

ECONOMICAL UTILIZATION OF EUCALYPTUS CAMALDULENSIS

by

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Introduction;

Excessive demand of wood in the world is giving way to the informations on different properties of Eucalyptus wood and hence its multiple uses. The early utilization for firewood and rough-hew shelters has largely given way to employment in high quality building, decorative and furniture woods.

Large areas of different Eucalyptus species are being planted in Pakistan because of the rapid growth rate of the genus and the increasing demand for wood. The trees are marketable after a few years, although a large proportion of juvenile wood is present. Eucalyptus plantations are being raised on state lands to narrow the gap between demand and supply of wood. Non-potential as well as potential arable lands are being put under Eucalyptus cultivation by the farmers. Eucalyptus is being thought and is also proving itself the only solution of wood shortage in Pakistan.

More and more uses of Eucalyptus wood are coming forth because of increase in its demand and production. Now the producers are seeking the most economical and efficient disposal of Eucalyptus wood to increase their market margins and ultimately the industrial wood in the country.

Generally the Eucalyptus wood has so far been converted into firewood in our country. Under the directions of Mr. Anwar Masrur, Chief Conservator of Forests, trees of Eucalyptus camaldulensis were converted into 'ballies' instead

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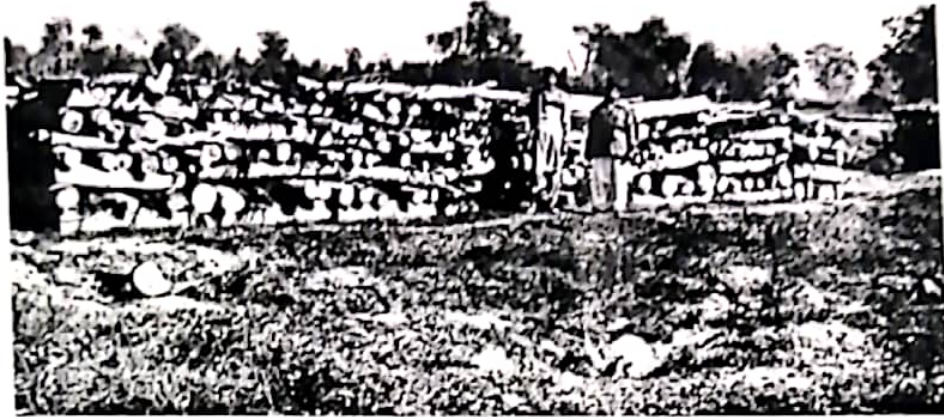


Fig.1: A Firewood stack of Eucalyptus camaldulensis



Fig.2: Use of 'ballies'

of firewood in Bahawalpur and Rahim Yar Khan forest divisions which are well known for having the largest Eucalyptus plantations in the country. The 'ballies' are known to have been used in Karachi and Quetta as rafters, battens for construction of huts, as pit props in mines and also for scaffolding during construction of R.C.C. slabs of buildings. A study was conducted by Punjab Forestry Research Institute, under the guidance of Mr. Anwar Masrur, Chief Conservator of Forests, to compare the economics of these methods of utilization of Eucalyptus wood.

#### Materials and Methods:

Data were collected from Bahawalpur and Rahim Yar Khan forest divisions regarding the informations like, age of the crop felled, year of felling, size of 'ballies' and number, cost of conversion into 'ballies', rate per 'balli', rate of firewood, cost of conversion into firewood, etc. Total volume of the 'ballies' and also the revenue realized were recorded. Solid volume of 'ballies' was converted into stacked volume and hence the revenue got from the same produce as firewood was calculated. Then revenue realized from the same wood as firewood and as ballies was compared. Data were collected in May, 1990.

#### Results and Discussions:

The age of crop felled varried from 6 to 20 years. Felling was done during the year 1987-88 to 1989-90. Length of 'ballies' converted was kept from 5 ft. to 24 ft. and girth varied from 9 inches to 32 inches. Total number of ballies studied was 8,392. Volume per balli was varying from 0.26 cft. to 6.67 cft. and the total solid volume of 8,392 'ballies' was 20,265 cft.



