THE SPORTS GOODS INDUSTRY OF SIALKOT

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Summary. *The sports goods manufacturing industry of Sialkot comprises* 290 *units employing* 2,650 *workers.* 42 *work on factory scale and the rest as small units. Very little mechanical equipment is employed. Finishing operations are generally carried out manually. Annual average timber consumption based on the data for the past* 5 *years is* 19,000 m^3. *Mulberry and willow account for* 66% *of timber consumption.* 50% *of mulberry is obtained from the state owned irrigated plantations of the Punjab. The entire supplies of willow come from the farmlands of Peshawar district. Current export earnings from all sports goods are Rs.* 199 *million; from wooden sports goods Rs.* 105 *million. The export earnings have shown an upward trend during the last* 25 *years. The exports of hockey sticks are rising steadily, of tennis rackets, steady, of cricket bats, downward; of badmintion rackets, insignificant. The increase in prices of raw mateial and wage rates of the workers has raised production costs and undermined the competitive power of the industry. High quality mulberry and willow timber is in short supply. The industry can be assisted by increasing the availablity of quality timber at reasonable prices and providing subsidy on exports.*

Introduction. The sports goods manufacturing industry of Sialkot is a leading wood-based industry of Pakistan. This survey was conducted in February, 1979 to find out the total number of workers engaged in it, assess its timber requirements and study its other salient features including the problems faced by it.

Method. The survey was confined to units manufacturing wooden sports goods: hockey sticks and blades, cricket bats and stumps, tennis and badmintion rackets, polo sticks, carrum boards, squash rackets. A complete enumeration of all the manufacturing units was undertaken to determine the number of workers engaged in them and to assess their requirements of various species of timber. Information regarding the number of units was also collected from the officials of the Sports Goods Manufacturers and Exporters Association. Discussions were held with leading manufacturers including officials of Pakistan Sports Goods Industrial Cooperative Society regarding the present position of supply and consumption of timber. Interviews were conducted with various timber commission agents to collect information on the inflow of timber and sources of its supply. The survey was conducted by a party of 3 officers headed by the Assistant Forest Economist.

Structure. 290 units are engaged in manufacturing wooden sports goods; 42 work on factory scale (employ 10 or more workers) and the rest are small units:

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Number of workers	*Number of units*	*% of total*
1 — 4	201	69
5 — 9	47	16
10 and above	42	15

The products of small units are exported by 110 exporting firms. The factories arrange exports themselves.

Employment. About 2,650 workers are employed year-round in this industry, distributed as follows:

	Number of workers
Small manufacturing units	915
Factory units	1,085
Exporting units	500
Carriage operations	50
Miscellaneous	100
TOTAL:	2,650

Ishaq (2) estimated the number of workers at 1,500 in 1957 and Sabzwari (4), 4,000 in 1963. The latter included those workers also who were engaged in manufacturing of non-wooden sports goods.

Produticon methods. Hockey sticks: A hockey stick consists of two parts, cane handle and bent blade. Mulberry (*Morus alba*) logs 1.5 m in length and 300 mm and above in diameter are used for making blades. These logs are first converted into scantlings of 75 x 75 cm and placed in the open for air seasoning for about 4 to 6 months. The air dry scantlings are softened either by steaming or by boiling in hot water and then bent in U shape on the bending machine. From one bend, 4 blades are obtained. The cane handle is then wedged and glued to the bend. The finishing process is mostly carried out manually except a few firms which use spray machines for the purpose. Mulberry grown in Changa Manga is reported to be eminently suited for the manufacture of hockey blades. Ash (*Fraxinus excelsior*) is also used in hockey sticks in limited quantity in the form of plies on cane handle to provide hand grip.

Cricket bats: Cricket bats are made from willow (*Salix* spp). Willow logs 1.5 m in length and 300 mm and over in diameter are converted into scantlings of 115 x 65 cm which are air-seasoned in sheds for 4 to 6 months. From the air-dry scantlings are manufactured cricket bat blades. One scantling yields 2 bats. The cane handle is then wedged and glued to the blade. Willow is mostly obtained from Charsadda and Akbarpura areas of Peshawar district. English bat willow imported as clefts is used in high quality cricket bats.

