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FORESTRY PLANNING AND DEVELOPMENT PROJECT

CONSULTANCY REPORT

WOOD USE IN THE SPORTS EQUIPMENT INDUSTRY

By

Envoforestry (Pvt) Limited

**Under Contract to:
Winrock International
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**for the
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and
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This survey report has been written by Dr. Muhammad Ashraf, Managing Director, Envoforestry (Private) Limited, Lahore as consultant to Winrock International/USAID under the Forestry Planning and Development Project sponsored by the Government of Pakistan-USAID.

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S U M M A R Y

This report is based on the survey of eighteen wood based sports equipment manufacturing units, all located at Sialkot city in the province of the Punjab where the entire sports goods making industry of Pakistan is concentrated. The salient points that emerge as a result of this study are as follows:

Out of a total of about 400 listed and unlisted sports goods manufacturing concerns not more than 100 use wood as the main raw material; the rest use leather or synthetics. In addition, approximately 1000 families residing in Sialkot city and its suburb make wood based sports items.

This cottage industry is intensely export oriented and the trend is not only to change over from manufacturing sports equipment based on wood to that based on non wood materials but also from making high class equipment to low quality cheap goods.

The estimated total annual requirement of wood is 41,000 m³ (Poplar 22,600 m³, Mulberry 7,000 m³, Willow 5,700 m³, others 5,700 m³), and there is no shortage of it. The industry is expected to keep more or less the existing pace of production for the next few years and thus the annual requirement of wood is also not expected to change appreciably, that is, it is expected to remain between 40,000 m³ to 50,000 m³ during the next 3 years. Rising prices of wood and the difficulty experienced at times in getting wood of good quality, especially of mulberry, makes the manufacturers feel uncomfortable. The use of wood of smaller sizes and low quality has become a routine.

The industry is working somewhat impaired and is losing its position in the international market as producer and supplier of top quality sports

equipment. Availability of wood is not the cause. The main reasons are low level of technology employed, low grades of materials used, narrow range of products made, and total lack of planning as an industry.

The international demand of sports goods is increasing. The demand of EC countries alone is 10 times of the entire production at Sialkot. The European and South Asian producers of sports goods will sooner or later go out of production due to their comparative higher costs of material and labour. Pakistan thus has a good potential to increase its sale worldwide and expand the industry to at least 3 times of the present level in the near future, say by the year 2000, provided it removes the constraints mentioned above.

In that event the demand of wood will also increase proportionally. Yet the supply of wood of the two main species of poplar and mulberry will not become a problem. During the year 1989-90, farm lands of N.W.F.P. alone produced 889,000 m³ of poplar and 171,000 m³ of mulberry wood. Willow wood is and will remain in short supplies and its production will have to be increased substantially.

The industry will gain much if it sets up its own research and information centre.

INTRODUCTION

The sports goods industry of Pakistan is more than a century old but is still a cottage industry. It was one of the first ones to contribute towards the foreign trade economy of the nation at the time of independence in 1947. Shattered and reduced like other industries due to the then prevailing holocaust it still managed to earn a revenue of about US\$ 200,000 during the year 1947-48. As a marked contrast to that the export earning of this industry during the calender year 1989 was more than US\$ 77,800,000 (about 1.6 million rupees). The sports goods industry is localized in the city of Sialkot in the Province of the Punjab. It has two product groups; one using wood as basic raw material and the other using leather and synthetic resins as raw material. The main objective of this survey is to ascertain how the wood using section of the sports equipment is faring in the present day international competition; what are the wood consumption trends and problems; and what does the future hold for this industry of Pakistan whose name like that of cotton and rice is strongly linked with foreign trade.

REVIEW

Sabazwari (1963) after giving figures about the local consumption and export of sports goods from 1941-42 to 1960-61 concluded that the industry had a great impact on foreign exchange earning both by direct export and by saving the foreign currency by avoiding imports of sports equipment for local use. He also observed that the export of sports goods made of wood had shown a marked increase in the past decade. The total export value of such goods during 1952-53 was Rs.24,63,513.00 and during 1960-61 Rs.82,87,513.00. The total value of local consumption of sports goods was estimated at Rs.23,00,000.00

during 1960-61 of which Rs.16,90,000.00 was of those manufactured out of wood. The annual consumption of wood was estimated at 345,000.00 cft (9857 m³). According to the author, production could increase by 500% if sufficient quantities of mulberry, willow and other woods were made available. Insufficient supply of raw material including wood of right species was listed as the main difficulty of the industry.

Amjad & Mohammad (1980) concluded that based on last 5 years' data, the annual consumption of wood in the 290 manufacturing units was 19,000 m³ of which mulberry and willow formed 66%. Half of mulberry wood was obtained from government forests and all of willow wood from private farm lands of Peshawar District. High quality mulberry and willow wood was running into short supply. They further said that the increase in price of raw material and wage rates was undermining the competitive power of the industry. This could be eased by increasing the availability of quality timber at reasonable prices and providing subsidy on exports.

Khattak and Amjad (1981) on the subject of socio-economic conditions of manpower engaged in wood-based industries informed that sports goods industry was concentrated at Sialkot, comprised 290 units, and employed 2,650 workers round the year. Age, marital status, income etc. of the workers employed in this industry are also given.

Sheikh et al (1987) give the annual installed capacity of the industry at Sialkot and compare it with the actual production. They estimated the consumption of locally produced wood i.e. mulberry, willow and poplar mostly,

and some imported woods of Fagus sylvatica, Salix alba (English bat willow) (Calamus merrileii (Cane) at 50,220 m³ during 1985. They recommended removal of hardships of exporters on account of custom evaluation of goods, relaxation of duties on import of raw material and machinery, loaning at low interest rate, and proper training of workers. They also pointed out towards the acute shortage of good quality willow wood and suggested that N.W.F.P. Forest Department may consider planting of this species.

A detailed account of the industry is given in FAO publication prepared by Sheikh titled Forest Based Rural Enterprises: Pakistan (1987).

In a paper titled "Production of wood in Punjab with Special Emphasis on the Sports Goods Industry" read at the wood producers-users seminar held by USAID/Forestry Planning and Development Project, Lahore, from 12-15 May 1990, Masrur informed that during the year 1986-87 consumption of timber by sports goods industry was 23,000 m³. Bulk of this timber came from private sources. This obviously is a small proportion when total consumption of timber and wood based material like pulp and paper in the country is taken at 2,678,000 m³.

A report on Forest and Forest Industries issued in 1983 by Pakistan Industrial Credit and Investment Corporation Limited mentions that there were about 300 sports goods manufacturing units of which only 42 employ 10 or more workers. 80-90% of the output is sold in the foreign market. The report estimated the annual timber requirement at 18,400 m³, of which mulberry formed 7,080 m³, willow 5,100 m³, bakain 1,415 m³, eucalypts and poplar 1,700

m³, imported ash and willow 700 m³.