Fig.3: Conversion into 'Ballies'

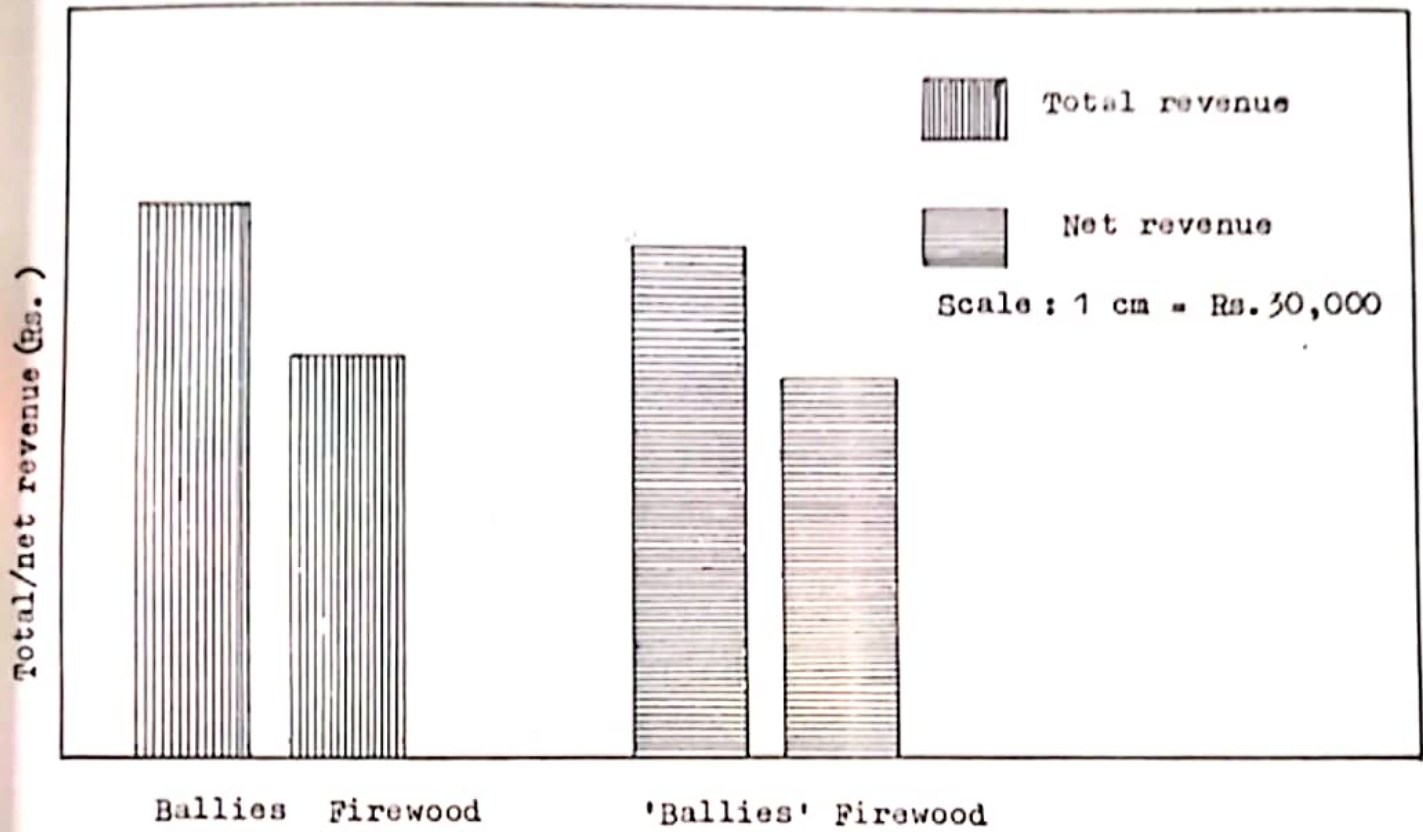


Fig. 4: Comparison of revenue from the wood of Eucalyptus camaldulensis as 'ballies' v/s firewood.

Sale price per 'balli' ranged from Rs. 10.15 to Rs. 93.00, bringing a total revenue of Rs.2,26,088 (Appendix-I). Total cost of conversion for 'ballies' was Rs.17,907. This gave a net revenue of Rs.2,08,181 from 'ballies'.