Tennis and badminton rackets Tennis and badminton racket frames are made of laminated wood. Generally 5 to 9 plies are glued together and then bent into frames on bending tables. The bent frames are clamped and put into a hot chamber for drying. Small holes are made in racket frame edges for taking the gut strings. Nylon strings are used for gutting. Except for one factory which uses a machine for making holes, this operation as well as gutting is done manually. Painting is also done by hand except one factory where spray machine is used for the purpose. A large variety of timber species is used for making racket frames. However, mulberry sapwood and bakain are prefererd to other species. Chinar (*Platanus orientalis*) is used for 'gootkas' (throat) and willow in handle and grip. Mesquite, mango (*Mangifera* spp), poplar, eucalypts, toon (*Cedrela toona*) are the other species used in racket frames. Ash is used for frames in high quality rackets. The use of poplar in low quality cheap rackets has increased considerably in recent years.

Timber consumption. Mulberry, willow and bakain (*Melia azedarach*) are the main species used in manufacturing sports goods. In addition, a large number of other species are used in making tennis rackets. Their consumption is, however, limited in quantity. Ash and English bat willow are also used in small quantities. Since 85-90% of total output is exported to foreign markets, timber consumpion varies from year to year with fluctuations in the volume of exports.

The estimates of annual timber requirements of sports goods industry made by different writers in the past are given below:

Species	Volume in m^3			
	Ishaq(2) 1957	Sabzwari(4) 1963	Ansari(1) 1967	Khan(3) 1970
Mulberry	5,660	3,540	5,660	7,450
Willow	2,548	3,540	4,250	7,305
Bakain	425	700	1,400	820
Mango	—	1,400	2,800	650
Others	700	560	2,800	3,075
	9,333	9,740	16,910	19,300

The present survey gives the annual timber consumption of different species as follows:

Species	*Volume in m^3*
Mulberry	7,080
Willow	5,100
Bakain	1,415
Mango	1,415
Chinar	520
Mesquite	200
Toon	300
Eucalyptus and poplar	1,700
Imported ash, willow	700
TOTAL:	18,430

Amongst the indigenous woods, mulberry is the only wood used in the manufacture of hockey blades and willow, of cricket bats. These have not so far been substituted by any other wood. The woods used in the manufacture of tennis rackets have a high degree of substitutibility and their consumption depends upon the prevailing prices of different woods.

In February 1972, Pakistani rupee was devalued by 57%; the value of rupee dropped from 0.21 U.S. $ to 0.09 U.S. $. Under the impact of devaluation, exports of sports goods rose sharply and timber consumption increased correspondingly. But the impact of devaluation was lost by 1976-77 and exports of all sports goods dropped except of hockey sticks. Accordingly, the figures of timber consumption given above represent timber requirements of sports goods industry under normal conditions only. It may depart by more than 100% under exceptionally favourable circumstances, e.g. following devaluation.

Supply of timber. Mulberry: The main sources for supply of mulberry timber to sports goods industry are Changa Manga and Daphar irrigated plantations. But the production from these plantations hardly meets 50% of its requirements. The rest is obtained from farmlands around Sialkot, and Akbarpura and Charsadda areas of Peshawar district. The manufacturers reported that the quality of mulberry timber of Akbarpura was as good as that of Changa Manga timber. Table 1 gives the production of mulberry timber in Changa Manga and Daphar irrigated plantations:

Table 1

Production of mulberry timber at Changa Manga and Daphar irrigated plantations

Year	(Volume, m^3) Daphar	Changa Manga	Total
1950-51	17	2,074	2,091
1951-52	15	942	957
1952-53	13	1,129	1,142
1953-54	2	1,727	1,729
1954-55	637	1,120	1,757
1955-56	989	941	1,930
1956-57	1,947	784	2,731
1957-58	1,261	596	1,857
1958-59	956	346	1,302
1959-60	1,489	1,231	2,720
1960-61	1,028	1,344	2,462
1961-62	1,273	1,305	2,578
1962-63	2,134	1,118	3,252
1963-64	2,448	1,394	3,842
1964-65	2,081	1,685	3,766
1965-66	4,511	1,829	6,340
1966-67	2,800	1,815	4,615
1967-68	2,758	1,980	4,738
1968-69	3,034	1,066	4,100
1969-70	1,483	1,034	2,517
1970-71	3,197	2,101	5,298
1971-72	1,852	785	2,637
1972-73	2,840	388	3,228
1973-74	836	2,220	3,056
1974-75	2,156	1,666	3,822
1975-76	741	2,657	3,398
1976-77	2,716	—	—
1977-78	1,254	1,889	3,143

Source: Office records of respective Divisional Forest Officers.

