty is the reliability of the Secondary data.

Table 3.3: Trends in Consumption of Timber Products ('000 Cubic Meter)

Item	1996	1997	1998	1999	2000
Industrial Round Wood C	2777	2821	2987	3026	2879
Industrial Round Wood NC	23070	23278	22722	22111	21399
Sawn wood C	1213	1206	1203	1205	1101
Sawn wood NC	7177	7186	7199	7194	6803
Veneer	16	17	19	18	20
Plywood	312	323	331	325	314

3.1.6. Requirement of Industrial Wood

The major sectors of domestic consumption of timber are housing and furniture manufacturing. The Forest survey of India in their study 'Timber and Fodder from Forest, 1996' projected the demands for 2001 and 2006 (**Table 3.4**).

Table 3.4: Projections for Timber Consumptions (Million Cubic Meter)

S.N.	Category of use	Year 2001	Year 2006
a.	Housing and allied domestic industry	39	43
	i Rural	31	34.0
	ii Urban	8	9.0
b.	Furniture	10.4	11.6
	i Rural	6.3	7.0
	ii Urban	4.1	4.6

(Source: FSI Timber & fodder from forests-1996)

3.1.7. Projection of Production, Demand and Supply by FSI

The study has also indicated timber production for the year 2002 and 2006 based on the production figures of 1995 (**Table 3.5.**).

Table 3.5: Timber Production (Projections) (Million Cubic Meter)

Source	**1995**	**2001**	**2006**
Forests	23	26	29
Plantations	10	11	13
Farm Forestry	31	36	40
Total	**64**	**73**	**82**

(Source: FSI Timber & fodder from forests -1996)

FSI had carried out a demand-supply exercise in respect of timber, fuel wood and fodder from the forests of India. Based on the results of field studies conducted by FSI, the findings are summarized in **Table 3.6.**

Table 3.6: Demand and Supply of Wood (Million Cubic Meter)

Particulars	**1996**	**2001**	**2006**
Wood requirement for housing, furniture, agriculture implements	64	73	82
Output from forests	12	12	12
Outturn from plantations, social forestry schemes and other wood lots	41	47	53
Deficit	**11**	**14**	**17**

As mentioned earlier, there is a wide deficit between availability (domestic supply) and requirement (demand) of timber in India and this deficit is likely to increase in the future, especially for tropical hardwoods. There are several reasons for this existing and envisaged deficit, which are briefly explained below.

3.1.8. Reasons for the Deficit of Timber

Though India is the world's seventh largest country, in terms of area it hosts only 1.8 per cent of the world's forests. The issue of physical restriction in the supply of tropical woods has been given due priority in the Tenth Five-Year National Development Plan. The Government of India has formulated a National Forestry Action Plan (NFAP) to increase the forest/tree cover to 33 per cent of the geographical area of the country and also for sustainable development of forests (NFAP, 1999). The National Planning Commission has set the target of 25 per cent to be achieved by 2007 and the goal of 33 per cent to be achieved by 2012 (the end of Eleventh Plan). Investment requirements for the next twenty years to bring 33% land under forest cover, including afforestation of both forest and non-forest lands are to the tune of Rs.53,000 millions. The ambitious targets outlined in NFAP and Tenth Plan appear to be quite ambitious and difficult in view of the lack of resources, lack of an enabling environment for investment and limited external assistance. Some effort on forest plantation establishment has no doubt been made, especially through the Joint Forest Management (JFM) Programme in the last decades, but its impact has been limited. All these things act as limiting factors for increasing the supply of wood to meet the growing demands of various end use sectors.

Actual ground level survey with the help of GIS technology by FSI to identify large tracts of wastelands is yet to commence and the policy shift to involve private industry in degraded forest areas is yet to take place. Another example is the populist decision like ban on green felling in several states. This decision has adversely affected the supply of wood to meet the local needs. The Supreme Court of India has categorically stated that the forests should not be worked without approved management plans. In the absence of management plans for a major part of the forests in the country, the supply from natural forests with sustainable harvest is unlikely to increase in the immediate future.

3.1.9. Export of Timber

The export of timber is very small. It mainly consists of wood articles or the value added products of wood like decorative furniture, wood handicrafts, wood works of sandalwood, rosewood, walnut etc. The export of round wood is almost negligible.

