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GOVERNMENT OF INDIA  
MINISTRY OF ENVIRONMENT AND FORESTS

**REPORT  
ON  
WOOD CONSUMPTION STUDY  
IN  
MYSORE DISTRICT  
(KARNATAKA)**

*FOREST SURVEY OF INDIA  
SOUTHERN ZONE  
BANGALORE  
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## P R E F A C E

The wood consumption study in Mysore District was conducted by the Forest Survey of India, Southern Zone, Bangalore in June-July, 1992. As per this study, the total annual requirement of timber is 1,54,000 m<sup>3</sup> and that of firewood 1426260 MT. The per capita timber consumption in rural and urban sector is 1.07 m<sup>3</sup> and 0.59 m<sup>3</sup> respectively. The per capita fuelwood requirement per annum in rural and urban sector is 0.516 tonnes and 0.268 tonnes respectively. There is a huge gap between demand and supply which needs to be narrowed down. Some measures have been suggested to bridge the gap.

It is hoped that the report will be useful for planners in the forestry sector to plan developmental programmes in the district.

(JAGIR SINGH)

Director  
Forest Survey of India  
Dehradun,

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## CHAPTER - I

### 1.1 Introduction:

The Pre-investment Survey of Forest Resources (now known as Forest Survey of India) has been conducting inventory of forest resources since 1966. Wood Consumption Studies were also undertaken at number of places as a part of forest inventory. Later on based upon pilot study carried out during 1983 by Forest Survey of India, Dehradun a sound methodology was evolved and manual for Wood Consumption Survey was prepared by the Forest Survey of India during the year 1985. The wood consumption survey in Mysore District which was carried out during 1992 is based upon the methodology prescribed in this manual. The Forest Survey of India, Southern Zone undertook the inventory of forest resources in Mysore district and completed the work in March, 1993. The Wood Consumption studies formed an integral part of the inventory work and was carried out simultaneously with inventory work from June to July, 1992.

### 1.2 Objectives:

The objectives of the wood consumption survey in Mysore District were as follows:-

1. To study the wood consumption pattern in relation to uses such as building construction, furniture, agricultural implements, fuel etc. for both rural and urban areas.
2. To study the effect of household size and income in the consumption of wood.
3. To study the variation of the wood consumption based upon the distance from the forests.
4. To assess the total present consumption of wood and bamboo in the district.
5. To study the gap between the present demand and supply position.

### 1.3 Methodology:

The entire survey area of the district was divided into three strata - A, B, & C. Stratum A and B form part of rural area while stratum C forms part of urban area. Stratum A consists of villages falling within the radius of 5 km. from forests while Stratum B consists of villages falling beyond 5 km. from the forests. After listing the villages in stratum A & B, 1.5 per cent of the villages in each stratum



were randomly selected for data collection. Ten households representing the different income groups in each of the selected villages chosen at random for data collection. In stratum C towns/cities with population upto 50,000 and more than 50,000 were listed out. Five towns/cities were selected randomly from the list. Since there was only one city (Mysore) with population of more than 50,000, this was selected for data collection. Out of 13 towns of another category, 4 were selected at random. Twenty households in each town/city representing different income groups were selected.

#### 1.4 Income groups:

Land holding of individuals have been taken into consideration for classifying them into different income groups. The different type of holding viz. wet and garden lands are converted into a common unit of dry land by using the conversion factor of one ha. of garden land or wet land equivalent to two ha. of dry land. The farmers were classified as marginal farmers with 0-1 ha. of holding, small farmers with 1-2 ha. holding and large farmers with more than 2 ha. of holding in terms of dry land. These have been considered equivalent to lower income groups having an annual income of Rs.3,600, middle income groups with Rs.3,600-7,000 and upper income groups with more than Rs. 7,000 earning per annum respectively.

1.5 Growth rate of population :

To project the per capita consumption and the future demand of wood the population growth has been estimated by using the following formula;  $A = P(1+r)^x$  Where,

A = Population as per 1991 Census.

