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FORESTRY PLANNING AND DEVELOPMENT PROJECT 95902

## CONSULTANCY REPORT

### A STUDY OF WOOD YARDS IN PAKISTAN

By

**TurkPak International (Pvt) Limited**

Under Contract to:  
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**SUMMARY OF CONCLUSIONS  
AND RECOMMENDATIONS**

- i) The objective of this study is to provide baseline data to the policy makers for policy decisions in forestry sector. The study envisages to ascertain the size & purpose of wood yards, inventory of wood according to species and types, source, method of delivery of wood, prices, sales and level of business, present and future availability of wood. For obtaining this information, a questionnaire was utilised for survey of 32 road segments from the entire country. The field investigators selected 2 wood yards from each segment for detailed survey, thus the study is based upon 64 wood yards randomly selected along the road segments in NWFP, Punjab, Sind and Baluchistan.
- ii) It has been estimated that there are 7,800 private wood yards in Pakistan. Most of the wood yards are less than 5,000 square metre in area and they have a tendency to encroach upon the adjoining state land. Majority of the wood yards are located in timber markets or in clusters along metalled roads. However, isolated wood yards do occur along metalled and "Kacha" roads to cater for the wood and sawing requirements of rural population. Except in timber markets in the cities, the yards have improvised buildings abutting the proprietors house. 96 percent of the wood yards have band or circular saws. 114 of these saws have a trolley coupled with the machine for automatic movement of heavy logs. One third of the yards have weighing scales for sale of firewood. 9 out of 65 wood yards surveyed had mechanized planners for furniture making.

- iii) 20 out of 65 yards surveyed were single purpose, catering for softwood for construction or writing boards or packing cases. They tried to specialize in their trade to reduce unit cost of production & improve quality. The object of multipurpose yards was to increase the number of customers 58 out of 65 yards surveyed brought & sold wood. Poles, logs and scants were the most popular forms of wood for trade.
- iv) At the time of survey during June-July 1990, 15,378 m<sup>3</sup> wood was lying in the yards whereas 6,477 m<sup>3</sup> softwood and 21,644 m<sup>3</sup> hardwood was stated to have been sold by them in 1988-89, 45 yards carried out manufacturing activities in addition to buying & selling of wood. These items included cots, mangers, carts in rural areas and furniture, boards, crates in urban areas.
- v) In the wood yards surveyed, 50 percent of wood came from private areas, 40 percent from government land and 10 percent from independent sources, Only 2 out of 65 yards used railway wagons, 54 used trucks, 39 used animal carts, 2 used boats and 5 used pack animals and tractor trollies for carriage of wood.
- vi) Future wood supplies were expected to increase in N.W.F.P. due to decrease in rotation-age and objective tree planting campaign. In Sind and Baluchistan future wood supply may decrease due to heavy exploitation without proportionate regeneration. In Punjab no decrease or increase in future wood supplies is estimated.
- ii) 75,880 workers are employed in 7800 wood yards in Pakistan on trade, sawing and manufacture of primary

products. Harvest and transport labour is in addition to these workers. A typical wood yard is manned by 3 workers, the father, who is the general manager, the son who operates the saw mill and a hired worker who does most of the manual work.

- viii) Depending upon the location, supply, demand, transport, taxes and season, the prices vary widely and a significant fluctuation in sale & purchase prices exists. Timber and fuel-wood prices have risen very sharply in Pakistan and are very high by world standards. The real rise in timber prices is 3.93 percent and in firewood prices 3.09 percent per annum.
- ix) Due to unstable political situation and unsatisfactory law and order situation construction work is stagnant in important cities like Karachi, Hyderabad, Sukkur and Quetta. As a result volume of business is down by 10 percent to 100 percent.
- x) Wood traders are burdened by such taxes as advance income tax, sales tax, district council export tax, octroi tax, union council tax and transport fees. Demands for illegal gratification by various government functionaries are very high. Permits and licences are required for cutting of trees in areas along the border, for deodar, in N.W.F.P, for transport of wood in Sind, upper Punjab and N.W.F.P. These permits involve avoidable waste of time and money.
- xi) Wood traders face varied problems. Railway wagons constitute a cheap mode of transport but they are always in short supply; wood supply is short too and

there is no established trade in standard dimensions. As a result the machinery, labour and capital of the traders remains underutilized. Due to electric load shedding, saw mills remain idle for substantial periods. Poor law & order situation and unstable political conditions have adversely effected the business of wood yards.

- xii) It is recommended that taxes on wood be waived, permits abolished and sizes of finished products standardised. A massive tree raising campaign is needed to increase the resource of wood.

## 1. Background

Under the Forestry Planning & Development Project of the Government of Pakistan and USAID, the study has been designed to collect data on the present wood consumption trends and future demands of woody raw materials in Pakistan. The survey was undertaken specifically to gain an understanding of wood consumption in different consuming sectors. On the basis of this survey future demands by the industry will be ascertained and a private farm forestry, action plan to grow the required species will be duly prepared by Government of Pakistan. TURKPAK International (Pvt) Ltd; a professional firm of Consultant was selected to collect nationwide information relating mining, wood yards and Brick Kiln Industry. The present report is the final version of the wood yards report. Reports relating other two sectors have been submitted separately.

This study on private wood yards was conducted to provide baseline data to formulate a planning and development strategy by the Government of Pakistan. It envisages to ascertain:-

- Size of wood yards.
- Purpose i.e fuel, construction or industrial material.
- Wood types available i.e saw-dust, roots, boughs, charcoal, poles, logs, scants and products.
- Stages of wood processing i.e harvest, trade, sawing or manufacture of wood products.
- Method of delivery of wood.
- Source of wood.
- Products manufactured.
- Labour employed.
- Fluctuation in business
- Distribution of costs.

- Stock in hand.
- Sale and purchase prices of various species of wood
- Future trends in wood availability.
- Volume of business.

## 2. Parameters of the Study

Terms of reference provided by Inspector General of Forests, Islamabad (Project Manager) and Winrock International (Technical Assistance Team) defines the parameters for the assignment as following:

- To collect and review existing documents, reports and statistics and prepare a written summary evaluation of the wood markets in Pakistan.
- To conduct sample survey of wood yards by actual visit to premises using the questionnaire specifically designed by Winrock International.
- To present a comprehensive report on the findings. Findings which identify market linkages, bottlenecks and/or market constraints to be highlighted and to present a seminar on the findings of the consultancy to Government of Pakistan and USAID project personnel.
- The assignment to be completed within 12 weeks.

## 3. Methodology

The sponsors of the study i.e Winrock International, selected the following road segments in the four provinces for survey as under:

Distance (KM)

- Sukkur to Jacobabad	84
- Jacobabad to Dera Murad Jamali	42
- Dera Murad Jamali to Mach	180
- Mach to Quetta	63
- D.G. Khan to Muzafargarh	64
- Muzafargarh to Multan	35
- Multan to Khanewal	56
- Khanewal to Chichawatni	85
- Chichawatni to Sahiwal	48
- Sahiwal to Okara	36
- Okara to Pattoki	46
- Pattoki to Lahore	80
- Lahore to Wagha	21
- Wagha to Kasur	62
- Lahore to Gujranwala	67
- Gujranwala to Sialkot	60
- Sialkot to Wazirabad	45
- Wazirabad to Gujrat	20
- Gujrat to Jhelum	60
- Jhelum to Gujjar Khan	58
- Gujjar Khan to Islamabad	58
- Gujjar Khan to Rawalpindi	48
- Rawalpindi to Fateh Jang	50
- Fateh Jang to Jand	83
- Jand to Attock	88
- Attock to Khairabad	31
- Khairabad to Peshawar	74
- Peshawar to Mardan	58
- Mardan to Hassanabad	89
- Hassanabad to Haripur	

Subsequently, the following 2 segments were added by Winrock International to the list for survey.

- Kohat - Banu
- Banu - D. I. Khan

Thus a total of 32 road segments were selected for survey. These segments are shown in the map. The field investigators selected 2 wood yards for detailed survey from each road segment. A total of 65 wood yards were visited in the 4 provinces as under:-

<u>Province</u>	<u>No. of Wood Yards Surveyed</u>
Punjab	= 42
N.W.F.P.	= 14
Sind	= 5
Baluchistan	= 4
Total	= 65

#### 4. Wood Yard - Defination

A wood yard is a commercial site where wood is stocked, processed and sold in the form of wood or wood products.