Similar information is contained in some other publications listed under "references" at the end. The estimates about requirements of wood in the sport good industry vary in all these publications and all concluded that there was shortage of wood.

METHODOLOGY

The central idea of the study was to ascertain the present and the future requirement of wood of the sports goods industry of Pakistan by sample survey method. It was decided to have a minimum sample of 15 manufacturing units and record the observations by visiting their workshops and premises by filling in pre-approved questionnaires. It was therefore essential, as a first step, to get hold of a list of the sports equipment manufacturing concerns in the country. Publications giving names and addresses of the sports goods manufacturers were sought (Annexure-I).

As Pakistan Sporting Goods-Buyer's Guide 1985-86 listed the maximum number of 1,112 manufacturers, dealers and exporters of the sports equipment, a few addresses were picked up from the publication for test survey. It was soon found out that the word "manufacturer" had been used loosely and freely in the Guide as many such concerns when contacted informed that they did no manufacturing. However, it was confirmed by all of them that all manufacturing of sports goods was done in Sialkot city of the Punjab province. Of the rest of such publications, the Directory of Industrial Establishments

in the Punjab, 1988 was the latest one and was considered the most reliable. It listed 306 sports goods manufacturing firms; all located at Sialkot. During a visit to Sialkot it was found that a few of the listed firms had closed down while some new ones had come up since 1988, and many had changed over to production of non-wood sports goods and were no longer using any wood. After a local inquiry a list of 75 firms, big and small, known to be making wood sports items was prepared. It may be mentioned that there exists no record, list or publication that gives a true picture of the wood based sports goods manufacturing concerns. The exact number of such firms is not known.

Twenty firms out of this list were selected for detailed study in consultation with the representative of Winrock International. Data were collected from 18 firms; two did not cooperate. (List at Annexure-VIII). While doing so due consideration was given for proportionate representation to firms of different manufacturing capacity and to the three main manufactured items of hockey sticks, cricket bats and rackets. Out of 18 firms, 5 firms manufacture hockey sticks exclusively, 7 firms cricket bats and 2 firms rackets while 3 firms manufacture all these goods. Eight firms use less than 10,000 cft. of wood, two firms use 10,000 to 20,000 cft and eight firms use more than 20,000 cft of wood annually. This also is approximately the ratio of large, medium and small sized existing viable sports goods manufacturers.

During the course of visits and study, the owners and representatives of manufacturing firms were interviewed. In addition, senior executives of the Pakistan Sports Goods Manufacturers and Exporters Association, Sialkot; Export Promotion Bureau of Government of Pakistan; Department of Industries and

Mineral Development, Government of the Punjab; Directorate of Pakistan Small Industries Corporation and its Sports Goods Industries Services Centre, Sialkot, and of the Punjab Forest Department were consulted. The interview and collection of data were confined to getting answers to the twenty questions of the questionnaire supplied by Winrock International and matters strictly relating to the questions. The response of the manufacturers when approached was generally hesitant to begin with but they became more cooperative when the aims and objectives of the study were explained. The initial reluctance was due to lack of confidence in such surveys as previous such studies done by government departments had borne little fruit. The data collected were tabulated and analyzed.

As said earlier, it became obvious during the course of study that no one knew the exact number of the manufacturing units, nor it was possible to undertake such a survey during this study for want of time.

Consequently, the survey data of the sample population alone could not become the basis, with reasonable confidence, of estimating the consumption and future requirement of wood of the entire sports goods industry of Pakistan. Some other criterion was needed.

During the course of this study, it was confirmed by all private and official sources that the sports goods industry was the industry of and for exports. As all kind of sports goods that are exported are quite accurately recorded by the government agencies it was considered to place due reliance on these figures in correctly assessing the magnitude of annual production of

sports goods. The final estimates about wood use have, therefore, been made based on both the field and export data and that we think is the best and most accurate method.

STRUCTURE OF WOOD BASED SPORTSGOODS INDUSTRYPAST AND PRESENT POSITION

The sports goods manufacturing industry of Pakistan used to be totally based on wood as its basic raw material. At its start during 1880's, racket for local consumption, mostly by the then army officers, was the only item manufactured. The range of goods manufactured expanded later on. Just before independence, tennis and badminton rackets, cricket bats, hockey and polo sticks, worth about Rs 30,000,000 for the fiscal year 1946-47 were exported. By then, this area had gained monopoly in the international market for top quality hand made rackets and hockeys. The production plummeted to goods worth Rs. 821,000 only during the year 1947-48 on account of disturbances in the country. Export has steadily been increasing since then except for 1975 when it declined temporarily.

There are at present about 306 listed concerns engaged in the manufacture of all kinds of wood and non wood sports equipment at Sialkot. The exact number is not known but it is reported that about one third of them, that is about 100-110 firms, big and small, are engaged in manufacturing goods based exclusively on wood. There are approximately 30-40 hockey makers, 40-45 cricket bat makers and 15-20 regular racket makers. In addition about 1000 families living in Sialkot City and its suburb are engaged in making cricket bats, wickets (stumps) and different kinds of cheap rackets on their own which they sell to the more established firms.

Sports goods industry basically caters to foreign customers and all companies operate independently. They individually procure orders from international market before launching on any large scale manufacturing. The manufacturers who also export are doing the best business.

Except for cricket bats of which about 10-30% are exported, approximately 80-85% of all other manufactured goods are exported. Some of the firms manufacture only for export. The pattern of export has changed since 1985-86 in the sense that export of quality rackets has almost ceased; the cricket bats exported are mostly toy bats; the export of hockey sticks has increased substantially. The export values of principal sports goods items for the last decade are given in Annexure-II and some more details of the sports goods exported from 1985-86 to 1989-90 in Annexure-III. A list of importing countries is given in Annexure-IV.

During the past 5 to 6 years with the increasing interest of people in sports like cricket and hockey, the local demand of sports goods is increasing and at times becomes substantial enough to consume a big quantity of manufactured goods within the country for short periods. More labour from adjoining villages temporarily joins the manufacturing business during such times to meet the increased demand, like when international world series hockey and cricket matches are played in the country. The demand also rises when Pakistani hockey and cricket teams win international laurels. Supply of quality wood runs short temporarily during such periods.

Non wood materials used in the manufacture of wooden sports goods

are glues, resins, cotton towel, cotton and synthetic wrappers and rubber-end-pieces which are easily available from the local market.

