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Determination of the present size of wood market, market functionaries and mechanism in the Uttarakhand region of India

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Abstract

Many changes pertaining to raw materials, equipments and technical methodologies, used in wood based industries, have been introduced in the recent past in tarai region of the state. Economic and technological developments have altered the use of wood; all these factors have been taken into consideration. Market research, therefore, calls for increased inputs in the face of absence of adequate market information system, shortage of wood raw material, growing compulsion to use plantation and agro forestry species etc. These areas playing pivotal role in the development of wood industry and are given special emphasis in the present study.

Key words: Agroforestry,wood demand,charcoal,kilns and plywood

Introduction

One of the obstacles faced to understand better about wood based industrial demand and supply of wood as raw material, market mechanism, functioning/ role of market functionaries in the market etc., is the lack of information at one place on the subject. A study by Seth (1972) reveal, that, for a systematic and scientific expansion of wood based industries, it is necessary as a first step to have adequate and continuing inventories of the renewable natural resources to determine their condition, productivity and potential use in relation to human needs and to support there as a guide to the proper utilization and treatment of these resources. Market research is a fine step process for acquiring data and analyzing the information in making marketing decisions. It minimizes the risk in making decisions by systematically gathering, recording & analyzing data to solve, discover, understand; and investigate and evaluate the marketing problems and practices.

Material and Methods

Collection of information

Relevant data/ information pertaining to objectives of study were collected from different sources such as direct consumers of wood such as wood industries, paper mills etc. prevailing in markets and different market functionaries working as channels in wood trade i.e. commission agents, traders or retailers etc.

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Primary Data collection

The data/ information from various markets functionaries existing in the markets of tarai region were collected with the help of well structured questionnaires based on reconnaissance survey conducted and tested with the help of few samples prior to collection of data. The data was collected from the market functionaries with the help of face – to – face interviews. Questionnaires used for in – depth interviews and observation methods based on degree to which the data to be obtained had an important bearing on the form of the questionnaires. Major types of questioning techniques were used for in – depth interview were direct questions, open – end questions (What type of flooring you prefer?), dichotomous questions (yes-no, true-false); multiple choice questions, rating scales type questions (showing a progression of feeling), preference and ranking type questions. Open-end questions (what do you like about preference of raw material poplar/eucalyptus in manufacturing plywood) have the advantage of providing greater range and depth of information than do direct questions.

Secondary data collection

The secondary data/ information were collected from different government organisations (GOs) and non–government organisations (NGOs) such as UKFDC, Century Pulp and Paper Industry Limited, Lalkuan, WIMCO Seedlings Limited, Udhamsingh Nagar, Pantnagar Agriculture University, Pantnagar, Directorate of Economics and Statistics, Dehradun including associations such as North Indian Plywood Manufacturing Association (NIPMA), Indian Agro and Recycled Paper Mill Association (IARPMA), New Delhi, Wood Technologist's Association (WTA), Yamunanagar, Haryana working in markets and wood consuming industrial units.

Determination of present size of markets

Tarai region was divided into two parts i.e. Udhamsingh Nagar and Nainital districts for studying markets more precisely. Comparative study was conducted in both the districts so as to assess the market size. All the markets at tehsil level were selected for carrying out the detailed study. The market size was assessed by estimating the number of wood consuming units and market functionaries operating in the selected markets related with direct or indirect consumption of wood as raw material and level of input and output of wood consumed by various industries and other units.

Identification of wood markets in tarai region

The Stakeholders are scattered all over the tarai region and no units are concentrated at a particular area as in case of other states hence delineation of markets in the region was necessary for understanding working of different wood based functionaries in these markets. The selection of market was mainly based on abundance of market functionaries, availability of wood as raw material, ease of access in markets to study market mechanism and other marketing aspects. As per reconnaissance survey 12 timber markets spread over in both the districts were identified. These were Haldwani, Kaladhungi, Lalkuan and Ramnagar in Nainital and Bajpur, Gadarpur, Jaspur, Kashipur, Khatima, Kichchha, Rudarpur and Sitarganj Udhamsingh Nagar district.

Results and Discussion

The existing size of a particular market was assessed based on the number of wood consuming units operational in the market (Table 1). Distribution of the units in the study area is uneven. The numbers of plywood industries operational in Rudrapur and Ramnagar areas are substantially high compared to other parts of the tarai region. In recent years due to establishment of SIDCUL (Plate 6a and 6b) in Rudrapur in Udhamsingh Nagar district more plywood industries have been established in this district. There are around 30 plywood and ply board industries clustered in these districts. These industries include medium density fibreboard and particle board industries. The tarai region is also enriched with 8 sugar mills, 2 cloth mills, 2 flour mills, 3 polyester films and chip manufacturing units. Commission agents and timber traders are working as major market functionaries in these markets. There is no mandi for the large scale sale – purchase of agro-forestry produce. Moreover, agro-forestry is adopted only by few large farmers of plain areas of the region. Market wise distribution of various wood consuming sectors present in respective markets and major wood species traded has been mentioned in Table 2.