The average annual production of mulberry timber during the past 6 years has been about 3,300 m^3. But hardly 44% (1450m^3) of this is of quality I[1]. The current demand for quality I timber is about 4,250m^3. This leaves a gap of 2,800 m^3. The shortage of quality timber has resulted in steep rise in the prices of timber. The following were the sale rates of IR logs at Changa Manga during the last 6 years:[2]

1. Working Plan for Changa Manga irrigated Plantation, 1972-73 to 1992-93.
2. Office records of Divisional Forest Officer, Qasur Forest Division.

Year	*Rs./m³*
1971-72	555
1972-73	848
1973-74	1,023
1974-75	1,236
1975-76	1,441
1976-77	1,443

Since 1971-72, the price has increased by 160%.

The supplies from farmlands are irregular and their quality is not upto the mark. Only a very small proportion is suitable for the manufacture of hockey sticks. The rest is used in rackets.

Willow: Almost the entire supply of 5,100 m^3 of willow timber comes from Akbarpura and Charsadda areas of Peshawar district. The timber commission agents contact the growers and purchase standing trees from the farmers. These are converted into logs and transported by rail to Sialkot. About 75-80% of the logs are generally undersized and do not possess the desired quality. The cricket bat manufacturers require timber from trees with dbh of 35 cm. The current supplies of quality timber are about 1,000 m^3 against the annual demand of 3,500 m^3.

Other species: The supplies of other species mainly come from private sources in N.W.F.P. The supplies are generally irregular and the logs are not of the required sizes. Since these can be substituted for each other; the shortage of one can be met by using another. However, for the manufacture of high quality tennis rackets, there is a high demand for walnut, maple, beech, bird cherry and horse chestnut.

Export earnings. The following amounts of foreign exchange were earned from exports of sports goods during 1952-53 to 1976-77.

Table 2

Export earning from sports goods (million rupees)

Year	Total	From wood-based sports goods
1952-53	5.1	3.2
1953-54	5.6	3.6
1954-55	5.9	3.9
1955-56	9.5	6.8
1956-57	13.9	10.1
1957-58	11.5	7.4
1958-59	9.7	6.4
1959-60	11.8	7.2
1960-61	11.5	7.2
1961-62	13.3	9.3
1962-63	17.4	11.4
1963-64	18.5	12.4
1964-65	17.5	13.9
1965-66	19.1	12.2
1966-67	19.8	11.2
1967-68	22.8	11.9
1968-69	26.8	16.3
1969-70	30.1	19.9
1970-71	32.6	22.4
1971-72	50.1	29.9
1972-73	136.0	80.9
1973-74	188.0	97.0
1974-75	204.5	105.5
1975-76	189.1	105.2
1976-77	199.0	105.7

Source: (*i*) Pakistan Statistical Year Book, 1976-77

(*ii*) 25 years of Statistics, 1947-72.

Total export earnings: Total export earnings exhibited an upward trend both in pre-devaluation period (prior to Feb. 1972) and post devaluation period. The first devaluation of Pakistani rupee on 31 July, 1955 caused a sharp rise in the earnings. The introduction of Export Bonus Scheme in 1959 caused a slow and steady increase in earnings till 1971-72. The second devaluation in February, 1972 caused a steep rise in earnings. This lasted during 1972-73 and 1973-74. After that the earnings have stabilized at about Rs. 197 million.

Export earnings from wood-based products: The export earnings from wood-based products have also shown an upward trend in the pre-devaluation period as well as in the post-devaluation period.

Trends in exports of principal sports goods. The following quantities of principal wood-based sports goods were exported during 1952-53 to 1976-77 (number, in thousands):

Table 3

Exports of principal wood based sports goods

Year	Hockey sticks	Tennis rackets	Badminton rackets	Cricket bats
1952-53	66	743	405	60
1953-54	91	790	396	90
1954-55	120	563	701	120
1955-56	99	835	1628	116
1956-57	140	1351	1796	367
1957-58	186	1383	1260	458
1958-59	144	1110	851	216
1959-60	188	1200	500	50
1960-61	232	1566	377	149
1961-62	151	1196	710	178
1962-63	230	2178	1365	559
1963-64	215	2012	1169	535
1964-65	236	2300	1500	540
1965-66	339	1679	1455	397
1966-67	267	1419	1280	265
1967-68	296	1503	1286	264
1968-69	422	2523	1617	320
1969-70	392	2834	1551	364
1970-71	257	2211	376	242
1971-72	323	2049	176	203
1972-77	305	2653	165	234
1973-74	502	4602	78	565
1974-75	525	4225	145	699
1975-76	508	3672	19	323
1976-77	684	2047	27	362

Source: (*i*) Statistical yearbook, 1976-77.
(*ii*) 25 years of Statistics. 1947-72.