The following are the wooden sports goods manufactured in Pakistan:

WOOD BASED SPORTS

COMMONLY USED WOODS

EQUIPMENT

Hockey Stick	Mulberry, (<u>Morus alba</u>), Ash (<u>Fraxinus excelsior</u>), Cane (<u>Calamus spp.</u>).
Cricket Bat	Poplar, Bakain, (<u>Melia azedarach</u>), Chinar (<u>Platanus orientalis</u>).
Racket, (Badminton, Tennis & Squash).	Willow, Poplar, Chinar, Bakain, Mulberry.
Table Tennis Bat	Ply Wood, Willow.
Table Tennis Table	Shisham (<u>Dalbargia sissoo</u>).
Polo Stick	Mulberry, Bakain.
Polo Ball	Bambooo Foot. (<u>Bamboosa spp.</u>).
Billiard Table	Acacia (<u>Acacia nilotica</u>), Shisham, Chinar, Bakain.
Gun Butt	Chinar, Walnut (<u>Juglans regia</u>), Shisham.

Fishing Rod	Acacia, Walnut.
Horse Saddle	Mulberry.
Walking Stick	Mulberry, Bakain, Acacia, Cane.

Except for hockey sticks, cricket bats and rackets, all other items are manufactured in too small a number to attract any serious study at this time.

MAIN ITEMS OF EQUIPMENT

The following is a brief account of the major wood based sports goods manufactured in Pakistan.

i) Hockey Sticks

Hand made hockey stick remains a novelty product of Pakistan. Long attained skill and availability of evengrained, tough and light coloured mulberry (Morus alba) of excellent quality are the two main reasons for this superiority. Mulberry wood produced here is considered to be the best for steam bending and hence ideal for making hockey blades. The sizes of hockey sticks range from the 'Junior' 24" (60 cm) length to regular 38" to 40" length (95-100 cm). The size of blade has been reduced from the previous $2\frac{1}{4}$ " to $2\frac{1}{2}$ " (5.60 to 6.25 cm) and is now made to various specifications given by the foreign buyers and even individuals. Mulberry logs 4-6 feet (1.5-2.5 m) long and 12" (300 mm) and above in diameter are used except when not available when smaller sizes are

also used. Stick handles that used to be made from imported cane are now mostly made from mulberry wood obtained from smaller sizes of mulberry logs and the usable wood left after extracting 75x75 cm scantlings for making four to six U-shaped blades from each such scantling after steaming and pressing. Local market price for each stick varies from Rs.60/- to Rs.100/- and export price from US\$ 3.50 to 5.50. It may go upto US\$ 25.00 in special cases.

iii) Cricket Bats

Quality cricket bats are made from imported and local willow (Salix Spp.); cheaper ones from poplar wood. Logs of 1.5 m in length and 300 mm and over in diameter are converted into scantlings of 115x65 mm sizes each of which yields 3 bats. Cane, poplar or willow handles are then wedged in and glued. Cricket bats of good quality used to be traditionally made of imported english bat willow. They still are. But as the price of imported bat-willow wood has greatly increased and its procurement has become difficult, fewer of quality cricket bats are manufactured. Willow's place has been taken by poplar (Populus deltoides). Bats made from imported and locally procured willow which previously used to be exported are now mainly consumed within the country and those made from poplar are exported as cheap bats and toys alongwith some willow bats. The general trend these days is to make cricket bats exclusively from poplar wood, a wood the use of which in making sports goods in Pakistan was not known before 1981, except for rare veneers. Exotic poplar grown in Abbottabad (NWFP) area is considered to be the best. Full size poplar bats sell for about Rs.100/- and English willow bat for Rs.350/- to Rs.400/-. Bat sizes vary from 24" to 38" (60-95 cm). Bats exported as toy items fetch

1 to 2 US dollars each.

iii) Rackets

Making of quality tennis rackets has almost been stopped as not much of export market is left for Pakistani rackets. Only toy rackets, mainly for export, are made which are of low quality and for which many kinds of laminated wood is used including mulberry sapwood, bakain, chinar (Platanus orientalis) and willow. Plies of 1" thickness, 1" width and 5' length are used. The price of each racket in the local market varies from Rs.20/- to Rs.40/- and for export it is US\$ 2.00 to 2.5. Badminton and Squash rackets are also made in the same manner.

LABOUR AND SKILLED WORKERS

Availability of highly skilled labour is no problem and although as per this survey only about 4500 men are reported to be regularly employed, the actual number is much more. Sialkot has a population of about 250,000 people and most of them earn their livelihood by working in the sports goods and surgical instruments industries. The export performance of these industries directly affects the income of the people and the general economic and social conditions of the area. There is a surplus of skilled artisans for making quality rackets and other goods but because production of quality goods is on the decline many experienced and expert workers have become idle and have settled down to doing unskilled jobs to make ends meet. About five hundred such persons would be available if and when needed. Semi skilled workers and novices generally work in their homes in the suburbs of Sialkot. In case this

cottage industry expands, availability of high skilled workers will be no problem, at least for the next 5 years. After that period, the specialized expert workers may find other pursuits like making of synthetic material footballs, surgical instruments and sports garments.

Skilled labour is not exchangeable in the sense that those who make hockeys cannot make tennis rackets. The labour is paid on contract basis, that is their wages are calculated and paid on the basis of the number of items delivered.

About 1,000 families residing in and around Sialkot city also make cheap sports goods on their own. Men, women and children in a family, who are at best semi-skilled casual workers, make cricket bats and rackets mostly of low quality and sell them to the regular firms in the city.

STATE OF SPORTS GOODS INDUSTRY AND WOOD SUPPLYGeneral Features

The study has revealed that none of the firms visited has its own forest or tree farm. Except for transport of poplar wood, all of which is done by the supplier middleman, all the rest of transporting of wood, its debarking sawing or slicing, and fabrication and finishing of goods is done by the manufacturers themselves. Wood is delivered to the factories usually by truck and sometime by tractor trolley. They purchase almost all mulberry wood required through government forest auctions and all poplar and other wood through middlemen. If some material or wood is to be imported, most of them import it themselves by opening letters of credit. They experience no difficulty in the local purchase or in the imports except for occasional delay in delivery.

The manufacturers sell their products wholesale and prefer to deal with the local and foreign customers direct rather than through an agent.

The survey also points out that the manufacturing units have very little or no mechanization. A few owners imported some machinery sometimes back but are not using it as it required the use of non-wood material, at least partly, and they have not yet thought of this change over. Consequently the manufacturing units remain small cottage industry scale concerns. A typical unit will have a few saws, planers and sanders and one horizontal trolley run on electricity. Those who manufacture hockeys have small to medium sized bending presses. In fact visiting such concerns does not give the impression that one is amidst even a modestly mechanized industrial area but one gets

the feeling of visiting a small workshop of a private entrepreneur who has brought in or has innovated some very basic machine tools and is working in relaxed homelike surroundings where he himself or his close relations are supervising the few skilled and unskilled workers. Comparatively larger factories are few, may be 6-10 in number only. As this arrangement of engaging manual labour and small money investment as private entrepreneurship is giving profit, no one is seriously thinking of expanding the business on a real industrial scale.