Table 1: Market wise distribution of wood consuming units and market functionaries in tarai region

		Type of wood based unit									
	Name of the wood Market	**Plywood Units**	**Paper & pulp unit**	**Saw Mills**	**Wooden furniture units***	**Wooden crates and packing cases units**	**Charcoal Units**	**Brick Kilns**	**Commission agents**	**Misc. units**	**Total**
Udhamsingh Nagar	**Kashipur**	0	0	8	120	3	1	1	12	4	**149**
	Bajpur	0	0	2	30	0	0	4	3	1	**40**
	Gadarpur	0	0	4	15	1	0	3	4	1	**28**
	Rudrapur	16	0	7	45	1	0	0	16	2	**87**
	Khatima	0	0	2	35	2	0	8	5	3	**55**
	Kichchha	0	0	3	26	1	0	9	4	1	**44**
	Sitarganj	0	0	4	27	1	0	4	3	1	**40**
	Jaspur	2	0	24	175	2	1	1	26	11	**242**
Nainital	**Ramnagar**	12	0	30	82	7	1	0	8	12	**152**
	Haldwani	0	0	35	110	15	1	0	9	15	**185**
	Kaladhungi	0	0	3	35	0	0	0	3	1	**42**
	Lalkuan	0	1	5	38	8	0	0	17	1	**70**
	Total	**30**	**1**	**127**	**738**	**41**	**4**	**30**	**110**	**53**	**1134**

***including door/ window frames**

Table 2: Market wise distribution of various wood consuming units and major wood

Name of the wood market	Type of wood consuming units present	Major wood species traded(procured from UKFDC)	Agroforestry wood traded(procured from farmer's field)
Kashipur	saw mills, wooden furniture, wooden crates and packing cases, charcoal kiln, brick kiln	sal, shisham, teak, chir, deodar, imported* wood	poplar, eucalyptus
Bajpur	saw mills, wooden furniture units, brick kilns	imported* wood, sal, teak, toon	poplar, eucalyptus
Gadarpur	saw mills, wooden furniture units, brick kilns	Eucalyptus, poplar	poplar, eucalyptus
Rudrapur	plywood units, saw mills, wooden furniture units, wooden crates and packing cases units,	Eucalyptus, sal, shisham, teak, toon, chir	poplar, eucalyptus
Khatima	saw mills, wooden furniture units, wooden crates and packing cases units, brick kilns	sal, teak, chir, eucalyptus, poplar, jamun, kokat	poplar, eucalyptus, jamun, mango
Kichchha	saw mills, wooden furniture units, wooden crates and packing cases units, brick kilns	sal, shisham, teak, jamun, amaltas, eucalyptus, kokat	Poplar
Sitarganj	saw mills, wooden furniture units, wooden crates and packing cases units, brick kilns	sal, shisham, teak, chir, eucalyptus, poplar, mango, kokat	jamun, mango, poplar
Jaspur	plywood units, saw mills, wooden furniture units, wooden crates and packing cases units, charcoal units, brick kilns	sal, shisham, teak, jamun, tun, kokat**, eucalyptus, poplar	eucalyptus, poplar
Ramnagar	plywood, saw mills, wooden furniture, wooden crates and packing cases units, charcoal units	sal, shisham, teak, toon, chir, eucalyptus, poplar, mango, jamun	mango, jamun
Haldwani	saw mills, wooden furniture units, wooden crates and packing cases units, charcoal kiln	sal, teak, poplar, chir, eucalyptus, kokat	mango, jamun, poplar, eucalyptus
Kaladhungi	saw mills, wooden furniture units	teak, sal	poplar, eucalyptus
Lalkuan	paper and pulp mill, saw mills, wooden furniture units, wooden crates and packing cases units	sal, teak,	poplar, eucalyptus, bamboo

*imported wood: Malyasian sal, burma teak, meranty, New Zealand pine. **kokat: all softwood species such as haldu, faldu, jhingan etc

Timber Markets of Udhamsingh Nagar District

Udhamsingh Nagar is the newly created district of Kumaon region in Uttarakhand. It is the largest industrialized district in the region. Due to easy availability of the raw material (mainly poplar and eucalyptus) used in manufacturing plywood and other valuable products in this area many wood based industries have been set up and still the avenues are open here for the development of a reputed production base, especially for panel products. As stated earlier, eight main marketing centres of wood were identified in this district. These are Jaspur, Kashipur, Bajpur, Gadarpur, Rudrapur, Kichchha, Sitarganj and Khatima. The brief description of each market is given below:

Jaspur: This market touches boundaries of districts Bijnore and Moradabad ofUttar Pradesh therefore; trading is largely influenced by these districts. It is said that this market is more than 100 years old. The total number of wood consuming units in this market is 242. The number of plywood units, saw mills, wooden furniture units (including door/ window frames), brick kilns, wooden crates and packing cases units, charcoal kilns, and miscellaneous units are 2, 24, 175, 1, 2, 1 and 11, respectively (Table: 1). There are 26 commission agents working in this market who help in procurement of raw material from farmers to various wood consuming units. Jaspur is said to be one of the biggest markets of sal timber in the country. The main species traded in this market include sal, shisham, teak, jamun, tun, kokat, etc. (Table: 2). Timbers such as sal and shisham from this market are supplied to other states and different distant markets across the country. Wood is mainly procured from depots of UKFDC. Wood coming from Forest Corporation is mainly consumed for building and construction purposes such as manufacturing of door and window frames. The wood bought is generally of III/IV grade which is comparatively cheap. The reason stated for this is that most of the traders of the region are not financially sound to procure high quality wood which is of high price. Most of the traders in this market are Muslims and have inherited this trade as well as sound knowledge of sawing from their predecessors. Optimum recovery of wood is attained in this market during sawing as the machines possessed are of better quality than the other markets of the region. The reason is the availability of skilled workforce in comparison to other markets. Most of the farmers from adjoining areas bring their agro-forestry produce (mainly eucalyptus and poplar) for sale in this market. Small part of wood is used for making various articles like legs of takhats, kitchen cupboards, sofa frames, handles of agricultural implements, and a number of miscellaneous articles. The major part of waste wood including the sawn wood of very low dimensions which may not be used for construction or elsewhere, go to brick kilns and other factories to be used as fuel.

Kashipur: The market is 25-30 years old. The total number of wood consuming units in this market is 149. Out of which the number of saw mills, wooden furniture units (including door/ window frames), brick kilns, wooden crates and packing cases units, charcoal kilns, and miscellaneous are 8, 120, 1, 3, 1 and 4 respectively (Table 1). There are 12 commission agents working in this market. There is no plywood manufacturing units in this market. Though there are paper mills but none of them is based on wood as raw material. The main timber species traded here are sal, shisham, teak and chir (Table 2). Small volume of deodar is also traded, the volume of which has reduced gradually over the years. These timbers are procured from depots of UKFDC (Plate 7a). A very small quantity of imported wood is also being traded. These include species like Burma teak, Malaysian sal, meranty and New Zealand Pine which is procured from Delhi and Hapur wood markets. Some traders do procure the wood from Gujrat as well. As far as the agro-forestry wood (Plate 7b) is concerned, the major part of the demand is met by Jaspur market due to its proximity to adjacent wood markets of the neighbouring state.

Bajpur: This is considerably a smaller market of Udhamsingh Nagar as far as timber trading is concerned. The total number of wood consuming units in this market is 40. Out of which the number of saw mills, wooden furniture units (including door/ window frames), brick kilns and miscellaneous are 2, 30, 4 and 1, respectively (Table 1). There are 3 commission agents currently working in the market. There is no plywood unit, paper mill, wooden crates and packing cases units and charcoal kiln in this market. The wood is mainly consumed in furniture and door/window units. The wood is procured from Ramnagar, Jaspur and Rudrapur. Main species traded are poplar, eucalyptus, sal and teak (Table 2). The consumption of agro-forestry wood is mostly in the form of firewood. The main firewood consumers are the cast iron factories, sodium silicate factory and brick kilns situated at Bajpur-Belparao road. It was told that the agro-forestry wood from this area is sent to Century paper mill, Lalkuan and even to district Rampur, Uttar Pradesh and Yamunanagar, Haryana. Imported wood like Meranty and New Zealand pine is sold here in a very small quantity.

Gadarpur: This market is proportionately small from the point of view of timber trade. The total number of wood consuming units in this market is 28. Out of which the number of saw mills, wooden furniture units (including door/ window frames), wooden crates and packing cases units, brick kilns, and miscellaneous units are 4, 15,1, 3 and 1 respectively (Table 1). There are 4 commission agents working in this market. There are no plywood units, paper mills and charcoal kilns found in this market. Since the area is surrounded by the villages, farmers bring their wood here for sawing and take it back for self use. The furniture makers make furniture from almost all agro-forestry species (Table 2), which is mostly used in rural areas. Farm grown wood from this area is also supplied to Century paper mill. One shop in this market was found making hooks and rafts for supply to cloth mills from eucalyptus wood.

Rudarpur: This is somewhat a good market of timber coming from UKFDC perhaps because of fact that Rudrapur is a developed area and centre of government offices. The total number of wood consuming units in this market is 87. Out of which the number of plywood units, saw mills, wooden furniture units (including door/ window frames), wooden crates and packing cases units and miscellaneous units are 16, 7, 45, 1 and 2, respectively (Table 1). There are 16 commission agents working in this market. There are no paper mills, charcoal kilns and brick kilns in this market. The timber traders are mostly situated in Galla Mandi. The

State Industrial Development Corporation of Uttarakhand Limited (SIDCUL), has occupied large area where construction is being done at large scale. All such constructions require timber in huge quantity. Wood species being traded here mainly consists of sal, shisham, teak, chir, toon and eucalyptus (Table. 2). It was told that timber is procured from UKFDC. Some of the traders were found manufacturing frames of doors and windows. In SIDCUL, 4 big plywood factories namely Greenply, Shirdi, Rama and A.T.P. Silvi Plywood industries have recently been established which have demand for large quantity of agro-forestry wood. The agro-forestry wood, therefore, directly goes to these factories and is not stocked in the market. Besides, some old plywood factories also exist there. Agro-forestry wood coming to this area belongs to Uttarakhand and U.P. both. It was revealed that 70% of eucalyptus being consumed here comes from U.P. and the rest 30% is from Uttarakhand. On the other hand 70% of the total Poplar consumed is from Uttarakhand and the rest 30% comes from Uttar Pradesh (Fig: 1).