The consumption of timber and timber products is increasing because of the increase in the population and urbanization. The increase in the standard of living is also a factor for the increased consumption. On the contrary, the recent trend in the production of timber is showing a declining trend due to the intervention of the Supreme Court resulting in the conservation oriented forest management practices and even banning the felling in some areas. The ultimate result is the increase in the import of the timber. Many a time prices of domestic timber are more than the imported one due to the extra overhead charges and taxes over the domestic material.

3.1.10. Prices of Timber

Market study of any product requires going in details about the supply, demand and the price structure and its trend over a time frame. The individual person does not much bother about demand and supply. He is more interested in the price of the commodity. The discussion mentioned above is at the macro- level. What concerns the individual person who is either a supplier or buyer and the producer is the current price of the commodity in the market. All these criteria are also applicable to timber. In fact, the Forest Department has the responsibility for this. Unfortunately, there is no system of market intelligence regarding timber prices within the State Forest Departments. The record of the prices maintained by the department has a limited object of preparing the upset prices for selling the timber in the next auction. The individual is absolutely unaware about the current prices of different kinds of timber.

3.1.11. Sources of Supply of Timber

Wood is coming in the market from (i) Government forests (ii) from private areas (iii) from Import and (iv)illegal illicit removal of trees from forests. The material from the private areas and illegal removal from forest goes directly to the saw millers who do not keep any record of the quantity as well as the prices. This has already been explained earlier. About the imported timber the prices are based on the international market. There is no organized association of traders trading in the import of timber. It is very difficult to get the at hand secondary data about the prices. A special arrangement will have to be made to know the price structure of the imported timber in domestic and the retail markets.

3.1.12. Availability of Price Data

The only data regarding sale of quantity of timbers and the prices for the different species is available only with the forest department, of those timbers which are sold by them. In fact every forest division has a sale depot where auctions are conducted for the sale of material harvested in their division.

3.1.13. Variation of the Prices of Timber

The prices of timber of different species are different as the quality varies with the species. There is variation within the logs of same species as per its grade and size of the log measured by its girth and the length. Considering all these factors that influence the prices the sale depots are to be considered to manage the sale depots and conduct sales in public auction. The entire process of the depot management will be discussed in the next chapter.

3.2. Status of Forest Resource: Gujarat

The state of Gujarat came into existence through the division of the old state of Bombay on 1st May 1960. Situated on the West Coast of India the state occupies 1,96,024 sq km area, which comprise 5.9 % of the total geographic area of the country. Gujarat falls between 21^0 1’ N to 24^0 7’ N latitude and 68^0 4’ E to 74^0 4’ E longitude.

Administratively, the state is divided into 25 districts, 226 talukas and 18, 228 villages. Total population is 5.06 crore (as per 2001 census) and livestock population is 1.86 crore (1997 estimation). Gujarat has the longest coastline among all the states of 1,663 km. It is a very important state from sea trade and industrial point of view too.

3.2.1. Forests of Gujarat

Owing to its varied geographical and climatic factors, the state has a vast plant and animal diversity. Gujarat has habitats for big cats, deer and antelope in the form of open scrub forests and savannah grassland in the Saurashtra region, and at the same time it has moist deciduous forests in the South Gujarat region. The little Rann of Kutch is the home of the wild ass, and the long coastlines with varied marine life and mangrove forest form a part of the incomparable plant and animal diversity of Gujarat.

Gujarat is a forest scarce state, and forests comprise only 9.73 percent of its geographical area, out of which only 4.4 percent can be categorized under dense forests. Of the 12 bio-geographic zones of India, 4 Bio-geographic zones fall in the state (**Table 3.7**).

Table 3.7: Bio-geographic Zones of Gujarat

S. N.	Bio-geographic Zone	Bio-geographic Province
1.	Rann Zone	Kutch- 3A Gujarat Rajwara-43
2.	Semi Arid Zone	Gujarat Rajwara-4B
3.	Western Ghat Zone	Hill area of Western Ghat -5B
4.	Coastal Zone	Western coastal Region-10A

The per capita forest area in Gujarat is 0.05 ha, whereas the per capita tree covered area is 0.04 ha, against the national average of 0.09 ha and 0.07 ha respectively. According to the FSI 2001 report, there is a decline in tree cover of the country, while in Gujarat there is an increase in tree cover.As far as the forest types of the states are concerned, they are classified into four types (**Table 3.8**)

Table 3.8: Forests of Gujarat have been classified under four major types.