Wood based industry forms 20-25% of sports goods complex and accounts for production of 25-20% of total sports goods. The products are of two types; professional sports goods and non-professional goods and toys. The survey indicates that 25-30% of the cost of the production is made up of wood, 20-30% of labour and the rest of other manufacturing processes.

The survey data of 18 manufacturing concerns indicates that the total average annual production of the sample surveyed is 673,000 hockey sticks (all major hockey makers happen to be included in the sample), 970,000 cricket bats and 200,000 rackets and the annual consumption of wood is 364,400 cft. (10,314 m³), made up of mulberry wood 218,000 cft. (6,170 m³) poplar wood 105,000 cft (2,972 m³) and willow wood 41,400 cft (1,172 m). Most of the willow is imported alongwith other minor quantities of willow clefts (15,000 No.) and cane sticks (2,500 No.)

The industry makes 1.51 percent of the total annual export earnings of principal commodities of Pakistan (Annexure-V). The trend since 1986-87 is to export an increasing number of hockey sticks and slightly decreasing number of cricket bats and rackets.

DEMAND AND SUPPLY OF WOOD

Before entering into the discussion on the demand and supply of wood to the sports goods industry of Pakistan, the following features of the survey pertinent to the issue have to be kept in mind.

1. The exact number of wood based sports goods manufacturing concerns is not known. Of the known ones, not all keep on producing the goods; some close down temporarily for one reason or the other but not for non-availability of wood.
2. The production figures of different items of goods given by the firms were their best estimates of actuals and were not the exact figures quoted from the records. In fact many medium and small sized firms keep no such records.
3. The estimates of wood used given by the firms were based on their recollections of the purchases of wood made in the past two or three years.

As the reliability of the conclusions drawn, based exclusively on data obtained through questionnaires, would have thus been constrained and would have remained open to criticism, it was thought proper to look for another complimentary source of information in order to reach conclusions with more confidence. Such a source was luckily found in the available record of exports

kept by government agencies. This source has been made use of. The export data are given itemwise and as it is easier to understand and reach conclusions by taking each export equipment separately. The discussion that follows is presented by main items.

HOCKEY STICKS

Based on information gathered during the course of this study, mulberry is the main, in fact the one most important timber species required for manufacturing hand made hockey sticks of excellent quality which the manufacturers claim to be still the best in the world. At present the trend is to make shorter blades and use plies or mulberry handles in place of the previous cane handles. The replacement seems to be doing equally good. The claim repeated by all the concerned manufacturers and government agencies that Pakistan is the number one supplier of this kind of hockey stick in the world market though highly believable yet could not be substantiated as no document in support or against was available. On an enquiry, the World Federation of the Sporting Goods Industry, Zurich, Switzerland, expressed their inability to supply information on this point.

Pakistan currently exports about 800,000 hockey sticks annually. About 80 percent of the total produce is exported and the rest is consumed within the country. It is thus estimated that the industry produces about one million small and regular size hockeys annually.

Manufacturing of one hockey stick of standard size consumes 0.25 cft of mulberry wood. The total average annual requirement of mulberry wood for making hockey sticks based on export figures is estimated at 240,000 to 250,000 cft. (7000 to 7100 m³). As this item will continue to hold its own, its demand is expected to grow at the rate of about 10-15% annually and so would be the demand for wood. Based on the steady figures of last 4 years hockey exports and the consumption of wood, the projected demand for the year 1991 of mulberry wood is expected at 8,000-8,500 m³ and in the year 1992 at 9,000-10,000 m³.

The annual production from the public forest lands of the mulberry timber (dia 12"/300 mm + over) varies from 3000 to 4000 m³. Although exact figures are not available, at least the same quantity of thick wood (dia 6" and over) is also produced and a good part of it is being used for sports goods manufacturing. A large percentage i.e. about 65-75% of the requirement is met with from the government Changa Manga and Daphar irrigated plantations of the Punjab. In a recent publication (1991) by Pakistan Forest Institute, Peshawar, Mr. Amjad informs that 172,000 m³ of mulberry wood was felled last year from the farm lands of NWFP for local use as well as for sale. 71% of mulberry growing stock was of dia 30 cm and above. Thus this source is also available to Sialkot producers. Farm lands of the Punjab produce very little mulberry wood as is indicated in a yet unpublished study with which the author is associated. According to some manufacturers, as lately experienced, mulberry grown in Peshawar area of NWFP is of better quality than mulberry grown elsewhere.

The current wood prices vary from Rs.80/- to Rs 150/- per cft of timber delivered at the factory gate that is Rs.2,800/- to Rs.5,300/- per m³. The average sale rate at Changa Manga is Rs.1,500/- to Rs.5,000/- per m³.

The value of hockey sticks export is 5-6 percent of the total value of the sports goods and 55-60% of the wood based sports goods exports.

RACKETS

Pakistan, once famous for making good quality rackets, especially Sialkot hand made wood-catgut tennis rackets, has been virtually wiped out of this trade internationally. The decline in demand started in the year 1984 partly due to replacement of wooden frames by aluminium, fibreglass, graphite and other synthetic material frames and partly due to deteriorated quality, as Pakistan has replaced ash and beech wood by willow and maple for racket making. This is one item whose unit value has decreased from Rs.331.78 a dozen in 1986-87 to Rs.269.25 a dozen during 1988-89. Almost all foreign market for quality wooden tennis and badminton rackets is lost and a small number that is manufactured now is mostly consumed within the country. However, about 1,500,000 to 2,000,000 mostly non professional and cheap toy rackets are made every year, 70-90% of which are exported. The production is decreasing. Only about 872,000 rackets of the value of less than 20 million rupees were exported during the year 1988-89 against 1.95 million rackets of the value of more than 57 million rupees during the year 1986-87 (Annexure III & IV). Production and export are going to go down in the years to come. Export of rackets forms 3.6 percent of the total sports good export and 34% of the wood based ones.

Approximately 0.10 cft of wood is used in making each racket. It is estimated that the total requirement of wood for manufacturing of rackets of all kinds is about 200,000 cft (5,560 m³) annually. The annual demand will remain about the same during 1991 and 1992. This much quantity is and is expected to remain easily available particularly when a variety of wood species are used. The demand upto the year 2000 of laminates and wood for the purpose is not expected to increase and as per indications given by the manufacturers during the course of this study, making of good wooden rackets will almost cease or will become highly insignificant by then. The substitute materials will take over. Badminton and squash rackets are being manufactured in small numbers. All badminton rackets are consumed within the country. A small number of squash rackets 500 to 700 dozens worth less than Rs.300,000 are exported annually. The wood requirement is the same as for tennis rackets and neither any difficulty is experienced nor any is likely to be experienced during the next decade on this count. All kinds of wood laminates are used but those of Ash (Fraxinus Spp.), Beech (Betula Spp.), Bakain (Melia azedarack) and Poplar (Populus deltoides) are still preferred. Platanus orientalis wood is used for "throat" and willow wood for handle.