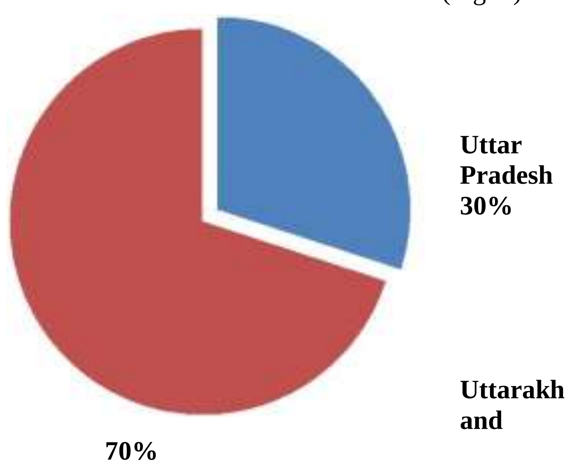

Fig: 1: share of poplar wood coming in Rudrapur wood market

Kichchha: This is comparatively a new market of the region and is small in size. The total number of wood based industries is 44 in this market. Out of which, the number of saw mills, wooden furniture units (including door/ window frames), wooden crates and packing cases units, brick kilns and miscellaneous units are 3, 26, 1, 9 and 1, respectively (Table 1). Besides this, four commission agents are working in this market. There are no plywood units, paper mills and charcoal kilns found in this market. Most of the wood traded in this market is indigenous that include sal, shisham, teak, jamun, amaltas, eucalyptus and kokat (Table. 2). It was stated that the total procurement of wood is done from depots of UKFDC located at Lalkuan and Tanakpur. In addition to above, the agro-forestry wood is used in small quantity by miscellaneous small units for making the wooden articles of local demand.

Khatima: This market was established somewhere around 1962 when wood from Nepal also used to come. The total number of wood industrial units in this market is 55. Out of which, the number of saw mills, wooden furniture units (including door/ window frames), wooden boxes and packing cases units, brick kilns and miscellaneous are 2, 35, 2, 8 and 3, respectively (Table 1). There are no plywood units, paper mills and charcoal kilns found in this market. Five, out of 35 traders, are said to be working as commission agents for the traders of outside this market. Most of the forest area available near Khatima town is reserved forest, so the permission for felling and transit of every tree product, including agro-forestry such as poplar, is mandatory. The transit permit is valid only for 24 hours only. In case wood is brought to the market for sawing and is not taken back within 24 hours, fresh transit permission has to be taken. The fee charged for issuing transit permission is Rs 0.50 per quintal. In this market, wood species being procured from UKFDC are sal, shisham, teak, chir, eucalyptus, poplar, jamun and kokat (Table 2). There are two wood based units engaged in making pallets /packing cases for polyvinyl films which are consumed locally in India and are also being exported. The wood species used for this purpose is chir. Eucalyptus, poplar, jamun and kokat are other wood species used for making packing cases/crates in other units. It was brought to the notice that people practicing agro-forestry plantations in the area are not aware of the quality planting material and prevailing marketing practices, thus do not get proper due return from their tree crops.

Sitarganj: This market is in the vicinity of Khatima wood market and hence was told that the supply of timber is from forests depots as well as agro-forestry wood from Khatima. The total number of wood consuming units in this market is 40. Out of, which the number of saw mills, wooden furniture units (including door/ window frames) , wooden boxes and packing cases units, brick kilns and miscellaneous are 4, 27, 1, 4 and 1, respectively (Table 1). There are 3 commission agents in this market. There are no plywood units, paper mills and charcoal kilns found in this market. The forest wood traded in this market is sal, shisham, teak and chir while the agro-forestry includes eucalyptus, poplar, jamun, mango and kokat (Table 2). The latter species are used for making packing cases for transporting fruits and vegetables.

Mango wood is mainly used for making frames of furniture. The wood is mostly brought in the market after getting proper transit permit from concerned authorities. Some specific information received in the markets was that shisham in small quantity from agro-forestry sector also comes to the market although the quality is not as good as that from forest department. Rates for the two sources hardly differ because of unawareness of the general consumer. Tree growers get only 60-65% of their produce from the contractors. It was also pointed out that the supply of illegal wood in this market is substantial.