According to 1978 rules of NWFP Government regarding sale depots and sawing units, a wood depot means any building or place where timber is brought, cut, sawn or fashioned or stored for sale and includes a sawmill. A typical wood yard in Pakistan is often seen along road sides near and around urban and rural centres. Such wood yards intact acts as a middleman agency between the wholesale traders and consumers. Their line of business is usually purchase and sale of wood

and timber sized to customer requirements. Most of the wood yards are equipped with basic wood working machinery (the most common band saw also termed as saw mill).

Since a separate study has been commissioned for the survey of saw mill industry, therefore the present report only relates to wood yards in general.

#### 5. Past Studies (A Review)

The past studies on wood yards and trade of wood in Pakistan are very limited. Some useful studies on production and consumption of wood have been carried out by Board of Economic Enquiry in the country prior to 1947. Tasdiq Hussain studied "Fuelwood in Pakistan" on behalf of FAO (FAO/50/10/7200). In his report entitled, "A study on timber trends in Pakistan", Ishaq (1959) estimated the wood used by various end users. These estimates were based on the 1951 census of Pakistans' population. The study projects future demand of wood in Pakistan assuming a population increase of 1.4% per annum. In fact the population increase in Pakistan is around 3% per year. Ishaq (1959) highlighted various constraints in fuelwood production in his report entitled "A study of the fuelwood problems in Pakistan".

Lerche & Khan, (1967) compiled "An estimate of timber trends in West Pakistan". The authors estimated total wood consumption by separate survey of each major end-use including industrial enterprises engaged in transport, construction, packaging, ship-building, wood processing and mining. It was estimated that total demand of fuelwood in Pakistan in 1965 was 4.814 million m<sup>3</sup> and in 1985, 7.844 million m<sup>3</sup>. It was further estimated that the demand of sawn and round timber in 1965 was 1.138 million m<sup>3</sup> and in 1985 3.420 million m<sup>3</sup>.

Khattak and Amjad (1981) estimating timber consumption @ 0.024 m<sup>3</sup> per capita concluded total consumption of 1.9 million m<sup>3</sup> for a population of 77.74 million in 78-79. They also estimated the total number of units in timber trade to be 2,733 in 1978-79.

Draper et al (1978), in World Bank Staff Working Paper No.284 estimated that annual wood consumption (other than fuelwood) in Pakistan was 1.43 million m<sup>3</sup> in 1965, 1.71 million m<sup>3</sup> in 1972-73. Approximately 35% of this consumption was met through imports & this consumption was 75% of the total demand. In Pakistan firewood accounted for 90% of the wood consumed. In 72-73 out of total of 26.3 million m<sup>3</sup> of fuel consumed in the country, fuelwood accounted for 13.2 million m<sup>3</sup>. FAO (1978) year book of Forest products however estimated fuelwood consumption at 8.5 million m<sup>3</sup> in Pakistan in 1974. World Bank Mission mentioned that timber prices rose sharply in Pakistan and were high by world standards. Prices of imported timber were also high due to cost of transportation from long distances and weak power of bargain of small traders. According to World Bank Mission, almost all the saw mills in the country were small-scale being 1 or 2, in each wood yard. Their sizes varied from 90 cm to 105 cm. The mission estimated 1,000 band saw mills in 1977-78 in Pakistan and these were mainly distributed in the larger towns, often combining general timber merchanting with saw mill. Most of the timber supply to the saw-mills cum woodyards was in the form of rough sawn scants 30 cm x 37 cm x 3 meter. After purchase from the wood yards, the customer get these sized to suit his own requirement. A small volume of wood is brought to these saw mills from a large number of logging areas but these mills did not get sufficient logs or sawing material on regular basis.

Khattak and Amjad estimated that the following labour force was working in wood trade and saw milling.

Estimated annual-employment

	<u>No. of man-days</u>	<u>No. of workers</u>
Saw milling	4803	16009
Marketing of firewood	3831	12771
Marketing of timber	3447	11490

They also surveyed the wood trade units in Pakistan. This is a very useful study and the data of this study have been utilised to check the estimates of the number of wood yards in the present study.

6. Wood Yards in Pakistan

Based on wood production in state forests; wood inventory and source of wood in 65 yards surveyed it is estimated that there are around 7800 wood yards in the country. It has been estimated that in N.W.F.P. there are 1600 yards, in Punjab 3100, in Sind 2625 and in Baluchistan 475. The 65 wood yards surveyed contained 15378 m<sup>3</sup> of timber and 951 m<sup>3</sup> (stacked) firewood. One wood yard, on an average stocked 244 m<sup>3</sup> of wood. Wood production in state forests during 1986-87 is indicated as under in Table 1.

Table 1  
OUT TURN OF CONIFEROUS AND HARDWOOD TIMBER

Kind of Wood	000 m <sup>3</sup>					
	NWFP	Punjab	Sind	Balochistan	Northern Areas	Azad Kashmir
Conifer	112	3	-	-	29	83
Hard-Wood	-	57	45	-	-	-
Total	112	60	45	-	29	83
Fire-wood	14	84	79	0.5	7	02

Source: Office Record of Forest Department by Pakistan Forest Institute Peshawar.  
(Forest Economic Branch)

65 wood yards surveyed, revealed that source of 55% wood in NWFP yards, 36% in the Punjab, 38% in Sind and 8% in Baluchistan were government lands/state forests and the rest was brought from private farms independent agents. The total wood in NWFP yards was 382,000 m<sup>3</sup>, Punjab 755,000 m<sup>3</sup>, Sind 640,000 m<sup>3</sup> and Baluchistan 116,000 m<sup>3</sup>. The number of wood yards is derived basing 244 m<sup>3</sup> wood in an average yard. Thus it has been estimated that 1.9 million m<sup>3</sup> wood was stocked in 7,800 yards in the 4 provinces during 1990.

According to population data there are 9,600 wood yards in Pakistan. This estimate is based upon the data collected by Khattak and Amjad (1981) on population and number of wood yards in 26 cities in the 4 provinces of Pakistan. These 26 cities were divided into 4 stratum by the authors as under:

Stratum-1      Cities of population over 0.5 million. All the six cities in this stratum were included in the sample

<u>City/Towns</u>	<u>Estimated Pop.(000)</u>	<u>No. of Wood Yards</u>
Karachi	4576	485
Lahore	2826	184
Multan	701	94
Faisalabad	1068	85
Rawalpindi	801	60
Hyderabad	302	46

Stratum-2      Cities with population 0.1-0.5 million: 4 out of 14 cities in this stratum were included in the sample.

Bhawalpur	174	48
Quetta	206	32
Sargodha	261	45
Sukkur	207	44

Stratum-3. Towns with population ranging from 0.05 to 0.1 million: out of 22 towns, 6 were picked at random for inclusion in the sample:

<u>City/Town</u>	<u>Estimated Pop.(000)</u>	<u>No. of Timber Yard</u>
D. I. Khan	76	17
Jhelum	91	85
Larkana	93	16
Nawabshah	105	9
Nowshera	73	13
Sheikhupura	104	19

Stratum-4 Towns with populations less than 0.5 million each. First two districts were drawn at random and then one tehsil from each district, finally from each tehsil one town was selected at random for inclusion in the sample.

Ahmedpur East	57	9
Ehalwai	31	7
Ghotki	24	3
Gujarkhan	31	8
Kulachi	13	0
Moro	22	6
Nankana	33	0
Phalia	11	0
Rottodero	17	0
T. M. Khan	15	1

According to the Hand Book of Population Census Data (December 1985) population in various provinces of Pakistan was as under:

Punjab	47,292,000
Baluchistan	4,332,000
Sind	19,029,000
N.W.F.P.	11,061,000

The wood yards of the above 26 cities if projected according to the population would be as under:

<u>Province</u>	<u>Population</u> <u>(000)</u>	<u>Estimated Wood Yards (No.)</u>
Punjab	47,292	4,921
N.W.F.P.	11,061	2,048
Sind	19,029	1,901
Baluchistan	4,332	673
Total Population of 4 Provinces	81,714	9,603

Correlating the number of wood yards with total population may not be very reliable. There were 9,603 yards when population was 81.7 million in 1981. There should be 12,171 yards in 1989 when the population was 104 million. Number of wood yards can better be correlated with the supply/availability of wood and it would be more reasonable to accept that there are 7,800 yards in the 4 provinces of the country.