CRICKET BATS

Unlike other sports equipment, 70-90% of cricket bats are consumed within the country and only 10-30% are exported. The annual export of bats based on last three years data is 469,000 in number varying from 360,000 to 670,000. The total production is thus approximately 2,500,000 bats varying from

1,800,000 to 3,350,000. Each bat in manufacturing consumes 0.33 cft wood. Thus including consumption in other goods, total annual requirement of poplar wood is about 800,000 cft. (22,600 m³) and of willow 5,700 m³. Due to cheap manufacturing the potential for more export is uncertain. The consumption within the country is likely to increase at the rate of about 10% and so will the demand of poplar wood. During the years 1991 and 1992 the demand for the poplar wood would thus be around 1,000,000 cft (28,300 m³) but there is no fear of any shortage as the recent study by PFI, Peshawar, March 1991 (by M. Amjad) indicates production of 0.889 million m³ of poplar wood during 1988-89 from private farm lands of N.W.F.P. Farm lands of the Punjab province produce negligible quantity of poplar wood.

Replacement of willow by poplar wood for making cricket bats is by no means the best choice, but it is going to stay and the increasing cost of imported willow will tend to make the change over to poplar almost permanent. The export of quality willow wood remains a challenge for Pakistan's industry and we can regain our position in the world market. Local willow wood supply is insignificant at present. Efforts are needed to popularise growing of willow on farm lands. The choice of wood species by the manufacturers is not determined by their mechanical properties alone as colour and workability also count, yet a comparison of some properties of poplars and willows is given below:

TABLE-I: A COMPARISON OF MECHANICAL PROPERTIES OF
POPLAR AND WILLOW WOODS

	Poplars	Willows
Axial compression	250-480 kg/cm ²	300-510 kg/cm ²
Static bending	500-800 kg/cm ²	630-900 kg/cm ²
Breaking point	0.83-3 kgm	1.5-2 kgm

Taken from Poplars and Willows, 1979, (P.246), FAO, Rome

For bat making poplar's deficiency lies in the low breaking point under impact as compared with willows.

Requirement of Wood

It will be interesting to review the estimates made in the previous studies on requirement of wood, before the result of the present study is given so that this whole exercise is taken in the right perspective. The following is a summary of the previous studies:

<u>Author & Year of Study</u>	<u>Estimate of total annual wood consumption (M³)</u>
Ishaq, 1957	9,333
Sabazwari, 1963	9,790
Ansari, 1967	16,910
Khan, 1970	19,300
Amjad & Mohammad, 1980	19,000

PICIC, 1983	18,400
Sheikh et al, 1987	57,198
Masrur, 1990	18,000

The variation is partly explainable on account of fluctuating market and partly on methodology used in which reliance was placed in the sample interviews alone. For reasons given already such estimates are of marginal value only.

The method adopted in this study of estimation based on exports as well as on the field study is more reliable.

It is estimated that the annual total requirement of wood of good quality for the sports goods manufacturing industry is approximately 1,450,000 cft. (41,000 m³), which forms 3.48% of the estimated 1,581,000 m³ of the total timber production within the country.

The species wise break up is as follows:

**TABLE-2: QUANTITY OF WOOD CURRENTLY REQUIRED BY SPORTS
GOODS MANUFACTURERS (CFT/M³), 1990**

Mulberry	250,000 (7,075)
Poplar	800,000 (22,640)
Willow	200,000 (5,660)
Others	200,000 (5,660)
Total:	1,450,000 (41,035)

Source: Envoforestry Survey.

It is worth noting that of the firms surveyed, 40% which said that they were working at 80 to 100% capacity were bigger and more established firms; 28% which said they were working at 50% or less capacity manufactured cricket bats only. The rest working at 60-70% capacity were using very small quantities of wood like 2000 cft. to 5000 cft. annually. Thus working at less than full capacity cannot be attributed to shortage of wood. No hockey maker thought that mulberry wood was short in quantity; they only complained about its quality. Bat and racket makers thought that hybrid poplar and willow wood was in short supply which as explained earlier was not true. The manufacturers who mainly use mulberry apprehended that introduction of poplar in the irrigated forest plantations was at the cost of mulberry and the latter's production was decreasing on this account. This apprehension is also unfounded.

All good quality poplar and willow wood is grown on private farms in Peshawar, Mardan and Hazara Divisions of N.W.F.P. from where it is brought to Sialkot by trucks, each carrying about 300 cft of logs. The study revealed that the industry has been getting reasonably good quality poplar from N.W.F.P. for the last 10 years to meet its demand in full. Even now there is no shortage of poplar wood. Sometime poplar wood of proper sizes is not available and the reason is that for the last few years large quantities of poplar wood of larger sizes have been consumed by Afghan refugees in making huts, houses and furniture etc. This is a very temporary phase.

Wood supplying agents of Sialkot stated categorically that there was no shortage of poplar wood of any size for those who wanted to buy on cash

payment. The middlemen who are petty traders and transport wood by their own or hired trucks to Sialkot want to dispose it of on hard cash payment but the manufacturer buyers doubting that the quality of wood may be inferior try to purchase it on credit so that they could discount the price for bad quality later. This leads to give the feelings of shortage which actually is not the case.

The study has revealed the following profile of a typical thriving wood sports goods manufacturing concern of each type.

TABLE-4: PROFILE OF A TYPICAL UNIT

Profile	Hockey Sticks Unit	Cricket Bats Unit	Rackets Unit
Annual production	80,000 No.	120,000 No.	80,000 No.
Annual Consumption of main wood	25,000 cft (Mulberry)	50,000 cft (Poplar)	10,000 cft (Lami nates)
Annual Consumption of other woods	2,000 cft	5,000 cft	1,000 cft
Expected increase/decrease in wood needs in the future (%age per annum)	+ 10% to 15%	+5% to 10%	

IV

CONCLUSIONS AND RECOMMENDATIONS

ANALYSIS OF THE SURVEY

The following main points emerge as a result of this study.

- i) Pakistan's sports goods industry basically exists for exports and all types of wood and non-wood sports goods currently make 1.5% and only wood based goods make 0.16% of the total exports of Pakistan. The industry's position is 13th among the twenty principal commodities exported. United Kingdom, Federal Republic of Germany, Italy, France, United States of America and Greece are the main importing countries. Of the total quantities manufactured about 80% of hockey sticks, 80-90% of tennis rackets, and 10-30% of cricket bats are exported. Other wood made goods like carrum boards, polo sticks, squash rackets are exported in minor quantities.
- ii) Of all kinds of sports goods manufactured, those made of wood form about 20-30%. Obviously the market is dominated by non-wood items. Synthetic leather foot balls alone make 60-65% of the total exports of sports goods. The trend is to change over from manufacturing wood based goods to non-wood sports goods for the reasons that the latter has comparatively lesser competition at the international level (cheap labour here), lesser initial investment, easy availability of raw material and labour, and lesser time lag between investment and return.
- iii) No definite information is available on the total number of units that make sports goods. This study indicates that there are approximately

90-110 concerns in all which manufacture wooden goods and all are located in Sialkot. Not all firms continue operating all the time; some of them close down temporarily for a year or more for lack of good business not for short supply of wood. The firms which manufacture and also export themselves are doing the best. Such concerns may be only 20-25 in all. In addition about 1000 families are engaged in full or part time manufacturing on their own, living in the suburbs of Sialkot town. For these reasons the exact information on the quantities of sports goods produced and wood used is not known.