If all the wood had been converted into firewood it would have come to stacked volume of 31,176 cft. At a sale price of Rs.525 per 100 cft. of firewood, it would have brought a revenue of Rs. 1,63,676 (Appendix-2). Total cost of conversion for firewood being Rs.10,475, there would have been a net revenue of Rs.1,53,201.

Conversion of trees of Eucalyptus camaldulensis into 'ballies' of different sizes instead of firewood has brought an additional revenue of Rs.54,980 i.e. Rs.176 per 100 cft. (Appendix-3)

On the basis of expected net revenue from firewood, the revenue realized through conversion and sale of 'ballies' is 36% more.

Conclusion:

It is concluded that trees of Eucalyptus camaldulensis felled in Bahawalpur and Rahim Yar Khan forest divisions were very economically utilized by conversion into 'ballies' instead of making firewood. This has resulted in 36% additional revenue as compared to that from conversion into firewood.

Appendix 1. Detail of revenue from the sale of wood as 'Ballies'

Age of the crop felled (years)	Year of felling	Size of 'Ballies' Length Girth	No. of 'Ballies'	Volume per 'Ballie' (Cft.)	Total volume (Cft.)	Rate/Ballie (Rs.)	Total revenue (Rs.)	Conversion cost/'Ballie' (Rs.)	Total cost (Rs.)
12	1987-88	16' 30"-32"	50	6.67	333.50	32	1,600	1.50	75
20	1987-88	15' 28"-30"	35	5.48	191.80	50	1,750	1.50	52.50
6	1988-89	5' 9"-18"	500	0.40	200	10.65	5,325	1.00	500
"	"	6' 9"-18"	500	0.47	235	10.15	5,075	0.75	375
"	"	8' 9"-18"	500	0.63	315	12	6,000	1.25	625
"	1988-89	14' 18"-24"	200	2.68	536	23	4,600	4	800
"	"	16' 20"-26"	200	3.67	734	27	5,400	4	800
18	1988-89	14'-16' 16"-24"	45	2.60	117	19	855	1.89	85.05
6	1989-90	16' 9"-12"	223	0.77	171.71	22	4,906	4	892
"	"	18' 18"-20"	665	2.82	1,875.30	60	39,906	4	2,660
"	"	18' 20"-26"	72	4.13	297.36	93	6,696	4	288
12	1987-88	24' 14"-15"	100	2.19	219	25	2,500	1.50	150
12-18	1989-90	9' 12"	140	0.56	78.40	25.25	3,535	2	280
"	"	12' 12"	140	0.75	105	27.35	3,829	2	280
"	"	15' 21"	115	2.87	330.05	27.65	3,180	2	230
"	"	6' 10"	40	0.26	10.40	14.50	580	2	80
"	"	10' 12"-16"	100	0.85	85	20.05	2,005	2	200
"	"	16' 18"-20"	1,867	2.51	4,686.17	25.10	46,862	2	3,734
"	"	16' 21"-23"	2,900	3.36	9,744	28.10	81,490	2	5,800
TOTAL-	-	-	8,392	-	20,264.69	-	2,26,088.00	-	17,906.55

• Av. Volume per 'ballie' = 2.41 cft.

• Av. rate/'ballie' = Rs.26.94

• Av. Conversion cost/'ballie' = Rs.2.13

Appendix 2. Detail of revenue from the sale of 'Ballies' as firewood.

Total solid volume of Ballies (cft.)	Conversion factor (stacked to solid)	Stacked volume (cft.)	Conversion cost per 1000 cft. (Rs)	Total cost (Rs)	Sale price/ 100 cft. of firewood (Rs)	Total Revenue (Rs)
20264.69	0.65	31176.45	16 coolies @ Rs 21/- coolie 336	10475.29	525	1,63,676.35

Appendix 3. Detail of net revenue realized from the sale of Eucalyptus camaldulensis wood as firewood/ballies.

Total Revenue as firewood (Rs.)	Total Revenue as 'ballies' (Rs.)	Total cost on conversion into firewood (Rs)	Total cost on conversion into 'ballies' (Rs.)	Net revenue as fire-wood (Rs)	Net revenue as 'ballies' (Rs)	Addl. revenue (Rs)	Addl. revenue/cft. of firewood (Rs.)	Addl. Revenue (%age)
163676.36	226088.00	10475.29	17906.55	153201.07	209181.45	54980.38	176.35	35.89