#### 6.1 Size of Wood Yards

Most of the wood yards in Pakistan are small in size having less than 5,000 square meters of area. The sizes of the yards and estimated wood inventory therein is shown in Table 2 as under:

Table 2  
SIZE OF TIMBER YARD & INVENTORY OF WOOD

Sq/M C-1	Frequency	Inventory	
		Timber	Firewood
0 - 2500	40	332	951
2500 - 5000	17	714	-
5000 - 7500	1	28	-
7500 - 10000	2	278	-
10000 - 15000	5	11036	-
Total	65	15378	951

Source: TURKPAK Survey - 1990

Some of the wood yard owners occupy the adjoining state land belonging to Highway, Irrigation, Railway, Forest and other Departments. For this purpose they place very heavy, low quality logs in a planned manner on illegally occupied area. They also maintain good relations with the officials of concerned departments so that their encroachments are not disturbed.

## 6.2 Registration of Wood Yards

Wood trade in private wood yards can be regulated and checked in accordance with the rules framed under forest act 1927. Under the existing rules the private wood yards are required to be registered with the Forest Department in NWFP, Baluchistan and "Chanda" areas of rivers Chenab and Jhelum in the Punjab.

In actual practice registration of private wood yards was discontinued in the Punjab and Baluchistan more than one decade ago. However wood yards are registered and renewed in NWFP and total number of registered yards in Peshawar & Nowshera is 224. Out of 65 yards surveyed, all the 51 in Punjab, Sind and Baluchistan were unregistered. Out of 4 yards surveyed in Peshawar, NWFP none was registered.

### 6.3 Location of Wood Yards

The customers of wood do not like to purchase wood from isolated, lonely shops and tend to make purchases at competitive rates after checking from a number of sellers. The wood yards are, therefore, generally located in clusters along roads or in wood markets in the cities and towns. However isolated wood yards do exist along roadsides and they cater for the sawing requirements of rural population. Majority of the wood yards are connected by metalled roads, but a sizeable number of rural wood-shop cum sawing machines are connected by "kacha" roads. Major whole sale markets for soft woods in Pakistan are at Dargai, Havelian, Jhelum, Tal and Tank. The hard wood markets are at Karachi, Sukkur, Multan, Faisalabad and Lahore. The Sukkur wood market is accessible by boat in addition to rail and road because it is located on river Indus.

### 6.4 Buildings of Wood Yards

Buildings of the wood yards which are located in timber markets of cities such as Lahore and Multan, are constructed with brick masonry, cement, steel and reinforced cement concrete. A well furnished, airconditioned room was in evidence in few big yards for the owner's use. The road side yards

outside the towns have brick masonry combined with mud-walls and a thatched roof supported by a strong 60 cm x 60 cm x 4 meter brick pillar for the saw-mill installation. Generally the residential house of the owner is adjacent to the wood yard.

### 7. Use of Machinery in Wood Yards

As explained elsewhere in the report all wood yards are not engaged in sizing wood according to customers requirement. However, around 96% of the units surveyed were equipped with band saw circular saw planners and weighing scale. All such machinery is locally made in the country particularly in Gujranwala (Punjab). Most of the saw-mills are electric operated. However some diesel operated machines were also in evidence in a few yards. Table 3 indicates provincewise situation of use of machinery in the sample survey.

Table 3  
Machinery in the Wood Yards  
(Sample Survey)

Machinery	Size cm	Sind	Baluchistan	Punjab	NWFP
1. Saw	90-94	1	-	5	7
	95-99	4	4	11	4
	100-105	1	3	12	1
	106 & above	-	-	4	-
		6	7	32	12
2. Saw Plus Trolleys	90-94	-	-	5	-
	95-99	-	-	-	-
	100-105	-	-	4	-
		-	-	9	-
3. Planner	35	-	-	9	-
4. Weighing Scale	100 Kg	5	1	21	1

During field surveys it was observed that the saw mills were not fully utilized except those sawing for crates, packing cases and boards. Inadequate supply of wood and absence of established trade in finished dimensions i.e 2 cm x 5 cm, 5 cm x 8 cm, 5 cm x 10 cm boards were the two major constraints in optimum use of sawmills.

#### 8. Purpose of Wood Yards

Two types of wood yards were noticed during the survey. The multi-purpose type of business centres engaged in sale and purchase of wood alongwith such activities as making of local furniture, cots, mangers, packing cases, crates, ladders, planks, props, poles, firewood, sawdust, carts and battens. The monopurpose type of yards catered for sale of soft wood for construction or sale of hard wood or supply of finished/semifinished products to the industry or consumers.

Fluctuations in the consumer market adversely affect the monopurpose or special purpose wood yards. Almost all wood traders who deal in softwood constructional timber in Sind and Baluchistan complained of a stagnation in wood market due to political, law and order situation in the country. Construction was at a stand still and soft wood business was down by 10 to 100 percent. Some wood yards were reported to be closed. However, the special purpose wood-yards were found developing cheap technology to reduce their unit cost of manufacture. Secondly wood wastage in their conversion/sawing operations was almost nil.

The low cost method of seasoning mango wood for making school "takhti" or writing board in Multan by single purpose yards is worth mentioning. Wood is sawn into boards of suitable sizes and is placed in the open to face the sun. A worker

having a trained eye to ascertain moisture content turns the boards at proper intervals till the wood is seasoned. If a board develops fault, it is emersed in water, straightened with pressure and seasoned again. One worker can season upto 20 m<sup>3</sup> of wood in a month and is paid @ Rs.1000/= per month. Thus the unit cost of seasoning comes to Rs.50/= per m<sup>3</sup> whereas kiln seasoning may cost upto Rs.900/= per m<sup>3</sup>. From "purpose" point of view the wood yards surveyed can be classified into single or multipurpose yards as shown in table 4 as under:

Table 4  
Wood Yards Classified According to Purpose

Province	Single Purpose	Multipurpose	Sample Size
Punjab	9	33	42
N.W.F.P.	9	5	14
Sind	1	4	5
Baluchistan	1	3	4
Total	20	45	65

Source: TURKPAK survey, 1990.

Due to overlapping and varied business activities it is not possible to make a water-tight classification of wood yards from purpose point of view. The single purpose wood yards were dealing with construction material. Only the multipurpose wood yards, depending on consumer, industrial market and wood availability, selected 2 or more items from such purposes as sale and purchase, sawing, making of furniture, carts, cots, mangers, boards, crates, packing cases, props, planks, ladders, bamboo, sawdust, firewood and charcoal.

## 9. Sources of Wood Supply

The survey indicated that 50% of wood came to the wood yards from private areas, 40% from Government lands and 10% from independent agents. The independent source includes supplies from tribal areas, imports from Afghanistan, and other foreign countries. According to our survey, no yard owner brought his wood from his family lands. Provincewise position of source of wood is given in table 5 as under.

Table 5  
Source of Wood

	<u>Private Farms</u>	<u>Government Lands</u>	<u>Percent</u>	
			<u>Independent Agents</u>	<u>Family Lands</u>
Punjab	40	36	24	-
N.W.F.P.	42	55	3	-
Sind	38	38	24	-
Baluchistan	72	8	20	-

Source: Wood Yard sample survey data June-July 1990

## 10. Wood Transportation

Railway wagons were used to transport wood for 2 yards only in the Punjab out of 65 samples surveyed in Pakistan. Although it is cheaper to carry wood by railway but the traders avoid this alternative due to indifferent and difficult attitude of Railway Department. Trucks are the common method of carriage of wood and 54 out of 65 yards used this method for long distances. For short distance carriage, animal carts are used. 39 yard owners out of 65 surveyed, used animal carts

in addition to other means. Only 2 yard owners in our sample survey in Sind used boats for carriage of wood from riverain forests of Sind. 5 yard owners brought their wood on pack animals or tractor trolleys.