Hockey sticks: The exports of hockey sticks have shown an upward trend over the period 1952-53 to 1976-77 due mainly the rising demand for hockey sticks in the

world market. The only major competitor is India. According to the hockey manufacturers the relative share of Pakistan in the world market is about 60% and of India about 40%. The Pakistani hockey sticks made from Changa Manga mulberry are rated as the best in the world. They are more durable and flexible. Even hockey sticks made from ash are no match to our hockey sticks. Straight grain and yellowish colour is much liked by customers. Indian hockey sticks are also made from mulberry but the quality of their timber is not as good. It loses its original colour and grows darkish after some time. Some efforts have been made in Japan to make hockey sticks from plastic, but these have not proved successful as yet. The present upward trend in hockey stick exports is therefore likely to continue.

The devaluation of Pakistani rupee by 39% (from one rupee—0.30 U.S. $ to one rupee = 0.21 U.S. $) in July 1955 caused a sharp rise in exports. Again the introduction of Export Bonus Scheme in 1959-60 provided a positive incentive for increasing exports and helped to sustain the rising trend in exports. The second devaluation of Pakistani rupee in February 1972 (57%) gave a big push to the exports.

Tennis rackets: The exports of tennis rackets have shown an upward trend over the last 25 years, mainly because of rising demand in the world market. Pakistan faces very tough competition in the world market from India, Japan, Taiwan and the Philippines. The entry of Taiwan in the world market in 1970-71 caused a shrinkage in the Pakistani exports. However, 1972 devaluation caused 100% increase in our exports. The high level of exports was maintained for about 3 years, and in 1976-77 the impact of devaluation was completely lost and the exports fell to the pre-davaluation level. It shows that the competetive power of our industry in the world market is relatively weak in this item. The main reasons are the high prices of timber and increasing wages of workers in relation to their productivity. It seems unlikely that our exporters will be able to retain the present share of world market in the future.

Badminton rackets: The exports of badminton rackets maintained an upward trend till 1970-71 and afterwards declined sharply and even the devaluation of 1972 did not result in any increase in their exports. The main reason is the introduction of the aluminium badminton racket in the world market and the entry of Taiwan as exporting country in 1970-71. It is most unlikely that the exports of badminton rackets will increase to any significant extent in the future.

Cricket bats: The exports of cricket bats have shown wide fluctuations during the last 25 years. Till 1966-67 these showed an upward trend but afterwards a downward trend. 1972 devaluation caused more than 100% increase in exports which rose to an all time high level of 699,000 in 1974-75. When the impact of devaluation was lost, these fell down to the pre-devaluation level (323,000). India is a major competitor in this field. It is reported that India has set up a factory in Kashmir which uses Kashmir willow for cricket bats. Since our willow is much inferior in quality as compared to the Kashmir willow, the exports of cricket bats are unlikely to record any singificant increase in the future.

Conclusions

1. Only the exports of hockey sticks are increasing. The exports of other items are either stagnant or declining.
2. The cost of production has risen due to increase in prices of timber and wages of workers in relation to their productivity.
3. The competitive strength of our exporters in the world market is relatively weak. They are facing tough competition from India, Taiwan and Japan.
4. The present production of mulberry timber from Irrigated plantation meets only 50% demand; the production of quality timber is very small.
5. With the increase in exports of hockey sticks, the demand for quality mulberry timber will increase. Measures must be taken to increase the production of quality mulberry timber.
6. There is extreme shortage of good quality willow timber. Only a small proportion of the supplies from private farmlands is of desired quality. The N.W.F.P. Forest Department may consider planting willow on the road side especially in Peshawar and Mardan districts.
7. The supplies of chinar, toon, ash, walnut, bird cherry, horse chestnut are extremely small. The Forest Departments N.W.F.P. and Azad Kashmir may consider harvesting and planting these species.
8. The existing rate of import duty on timber (100%) is too high; the rate may be reduced on ash and English bat willow.
9. The rate of import duty on other raw material requirements of sports goods industry like paints and glues may also be reduced.
10. Mechanization of the industry is needed to improve the quality of its products and its efficiency.

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