- iv) Poplar wood, most commonly (Populus deltoides), has become a major sports goods wood since 1980. Before that, poplar wood was not even known to most of the manufacturers. Making of quality tennis and other rackets has faded away because of decline in quality and high price of wooden tennis rackets. The trend worldwide is to replace wood by graphite, aluminium and fibreglass in tennis, badminton and squash racket frames. No such change over has been thought of or attempted in Pakistan and hence the fade out. Cheap rackets made of assorted wood are still manufactured for export and use within the country but this business is on the decline.

- v) Pakistan is still holding its number one position in the world for supply of hand made mulberry wood hockey sticks of excellent quality in spite of increasing international competition. Taking advantage of the specially good quality mulberry that grows in the country, this industry can be expanded four or five times. Similarly cricket bat making, which

is changed in the sense that these days about 70-80% of the bats are made from indigenous poplar wood than from imported willow wood and cane has a promising future provided right kinds of woods i.e. willow and cane are made available at reasonable prices.

- vi) Of the current 1,45,000 cft (41,033 m³) total requirement of wood for the entire sports goods industry 250,000 cft (7100 m³) mulberry wood is needed for hockey stick industry and 800,000 cft (22,640 m³) poplar wood for bat industry. These are the two main woods that matter. About 110,000 to 140,000 cft (3,000 - 4,000 m³) mulberry timber (12"/300 mm dia and over) is produced in the government irrigated forest plantations of the Punjab, all of which is purchased by sports goods manufacturers. A large quantity of smaller sizes of mulberry wood sold as selected firewood from the Government forests is also used at Sialkot. It is estimated that thus 65-75% of the total requirement of this wood is met with from public forest lands and the rest from privately grown mulberry in N.W.F.P. where 171,000 m³ was felled during 1989-90. The entire demand is met with at present although the quality of wood has deteriorated. This position is likely to continue till the year 2000. Almost the entire supply of poplar comes from the privately owned farms of N.W.F.P. and is sufficient to meet with the present and future demand. The farm lands yielded 889,000 m³ poplar wood during the year 1989-90.
- vii) The real problem is of increasing price of wood and its cost of transport. The manufacturer gets nervous thinking of impending decrease

in profits. The reaction appears in the belief that wood has or is going to run short.

- viii) No data are available about the production of willow wood which comes from privately owned lands. Willow is a species of which there is a low demand because of low production of quality willow wood within the country & that gave a set back to cricket bat making industry. It has now become too expensive to keep the industry competitive using the imported wood. Willow will remain the first choice for good quality cricket bat and there is a need to cultivate it in the Punjab and N.W.F.P. where suitable silvical conditions exist to produce at least 10,000 m³ annually. Introduction of proper english bat willow varieties is the pre-requisite. Clones of english bat willow have already been introduced in the country but no serious efforts have been made by the forest departments to popularize this species on private lands or to grow it in public forests.

FUTURE PROSPECTS AND RECOMMENDATIONS

As said earlier mulberry hockey stick seems to have a more secure future than other wood based sports equipment made in Pakistan. It is the quality mulberry wood that is needed. Therefore, while considering the scope of widening the raw material base and improvement in hockey making technology the management of existing mixed mulberry irrigated plantations will have to be improved in order to produce quality wood. Mulberry wood is also good for making badminton and squash rackets, camp furniture and picker arms.

The changed character of cricket bat manufacturing, that is making of low quality poplar wood bat rather than high quality willow wood/cane handle bat will continue due to the constraint in getting high class willow wood and cane at reasonable prices. Poplar grown around Abbottabad, N.W.F.P. is considered the best for its light colour and good grain. There is thus a need to popularize growing of poplar in that area in order to supply the best material. Even non professional goods have to have a certain standard of workmanship and quality.

Korea, Taiwan and Japan who have been competing with Pakistan for wooden sports goods are now finding it not that easy because of increasing wage rates there. The international scenario is changing as these countries are shifting the sites of production to Malaysia, Indonesia and Philippines where labour is still cheap and where they provide their own wood and other raw material. Pakistan should also think on similar lines and Government may encourage formation of such joint ventures. The present practice of direct manufacturing of goods in the name of internationally renowned companies like Slazenger and Puma needs reconsideration as it ultimately would mean total exclusion of Pakistan's own brand names and would reduce the bargaining power of our manufacturers.

There is a need to re-establish reliability of Pakistani goods in the international market and for that purpose production of quality goods be encouraged by providing facilities like easy loans and more rebate on quality products than on cheap ones. This will be especially needed in hockey and bat

manufacturing. Rackets made of wood are losing market due to frames made of substitute materials. The present production of cheap rackets will continue for some time and not much can be done about it except to make the manufacturers aware of the cheap sources of woods of miscellaneous species and of more international selling points. The existing attitude of the industry of preference for quick returns and high profits from one order over production of quality goods has to be changed.

The industry also needs to diversify and broaden its base and take up more items for production. Manufacturing of baseball bats seems one such promising field. There is a big potential for outdoor winter sports goods of which Pakistan at present produces none. A survey for other such goods may be made.

Right now due to easy availability of cheap and expert labour, mechanization or modernization may seem un-necessary but as such conditions may not prevail for long, modernization and introduction of machinery must be thought of and introduced as early as possible.

There is an obvious need for strengthening research and advisory service for doing things better. A Sports Goods Industries Service Centre has been set at Sialkot by the Punjab Small Industries Corporation, but its scope and activities need to be enlarged and strengthened. There must also be an agency to forecast future demands of sports goods in the international market for the manufacturers to plan ahead.

Sports goods manufacturing has remained and survived as private enterprise. It should remain so and in order to make it self sufficient more production of wood be encouraged through private sector rather than public.

Climatically Sialkot district is well suited for growing poplar, willow and mulberry as the country side is criss crossed by annual and perennial streams and rivulets and the average annual rainfall is more than 1000 cm. Yet past efforts to grow mulberry were not successful and the reason given was that the soil has an underground sterile layer of sand which does not allow good root formation and growth. Willow and poplar have not been seriously tried. Now that the Forestry Planning and Development Project of GOP-USAID has embarked on a programme of social forestry, introduction of these three species in this area can be taken up easily. This will help in making the raw material available nearby and in reducing the cost of production.