#### 11. Stages of Wood Processing

Buying, selling, sawing and sizing of wood is one of the major business activity of wood yards in Pakistan. Out of 65 wood yards surveyed, 58 were buying and selling wood. (They had installed 66 saw mills) and 23 were manufacturing various products. Only 3 yard owners harvested the wood they purchased standing, 7 transported the wood they purchased from fields or forests and 11 debarked the logs. Provincewise position of various stages of wood processing is given in table 6.

Table 6  
Stages of Wood Processing  
(Sample Survey 65 Units)

Sr. No.	Province	Harvest of Trees	Transport of Logs	Buy & Sale	De-bark-ing	Sawing Slicing	Fabri-cation of Products
	Sample Size	65	65	65	65	65	65
1.	Punjab	1	4	38	7	37	20
2.	WFFP	-	-	14	-	14	-
3.	Sind	2	3	4	3	5	2
4.	Baluchistan	-	1	2	1	3	1
	Total	3	8	59	11	55	23

Source: Author's survey, 1960

## 12. Types of Wood Stocked in Wood Yards

Stocking of scants, sleepers and logs was found to be an attractive business activity of wood yards. 47 out of 65 yards stocked scants and 46 stocked logs. 26 wood-yards did business in poles and an equal number manufactured primary products. Income from sale of saw dust was derived by 25 yards. Roots/chunks and charcoal was not a popular form of business in the wood yards and only 2-3 yard owners were interested in these products. Provincewise position of various wood types traded by yard owners, out of a sample of 65 are given in (Table 7):

Table 7

TYPE OF WOOD STOCKED IN WOODYARDS (Sample Size 65 units)

Number of Units Surveyed	Saw Dust	Leaves	Roots chunks	Char- coal	Poles	Logs	Scants	Primary Products	
Majab	42	18	-	1	1	12	29	30	25
NFP	14	-	-	-	-	11	13	13	-
Ind	5	5	-	2	1	2	1	1	1
Sindh	4	2	-	1	-	1	3	3	-
Total	65	25	-	4	2	26	46	47	26

SOURCE: Turkpak Survey - 1990

## 13. Inventory in Wood Yards

Stock position during June-July in 65 wood yards in the 4 provinces is given tables 8a to 8d. Volume of wood held in NWFP is very low and consists almost entirely of softwoods. Volume of wood in the yards surveyed in Sindh is comparatively very high and comprises almost entirely of hardwoods.

Species	Quantity & Grade			Total
	A	B	C	
DEODAR	4	99	119	202
PARTAL	99	56	12	126
KAIL	29	49	3	71
CHILGOZA	-	3	-	3
CHIR	10	5	-	15
SHISHAM(TALLI)	-	5	-	5
				<u>422</u>
<u>TABLE B (b)</u>				
<u>WOOD INVENTORY IN SINDH</u>				
BABOOL	10423	270	-	10693
BHAN	180	-	-	180
SHISHAM	-	150	-	150
CHALGOZA	-	30	-	30
Mixed Firwood(45%)				<u>11013</u>
<u>TABLE B (c)</u>				
<u>WOOD INVENTORY IN PUNJAB</u>				
SHISHAM(TALLI)	125	476	210	771
BAIRI	-	152	29	180
KIKAR	10	411	114	765
DEODAR	33	267	-	300
PARTAL	16	183	-	199
KAIL	12	165	-	177
CHIR	-	-	-	-
POPLAR	-	17	-	17
				<u>2409</u>
<u>TABLE B (d)</u>				
<u>WOOD INVENTORY IN BALUCHISTAN</u>				
BABOOL	90	521	-	604
SHISHAM	-	370	-	370
DEODAR	265	-	-	265
KAIL	90	-	-	90
CHILGOZA	125	70	-	205
Mixed Firwood(50%)				<u>1574</u>

Source: Forest Survey of India-1953

In Baluchistan and Punjab hardwoods and softwoods were present in the ratio of 2:1. It is estimated that in June 1990, 4500 m<sup>3</sup> hardwoods (mainly shisham) and 377,500 m<sup>3</sup> softwoods were in stock in NWFP wood depots. In Sind only 2000 m<sup>3</sup> soft woods were available in the depots and 638,000 m<sup>3</sup> hardwood which was mainly babul was stocked. In the Punjab wood yards, 545,000 m<sup>3</sup> hardwood and 210,000 m<sup>3</sup> soft wood was stored.

In Baluchistan 76,000 m<sup>3</sup> hardwoods mainly shisham and babul were in stock whereas 40,000 m<sup>3</sup> softwoods were available for sale. Thus in the 4 provinces 1,263,500 m<sup>3</sup> hardwoods and 630,000 soft woods were in stock with the private wood yards.

#### 14. Sale of Wood in 1989-90

Amjad and Khan (1988) estimated that 2.5 million m<sup>3</sup> of timber was available in Pakistan during 1987-88 from state forests, farm lands and imports for use. 0.2 million m<sup>3</sup> firewood was also produced by public and private sector. This wood is sold at production and import points and carried to the wholesale markets or industrial units. Farm land producers or middlemen also bring wood from farm lands to the commission agents in the wholesale market. This wood is graded into quality and sizes classes. various areas have their own terminology for classification of timber. Some of the terms used in Punjab are as under:

<u>Trade Terminology</u>	<u>Forest Deptt's Equivalent</u>
<u>Market Classification Size</u>	<u>For Market Classification</u>
- Pawa	Billet
- Undersize	111 Class to undersize
- Oversize	I and 11nd Class

## Quality

- Khalis	Class
- Na Khalis	Rejected or double re- jected

The use of the above terminology is limited between traders only. The consumers are not taken into confidence for the grading terminology. In the wholesale market, the commission agents start auction of the wood in suitable lots before dawn. Wood yard owners take part in the auction to purchase their requirement. However wood can also be sold by negotiation after the auction in the wood markets. Credit sale is the usual practice although concession is always available for cash payments. The yard owner usually settles the credit of the commission agents from the sale proceeds of his wood.

A needy farmer may also bring the produce directly to the wood yard and this can be a good bargain for the yard owner, because the farmer is unable to carry back his produce to his farm. However such purchases are not a source of sustained supply but are supplementary in nature. The yard owner prepares a comprehensive market plan for the entire volume of wood as well as individual logs. This market plan or "vand" assures him of the best use and best sale price for all items.

Sales of wood and primary products to regular customers or retailers is not very lucrative. Better margin of profit is available from industrial users or consumers requiring wood for personal building construction. The latter are generally accompanied by the "wood working expert". Even though the yard owner may never have seen or talked to the expert before, it is an unwritten law to pay him 5% of the total sale proceeds. This assures a good margin of profit for the yard owner by overcalculation of volume or mixing low quality

wood with the better one. The casual customer may be losing up to 50% on his wood purchase. The total volume of wood sold by the 65 yards surveyed during 1989-90 is given in table 9 as under:

Table 9  
Wood Sold during 88-89 in 65 Surveyed Woodyards (M<sup>3</sup>)

	Punjab	H.W.F.P.	Sind	Baluchistan
BABUL	2513	-	7815	13,843
BHAN	-	-	190	190
SHISHAM	5442	28	200	6,850
BERI	781	-	-	781
DEODAR	586	509	200	3,065
KAIL	415	76	-	1,356
PARTAL	253	311	-	564
CHIR	61	61	-	122
CHALGOZA	-	-	200	1,380

Source: Tinkpak Survey-1990

Babul is the most commonly traded timber in the wood yards in Sind, Punjab and Baluchistan. During 1989, 1.4 million m<sup>3</sup> babul was sold in the private yards in 3 provinces. Shisham trade was important in all the provinces and 0.8 million m<sup>3</sup>. Shisham was sold in 1989. 0.37 million m<sup>3</sup> of deodar, 0.162 million m<sup>3</sup> of kail 0.166 million m<sup>3</sup> of chalgoza, 60,000 m<sup>3</sup> partal 14,500 m<sup>3</sup> of chir was also sold by the wood yards in 1989. 75,000 m<sup>3</sup> bhan in Sind and 6,000 m<sup>3</sup> beri in the Punjab were traded within the respective provinces.