S. N.	Forest type	Area/District
1.	Moist Deciduous Forests	Dangs, Valsad, Navsari, Narmada, Surat and Bharuch
2.	Dry Deciduous Forest	Vadodara, Panchmahal, Dahod, Gir, Girnar, Junagadh
3.	Thorn Forests	Amreli, Rajkot, Bhavnagar, Porbandar, Kutch, Surendranagar, Banaskantha, Sabarkantha, Mahesana
4.	Coastal, Tidal Mangroove Forests	Kutch and Jamnagar

3.2.2. Moist Deciduous Forests

In these types of forests some tree species shed their leaves during winter, while some remain evergreen throughout. They occur between 1500 to 2000 mm rainfall zone. Trees do not attain the canopy height as in the case of evergreen forest. These types of forests are found in Dangs, Surat and Valsad districts. Common trees found in this type of forest are Teak, Sadad, Haldu, Kalam, etc.

3.2.3. Dry Deciduous Forests

In these forests types almost all the trees shed their leaves during winter. Such forest are found between 300 to 1200 mm rainfall zone, i.e. Central Gujarat, Saurashtra, Gir, Girnar and Barda. Trees in such forests attain heights less than those in Moist Deciduous forest. Common species are Teak, Sadad, Khakhro, Simlo, Mahudo, Khati, Amli, etc.

3.2.4. Thorn Forests

Thorn forests are found in Hingolgarh sanctuary and in certain areas of Gir, and most of the areas of Saurashtra and Kutch, where rainfall is very less ranging from 250 to 700 mm. Trees attain very small heights thorny. Common species are Baval, Gorad and Hermo.

3.2.5. Coastal, Tidal and Mangrove Forests

Major area of mangrove forests of Gujarat is found in the Gulf of Kutch. These are special type of forests that in the tidal zone, the main characteristics being that the plants have pneumatophores (breathing roots). Main species are Pilu, Saru and Avecenia.

3.2.6. Forest types according to Revised Classification

Table 3.9: The details of types of forest as per the revised classification are given below

S. N.	Forest Types	Occurrence
1	Moist Deciduous Forests	Dangs and Valsad Districts
2	Slightly Moist Teak Forests	Surat, Bharuch and Narmada Districts.

3	Dry Teak Forests	Vadodara, Panchmahals and Dahod District and Drier parts of Bharuch Districts. North and East part of Sabarkantha District
4	Very Dry Teak Forests	Panchmahals and Dahod Districts. Gir and Girnar Area of Junagadh District.
5	Dry Deciduous Scrub Forests	Vadodara, Panchmahals and Dahod Districts. Eastern Gir falling in Junagadh, Rajkot, Amreli, Bhavnagar, Banaskantha and Sabarkantha District. Kutch/ Patan (W), santalpur, Radhanpur, sami, Harij
6	Tropical Dry Deciduous Forests	Gandhinagar, Kheda, Mehsana districts
7	Sub-tropical Dry Deciduous Forest	Western and Southern part of Sabarkantha District
8	Dry Deciduous Forests	Vadodara, Panchamahals part of Sabarkantha District. Southern part of Banaskantha District
9	Dry Mixed deciduous & tropical Forests	East, North & West part of Banaskantha District
10	Desert Thorn Scrub Forests	Grass Land Occurring in the Saurashtra Peninsula. Narayan Sarovar Chinkara Santuary in Lakhpat Taluka of Dist: Kutch
11	Savannah Forests	Kutch and Jamnagar Districts.

3.3. Status of Forest Resource: Haryana

Haryana State has 35.66 lakh ha (81%) of land under agriculture, mostly with intensive cultivation. However, the recorded forests account for only 1.56 lakh ha (3.52%), while 6.63% of the geographical area is under forest and tree cover (Anonymous, 2003). Thus Trees outside Forests (TOF) cover 3.11% of the geographical area. It is also interesting to note that in Haryana the standing volume of wood in non-forest area is nearly 7 times that of the estimated volume in forest areas. It is hoped that this may be a harbinger of production of wood from non-forest areas in coming years (Anonymous, 1997).

