

FUEL CONSUMPTION FOR BRICK INDUSTRY IN N.W.F.P.

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Summary

This paper gives an overview of fuel consumption for brick industry. During the year 1985-86 the total number of brick kilns in NWFP was estimated as 458. Total production of baked bricks in the same year was 149 million with an estimated firewood and coal consumption of 74,654m³ and 171,000 tonnes respectively. Data were collected from 60 sampled units throughout the province. An average kiln was loaded 5 times during 1985-86. Mean annual capacity and actual production was 377 and 327 thousand bricks per kiln. Average annual requirement and actual consumption of firewood per sampled unit was 167 m³ and 163 m³, while the corresponding figure for coal was 417 and 373 tonnes. Average whole-sale price of firewood was Rs. 28/—, 40/— and 29/— and 17 per 40 kg for Hazara, Peshawar, Kohat and D.I. Khan Civil Division respectively. The whole-sale price for anthracite coal was Rs.1400/—, 1600/—, 650/— and 256/— per tonne for Hazara, Peshawar, Kohat and D.I. Khan Civil Division. The price in the last two cases is rather low as it is available from the nearby coal mines.

Introduction

A variety of fuels are used for baking of bricks. These include firewood, coal, rice husk and old tyres. However, in N.W.F.P. wood and coal are used for this purpose. There are 458 brick manufacturing and baking units in the province. Total estimated production out of these units in 1986 was 149 million bricks with a firewood consumption of about 76,654m³ and coal consumption of 171,000 tonnes.

Methodology

Due to non-availability of complete lists of the number of brick kilns in N.W.F.P. random sampling technique could not be applied. Quota non-probability method of sampling had, therefore, to be carried out for this study. This method is extensively applied in marketing and social science research. However, the study areas was stratified into four civil divisions i.e. Hazara, Peshawar, Kohat and D.I. Khan. In all 60 brick kiln owners were interviewed according to design and pre-tested questionnaire.

Analysis of data

An average kiln was loaded 5 times during 1985-86. Mean annual capacity of actual production is given in Table 1.

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Table 1: Mean annual capacity and actual production 1985-86

Name of the Division	Production capacity (000 bricks)	Annual production (000 bricks)
Hazara	500	460
Peshawar	275	234
Kohat	400	370
D.I. Khan	332	238
Average	377	326

Source: Survey

Average annual capacity and actual production was estimated to be 377 and 326 thousand bricks for the year 1985-86.

Average annual fuel requirements and actual consumption is given in Table-2:

Table 2: Average annual fuel requirement and actual consumption during 1985-86 for one kiln

Name of Division	Firewood		Coal	
	Requirement (m ³)	Actual consumption (m ³)	Requirement (Tonne)	Actual consumption (Tonne)
Hazara	110	110	81	81
Peshawar	51	51	1320	1316
Kohat	68	68	187	165
D.I. Khan	439	422	80	78
Average	167	163	417	373

Source: Survey

Based on the aforementioned actual production of bricks, a kiln requires about 167m³ of firewood and 417 tonnes of coal annually. During 1985-86 it has been estimated that 163m³ of firewood and 373 tonnes coal were consumed by one sampled unit to bake the bricks. The firewood consumption in D.I. Khan Civil Division was found to be higher mainly due to low prices and better supply in the local market.

Average price of firewood and coal in the sampled areas is represented in Table 3:

Table 3: Average whole-sale price of firewood and coal during 1985-86

Name of the Division	Firewood (Rs./40 kg)	Anthracite coal (Rs./tonne)
Hazara	28	1400
Peshawar	40	1600
Kohat	29	650
D.I. Khan	17	256
Average	29	977

Source: Survey

The average firewood price per 40 kg was Rs. 29/- while the coal price was Rs. 977/- per tonne during 1985-86. Firewood prices depend upon the availability of wood in the local areas and transportation cost up to the consumption site. The lowest price was recorded in D.I. Khan Civil Division. However, coal price depends upon the distance and the quality of coal consumed in the sampled area.

The major wood species used for brick baking are *Pinus roxburghii*, *Dalbergia sissoo*, *Acacia nilotica*, *Prosopis cineraria*, *Zizyphus mauritiana*, *Tamarix aphylla* and *Quercus incana*.

Average number of days required per load was estimated at about 30-40. The employment level in the industry was 79,000 man days all the year round.

Recommendation

Firewood used for baking bricks is obtained from the farm lands and local market. A campaign should be started to motivate the farmers to grow fuelwood species so that fuelwood is available locally at low prices.

The Government of the Punjab has imposed restriction on the use of firewood in brick industry, due to scarcity of fuelwood and its great demand for domestic purposes. Since N.W.F.P. is also facing fuelwood crisis specially in big cities like Peshawar the price has gone to Re.1/kg it is highly desirable that same type of restriction is also imposed.

REFERENCE

- F.A.O (1986) Wood energy for brick industry. Regional wood energy development programme GCP/RAS/111/NET Bangkok. PP 3, 11.