P = Population as per 1981 Census.

r = Annual rate of increase of population.

x = Time of interval in years between successive Census population as well as households.

1.6 Data collection :

Field parties led by Junoir Technical Assistants and assisted by Fieldmen collected data from selected households in the selected villages. The data collected were in terms of quantity of timber utilised for building construction, furniture, agricultural implements, firewood consumption etc. The sample forms used for collection of data are given in the Appendix 'D'. Conversion factors as given in the manual were used for assessing the quantity of timbers used for different purposes. The forms were checked up at Headquarters and processed by Personal Computer.

1.7 Estimation of consumption pattern :

Regression analysis was done under each stratum for each sub-category of income groups using the size of households as an independent variable and per capita consumption of wood for various purposes as the dependent variable. Per capita consumption of wood in each stratum for different kinds of use was estimated by using the formula;

$$Y = mx + c \text{ Where } Y \text{ is the per capita wood consumption in the sampled household.}$$

m & c are constants estimated by the regression analysis.

x is the average size of the sampled household

The data on firewood includes agricultural waste which includes lops and tops of trees.

## CHAPTER - II

### GENERAL DESCRIPTION OF THE SURVEY AREA

#### 2.1 Location :

Mysore district lies between 11°30'N and 12°50'N latitudes and 75°45'E and 77°45'E longitudes. It is located in the southern most corner of the Karnataka State. It is bounded by Mandya and Hassan Districts in the North and Madikeri District in the West, by Cannanore district of Kerala and Udhagamandalam (Nilgiri) District of Tamilnadu in the South and by Salem and Coimbatore District of Tamilnadu in the East.

#### 2.2 Topography

Physiographically the region in which the district is situated may be classified as partly maidan and partly semi-malnad. The ground is generally undulating. The principal range of hills are Biliriranganabetta and Male Mahadeshwar hills. The extreme south forms a terrain of dense forest. The western talukas are bounded by the lofty mountain ranges of Western Ghats.

The drainage is towards the east and comprises mainly the Cauvery river basin besides those of Kabini, Lakshmantirtha and Suvarnavate which are tributaries of Cauvery.

### 2.3 Area & population

The total area of the District is 11,954 km<sup>2</sup>. It has 11 talukas, 1641 Census Villages and 14 Towns/Cities. As per 1991 Census the total population of the district is 31,65,018 out of which 22,24,724 is rural (70.3%) and 94,0,294 is urban (29.7%). The population density is 265 per sq.km., sex ratio 953, literacy 40%. The proportion of male workers to total population is 37.44% out of which 33.74% are cultivators, 27.89% are agricultural labourers, 2.82% are workers in household industry and 31.55% are other workers. Out of 14 towns/cities only one town i.e. Mysore has population beyond 50,000.

### 2.4 Forests :

The total area under forest in the district is about 3465 km<sup>2</sup>. which amount to 28.99% of the geographical area. Out of 3465 km<sup>2</sup>. of forest area, dense forest is 1819 km<sup>2</sup>. and open forest is 1646 km<sup>2</sup>.

Forest of the district are mainly deciduous type both dry & moist and scrub. It contains valuable sandal wood. Other main species are Anogeissus latifolia, Pterocarpus marsupium, Tectona grandis, Acacia species, Dalbergia latifolia, Albizzia species, Hardwickia binnata, Bauhinia species, Bombax ceiba and Chloroxylon swietenia.

## 2.5 Climate

The climate of the district is moderate throughout the year. The temperature in Winter (From November to February) ranges from 16.7°C to 31.3°C while that in Summer (March to May) from 19.7°C to 35.1°C. South-West Monsoon lasts from June to October and the repeating monsoon takes over during November. There is extreme variation in the rainfall from locality to locality. The average rainfall varies from 1200 mm in the western region to 690 mm in the eastern region.