Supply of generally improved planting stock of Poplar and Eucalyptus supported with technical extension services encouraged the farmers to adopt agro-forestry as an economically attractive land use system in Haryana. Ready market for the high quality wood from agro-forestry plantations was provided by ply wood/ ply board units and paper mill. Growing market demand for farm-grown wood by industries has been a major facto in continuous expansion of intensively managed agro-forestry plantations in the state. There is horizontal integration of wood-based industries in the state – using farm grown wood. This symbiotic relationship helped growth of agro-forestry as well as wood-based industries.

3.3.1. Requirement of Wood-based industries

There are 5086 wood-based industries in Haryana state including one large integrated pulp and paper mill and 679 veneer and plywood units. The availability of farm-grown wood, skilled labour and infrastructure have led to growth of plywood and veneer mills from 8 units before 1980 to 679 units at present. Because of the demand for wood by these units, farm forestry plantations have also constantly expanded thereby increasing the tree cover in the state. There are 4319 saw mills and 88 other wood –based units making furniture, doors, windows, flush-doors, katha, match boxes, door frames, spoon sticks etc.

The total requirement of eucalyptus, poplar and miscellaneous species by the wood-based units requiring licenses in the State is 20.50 lakh cum annually (Anonymous, 2006). Majority of the saw mills also use imported logs of teak for durable construction. Moreover, many small saw mills only reconvert sawn sleepers into battens, planks and other finished sizes required by the society.

3.3.2. Wood production

State Forests

According to the working plans, nearly 1 lakh cum of wood of Eucalyptus and 0.90 lakh of other species like Acacia, Prosopis, Shisham, Neem, Jamun and Ailanthus are available which means, the sustainable wood production from state forest is 1.90 lakh cum per year (Anonymous, 2006).

Community Lands

Haryana Forest Department has undertaken an ambitious programme of plantations on panchayat/community lands through externally aided projects viz; Social Forestry, Aravalli, Community Forestry, JBIC and Kandi. The estimated annual cut of Eucalyptus and other species from community lands is 1.12 lakh cum and 2.17 lakh cum respectively, which means total wood yield of 3.29 lakh cum annually (Anonymous, 2006)

Farm Lands

The availability of wood of Eucalyptus, Poplar and other species from farmlands 5.97 lac cum, 14.04 lakh cum and 4.52 lakh cum respectively, which means annual sustainable wood production of 24.53 lac cum (Anonymous, 2006). More over Haryana Forest Department, ITC Limited and Pragati Biotechnologies are supplying genetically improved seedlings and clonal planting stock of Eucalyptus to farmers. The average productivity of irrigated clonal plantations is expected to be around 40 cum/ha/year. Hence there will be much higher availability of Eucalyptus wood on maturity of clonal plantations.

Total Wood Production

The estimated annual wood production of eucalyptus, poplar and other species in Haryana State are given in **Table 3.10.**

Table 3.10: Annual Wood Production (in lakh cum)

Sl. No.	Sources	Species			Total	%
		Eucalyptus	Poplar	Other Species		
1	State Forests	1.00	0.00	0.90	1.90	6
2	Community Lands	1.12	0.00	2.17	3.29	11
3	Farm Lands	5.97	14.04	4.52	24.53	83
Total		**8.13**	**14.04**	**6.72**	**29.72**	**100**

Or say = 30 lakh cum per year (Anonymous, 2006)

3.3.3. Wood Demand-Supply Balance

The overall demand of the wood-based units in the state of Haryana required to obtain licenses is 20. 50 lakh cum per annum, while present sustainable annual supply potential is 30 lakh cum. Thus Haryana has surplus wood resources even after meeting total demand of existing wood-based industries on sustainable basis. By far the largest contribution (83.%) to wood supplies is made by intensively managed farm forestry plantation of Poplar and Eucalyptus. That is followed by contributions from plantation on community lands (11%). However, because of small area under state forests, the contribution to wood supplies from state forests is just 6% of the total wood production.

Yamuna Nagar –a Success Story

Yamuna Nagar is the biggest farm-grown wood market of the country. It has large number of plywood/veneer factories, saw mills, one paper mill etc. Yamuna Nagar is the best example of development of agro-forestry, employment generation and local value addition through wood-based industries in a state, which hardly has any natural forests. The complete utilization of entire tree is done; stumps are used for charcoal manufacture; main bole is useful for plywood; whereas pulpwood from large branches and centre cores/veneer waste generated by plywood mills are converted into valuable paper while lops and tops provide fuel-wood and charcoal to the poor.