Timber Markets of Nainital District

Nainital is a typical district of Kumaon having tropical, subtropical type, temperate, sub alpine and alpine zones in its lap. The main tree species grown in the district are deodar, chir, kail, fir, sal, teak, eucalyptus and poplar (Table 2). Major marketing centres of wood in the district include Haldwani, Ram Nagar, Lalkuan and Kaladhungi. The detailed description of these markets is being given below:

Haldwani: It is known to be more than 100 years old and biggest timber market in of the district. The total number of wood consuming units in this market is 185. Out of which the number of saw mills, wooden furniture units (including door/ window frames) , wooden crates and packing cases units, charcoal kilns and miscellaneous are 35, 110, 15, 1, and 15, respectively (Table 1). There are nine commission agents are working in this market. There are no plywood units, paper mills and brick kilns in this market. According to the opinion of traditional timber traders, once upon a time, there used to be Haldu (*Adina cordifolia*) forests in this area, after which the place is named as 'Haldwani'. It is the main collection and marketing center of the Non-Timber Forest Produce (NTFPs) and timber/ wood produced from Kumaon Himalayas. Most of the traders deal in wood procured from UKFDC, beside few engaged in the marketing the private agriculture produce. As far as agro-forestry wood is concerned, its supply from the local sources is quite nominal and is mainly consumed by the paper mill at Lalkuan and plywood factories at Rudrapur, and Ramnagar. Saw millers usually purchase agro-forestry wood in bulk during the peak season of vegetables and fruits when the demand for packing cases is high. These units convert agro-forestry wood into packing cases/ crates for supply to growers of fruits and vegetables mostly in hilly areas. Few saw millers are engaged in manufacturing of packing cases round the year using agro-forestry species and miscellaneous species. Main species traded in this market are sal, teak, chir, poplar, eucalyptus and kokat.

Ramnagar: It is the second largest timber market of the district as far as the number of wood based units present in the market viz; plywood industries; saw mills; furniture; etc. and consumption of wood raw material is concerned. As per the opinion of traders the market is nearly 35 to 40 years old. The total number of units in this market is 152. Out of which, the number of plywood units, saw mills, wooden furniture units (including door/ window frames), wooden crates and packing cases, charcoal kilns and miscellaneous units are 12, 30, 82, 7, 1 and 12, respectively (Table 1). No paper mill and brink kiln was found in this market. Most of the traders of this market deal mainly in sal, shisham, teak, toon, chir etc., procured from the UKFDC. There are eight market functionaries are functional in this market as commission agents. Some small timber traders deal in agro-forestry species like eucalyptus, poplar, mango, jamun etc. The wood bought by the farmers is generally of inferior grade that is comparatively cheaper. The reason stated for this was that most of the users such as door/ window manufacturers and furniture makers are not financially sound and cannot procure high quality wood.

Lalkuan: This is comparatively a very small timber market with respect to Haldwani and Ramnagar but trading especially of agroforestry species, which are used for pulp is the largest

in this market among other markets of the district. This is because of presence of the only wood based paper and pulp mill in this market and in tarai region as well. The total number of wood consuming units in this market is 70. Out of which the number of paper mill, saw mills, wooden furniture units (including door/ window frames), wooden crates and packing cases and miscellaneous units are 1, 5, 38, 8 and 1 respectively (Table 1). No plywood unit, charcoal unit and brick kiln was found in this market. There are 17 commission agents functional in this market who procure raw material mainly for the paper mill present in tarai region. The presence of paper mill is a remarkable feature of this market and hence trade of agroforestry and pulp wood is more than other wood species. Most of the traders deal mainly in agroforestry wood while few of them deal with sal, shisham, teak, toon, chir procured from UKFDC depots through open auction (Table 2). Main consumer of agro-forestry wood here is M/s Century Paper Mills. Bamboo is also consumed in large quantity by this mill as raw material which is mainly procured from other states through commission agents.

Kaladhungi: Kaladhungi is a small developing township of the region. The total number of wood consuming units in this market is 42. There are no big industrial units in this market except 3 saw mills, 35 wooden furniture units (including door/ window frames) and 1 miscellaneous unit engaged in the manufacturing of cartwheels (Table 1). There are 3 commission agents working in this market. The furniture units manufacture inferior quality furniture for village population, mainly for marriages because of absence of big furniture trader and very less demand of good quality furniture. The good quality furniture is made available from nearest markets by furniture traders as and when required. Thus, the total supply/ demand of wood are very less as compared to Ramnagar and Haldwani. Main species being traded are teak, sal, poplar, eucalyptus and kokat (Table: 2).

Market mechanism in tarai region of Uttarakhand

Method of sale of wood raw material in tarai region: The broad procedure of marketing of agro-forestry wood was worked out by discussions with the market functionaries during the field and market survey. Some of the farmers were also selected and enquired to get an idea about their preference for selling agro-forestry wood. It was found that approximately 65 % farmers sell their wood in the form of standing trees to the contractors, about 25% harvest their produce and sell through the commission agents to different industries in the region, while approximately 10% of them especially big farmers sell their wood directly to the buyers or plywood industries and the paper industry (Figure 2). The detailed market mechanism is discussed below:

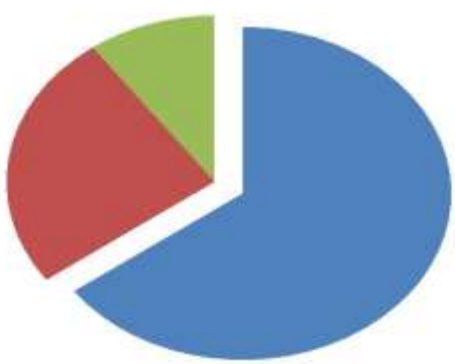

Fig. 2: Preference of selling agro-forestry wood raw material in tarai region

The wood raw material is generally sold through contractors, commission agents or directly as there is no well established mandi in the region for proper marketing of the produce. The raw material is sold through both pre and post harvest sale. The common mode of transportation is trolley and truck. A trolley and a truck carry approximately 100-140 qts and 100-120qts of wood respectively. The produce is not unloaded in the market instead directly goes to the respective consumer/ functionaries. Some farmers as mentioned above sell their standing trees to the contractors who sometimes grade the wood on ocular basis. In case of selling of standing trees contractor is solely responsible for procuring wood from farmers field without harming the agriculture crop and bear loading and unloading charges, while in case of selling wood through commission agents sellers have to bear the loading and unloading costs. Commission agents have to perform negotiation with the industries only. He fixes a minimum price below which sale is not finalized. After settlement of the sale, commission agents give a signed chit to the seller mentioning the weight under different categories and the prices thereof. The seller takes his payment from the commission agent who later takes it from the buyer. The rate of commission was only 2.5% earlier during 2005-06 while it has increased to 5% in 2007-08. This may vary from 4-5 % depending upon quality and quantity of wood. Commission agents in some cases have tie ups with industries to which they supply wood at a fixed commission which is less than prevalent commission in the market at that time. It is also found that some of the timber traders who also function as commission agents buy wood on behalf of plywood industries at Rudrapur in Udhamsingh Nagar district and then supply to the respective industry. This is generally a case of plywood industries but not with all as in case of paper industry payment is made at the time of unloading of raw material at mill gate. It is observed that commission agent-buyer's deal is generally credit based, but if payment is made in cash then 2% less commission is being paid by the buyer.

Marketing channels prevailing in the market: Marketing of farm forestry produce is very complex in nature. The markets are highly unregulated, imperfect and oligopolistic as far as the price; availability and quality parameters are concerned. There is nothing like the market information system. The farmers are generally not much aware about the various sizes, quality of logs and different ways in which wood is being utilized. They are totally ignorant about how to make the harvesting decision and negotiate with prospective buyers to get maximum price for their produce. Intermediaries, traders and industrialists take advantages of it and exploit the situation to their favour. Marketing of farm forestry tree produce in Uttarakhand is a three-tier system. The process begins at farmers' land where wood is produced. A very small portion of the produce is put to domestic use. To distribute the farm forestry produce to diverse and distant markets, services of different market intermediaries are utilized. For selling the produce in timber market, the services of contractor/ middlemen/ commission agents are often required. However, dealing with various intermediaries and end user categories is also direct in certain cases. Contractors are more often involved in the process when farmers find it difficult to harvest and transport their produce. The intermediaries such as contractors, commission agents, timber traders and saw mill owners play an important role in the marketing of indigenous wood coming from forests and neighbouring states in the region. Most of the farmers find it convenient to sell wood through contractors or commission agents because majority of them face difficulty in making arrangement for felling of trees, transportation and locating the buyers. Some of the middlemen take title of the produce and sell it to next middlemen/ contractor/ buyer after adding his costs and profit, and they process it further or channelize onwards. Marketing of agro-forestry produce is a step-by-step physical movement of wood with ownership, risk and sale efforts transferred successively from producers to intermediaries and finally to buyers. Bargaining and price negotiation takes place at each stage and information about the demand supply status as well as price and quality of wood in the final market reaches to the producers through these channel intermediaries. This movement of tree product follows different pathways involving various market intermediaries, which construct different marketing channels. A brief description of different market intermediaries and marketing channels which are presently operational in tarai region of Uttarakhand for movement of agro-forestry produce and other wood is summarized in flow chart as given below:

Detail of channels preferred in wood markets of tarai region

Three markets namely Rudrapur, Jaspur and Kashipur in Udhamsingh Nagar and two markets, i.e., Lalkuan and Haldwani in Nainital district were selected to study the important market channels and inter-market comparison of producer's share in the consumer's rupee for the selected agro-forestry species. Lalkuan and Rudrapur are the important and biggest markets for agro-forestry species in tarai; therefore these markets were selected for this analysis. Jaspur, which is supposed to be the largest timber market in surrounding area and Uttarakhand for sal wood that influences the price of the neighbouring markets, was also included in this study. The important market intermediaries and marketing channels were identified in these markets. 10% of the tree growers in the sampled villages, at least 2 contractors in each tehsil, 10% of the commission agents and 10-35% of consumers in different markets of these districts were randomly selected for this purpose. Following marketing channels (I and II) were found to be the most important and frequently operational.

It is worth mentioning here that channel I and II are important market channels but few deviations do exist and have not been considered for analysis due to their smaller magnitude and infrequent usage. There are other channels (III) being preferred by the wood consuming units in case of wood procuring from forests depots. UKFDC supplies wood from forests through open auction carried out in forest depots located at various locations in state, which is then made available to consumers through timber traders. It was seen that timber traders take part in scheduled auctions taking place at various depots all over the states and do help in procuring wood to consumers on retaining some profit. Almost all big traders (around 10% in number) in tarai prefer this channel.