#### 15. Primary Wood Products

Manufacture of wood products is an important source of income

for 36 percent of the wood yard owners surveyed. 23 out of 65 wood yards surveyed were manufacturing wood products in addition to sale, purchase sawing of wood. This was done for optimum utilization of wood, labour and machinery, in which they made capital investment.

Provincewise figures of primary manufacturers are given in tables 6 and 7.

In the rural areas the main products manufactured by yard owners include, cots, mangers, carts, crates and packing cases. In urban areas the main products are furniture, crossarms for electric installations, writing boards, packing cases, and crates.

#### 16. Future Wood Availability

Wood availability in the coming years is expected to increase in NWFP because of reduction of rotation age of softwoods by the forest department and a massive tree planting campaign in public and private sectors. In Sind, future wood availability is expected to decrease. Due to political, law and order situation, regeneration of felled areas in the state forests in Sind is in arrears. Except for the normal "hurrie" plantations, no significant plantations in private sector have been raised. Similarly in Baluchistan wood availability in future will decrease. "Chalgoza" forests in Zhob, which are owned by the tribal people, are being felled at a rapid rate and may not last for more than 6-7 years. These trees mature in 250-700 years and their regeneration is difficult. Government of Baluchistan and Government of Pakistan should take immediate steps to conserve this fast denuding resource.

In Dera Murad Jamali and Dera Allah Yar, districts of Baluchistan substantial canal irrigated area is available

for raising trees in the public and private sector. Uptil now little afforestation has been carried out and prospects for future development of forests are not bright. In the Punjab no significant increase in wood availability is expected. Private and public sector tree resource has increased at a modest rate which will be balanced out by increase in population.

17. Labour

The number of workers employed in a yard depends upon its purpose and size. Wood yards which harvest and transport wood as in Sind, employ more workers than monopurpose wood yards as in NWFP. Similarly wood yards engaged in manufacture of primary products employ more labour. Table 10 indicates the labour employed on sawmilling, marketing of firewood and timber and manufacture of primary products. Labour employed on harvest and transport is limited to a few yards in Sind and has not been included in these projections.

Table 10  
The Labour in Wood Yards  
(Trade, Sawing & Manufacture)

	No.				
	Sind	Baluchistan	Punjab	NWFP	Total
Labour (Excluding Harvest & Transport)	81	64	382	72	599
Sample Size	5	4	42	14	65
Total No. Wood Yard	2625	475	3100	1600	7800
Projection	42000	7680	28000	8200	75880

Source: Wood Yard Sample Survey Data

Since manufacture of primary wood products is a labour intensive operation, a significant part of work force is employed on making of products. The small roadside yards are run by 3 workers. The father, who looks after administration, marketing, sale, purchase, public relationing, wood technician, watchman and gate keeper. Second worker may be the young son who performs the duties of manager, accountant, sawmill operator and a mechanic. If a son is not available then an operator may be hired at a fixed salary of about Rs.70/= per day or Rs.100/= per m<sup>3</sup> of wood sawn. (1990 wage rates)

When the saw mill operator is a hired hand, the wood yard owner also performs the additional duties of a manager and an accountant. The third worker is "Sheka" or the labourer who helps the saw mill operator in sawing of wood. He is paid about Rs.50/= per day (1990 rates). He handles sawn and unsawn wood. A transporter, with a donkey or a bullock cart is a close associate of the yard owner. His donkey bullock cart rests under a nearby shady tree. He is summoned and introduced to the customer/purchaser of wood when needed. They haggle the carriage charges, which may be settled by a "just" decision of the yard owner.

Khattak and Amjad (1981) estimated that the following labour (Table 11) force was working in wood trade and sawmilling, in the country in 1979-80.

Table 11  
Labour in Wood Trade & Sawmilling

S. No.	Nature of Work	Estimated Annual No. of Man days	Employment No. of Workers
1.	Sawmilling	4803	16009
2.	Marketing of firewood	3831	12771
3.	Marketing of timber	3447	11490

According to them, 86 percent workers were between 25 and 50 years of age, 30 percent were married, only 8.6 percent has attended school for varying length of time. They further indicated that timber trade workers were generally casual and worked on contract. 11.1 percent were salaried, 0.7 percentage self employed and 88.2 percent casual contract workers.

#### 18. Price Pattern

Wood prices have risen very sharply in Pakistan in the past and are very high by world standards. Timber prices in general show large irregular variations. Since 1956-57 timber prices have shown upward trend at an average rate of 12.35 percent per year. At a constant price index timber prices have increased in real terms by 218 percent from 56-57 to 87-88 which works out to annual real increase of 3.93 percent. Similarly fuelwood prices are rising @ 11.23 percent although real increase is 3.09 percent per annum. This price escalation is indicated in the tables give in annexure. Table 12 indicates the price range of various wood species during June-July 1990.

Table 12  
Sale Price of Timber

	Punjab	NWFP	Sind	Rs/M <sup>3</sup> Baluchistan
Babul	500-1500	-	850	700-1200
Bhan	-	-	890	-
Shisham	500-2675	-	1600	2500-5600
Beri	850-2000	-	-	-
Deodar	2500-7500	3500-9500	7000	7000
Kail	3000-6000	2600-6300	-	5800
Partal	2500-5600	3000-8500	-	-
Chir	3000-3500	2800-4000	-	-
Chalgoza	-	3510	4800	1750-3500

Source: Wood Yard Sample Survey June-July 1990.

The wide variation in prices is due to transport expenses, restrictions on cutting and carriage of wood, taxes, overhead expenses and a gap between supply and demand. Season has an effect on the prices. Fuelwood prices are always highest during January-February and lowest in June-July.

In addition to seasonal fluctuations in prices, there is also a marked fluctuation in sale and purchase prices due to interaction of supply and demand.

Fluctuations in sale and purchase of wood observed during the survey are shown in table 13 as under:

Table 13  
Fluctuation in Sale, Purchase Price 1989-90

S.No.	Province	Sample Size	No. of Yards noticed fluctuation in purchase price	No. of yards Fluctuation in sale Price.
1.	Punjab	42	31	17
2.	NWFP	14	13	10
3.	Sind	5	-	5
4.	Baluchistan	4	-	4

Source: Wood Yard Survey Data. Survey June-July, 1990

#### 19. Distribution of Costs

In addition to cost of raw material, the yard owners incur expenses on purchase/maintenance of godowns, electricity, gas, telephone, water, repair of machinery, transport, taxes

and labour. The provincewise overall average distribution of costs is shown in table 14 as under:

Table 14  
Distribution of Costs

Province	Wood Raw Material %	Labour %	Others %
Sind	68	20	12
Baluchistan	74	12	14
Punjab	64	18	16
N.W.F.P.	81	8	10
Average	74	16	10

Source: Wood Yard Sample Survey Data  
Survey Undertaken: June-July 1990.

C

In Sind percentage cost on labour is more because it includes expenses on harvest and transport. In Punjab the percentage cost on labour is high because of labour intensive work of making primary products which yard owners under take for optimum use of resource.

## 20. Volume of Business

Overall volume of business in N.W.F.P. Baluchistan and Sind was down due to stagnation in construction particularly in big cities like Karachi, Hyderabad, Sukkur and Quetta, which are the major consumption centres of wood from all over the country. The main cause of stagnation was unsatisfactory law

and order situation in Sind and disturbed political situation in the entire country. Before ethnic and other disturbances, there was a construction boom in Karachi and deodar wood fetched more about Rs.10,000/= per m<sup>3</sup>. During 1990 softwood traders in up-country were prepared to sell deodar wood @ Rs.7,000/= per m<sup>3</sup> and that too on credit. This decline in price was due to stoppage of construction in big cities. Similarly allocation for development budget on construction had been reduced by the Governments and there was a reduced construction activity. Some traders in Quetta had closed their business & softwood traders complained of slump. Low wood inventory (Table 8) and reduced volume of sales in NWFP also verify a downward trend in the volume of business of softwoods. The provincewise position of volume of business is shown in table 15 as under:

Table 15  
Volume of Business of Wood Yard

	Down	Stable	Up	Total
Sample - Sind	2	2	1	5
Percentage	40	40	20	6
Sample - Baluchistan	2	-	2	4
Percentage	50	-	50	
Sample - Punjab	10	16	16	42
Percentage	24	38	38	
Sample - N.W.F.P.	7	3	4	14
Percentage	50	21	29	

Source: Wood Yard Sample Survey Data. Survey June-July 1990

## 21. Permits - Licences

Movement of timber and firewood is regulated in NWFP, Rawalpindi Civil Division of Punjab and Sind. In NWFP, Forest Department issues a permit for transport of firewood on payment of Rs.50/= per truck and timber on payment of Rs.123/= per m<sup>3</sup>. This fee is imposed irrespective of the source of wood i.e government forests, private land, tribal areas or imports from Afghanistan. In Rawalpindi and Jhelum districts (Punjab), the divisional forest officer issues permit for movement of wood after ascertaining the bonafides of the wood. No fee is charged for this transit pass. Deodar is a state tree in NWFP and it cannot be felled from the private property without permission of the government. In practice, this rule is not seriously observed. Similarly governments' permission is necessary for felling of trees in Rawalpindi district and from within 5 mile radius of the international border. In Sind, permission of the concerned district forest officer is necessary for movement of wood within the province and that of the conservator of forests for wood transport out of the province.