3.3.4. Value addition

Presently, the value of wood products manufactured in Yamuna Nagar is about Rs. 1700 crore (5 times of value of wood consumed). Plywood and veneer industries provide employment opportunities to an estimated 1,50,000 skilled and unskilled workers and contribute nearly Rs. 22 crores each towards sales tax & excise duty annually. Pulp and paper mill produces 80,000 tonnes of quality paper and has a turnover of nearly Rs.300 crore/year. Four tones of centre core and veneer waste generated by ply wood industry is converted into one tonne of fine paper valued at Rs. 37000 per tonne – value addition of more than 6 times. This mill provides direct employment to 2200 persons and indirect employment to many. The contribution to excise duty and sales tax by this mill is Rs.41 crores and 6 crores per annum (Anonymous, 2006).

Because of localization of plywood industry around Yamuna Nagar, ancillary industries like manufacturing peeling lathes and peeling knives have also grown. As plywood and paper meet essential needs of society, country saves huge outflow of foreign exchange indirectly because of local processing and value addition by industry. Because most of these mills are supported by farm-grown wood, farm forestry plantations contribute to environmental amelioration and indirect conservation of bio-diversity rich natural forests. This is a win-win situation for all sections of society including conservation of forest resources. Modernization and technology up-gradation of existing units and establishment of new units based on contemporary technology making international quality products can maximize aforesaid benefits to the society and our country. There is also urgent need to make timber trade transparent through regulated timber markets to ensure fair competition, enhance revenues for the state and stop exploitation of farmers. With these improvements, Yamuna Nagar success story is worth emulation by others and the country should replicate this example to develop many such planned centres of excellence through integrated development of agro-forestry and wood based industries supported with innovative policies.

3.3.5. Present Supply Chain

Players in the timber market of Haryana can be placed into three broad levels.

Level 1: Primary Suppliers

Most of the eucalyptus and poplar available in the wood markets are obtained from the lands of the farmers. The tree crops raised on the community lands is sold through auctions. Wood from forests and plantations on government lands are auctioned by the forest department (Anonymous, 1999)

Level 2: Intermediary Buyers/Users

Contractors purchase trees from farmers as they find it difficult to arrange for the harvest and transportation of their tree crop. The contractors charge about 5% of their market price of the produce. Sometimes farmers loose heavily as contractors make an under assessment of the tree crop of the farmer. Commission agents/timber merchants arrange the sale of wood in the market on behalf of the either the farmers; or the contractors and charge 4-5% of the commission. Saw mills cut logs of timber into suitable sizes and shapes as per the requirement of various users. Veneer/peeling units purchase logs of Eucalyptus and Poplar and after peeling them into veneers supply to the ply board industries (Anonymous, 1999).

Level 3: Secondary Buyers/ End users

Ply board Industries either have their own peeling units or purchase veneers from the peeling units. Saw mills manufacture wooden boxes and crates of Eucalyptus for packing and storage of food grains and fruits. FCI, HAFED and fruit traders purchases wooden crates and boxes. The wooden construction material of eucalyptus and poplar are mostly supplied to the building constructors by the timber merchants and saw mills. The brick kilns also use eucalyptus wood as firewood in a limited way. The paper industry at Yamuna Nagar is the only mill, which uses eucalyptus on a large scale. Apart from eucalyptus, veneer waste and saw mill waste are also bought by the paper mills. Furniture shops also use small quantities of eucalyptus. Eucalyptus is also used by sugar mills and other establishments like eateries and bakeries.

3.3.6 Leakages in Marketing System

Commission agents and contractors are the two intermediaries between farmers and end users who do not contribute to the value addition of the wood and yet they play major role in marketing system. Since they do not contribute in the value addition of the wood, their presence in the system result in heavy leakage in the profit margins of the farmers. The estimated loss of revenue to the farmers as 5% service charge to the contractor is about Rs. 22.09 crores, while revenue loss to the farmers may be actually more due to under estimation by the contractors. The total loss to the farmers on the above accounts is about Rs. 37.60 crores in 1999 (Anonymous, 1999).