## CHAPTER - III

### WOOD CONSUMPTION IN RURAL AREAS - STRATUM 'A'

3.1 Altogether 28 villages were selected for collecting the data at a sampling intensity of 1.5 percent, of which 10 in stratum 'A' and 18 in Stratum 'B' were surveyed. Villages falling within a radius of 5 km. from the forest area were classified as stratum 'A' and villages which are beyond the radius of 5 km. from the forest were classified as Stratum 'B'. Ten households representing different income groups were selected in each village for collection of data and data were collected in the format given in Appendix 'D'.

### 3.2 Wood consumption pattern in Stratum 'A' :

Wood consumption pattern was studied in 100 households in Stratum 'A'. The list of villages is given in Appendix 'A'. Regression analysis was carried out taking per capita consumption of wood, dependent variable and average size of the household as the independent variable. Per capita consumption of wood for different purposes were studied with the average size of the household taking as 5.32 based upon the census data.

The following table shows the per capita consumption of wood in Stratum 'A' :

Table No.1

PER CAPITA CONSUMPTION OF WOOD IN STRATUM "A"

S.N.	Item	Unit	Quantity
1.	Building construction	M <sup>3</sup>	0.766
2.	Furniture	M <sup>3</sup>	0.012
3.	Agricultural implements.	M <sup>3</sup>	0.300
4.	Total timber	M <sup>3</sup>	1.076
5.	Firewood	T/Annum	0.530
6.	Bamboo	No.	7

3.3 The sampled households were also subdivided according to their annual income into three categories viz. upper income, middle income and low income. For the average size of the household i.e. 5-32, it was seen that there is considerable difference in the per capita wood consumption. The following table shows per capita consumption of wood in different income groups.



Table No.2.

PER CAPITA WOOD CONSUMPTION IN STRATUM 'A' (INCOMEGROUPWISE)

S.N.	I t e m	Unit	Income Groups		
			Low	Middle	Upper
1	2	3	4	5	6
1.	Building construction.	M <sup>3</sup>	0.628	0.549	1.529
2.	Furniture	M <sup>3</sup>	0.002	0.017	0.05
3.	Agricultural implements.	M <sup>3</sup>	0.147	0.315	0.456
4.	Total timber	M <sup>3</sup>	0.778	0.880	2.035
5.	Firewood	Tonnes/ annum	0.438	0.506	0.598
6.	Bamboo	No.	11	8	14

The consumption pattern of timber and firewood showed an increasing trend from lower income level to middle and further to upper level except in case of building construction item in which middle level group consumed less per capita timber as compared to lower income group. The increasing consumption of timber and firewood with respect to increase to income indicates that in this stratum, the income level and availability of wood and firewood which decides the consumption pattern. Annual firewood consumption increases from 0.438 tonnes/annum to 0.589 tonnes/annum from lower to

upper income group which is the single largest item of consumption. High firewood consumption indicates that in the rural areas the impact of alternative source of energy is not appreciably felt, even upper income groups have not gone in for alternative source of energy. Thus, it is necessary to popularize the alternative source of energy like gas, electricity, gobar gas etc. to bring down the consumption of firewood and thereby reducing the pressure on the forests.

Per capita Bamboo consumption pattern does not show any correlation with respect to income. The middle income group seems to be using less number of bamboos than that of others.

The total timber consumption in upper income group is much higher (roughly  $2\frac{1}{2}$  times) as compared to other income groups. This is contrary to the hypothesis that with the improvement in the economy level of a person, alternate material or wood substitute will be used for different purposes.

## CHAPTER - IV

### WOOD CONSUMPTION IN RURAL AREA IN STRATUM 'B'

4.1 Stratum 'B' consists of the the village population which is beyond 5 km. distance from the nearest forest areas. 18 villages were selected in this groups for sampling and in each village 10 households were studied distributed over lower, middle and upper income group. The list of village is given in Appendix 'B'.

4.2 Per capita wood consumption for various items was estimated by regression analysis taking the average size of the household of 5.32 as an independent variable. The following table gives the pattern of wood consumption.