In theory this permission is accorded free of charge. In actual practice the transporter spends substantial amount for procurement of all the above said free permits and at check posts set up by the forest/police departments.

## 22. Taxes

Advance income tax @ 3% is payable on all purchases, of wood made from the government. Small traders of firewood whose annual net income is much below the taxable ceiling, have also to pay this advance tax. In theory advance tax is refundable to those assesses who do not fall within the

income tax bracket. In practice this is never done. The traders are too poor to pursue the refund case, and the procedure for refund is too difficult to be of any practical use. 12½% sales tax is also payable by purchasers who purchase firewood from the government. In NWFP Rs.50/= per truck is charged by the forest department on all firewood irrespective of the source of origin.

District council export tax is more harsh. According to the schedule of rates fixed by the government, it should be 2% of the value of produce. It is however fixed at 10% of the value. The district councils auction out the export checkpoints to contractors who charge upto 100% of the value of wood as export tax. These contractors are influential gangsters and they pay gratification to police, district administration, district council administration and all concerned officers including the ministers of local government departments. As such they are immune from accountability.

Other taxes include the municipal council octroi tax and union council tax. Their extent varies in different areas. At present octroi tax is charged @ Rs.50/= per quintal on firewood, Rs.4/= per quintal on timber and Rs.14/= per quintal on wood products.

## 23. Problems

Wood yards face the following problems:

### 23.1 Transport

One of the major problems of wood yards is the procurement of railway wagons for transport of timber. Railway wagons are always in short supply. Transport by trucks is expensive and has not permitted full development of the wood markets and timber trade.

### 23.2 Supply of Raw Material:

According to the World Bank estimates which were confirmed by our survey, wood supply from public and private sector meets only 50% of the demand. Supply which cannot match the demand is a big constraint on proper development of markets and trade. Poor supply also results in sharp increases in prices of the raw materials and industrial end-products. Furthermore poor supply does not permit optimum utilization of labour and satisfactory returns on capital investment.

### 23.3 Energy

Chronic load shedding of electric power has almost crippled the saw milling industry. 14 hour a day load-shedding is not uncommon in smaller towns. Monthly illegal demands of WAPDA officials to ensure smooth supply of electricity add to the cost of sawing. Low production of saw mills adversely effects the performance of industries and building construction and results in under utilization of labour.

### 23.4 Law & Order Situation

Political instability and ethnic disturbances have adversely effected the timber trade for many years. Construction works are almost at a stand still in big cities like Karachi, Hyderabad, Sukkur and Quetta. In the absence of any demand from these major wood consumption centres, business of wood yards is rather poor.

### 23.5 Absence of Standardization

There is no established trade in finished dimensions such as 2 cm x 5 cm, 5 cm x 8 cm, 5 cm x 10 cm boards. This is a major constraint on the full utilization of saw mills,

particularly some modern saw mills which have facilities of producing precision dimension stock. Absence of standards in the sizes of doors, windows and almirahs, is also a problem in the trade of wood products.

24. Recommendations

- 24.1 The present restrictions on felling and movement of wood appear to be harsh. It is doubtful if these restrictions had any effect on theft of wood from state forests. It is recommended that these restrictions be relaxed. Tax structure be stream-lined so that no hardship is caused to wood traders. Where ever excess advance tax has been realized, it should be refunded without red tapism. District council export tax and union council tax be waived. Till this is done traders may be protected from excesses of tax contractors.
- 24.2 In addition to afforestation of blank areas and successful regeneration of felled areas in the public sector, a massive tree raising campaign is needed in the private sector so that adequate resource base is available. Sizes of boards, door and windows should be standardized so that labour, machinery and other resources in wood yards are not under utilized.
- 24.3 Pakistan Standard Institute may introduce certain standards for adoption in Building Construction Industry. Introduction of standard sizing will tend to specialisation and wood trade of quality products will be encouraged.

References:

1. Drapersa, ewing A. JI, Burley J, Grayum G (1978) "Pakistan Forestry Sector Survey". The World Bank 1818 H street N.W. Washington, D.C.
2. Hand book of population census data (1985) Bureau of Statistics, Government of Pakistan, Islamabad.
3. Hussain Tasdeeq FAO/59/10/7200, Fuelwood in Pakistan.
4. Ishaq S.M. 1959. A study of fuelwood problem in Pakistan. Ishaq S. M. 1959. Timber trades in West Pakistan. Pakistan Forest Institute Peshawar.
5. Lerche Cai & Khan Akhtar Saeed (1967) "An estimate of timber trends in West Pakistan". Pakistan Forest Institute Peshawar.
6. Khattak GM, M. Amjad (1981). A survey of socio economic conditions of manpower engaged in forestry & fuel wood industries in Pakistan.

SUMMARY OF RESPONSES  
SAMPLE SURVEY OF WOOD YARDS IN PAKISTAN

History of Establishment of Wood Yards

Out of 42 wood yards surveyed in Punjab, one was established in 1915, one in 1923 and one in 1926, for the next decade, no wood yard came into existence. However one was established in 1940. In 1947 one more wood yard was started. 3 wood yards were established during 1950-52 and 4 during 1960-62. One wood yard was started in 1968. 12 wood yards were started during 1970-79 and lastly 17 wood yards came into existence during 1980-88.

In N.W.F.P. 14 wood yards were surveyed, out of which 4 were established in 1930 and one in 1945. No new wood yard was started in the next 25 years. However one was established in 1970. 4 wood yards came into existence during 1975-76, 2 were established in 1980, and 3 were started during 1986-87. Out of 4 wood yards surveyed in Baluchistan one was started in each 1930 one in 1947, one was established in 1987 and one in 1989.

5 wood yards were surveyed in Sind, out of these 2 were established in 1975 and three were established in 1976, 1978, 1980, respectively.

Size of Wood Yard

In Punjab, 25 wood yards were of small size. Area of each yard being less than 2500 m<sup>2</sup>. 13 medium size yards had an area of 2500 to 5000 m<sup>2</sup>. The area of 4 large wood yards varied from 5,000 to 20,000 m<sup>2</sup>.

In N.W.F.P. 10 wood yards were of small size. Area of each yard being less than 2,500 m<sup>2</sup>. Three medium size yards had an area of 2500 to 5000 m<sup>2</sup>, and one large wood yards had an area of 8,000 m<sup>2</sup>.

In Sind, 2 wood yards were of small size being less than 2,500 meach and 3 large sized yards had an area 20,000 m<sup>2</sup>.

In Baluchistan, 3 wood yards were of small sizes i.e less than 2,500 m<sup>2</sup> and one had an area 12,000 m<sup>2</sup>.

#### Inventory in Wood Yards

42 wood yards in the Punjab had 2409 m<sup>3</sup> wood.

In N.W.F.P. 14 wood yards stocked 422 m<sup>3</sup> wood.

Volume of wood in 5 yards in Sind was 11,013 m<sup>3</sup> timber and 451 m<sup>3</sup> fuelwood.

Timber was 1534 m<sup>3</sup> in 4 wood yards in Baluchistan and firewood was 500 m<sup>3</sup>.