In the end it is pointed out that the demand for sports goods is increasing worldwide and according to one estimate the demand of European countries for traditional sports goods is ten times that of total production of Pakistan. The manufacturers in the European countries will sooner or later go out of production due to high wage rates and labour costs in this labour intensive industry. Other Asian competing countries except India will face the same problem. If Pakistan's sports goods industry is able to improve the quality of their goods and diversify and expand the present range of products, adopt modern production technology, and most important become more reliable in marketing, it has a big potential to increase its sales in the international market.

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ANNEXURE 1

Publications Containing Addresses of Sports Equipment Manufacturers

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2. Pakistan Sporting Goods - Buyer's Guide 1985-86
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4. List of Classified Industrial Establishments in the Punjab, 1988. Director of Industries and Mineral Development, Government of the Punjab, Lahore.
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ANNEXURE II

VALUE OF ANNUAL EXPORT OF SPORTS GOODS BY TYPE

<u>Commodity</u>	(Thousand Rupees)									
	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
1. Tennis Rackets	27,753	31,429	37,268	41,654	80,396	128,682	61,759	57,290	63,707	41,572
2. Hockey Sticks	12,699	16,909	20,417	20,735	25,371	32,961	38,612	39,197	54,466	68,305
3. Hockey Balls	13	243	209	71	281	-	-	-	- 55	-
4. Polo Sticks	1,446	541	1,010	1,933	2,223	1,853	60,978	1,148	2,531	1,335
5. Cricket Bats	3,472	2,448	4,355	2,289	1,990	49,890	12,178	17,938	6,244	14,180
6. Cricket Balls	360	482	213	445	683	720	1,523	1,278	2,735	2,981
7. Badminton Rackets	73	216	397	1,801	84	1,756	994	85	-	39
8. Foot Balls (Complete)	120,117	134,858	176,265	161,620	218,516	306,542	328,158	511,936	676,548	785,417
9. Foot Balls (Covers Only)	161	84	443	44	567	143	231	13	49	133
10. Other Sporting Requisites	46,036	57,410	71,744	88,902	111,688	142,069	169,229	157,691	193,818	231,395
Total:	212,130	244,620	312,321	319,494	441,799	664,616	673,662	786,576	1,000,153	1,145,357

Source: Pakistan Statistical Year Book, 1989. pp.648-649.

ANNEXURE III

QUANTITIES, VALUES AND UNIT VALUES OF MAIN WOOD SPORTS ITEMS OF EXPORT

(Quantity and Unit Value (Rs.) in Dozen. Total Value in '000' Rupees)

Commodity	1988-89				1989-90			
	Quantity	Value	% of Total Value	Unit Value	Quantity	Value	% of Total Value	Unit Value
Cricket Bats	31,408	11,250	11.10	338.90	34,202	10,984	16.00	231.14
Hockey Sticks	74,074	68,589	67.69	925.94	44,457	46,246	58.55	1,040.23
Polo Sticks	1,877	1,921	1.90	1,033.22	2,551	1,352	1.96	529.93
Tennis Racket	72,703	19,575	19.31	269.25	52,722	16,151	23.49	306.33
Squash Racket	-	-	-	-	-	-	-	-
		<u>101,335</u>				<u>74,733</u>		

* Upto March, 1990

Source: Monthly Statistical Bulletins
Federal Bureau of Statistics, Statistics Division,
Government of Pakistan.

ANNEXURE III

QUANTITIES, VALUES AND UNIT VALUES OF MAIN WOOD SPORTS ITEMS OF EXPORT

(Quantity and Unit Value (Rs.) in Dozen. Total Value In '000' Rupees)

Commodity	1985-86				1986-87				1987-88			
	Quantity	Value	% of Total Value	Unit Value	Quantity	Value	% of Total Value	Unit Value	Quantity	Value	% of Total Value	Unit Value
Cricket Bats	86,261	17,938	15.46	207.95	29,997	6,243	4.91	208.30	55,855	14,180	11.28	253.97
Hockey Sticks	46,542	39,197	33.77	842.17	57,358	54,465	42.82	949.58	65,651	68,305	54.36	1,040.42
Polo Sticks	1,018	1,148	1.00	1127.85	6,112	2,531	2.00	413.49	1,276	1,335	1.06	1,045.95
Tennis Rackets	162,809	57,290	49.36	351.83	192,013	63,706	50.10	331.78	130,235	41,572	33.08	319.21
Squash Rackets	1,116	471	0.41	422.05	584	225	0.17	287.21	711	275	0.22	387.52
		<u>116,044</u>				<u>127,170</u>				<u>125,667</u>		

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ANNEXURE IV

SPORTS GOODS - LIST OF IMPORTING COUNTRIES

(Value in '000' Dollars)

<u>Countries</u>	<u>1986-87 July-June</u>	<u>1987-88 July-June</u>	<u>1988-89 July-Ju</u>
	Value	Value	Value
Canada	333	508	952
U.S.A.	3,088	4,275	6,110
Argentina	177	115	81
Chile	161	73	76
Belgium	1,516	1,386	1,810
Denmark	2,377	2,005	1,375
France	5,002	4,422	6,232
Germany Fed. Rep. of	9,862	10,898	10,612
Irish Republic	169	382	358
Italy	3,735	4,532	7,536
Netherlands	2,448	3,543	3,139
United Kingdom	12,079	11,703	10,638
Australia	271	478	296
Norway	1,215	1,376	1,458
Portugal	157	445	1,026
Sweden	1,554	1,791	1,717
Finland	271	398	421
Switzerland	837	1,145	1,491
Greece	1,220	1,347	1,216
Spain	3,41	3,850	3,888
Iran	401	233	-
Behrain	101	74	91
Cyprus	203	142	153

ANNEXURE IV

SPORTS GOODS --- Continued

(Value in '000' Dollars)

Countries	<u>1986-87 July-June</u>	<u>1987-88 July-June</u>	<u>1988-89 July-June</u>
	Value	Value	Value
Dubai	1,110	1,940	440
Jordan	15	28	48
Kuwait	448	393	495
Qatar	34	49	42
Saudi Arabia	2,162	974	628
Ethopia	11	60	--
U.A.R. (Egypt)	162	166	327
Lesotho	657	950	411
Morocco	35	190	77
Swaziland	152	296	238
Bangladesh	238	232	197
Hong Kong	116	271	262
Japan	1,095	2,219	2,578
Malysia	128	228	475
Singapore	40	157	213
South Korea	29	28	69
Australia	706	1,312	1,858
New Zealand	223	223	349
Other Countries	262	149	123
	58,141	64,986	69,506

Source: Pakistan's Export of Principal Commodities for the Year (July-June) 1988-89. Government of Pakistan Export Promotion Bureau, Karachi.