Table No. 3

#### PER CAPITA CONSUMPTION OF WOOD IN STRATUM 'B'

1.	Building construction	M <sup>3</sup>	0.763
2.	Furniture	M <sup>3</sup>	0.014
3.	Agricultural implements	M <sup>3</sup>	0.292
4.	Total timber	M <sup>3</sup>	1.069
5.	Firewood	Tonnes/ annum	0.506
6.	Bamboo	No.	37

4.3 Income group wise regression analysis was also done and it is seen that for the same average size of household there is considerable differences in the per capita wood consumption. The following table shows per capita consumption of wood in different income groups.

Table No.4  
PER CAPITA WOOD CONSUMPTION IN STRATUM 'B'  
(INCOME GROUP WISE)

S.N.	I t e m	Unit	Income groups		
			Low	Middle	Upper
1.	Building construction	M <sup>3</sup>	0.411	0.979	0.950
2.	Furniture	M <sup>3</sup>	0.001	0.017	0.032
3.	Agricultural implements.	M <sup>3</sup>	0.126	0.361	0.428
4.	Total timber	M <sup>3</sup>	0.539	1.357	1.433
5.	Firewood	T/ Annum.	0.436	0.499	0.500
6.	Bamboo	No.	11	52	16

On comparison of the above data it is seen that per capita wood consumption increases as the income increases. In upper income groups the per capita consumption of wood for Building Construction and Firewood is almost similar to the middle income group. Trend is decreasing one. It indicates that at high income level, there is use of alternative material of wood for Building construction and Firewood; whereas in the lower income groups, it is the economy level which decides the per capita consumption as they may not be able to afford substitute materials for wood. In Furniture and Agricultural implements also, consumption increases as the income increases.

The annual consumption of firewood is considerable varying from 0.436 MT from lower income group to 0.499 MT to middle income group and 0.500 MT to upper income group. The average of household in different income groups increases from 4.53 in the lower to 6.71 to the middle and 8.43 in the upper. In the upper income groups use of alternate source of energy and average size of household has affected the consumption pattern of firewood.

#### 4.4 Per capita consumption of wood in rural area (Stratum A + B)

The following table shows the consumption pattern of wood in rural areas when analysed the data of stratum A and B in a combined manner.

Table No. 5  
PER CAPITA CONSUMPTION OF WOOD IN STRATUM (A+B)

S.N.	I t e m	Unit	Quantity
1.	Building construction	M <sup>3</sup>	0.765
2.	Furniture	M <sup>3</sup>	0.013
3.	Agricultural implements	M <sup>3</sup>	0.295
4.	Total timber	M <sup>3</sup>	1.07
5.	Firewood	Tonnes/annum	0.516
6.	Bamboo	No.	24

The table indicates that single largest item of consumption is firewood which comes to 0.516 MT/annum. It shows that alternative sources of energy like Kerosene, Cooking Gas, Electricity etc. has not been popularised and still the population depends upon the forest resources for their firewood needs. The consumption of bamboo per person in rural area is 24.

After comparing the data of stratum A & B (Table 1 & 3), it is seen that distance from the forest area has not affected the consumption pattern of wood for various purposes. Per capita consumption is almost same in both the stratum.

The consumption pattern in Bamboo does not indicate any particular trend in different income groups. In stratum 'A' the middle income group seems to be using less number of bamboos than that of other income groups. While in stratum 'B' it is using more number of bamboos as compared to other income groups. The per capita consumption is more in stratum 'B' as compared to that of stratum 'A' irrespective of income groups.

One of the most important factor which decides the consumption pattern is the total population in the particular income group. In the lower income group the total population may be much higher than that of middle and upper. As a result the per capita consumption may be low but the total consumption of wood for different items will be much more than that of other groups whereas the upper income group though the per capita is high the total consumption may be less due to the fact that less number of people will be using more resources.

