

## WOOD CONSUMPTION AND REQUIREMENT FOR THE PAKISTAN RAILWAYS

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### Abstract

Data about three railway wood consumption units of the Pakistan Railways, viz. Railway Workshop and Track Department at Lahore (inherited by Pakistan at independence) and a new carriage factory, established at Islamabad in 1970 currently require 14,260 m<sup>3</sup> of wood. Number of persons employed the year round in wood-working units being 2216, projected demands of wood of the various tree species, mostly *Dalbergia sissoo* Roxb. and *Cedrus deodara* (Roxb. ex Lamb) G. Don for the year 1990, 1995 and 2000 were worked out to be 18,012, 27,379 and 36,745 m<sup>3</sup> respectively.

### Introduction

The Pakistan Railways operate two carriage factories: One at Islamabad for the fabrication of new carriages and another at Lahore for undertaking repairs. Pakistan Railways Workshop and Track Department were established at Lahore during 1912 and inherited by Pakistan at the time of independence, while the carriage factory at Islamabad was established in 1970. Table 1 shows the number of coaching vehicles owned by Pakistan Railways from 1976-77 to 1985-86.

Table 1

Number of coaching Vehicles of different guages owned by Pakistan Railways\*.

Year	Broad guage		Metre guage		Narrow guage		Total	
	Pass-enger carriage	Other coach vehicles	Pass-enger carriage	Other coach vehicles	Pass-enger carriage	Other coach vehicles	Pass-enger carriage	Other coach vehicles
1976-77	1860	740	114	30	132	48	2086	816
1977-78	1191	730	110	30	112	48	2133	806
1978-79	1921	715	107	30	110	43	2138	788
1979-80	2011	706	101	30	110	43	2222	779
1980-81	2061	691	97	30	110	43	2268	764
1981-82	2116	655	97	30	110	47	2323	732
1982-83	2161	614	97	30	107	41	2365	685
1983-84	2201	538	97	30	107	41	2405	609
1984-85	2293	538	87	18	107	35	2487	591
1985-86	2515	457	87	18	120	31	2722	506

\*Sources: Government of Pakistan Statistical Year-Book, 1987. p.201.

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The total number of passenger carriage coaches and other coaching vehicles owned by Pakistan Railways was 2086 and 816 respectively in the year 1976-77. However, the number gradually rose to 2722 passenger coaches and 506 coaching vehicles upto the year 1985-86.

Table 2 represents the length of Pakistan Railways routes and tracks.

Table 2.

Length of Pakistan Railway routes and tracks (in thousand kilometers)\*  
(1976-77 to 1984-85)

Year	Routes	Tracks	Total
1976-77	881.5	12.5	894.00
1977-78	881.5	12.5	894.00
1978-79	881.5	12.5	894.00
1979-80	822.3	12.6	834.00
1980-81	822.3	12.6	834.00
1981-82	822.3	12.6	834.00
1982-83	877.5	12.6	890.00
1983-84	877.5	12.6	890.00
1984-85	707.5	12.7	720.00

\*Source: Government of Pakistan Statistical Year-Book, 1987. p. 201.

The total length throughout the country was 894 and 720 thousand kilometers for the year 1976-77 and 1984-85 respectively. The decline in route length shows that most of the uneconomical routes were closed in view of the stiff competition exerted by comparatively faster road transportation of passengers and goods.

Table 3 shows the revenue and expenditure of Pakistan Railways from 1976-77 to 1985-86.

The net revenue during 1976-77 and 1985-86 was 285.3 and 366.3 million rupees respectively signifying nominal increase. This is primarily due to increase in air and road travel.

### Methodology

During 1988, 3 units were based on wood works in the country. The number appearing small, it was decided to collect the requisite information from all the units.



Table 3.

Revenue and expenditure of Pakistan Railways (in million rupees)\*  
(1976-77 to 1985-86)

Year	Revenue	Expenditure	Balance
1976-77	1747.0	1462.7	285.2
1977-78	2213.1	1635.2	577.8
1978-79	2274.7	1854.9	419.8
1979-80	2709.4	2273.3	436.1
1980-81	2942.4	2490.8	451.6
1981-82	3044.2	2847.6	196.6
1982-83	3395.0	3308.0	87.0
1983-84	3680.0	3476.1	203.9
1984-85	3681.0	3868.2	187.2
1985-86	4367.8	4001.5	366.3

\*Source: Government of Pakistan Statistical Year-Book. 1987. pp. 213-214

## Results

Data was collected from all the three units. Islamabad carriage factory has annual installed capacity of 150 coaches, while actual production was 125 coaches during the year 1987. The average wood consumption per coach was 6,427 m<sup>3</sup> of hardwood. Thus, the total wood consumption was 980 m<sup>3</sup> against the 1176 m<sup>3</sup> for the year 1987. However, the wood needed and actually consumed for Railway Workshop at Lahore was 4200 m<sup>3</sup> respectively for the year 1987. The wood consumption for Pakistan Route and Track Department for the year 1987 was 18,684 m<sup>3</sup>.

Railway sleepers are generally wooden, but pre-stressed concrete sleepers are also now being used in increasing number due to non-availability of wood. Table 4 gives the standard size of sleepers used in railway carriages, railways workshop and railway tracks.

Deodar, kail, fir, spruce and shisham are the major indigenous species used for making railway sleepers. Eucalyptus, after treatment, could be a good substitute. The major sources of wood are Mirpur (Azad Kashmir), Havelian, Dargai, Faisalabad and Bahawalpur Timber markets. No imported wood was used after 1980-81. For treating the indigenous railway sleepers, the Pakistan Railway have their own pressure impregnation plant using creosote and fuel-oil mixture: annual capacity on single shift basis is 250,000 sleepers. It was also reported that there is no wood deficit in the market.

Since the railways obtain their supply of sleepers through contractors, the employment generated in the manufacture of sleepers is covered under saw-milling. The

Table 5.  
Future Requirements

Year (x)	Estimated wood consumption m <sup>3</sup> (y)
1988	14265.76
1989	16139.00
1990	18012.03
1991	19885.06
1992	21758.09
1993	23632.02
1994	25505.50
1995	27378.80
1996	29262.10
1997	31125.40
1998	32998.70
1999	34872.00
2000	36745.00

The projected demand of wood for the year 1990, 1995 and 2000 is 18,012, 27,379, and 36,745 cubic meters respectively.

### Recommendation.

Softwoods are in great demand by the railway carriage factories. It is highly desirable that intensive planting of the requisite species both conifers and hardwoods is undertaken as a special project.

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