

## MATCH INDUSTRY IN PAKISTAN – PAST AND PRESENT CONSUMPTION WITH FUTURE REQUIREMENTS

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### Abstract

After separation of East Pakistan where the match industry was located due to availability of raw material, acute shortage of safety matches was felt in the country. In the wake of that, several mushroom industries mostly at cottage level developed which used paper and cardboard and wax for this purpose. However, as the demand rose with the increase in population, several new well-organized and modern units were set up. The total production during 1983-84 was estimated at 1668 million match boxes out of which 40% were produced from wood and 60% from wax and cardboard. Currently 9 large units using wood as a raw material are producing 537 million match boxes every year. The wastage of the wood for this industry has been estimated at about 15–20%. The production cost and the wholesale price of one gross of match boxes is Rs. 16.85 and Rs. 18.27 respectively. The current annual consumption of wood is around 14,662 m<sup>3</sup>. The demand for round wood for the year 1990, 1995 and 2000 comes to 18,069; 20,795 and 24,202 m<sup>3</sup> respectively.

### Introduction

After partition, the area which now forms Pakistan had only two match factories; one at Shahdara (Punjab) and the other at Garhi Habibullah (NWFP). The need to expand this industry was not felt as bulk of the demand was met with from former East Pakistan. However, after separation of the eastern wing in 1971 these supplies were abruptly cut off and created acute shortage of safety matches in the country. The prices rose sharply in the local market. To meet the demand, safety matches had to be imported from several countries causing substantial strain on the meagre foreign exchange resources. The then prevalent higher prices attracted the attention of the local industrialists and several match factories sprang up in a short period of time. Their number actually rose to more than 100 in late seventies but several had to be closed for want of suitable raw material.

### Production of safety matches in Pakistan

An attempt has been made to collect data on the production of safety matches in Pakistan during the last 15 years. It would be seen that the production has gone up by about 98%. This of course is quite natural in view of the rise in population and the resultant consumption.

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Table 1.—Production of Matches in Pakistan during the last 15 years  
(1970-71 to 1983-84)

Years	Number of Units	Production (Million boxes)
1	2	3
1970-71	2	170
1971-72	13	241
1972-73	63	338
1973-74	50	368
1974-75	55	466
1975-76	66	589
1976-77	78	689
1977-78	93	1,139
1978-79	101	1,275
1979-80	101	1,620
1980-81	94	1,673
1981-82	87	1,337
1982-83	73	1,403
1983-84	79	1,668

Source: The state of Forestry in Pakistan 1982-83

In the beginning these industries were mostly cottage industries and used wax thread as raw material for making of splints while boxes were made of cardboard. A few wood-based units also come into being. However, they used either chir pine (*Pinus roxburghii*) or blue pine (*Pinus wallichiana*) for splints. Both of these woods are not only costly but also are resinous. The industry looked for wood which was comparatively cheaper and resin free. Hybrid poplar introduced in the country from several countries turned out to be a really good substitute: white, no odour, easy to work. Moreover, it was much cheaper as compared to chir pine and blue pine. The match factory offered a good price to poplar growers of Peshawar and Mardan districts in N.W.F.P. The poplar grown in other localities of Pakistan was found to be inferior in quality and also its colour was not desirable. Accordingly, the demand for match units was restricted to above mentioned poplar growing areas.

With a view to finding the present consumption and future demand of wood for this industry a survey was conducted.



## Methodology

During 1980, 13 units were based on wooden matches in the country. These number being small, it was decided to collect the requisite information from all the units. Out of these data from 9 units could be collected and remaining four units<sup>1</sup> were found closed since last one or two years, because the machinery had become obsolete and economics did not compare favourably when matched with the modern automatic equipment being used by several others.

## Data collection and its Analysis

The total installed capacity of the surveyed units was 43,92,000 gross boxes per shift of 8 hours. At present, one industry was operating on one shift basis; three at two shift and remaining at three shift basis respectively. The actual production during 1983 was 5370,000 gross boxes. The annual wood consumption has been estimated 12,615 m<sup>3</sup> against 13,151 m<sup>3</sup> per annum requirements.