Specieswise inventory was as under:

42 wood yards in the Punjab contained Shisham 771 m<sup>3</sup>, Babul 765 m<sup>3</sup>, Deodar 300 m<sup>3</sup>, Beri 180 m<sup>3</sup>, Partal 199 m<sup>3</sup>, Kail 177 m<sup>3</sup> and Poplar 17 m<sup>3</sup> in 1989.

In Sind the inventory of species in 5 wood yards was Babul 10,653 m<sup>3</sup>, Bhan 180 m<sup>3</sup>, mixed firewood 451 m<sup>3</sup>, Shisham 150 m<sup>3</sup> and Chalgoza 30 m<sup>3</sup>.

In N.W.F.P. the inventory in 14 wood yards was, Deodar 202 m<sup>3</sup>, Partal 126 m<sup>3</sup>, Kail 71 m<sup>3</sup>, Chir 15 m<sup>3</sup> Chalgoza 3 m<sup>3</sup> and Shisham 5 m<sup>3</sup>.

In Baluchistan the inventory of wood species in 4 wood yards were Babul 604 m<sup>3</sup>, mixed firewood 500 m<sup>3</sup>, Shisham 370 m<sup>3</sup>, Chalgoza 205 m<sup>3</sup>, Deodar 265 m<sup>3</sup> and Kail 90 m<sup>3</sup> in 1989.

#### Volume of Wood Sold

In the Punjab, sale in 42 wood yards included Shisham 5442 m<sup>3</sup>, Babul 2513 m<sup>3</sup>, Deodar 586 m<sup>3</sup>, Beri 781 m<sup>3</sup>, Kail 415 m<sup>3</sup>, Partal 253 m<sup>3</sup> and Chir 61 m<sup>3</sup> in 1989. In N.W.F.P. 509 m<sup>3</sup> Deodar 311 m<sup>3</sup> Partal 76 m<sup>3</sup>, Kail 28 m<sup>3</sup> Shisham and 61 m<sup>3</sup> Chir was sold in 1989.

In the Sind the wood species sold in 5 wood yards were Babul 7815 m<sup>3</sup>, firewood 1338 m<sup>3</sup>, Bhan 190 m<sup>3</sup> and Shisham 200 m<sup>3</sup> in 1989.

In Baluchistan wood sold by 4 wood yards was Babul 3515 m<sup>3</sup>, Shisham 1160 m<sup>3</sup>, Kail 865 m<sup>3</sup>, Chalgoza 1180 m<sup>3</sup> and Deodar 1760 m<sup>3</sup> in 1989.

#### Wood Products at a Site

In the Punjab the most common products in wood yards were, fruit crates, doors, windows, chairs, tables, carts, mangers, cots and mixed firewood.

In NWFP the products were, fruit crates, local furniture, mixed firewood.

In Sind furniture, carts, cots, mangers and mixed firewood was common.

In Balochistan products of surveyed wood yards were furniture, doors, windows, carts, cots and mixed firewood.

### Major Consumer

In Punjab 42 wood yards sold, 15% for construction material, 25% to resale agents and 60% for other uses.

In N.W.F.P. 14 wood yards sold, 17% for construction material, 24% to resale agents and 59% for other uses.

In Sind 5 wood yards sold 31% wood for fuel, 15% for construction material, 14% to resale agents and 40% for other uses.

In Baluchistan 4 wood yards sold 15% wood for fuel, 20% for construction material, 20% to resale agents and 45% for other uses.

### Wood Yards Purposes

12 out of 42 surveyed wood yards in the Punjab were trading construction wood, industrial and domestic fuelwood and industrial raw material, main purposes of 4 yards was industrial raw material, 10 were for local construction wood, 12 were for construction wood only, and 4 traded in domestic fuel wood.

In N.W.F.P. 12 were for construction wood and 2 for construction wood as well as domestic fuelwood purpose.

In Sind two wood yards catered for industrial fuelwood and industrial raw material. 3 were for domestic fuelwood and construction wood.

In Baluchistan 2 wood yards were for industrial raw material, construction wood and fuelwood and other 2 for local fuelwood and construction wood.

### Stages of Processing

In the Punjab one wood yard was active in harvesting, transportation, sawing, purchase and sale of wood.

4 wood yards did transport, sawing, purchase-sale of wood and fabrication of wood products.

7 wood yards were busy in debarking logs, sawing, purchase and sale of wood.

8 wood yards were active in fabrication of wood products, sawing, purchase and sale of wood.

21 wood yards were doing, sawing purchase and sale of wood. One was for purchase and sale of wood.

In N.W.F.P. 14 wood yards did sawing, purchase and sale of wood, 2 wood yards were busy in harvesting, sawing, purchase and sale of wood.

3 wood yards were doing transport, sawing, debarking logs, purchase and sale of wood.

In Baluchistan one wood yard was active in transport, sawing, debarking purchase, sale and fabrication of wood products.

3 wood yards were busy in sawing, purchase and sale of wood.

### Source of Wood

In Punjab 11 wood yards obtained 50% of their wood from private sector. 40% from independent agents and 10% from the Government depots/forests. 11 yards purchased 35% of their

total wood from private farms and 45% from independents agents. 9 wood yards purchased their total wood from government depots. 7 wood yards obtained 75% of their wood from private farms and 25% from government areas and 4 wood yards obtained their entire wood from independent agents.

In N.W.F.P. 6 wood yards obtained their entire wood from independent agents. 3 wood yards purchased 60% from independent agents and 40% from private farms. 3 wood yards purchased 35% wood from private agents and 45% from government depots and 2 wood yards obtained their total wood from government depots.

In Sind two obtained 55% wood from government depots forests and 45% from private farms, another 2 purchased their entire wood from independent agents. One wood yard obtained its entire wood from government depots/forests.

In Balochistan 2 yards purchased 85% wood from private forms and 15% from government depots another 2 yards obtained entire wood from independent agents.

#### Mode of Transport of Wood

Wood was carried by trucks by 18 wood yards out of 42 surveyed in the Punjab. 22 wood yards used a combination of truck, and animal cart and 2 wood yards transported wood by trucks animal carts and by railway.

In NWFP 12 wood yards transported wood by trucks and animal carts and 2 by trucks only.

In Sind 2 yards used waterway (river) as well as animal cart for carriage of their wood. 3 wood yards transported wood by trucks and animal carts.

In Baluchistan all four wood yards carried their wood by trucks.

### Machinery Present

In the Punjab there are 40 circular and band saws. 9 of these fitted with trolleys. There were 21 weighing scales and 9 planners.

In N.W.F.P. one wood yard used weighing scale and 12 wood yards worked with circular saw only.

In Sind 5 wood yards used 6 circular saws and 5 weighing scales.

In Baluchistan 4 wood yards used 7 circular saws and one scale for weighing.

### Fluctuation in Wood Price

#### Purchase Price

The increase in wood purchase price in 1989 in 42 wood yards in the Punjab was 31% than the purchase price of 1988.

There was no change in the wood purchase price in 1989 in 14 wood yards in NWFP. There was no change in purchase price in 5 wood yards in Sind and 4 wood yards in Baluchistan, as compared to the preceeding year i.e 1988.

#### Sale Price

The increase in sale price in 1989 in 42 wood yards in the Punjab was 17% of the sale price in 1988.

In N.W.F.P. the increase in sale price in 1989 in 14 wood yards was 10% than the sale price of 1988. c

The increase in sale price in 1989 in 5 wood yards in Sind was 5% than the sale price of 1988.

The increase in wood price in 1989 in 4 wood yards in Baluchistan was 4% than the sale price of 1986.

#### Distribution of Cost

In Punjab the cost of wood was 64%, labour 20% and others 16% of the total cost in 42 wood yards.

In N.W.F.P. the cost of wood was 67%, labour 18% and others 15% of the total cost in 14 yards.

In Sind cost of the wood was 68% labour 20% and others 12% of the total cost.

In Baluchistan the cost of wood was 70%, labour 12% and others 18% of the total cost in 4 wood yards.

#### Annual Income

In Punjab the total gross annual income of 42 wood yards was Rs.35 million in 1989.

In N.W.F.P. the total gross annual income of 14 wood yards was Rs.6 million in 1989.

In Sind the total gross annual income of 5 wood yards was Rs.9 million in 1989.