It was also found that UKFDC directly supplies certain volume of wood to wood based industries through allotment. Allotment of wood to forest based industries established before 11-12-1986 is being made by State Government, as per policy guidelines of UP Transit of Timber and other Forest Produce Rules 1978 (Anon, 2001) through the corporation. Allotted wood is supplied only to industries located within the state and on a year to a year basis. The rates of allotment are fixed on the basis of rates received through auctioning 25 percent of the total allotment of that species to the purchaser. Eucalyptus wood, A-grade softwood like Poplar, Semul, Ailanthus, Haldu, Curtel etc. are the ones allotted to industries. There is no information about allotment to new industries. Channel IV for procurement of raw material from Forest Corporation is preferred by all functionaries except some of the old plywood units to whom wood is allotted. But to meet the demand of raw material old industries also send their representatives in scheduled auctions. Thus channel IV is the most favoured marketing channel for almost all wood consuming units. Channel V is preferred by very few timber traders in Kashipur market, the only market for imported timber trade in tarai region. These timber traders procure imported wood from other states. Volume of imported wood traded in tarai region is negligible in comparison to other wood species.

All channels described above are preferred in both

Udhamsingh Nagar and Nainital districts. In all markets contractors and commission agents work as an important link in marketing of agro-forestry produce. They have enough knowledge about forest laws and remain in regular touch with the forest officials and also familiar with prevailing market rates/ trends. At times, big growers also work as contractors in their area. Besides this, in certain cases the traders/ sawmill owners also act as contractor. Valuation of trees for the purpose of entering into an agreement for contract is made on the basis of rough estimation of length and girth of tree trunk, prevailing market prices and costs involved in harvesting, conversion, transportation, etc. Contractors, generally pay the tree growers some amount (token money) in advance, at the time of finalization of an agreement. For the purpose of payment of token money to the producers, the contractor (other than traders/ sawmill owners) take the amount in advance from actual buyer (trader/ sawmill owner or industrialist) for whom the contractor arranges the wood. This shows that their sales are credit linked also. The contractors keep on visiting tree growing villages and negotiate for buying farmers' tree crops. Contractors often take title to the produce and thus become entitled to the gains from marketing of timber bought from the growers on the agreed upon conditions regarding payment (e.g. lump-sum or in instalments), felling and transport, etc. It was stated that in case of pre-harvest sale of tree crop to the contractors, the contractors take the responsibilities of arranging for felling permissions (wherever needed) and transportation of wood to the markets.

Flow chart of different marketing channels for timber

I. Producer → ***Contractor*** → ***Commission agent*** → ***Consumers***
(Farmers)

II. Producer → ***Contractor/ timber trader*** → ***Consumers***
(Farmers)

III. UKFDC → ***Timber trader*** → ***Consumers***

IV. UKFDC → ***Consumers***

V.Timber Traders ***Commission agents*** ***Consumers***

Tax structure: The Poplar is an agro forestry produce so farmers are not taxed for it. Tax in case of industries include

VAT	12.5%
Mandi tax	2.5%
Income tax	2.84%

Except these taxes the commission agents charges 2-5% of total deal as their commission. The total tax which is paid by the buyers during the whole purchase from depot is around 18.156%.

Marketing cost of the agro-forestry trees: The wood raw material being procured from farmer's field is first harvested, loaded and then transported to the respective market or wood consuming units to which raw material is to be supplied. This complete process of supply of wood to industries door or else in respective market requires manpower. Following table denotes marketing cost of agroforestry produce (Table 3).

Table 3: Marketing cost of agroforestry produce

S. No.	Item	Expenditure (Rs per Qt)
1	Felling	15
2	Transportation	30
3	Octroi	-
4	Commission	4-6%
5	Weighment charges	1500 / trolley
6	Deduction in weight due to dryage (kat)	5 kg.

Prevalent sizes of Poplar and Eucalyptus in market

In tarai region, poplar wood has been largely used by the various wood based industries. Apart from this, these units also consume eucalyptus wood in the units. Prevalent sizes of wood raw material available in markets and UKFDC are shown in Tables 4; 5 and 6.

Table 4: Sizes of eucalyptus and poplar in the market

S. No.	Category	Girth class (inch)	Length (feet)
1	Over	>24	8.5,6.5,4.25,3.25
2	Under	18-24	-do-
3	Sokhta	12-18	-
4	Fuel wood	<12	-

Eucalyptus is used in making furniture and agriculture implements in local markets. For this purpose logs of higher girths are preferred.

Table 5: Size wise rates of Eucalyptus in UKFDC (2006):

S. No.	From UKFDC			From Farmers		
	Size(cm)	Length(m)	Rate(Rs./m^3)	Size (cm)	Length(m)	Rate (Rs./Qt.)
1.	21& up	3	2360	31-60	2.65	170
2.	31-60	3	2450	61&above	2.65	270
3.	61-90	3	2700			
4.	91-120	3	3000			
5.	121-150	3	3600			
6.	151 & up	3	4500			
7.	21-30	5	6000			
8.	31-40	5	2500			
9.	16-20	8 ft.	1800			

Table 6: Size wise rates of Poplar in UKFDC (2004-05)