Hybrid poplar locally produced was the most preferred wood for match splints. It is purchased by the factories either directly from farmers or through contractors at the factory gate price of Rs. 24–30 per 40 kg., in Peshawar, Lahore and Faisalabad, but at Karachi average rate is Rs. 42 per 40 kg. As mentioned earlier suitable raw material is mostly procured from Peshawar and Mardan districts of N.W.F.P. The wastage of wood in these industries was about 15–20 percent of the roundwood volume of the billets size 1.6 metre. 2 kgs of round wood can produce sufficient splints to fill about one gross of boxes. The average cost of production and the wholesale selling price was Rs. 16.81 and Rs. 18.27 per gross during 1983. The total employment in the surveyed units was 1014 persons annually and the working days were calculated to be about 300 per annum. Thus 304 thousand mandays are required to keep present level of production every year. The particulars of the surveyed units are given in the Appendix-I.

## Results

The annual consumption of wood has been given below:

X (Year)	Y (Wood consumption m <sup>3</sup> )
1979	9,858
1980	10,640
1981	11,223
1982	11,940
1983	12,615

To forecast future requirement a linear regression was used as follows;

$$Y = A + BX$$

Where, Y = Wood consumption

X = year

The model developed from the above equation is:

$$Y = 9211.0 + 681.4 X \text{ Correlation Coefficient 'r' } = 0.9993$$

Future requirement based upon the above model is given in Table 2 below.

Table 2.—Future requirements

X (Year)	Y (Estimated wood consumption m <sup>3</sup> )
1984	13,299
1985	13,981
1986	14,662
1987	15,344
1988	16,025
1989	16,706
1990	17,388
1991	18,069
1992	18,751
1993	19,432
1994	20,113
1995	20,795
1996	21,476
1997	22,158
1998	22,839
1999	23,520
2000	24,202

1. Khan Kaghan Shazad and Indus match industries were not functioning.

### Recommendation

Based on discussions held with the manufacturers following recommendations are being made to keep the industry.

- Farmlands are contributing bulk of raw material to match industry. The marketing system is not satisfactory and it is difficult for the consumer to approach each and every farmer. It is highly desirable that integrated marketing system may be developed for the benefit of producers as well as the consumer.
- Units located in Karachi face shortage of raw material (Poplar wood) which is transported from NWFP incurring heavy expenditure. Also it dries up in transit reducing the percentage of recovery. Suitable clones of poplar and *Salmaal malabarica* (Semal) ought to be raised on private lands and forest areas within a radius of 200–300 km. of Karachi.



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1	1,418	882	432	2,732
2	375	375	420	1,170
3	305	190	360	855
4	205	2,400	900	3,505
5	1,800	1,600	150	3,550
6	1,250	1,100	600	2,950
7	1,600	1,200	750	3,550
8	120	120	30	270
9	1,014	13,815	4,392	19,221

## Appendix—I

Particulars of wood based match industries,  
Surveyed in 1983.

S.No.	Name of unit	Annual installed capacity per shift of 8 hours (000 gross boxes)	Actual production (000 gross boxes)	Annual actual timber consump- tion (m <sup>3</sup> )	Annual timber require- ments (m <sup>3</sup> )	Employ- ment No.
1.	Ali Match Factory	600	562	1,500	2,035	74
2.	Syed Match Factory	432	602	1,448	360	120
3.	New Fazal Match Factory	420	2,240	375	375	33
4.	National Match Factory	360	481	190	205	248
5.	Orient Match Factory	900	2,400	5,200	5,600	300
6.	Ujjala Match Factory	150	160	1,500	1,600	92
7.	Sind Match Works	600	150	1,100	1,256	59
8.	Symco	900	750	1,200	1,600	56
9.	Green Match Factory	30	25	120	120	32
Total		4,392	5,370	12,615	13,151	1,014