## CHAPTER - V

### WOOD CONSUMPTION IN URBAN AREAS

5.1 As per 1991 Census there are 14 towns/cities in the district. In 1981 Census, only 13 towns/cities were in existence. For selection of towns/cities for the study, towns/cities were listed into two categories - those having population less than 50,000 and those having population more than 50,000. Mysore city has population exceeding 50,000 and this was selected for sampling. Out of the remaining towns which had population less than 50,000, Periyapatna, Tagadboru, Kalale, Telanur were selected. Twenty households in each towns/cities were chosen for data collection.

As per 1991 Census, urban population of Mysore district rose to 940294 from 7,11,567 in 1981 with an annual growth rate of 2.83% compared to a rate of 1.67% for the same period of rural population. It is estimated that urban population would be around 9,66,904 in 1992 and 12,78,149 in 2002. Only Mysore city is the big one having population of more than 6 lakhs, as per 1991 Census. Rest of the towns are having population less than 50,000. The average size of household has decreased from 6.30 in 1981 to 5.31 in 1991. Further as per the estimated size it would be 5.25 in 1992 and by 2002 it would be 4.80.



## 5.2 Result and discussions :

Twenty households from each of selected town were surveyed and data were collected in various items of wood consumption. The data were analysed statistically carrying regression analysis as it was done for the Stratum 'A' and 'B'.

By taking the average size of household as 5.25, based upon Census data the per capita consumption of wood for various purposes was estimated. The following table shows the consumption pattern of different items of wood in this stratum.

Table No.6

PER CAPITA CONSUMPTION OF WOOD IN STRATUM 'C'

S.N.	I t e m	Unit	Quantity
1.	Building construction	M <sup>3</sup>	0.457
2.	Furniture	M <sup>3</sup>	0.04
3.	Agricultural implements	M <sup>3</sup>	0.101
4.	Total Timber	M <sup>3</sup>	0.598
5.	Firewood	Tonnes/annum	0.268
6.	Bamboo	No.	50

Wood consumed for construction in stratum 'C' is much less than that consumed in strata 'A' and 'B' indicating that in towns other construction materials are used and the deciding factor of consumption is availability of substitute and the economic level of the person which permits him to go for substitutes.

Per capita wood consumption for furniture in stratum 'C' is higher than that in stratum 'A' and 'B' which indicates that furniture usage in towns/cities is more than in villages and the wood is still the favoured items for furniture.

In stratum 'C' still some wood is used as agricultural implements. It shows that in Mysore district still considerable urban population depends upon agriculture for their livelihood.

Expectedly the consumption of firewood in the stratum is lowest being 22.33 kg/month (.268 MT/annum) as compared to 44 kg/month (.530 MT/annum) and 42 kg/month (.506 MT/annum) in Stratum 'A' and 'B' respectively. This indicates that in town/cities increasing alternative source of energy are being made use of. As observed in many of the households smokeless Chullas, Kerosene, Electricity and L.P.G. are being made use of as alternate source of energy.

Per capita Bamboo consumption in this stratum is much higher as compared to stratum 'A' and 'B'. It indicates that in towns though other substitute materials are available, Bamboo is still favoured item for various purposes. Except Mysore city, it is used considerably in urban areas of the district for construction purposes.

5.3 Comparison of wood consumption pattern in different strata.

The following table shows per capita wood consumption in three different strata irrespective of the income of the family.

Table No.7.

TABLE SHOWING PER CAPITA CONSUMPTION  
IN  
VARIOUS STRATA I.E. STRATUM A,B & C

S.N.	I t e m	Unit	Stratum		
			A	B	C
1.	Building Construction.	M <sup>3</sup>	0.766	0.763	0.457
2.	Furniture	M <sup>3</sup>	0.012	0.014	0.040
3.	Agricultural implements.	M <sup>3</sup>	0.300	0.292	0.101
4.	Total timber	M <sup>3</sup>	1.076	1.069	0.598
5.	Firewood	Tonnes/annum	0.530	0.506	0.268
6.	Bamboo	No.	7	37	50

The following trends of consumption pattern are observed from the above table :

1. Per capita timber consumption as a whole gets reduced as we go from villages near the forests to the large towns/cities although this reduction is insignificant in case of villages lying in Stratum 'B'. It is much higher in rural areas as compared to urban areas. This may be due to easier availability of wood and lack of alternate source in rural areas (Stratum A+B) than in urban areas. Thus the availability of resources plays an important role in deciding the consumption pattern.