ANNEXURE V

PAKISTAN'S EXPORTS OF PRINCIPAL COMMODITIES

Sr. No.	Commodities	Value in Million Dollars					
		July-June Value	1988-89 % Share	July-June Value	1987-88 % Share	July-June Value	1986-87 % Share
1.	Raw Cotton	929.56	19.94	609.97	13.69	446.49	12.11
2.	Cotton Yarn	600.85	12.89	541.02	12.15	506.09	13.73
3.	Cotton Fabrics	464.75	9.97	485.40	10.90	345.26	9.37
4.	Madeups (Incl. Towels)	347.17	7.45	318.37	7.15	258.93	7.02
5.	Readymade Garments	335.52	7.20	349.91	7.86	355.15	9.63
6.	Rice	303.59	6.51	363.11	8.15	299.64	8.13
7.	Leather	243.51	5.22	285.44	6.43	237.22	6.44
8.	Carpet and Drugs	230.48	4.94	252.46	4.67	199.96	5.42
9.	Hosiery	166.94	3.58	134.34	3.02	96.60	2.62
10.	Leather Garments	142.17	3.05	135.40	3.04	102.44	2.78
11.	Synthetic Textiles	116.68	2.50	197.83	4.45	156.54	4.25
12.	Fish & Fish Products	110.28	2.37	124.26	2.79	112.49	3.05
13.	Sports Goods	69.51	1.40	64.99	1.46	58.14	1.58
14.	Surgical Instruments	61.86	1.33	56.55	1.27	55.44	1.50
15.	Fruits & Vegetables	46.99	1.01	50.31	1.13	42.95	1.17
16.	Tents & Guar Preparations	41.07	0.88	30.33	0.68	23.43	0.64
17.	Molasses	39.72	0.85	52.47	1.18	33.87	0.92
18.	Footware	30.11	0.65	39.07	0.88	24.41	0.66
19.	Raw Wool	19.10	0.41	21.34	0.48	16.35	0.44
20.	Other Commodities	18.55	0.40	21.34	0.48	16.35	0.44
		343.04	7.36	325.07	7.30	296.64	9.05
	Total:	4,661.45	100.00	4,454.56	100.06	3,686.38	100.01

Source: Pakistan's Export of Principal Commodities for the Year (July-June) 1988-89.
Government of Pakistan, Export Promotion Bureau, Karachi.

ANNEXURE VI

WOOD ESTIMATES ON THE BASIS OF EXPORT OF SPORTS GOODS

<u>Item</u>	<u>1985-86</u> <u>No. Exported</u>	<u>Total</u> <u>Manufactured</u>	<u>Wood</u> <u>Required</u>	<u>1986-87</u> <u>No. Exported</u>	<u>Total</u> <u>Manufactured</u>	<u>Wood</u> <u>Required</u>
Cricket Bats (20% of total)	1,035,132	5,175,660	1,725,220	359,964	1,799,820	599,940
Hockey Sticks (80% of total)	558,504	698,130	174,532	688,656	860,820	215,205
Squash Rackets (80% of total)	1,953,708	2,442,135	244,213	2,304,156	2,880,195	288,019
			<hr/> 2,143,965 cft (60,674 m ³)			<hr/> 1,103,164 cft (31,220 m ³)

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ANNEXURE VI

WOOD ESTIMATES ON THE BASIS OF EXPORT OF SPORTS GOODS

<u>Item</u>	<u>1987-88</u> <u>No. Exported</u>	<u>Total</u> <u>Manufactured</u>	<u>Wood</u> <u>Required</u>	<u>1988-89</u> <u>No. Exported</u>	<u>Total</u> <u>Manufactured</u>	<u>Wood</u> <u>Required</u>
Cricket Bats	670,260	3,351,300	1,117,100	376,896	1,884,480	628,160 cft
Hockey Stocks	787,812	984,765	246,191	888,888	1,111,110	277,777 cft
Squash Rackets	1,562,820	1,953,525	195,352	872,436	1,090,545	109,054 cft
			1,558,643 cft (44,110 m ³)			1,014,991 cft (28,724 m ³)
1985-86 to 1988-89 (Average)	1,445,190 cft (41,182 m ³)					
1986-87 to 1988-89 (Average)	1,225 cft (34,684 m ³)					

Source: Monthly Statistical Bulletin. Federal Bureau of Statistics.
 Statistics Division, Government of Pakistan and Survey by
 Envoforestry (Private) Limited.

ANNEXURE VII

BOTANICAL NAMES OF SOME TREE SPECIES

<u>Common Name</u>	<u>Botanical Name</u>
Acacia, Kikar	<u>Acacia nilotica</u>
Ash	<u>Fraxinus excelsior</u>
Bakain	<u>Melia azedarach</u>
Cane	<u>Calamus merri-leii</u>
Chinar	<u>Platanus orientalis</u>
Cricket bat willow	<u>Salix alba spp. coerulea</u>
Mulberry	<u>Morus alba</u>
Poplar	<u>Populus spp.</u>
Shisham	<u>Dalbergia sissoo</u>
Toon	<u>Cedrela toona</u>
Walnut	<u>Juglans regia</u>

ANNEXURE VIII

LIST OF SPORTS GOODS INDUSTRIAL UNITS SURVEYED

1. Ali Trading Co. (Private) Ltd.
Ali Building, Khadim Ali Road
P.O. Box No.8, Sialkot.
Tele: 66716

2. Centre De Commerce
Khadim Ali Road
Sialkot.
Tel: 83092

3. M/s Grays of Cambridge Pakistan (Private) Ltd.
Small Industries Estate
Sialkot.
Tel: 87139.

4. Chenab Sports (Private) Ltd.
Capital Road, P.O. Box No. 196
Sialkot.
Tel: 83257

5. Model Sports Works
88/92, Small Industries Estate
Sialkot.
Tel: 86688

6. Hockey Engineers
Mubarikpura, Sialkot.

7. Asghar Sports
Mubarikpura, Sialkot.

8. M. Islam Din & Sons
Mubarikpura, Sialkot
9. Babar Sports
63-B, Small Industries Estate
Sialkot.
Tel: 67521.
10. Darr Sports
162, Small Industries Estate
Sialkot.
Tel: 65606
11. C.A. Sports
Kanak Mandi, Tajpura
Sialkot.
Tel: 84391
12. Newbery Mansha Pak. (Private) Ltd.
Wazirabad Road
Sialkot.
Tel: 83447.
13. Berna And Company
Mujahid Road
Sialkot.
Tel: 82361
14. Malik Sports
Tehsil Bazar, Sialkot.
Tel: 86985
15. Shafiq Sports
Tehsil Bazar, Sialkot.
Tel: 86984

16. Eminent House
Muhammadpura, P.O. Box 431
Sialkot.
Tel: 85488

17. Classico Sports Ltd.
Nasir Road, Sialkot.
Tel: 82069

18. Ihsan Sports
Hajipura, Daska Road
Sialkot.
Tel: 85371