In Baluchistan the total gross annual income of 4 wood yards was Rs.6 million in 1989.

Number of Workers Employed

Total number of workers in 65 wood yards surveyed was 869.  
In the Punjab there were 359 workers in 42 wood yards.

In N.W.F.P. 56 workers were employed in 14 wood yards.

In Sind, 386 workers were employed in 5 wood yards. This included labour on harvest and transport.

In Baluchistan 68 workers were employed in 4 wood yards.

WOOD USING INDUSTRIES OF PAKISTAN  
WOOD CONSUMPTION SURVEY QUESTIONNAIRE  
LOCAL WOODYARD FORMS

INTERVIEWER INSTRUCTIONS:

You are undertaking a project very important to wood use policy decisions that will be made by the Government of Pakistan. These decisions depend on your efforts to completely and accurately measuring data about the large number of private woodyards throughout the country.

Definitions:

Woodyard is any place where raw wood raw materials are concentrated for storage, purchasing, offering for sale, or waiting to be manufactured into primary wood products.

Wood raw materials include sawdust, leaves and boughs, branches, chunk wood including roots, poles, round logs and squared scants.

Primary wood product includes any item manufactured from wood that is used in raw form by another user or will be further processed by another manufacturer. Included are lumber, moulding

Task 1:

Your first job is to locate all the private woodyards within your survey area that are on roads (including local dirt roads or main metalized highways) whether these are in rural, village or urban areas.

Make a detailed map of your survey area and establish a starting point. Initialize your survey log with this location. Drive along this road and note the location of each woodyard. Mark which side of the road, and the kilometer distance in Km. to the nearest tenth from the starting point. For each woodyard that you see note the information specified on the encounter form. Use caution to note each separate yard for they are often located in clusters.

Task 2:

Think that there are approximately 7000 of these yards in Pakistan. They are where much of the formal transactions in wood occur so they are a prime indicator of wood market size and behavior. As you tally the woodyards in order, stop at every tenth woodyard. The serial number on the form should coincide with the encounter number of the survey in task 1.

Collect detailed information on this yard regardless of its size or activity. Interview the highest yard authority present using the detailed woodyard sample form. If there is no one present, make the best estimates possible yourself on the forms.

WOODYARD INVENTORY FORM

Woodyard Serial # \_\_\_\_\_

Survey Date \_\_\_\_\_

#	Wood Species	Piece Size Dia x lgth	Grade or Use	Inventory Est. cu.m.	Source	Buy Price Rs./_____	Sell Price Rs./_____	Vol. Sold 1988/89
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

QUESTIONS ABOUT CHANGES:

5. Is the woodyard's volume of business the same as last year?

Choose one:                    UP                    +      %  
                                   THE SAME            + 00 %  
                                   DOWN                -      %

6. What is happening to the number of other yards in this area?

Choose one:                    UP                    +      %                    C  
                                   THE SAME            + 00 %  
                                   DOWN                -      %

7. Are average per unit wood purchase costs the same as last year?

For private farm wood?		For Government Wood?	
UP	+ <u>    </u> %	UP	+ <u>    </u> %
THE SAME	+ <u>00</u> %	THE SAME	+ <u>00</u> %
DOWN	- <u>    </u> %	DOWN	- <u>    </u> %

8. Are average per unit wood sales prices the same as last year?

For private farm wood?		For Government Wood?	
UP	+ <u>    </u> %	UP	+ <u>    </u> %
THE SAME	+ <u>00</u> %	THE SAME	+ <u>00</u> %
DOWN	- <u>    </u> %	DOWN	- <u>    </u> %

9. Which wood prices fluctuate most during the year?

purchase costs \_\_\_\_\_?                    or sales prices \_\_\_\_\_?

10. What does he expect wood availability from private farm lands and government depots will be next year? List his reasons below.

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Please note on the reverse any other relevant information from the interview not covered elsewhere in the questionnaire.

9. List the three main pieces of equipment used in this enterprise, by sizes and the numbers.

Equipment type	Equipment Size	Number Used
#1.		
#2.		
#3.		

10. If a wood product is manufactured, list three main products produced and the approximate annual volume of production.

Product Type	No. Produced per Year	
	Last year (1988/89)	This year (89/90)
#1.		
#2.		
#3.		

1. How are his costs of production distributed?

Wood raw materials	_____ %
Labor costs	_____ %
Other operating costs	_____ %
Total =	100 %

2. How many man-years of labor does his establishment require in an average year? Include himself, all staff, and laborers.

\_\_\_\_\_ man-years

3. What is the gross annual value of sales Rs.? \_\_\_\_\_ Rs.

QUESTIONS ABOUT WOODYARD INVENTORY AND PRICES:

1. Mr. Interviewer, this is a complicated question that you will have to physically administer. Walk to where each different category of wood is piled. Use the attached WOODYARD INVENTORY form to organize the following list of detailed questions as you go from category to category.

WOOD USING INDUSTRIES OF PAKISTAN  
WOOD CONSUMPTION SURVEY QUESTIONNAIRE  
LOCAL WOODYARD DETAILED DESCRIPTION FORM

Serial No. \_\_\_\_\_ Date \_\_\_\_\_  
Surveyor name \_\_\_\_\_

1. Location of woodyard:

Road name \_\_\_\_\_ Starting point \_\_\_\_\_  
Direction \_\_\_\_\_ Left \_\_\_\_? Right \_\_\_\_? KM \_\_\_\_? ?

2. Name and Address of owner or manager:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Year woodyard was established \_\_\_\_\_

4. Does he own or manage any other locations? How many \_\_\_\_\_? <sup>(C)</sup>

5. Stages of Processing done here? (check those that apply)

Harvesting Trees \_\_\_\_\_  
Transporting Logs or Scants \_\_\_\_\_  
Buy and sell Logs or Scants \_\_\_\_\_  
Debarking Logs \_\_\_\_\_  
Sawing or slicing Logs \_\_\_\_\_  
Fabricating wood product \_\_\_\_\_

6. How are logs and scants delivered to the woodyard? (check one)

\_\_\_\_\_ Railway \_\_\_\_\_ Waterway  
\_\_\_\_\_ Truck \_\_\_\_\_ Push cart  
\_\_\_\_\_ Animal cart \_\_\_\_\_ Hand carried  
\_\_\_\_\_ Other ( \_\_\_\_\_ )

7. What percentage of yard wood COMES FROM the following sources?

Private Farms \_\_\_\_\_ %  
Government depots \_\_\_\_\_ %  
Independent agents \_\_\_\_\_ %  
Your own or family lands \_\_\_\_\_ %  
Other sources \_\_\_\_\_ %

8. What percentage of yard wood GOES TO the following sources?

Local fuel or fodder \_\_\_\_\_ %  
Industrial fuelwood \_\_\_\_\_ %  
Construction uses \_\_\_\_\_ %  
Resale agents \_\_\_\_\_ %  
Your own products \_\_\_\_\_ %  
Other uses \_\_\_\_\_ %



WOOD CONSUMPTION SURVEY QUESTIONNAIRE  
LOCAL WOODYARD ENCOUNTER FORM

INSTRUCTIONS AND CODES

Surveyor Name: \_\_\_\_\_

Date: \_\_\_\_\_

Road Name \_\_\_\_\_

Starting Point \_\_\_\_\_

Direction of Motion \_\_\_\_\_

Woodyard Serial Number: \_\_\_\_\_

Side of road: Enter whether Right (R) or Left (L)

Km from start: Enter to nearest tenth Km., i.e. 3.4

Yard dimensions: Enter estimated approx. length and width in meters

Parent purpose of woodyard: (ENTER ALL APPROPRIATE CODES)

WOODYARD PURPOSES

CODE

local resident fuel and material	1
construction props and material	2
industrial fuelwood	3
industrial raw material	4

Types of wood present for use or sale: (ENTER ALL APP. CODES)

WOOD TYPES PRESENT

CODE

sawdust	1
leaves and small boughs	2
roots, chunks or branches	3
charcoal	4
poles	5
logs	6
scants	7
primary products	8

Machinery in evidence: (ENTER ALL APPROPRIATE CODES)

MACHINERY PRESENT

CODE

scale for weighing	1
band or circle saw	2
lifting or loading machinery	3