S. No.	From UKFDC			From Farmers		
	Size(cm)	Length(m)	Rate(Rs./m^3)	Size (cm)	Length(m)	Rate (Rs./Qt.)
1.	31-45	2.65	2100	31-60	2.65	190
2.	46-75	2.65	3000	61&above	2.65	300
3.	75&above	2.65	4200			

Price Trend Analysis

Price trend of Poplar and Eucalyptus year wise: Price trend of poplar and eucalyptus in various markets of tarai was studied. The poplar rates were continuously decreasing during 90s so farmers reduced the area under poplar plantation in this area after 1996 which resulted in irregular supply of wood in the region, and situation became worst in 2003 when prices of poplar crashed down to it's lowest because of excess supply of poplar in the market. But in 2004 again the demand increased because of development of SIDCUL the situation improved and it was observed that the prices of over sized timber (girth above 24″) have been increasing from 2003 (170 Rs./Qt. for poplar and 225 Rs./Qt. for eucalyptus) to 2008 (660 Rs./Qt. for poplar and 450 Rs./Qt. for eucalyptus). Due to price crash most of the farmers sold their crop at cheaper rates irrespective of quality and age of their crop. This resulted in decreased supply in 2004 and hence the price condition improved because of less availability and more demand by new industries in SIDCUL. It was also seen that the condition improved in 2005 and recovered in 2006. In case of eucalyptus there has been almost constant supply but decrease in quantity which also enhanced eucalyptus prices. This increase in prices is less as compared to poplar. Table 7 show comparative study of prices of both the species in the market. From the past information sharp variation in prices of over sized poplar while almost constant in case of eucalyptus was found. In 2004 the rates of eucalyptus were higher than that of poplar while in 2005 the trend was reversed. It is expecting by some of the experienced market functionaries that the prices of poplar and eucalyptus will increase continuously till 2010. Then again there may be price crash especially in case of poplar. The reason behind this may be abrupt increase in prices of poplar in 2004 which will result in excess supply in 2011 as poplar plantation again got boost with increase in prices in 2004 onwards. But, some other market functionaries said that this will not happen again and prices will remain as if at present.

Table 7: Price trend of poplar and eucalyptus in markets of tarai

S. No.	Year	Poplar (Rs./Qt.)		Eucalyptus (Rs./Qt.)	
		Under Sized(girth 18″-24″)	Over Sized(girth above 24″)	Under Sized(girth 18″-24″)	Over Sized(girth above 24″)
1	2003	200	250	150	225
2	2004	110	150	175	250
3	2005	300	420	225	275
4	2006	350	450	300	350
5	2007	400	550	300	375
6	2008	450	650	375	450

Causes of variation in prices of wood raw material in tarai region

Variation due to harvesting decision and season: Though wood is supplied regularly in these markets but there found significant variation in availability depending upon the season in which trees harvested and some other factors. In tarai region trees are generally harvested after April and October every year. This is because fields remain full of standing agriculture crop which may be damaged if trees harvested. To minimize this damage less harvesting is preferred in this duration. Farmers during this period arrange the felling and transportation of these trees after subsequent fellings. In the rainy season the prices are higher because of limited transportation facilities. Also water logged fields do not allow farmers to fell and transport trees. It was observed that supply in this period is approximately 22 – 25% less than other seasons.

Variation during each week

Variation in prices is totally an economic phenomenon. It depends upon demand and supply conditions of the market on a specific day. If at a specific day supply is more than the demand, the rate will decrease and if supply is less than demand, naturally the rates will increase. Generally the prices are higher on days before and after Sunday i.e. Saturday and Monday. The reason behind this is the farmers know that there will be no purchase on Sunday and any other scheduled holiday and so they carry their crop either a day before holiday or a day after holiday which results in increased supply of raw material in market. Because of higher supply, rates come down. But the difference in total price was found only of 5 – 10 Rs./Qt.

Variation due to production

Significant variation has been observed in recent past after each 5-6 years because after 5-6 years the production of the raw material achieves its peak and thus availability becomes more results in price fall of the wood. This situation has been seen in 2004 and it is projected that the same price crash will take place in 2011. Such conditions may arise at an interval of every 5-6 years because the rotation of the life cycle of poplar and eucalyptus is 7-8 years but growers cut it in 5-6 years. Sometimes for earning more profit in a less time they cut the trees in the 4-5 years duration even because this wood can be utilized for manufacturing plyboards. Farmers have been seen selling their produce before rotation period because of their personal reasons or need in the market. Selection of wood by the commission agents and traders generally have a good bole size and volume also as they take care of all factors prior to supply of wood to respective industry. This is the one of main reasons of high price of wood raw material supplied through commission agents. Prices of wood supplied in the market also vary with type of industrial unit to which wood is supplied. Table 8 denotes different rates prevailing in markets.

Table 8: Rates prevailing in various other wood based industries (2004-05)

S. No.	Type of industry	Raw material	Price (Rs. / Qt.)
1.	Paper and pulp industry	Eucalyptus and poplar	200
2.	Wooden crates	Poplar	160
3.	Pencil units	Poplar	150
4.	Poles	Eucalyptus	160
5.	Brick kilns	Eucalyptus	110
6.	Planks	Poplar and Eucalyptus	90

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