2. Per capita consumption of timber for building construction is high in rural areas (A&B) than that of the towns/cities (Stratum 'C'). The type of building and cost of wood used are perhaps the deciding factors.

3. Per capita firewood consumption is less in urban areas as alternative source of energy such as Kerosene, L.P.G. and electricity is available in urban areas.

4. Per capita consumption of wood for furniture is higher in towns/cities than that in rural area since furniture usage in town/city is more than in villages.

5. The per capita consumption of bamboo is more in urban areas than that in rural areas contrary to the popular belief that it should be less in urban areas as compared to rural areas. It may be due to the fact that in smaller towns of the district with population less than 50,000, bamboo is still the most favoured in the construction of houses and cattle sheds.

6. In urban areas also a considerable quantity of wood is consumed for making agricultural implements. This may be due to the fact that urban economy in the district is still rural based.

#### 5.4 Present and future requirement scenario of Mysore District

The present requirement of wood has been estimated on the basis of per capita consumption and estimated population of the district at the time of survey work. The population estimation has been made for both rural and urban areas by taking into account the census data of Mysore district of the year 1981 and 1991. The growth rate of population 'r' has been calculated by using the formula  $A = P(1 + r)^x$  where, A and P are population as per 1991 and 1981 census respectively and x is the time interval in years between successive census operations.

The following table shows the population figures for rural (Stratum A & B) and urban (Stratum C) for 1981, 1991 and projected figure for 1992 and 2001.

Table No. 8.

POPULATION FIGURE, GROWTH RATE AND ESTIMATION  
OF POPULATION BY 2001.

S.N.	Item	1981 census.	1991 census.	Annual rate of growth.	Estimate for 1992.	Estimate for 2001.
1.	Rural population.	18,84,333	22,24,724	1.67	22,61,877	26,69,015
2.	Rural household.	3,39,371	4,16,620	2.0	4,24,952	5,18,014
3.	Average size of rural household.	5.55	5.34	-	5.32	5.15
4.	Urban population.	7,11,567	9,40,294	2.83	9,66,904	12,78,149
5.	Urban household.	1,22,389	1,77,187	3.77	1,83,867	2,66,208
6.	Average size of urban household.	6.30	5.31	-	5.25	4.8

The present per capita consumption of total timber, firewood and bamboo based on this study is summarised below.

Table No. 9.

PER CAPITA WOOD CONSUMPTION BY RURAL & URBAN POPULATION

S.N.	I t e m	Unit	Rural	Urban
1.	Total timber	M <sup>3</sup>	1.07	0.598
2.	Firewood	Tonnes/Annum	0.516	0.268
3.	Bamboo	No.	24	50

The total timber and firewood requirement for 1992 and 2001 are arrived after taking into account the population growth and is summarised as below.

Table No.10.

Present timber utility in m<sup>3</sup> and projection of future requirement.

I t e m	1992	2001	Additional require- ments in 9 years.
Rural area	24,20,208.39	28,55,846.05	4,35,637.66
Urban area	5,78,208.59	7,64,333.10	1,86,124.51
Total	29,98,416.98	36,20,179.15	6,21,762.17

Table No. 11.

Present firewood consumption and future  
firewood requirement in tonnes/annum.

<u>I t e m</u>	<u>1992</u>	<u>2001</u>
Rural area	11,67,128.53	13,77,211.74
Urban area	2,59,130.27	3,42,543.92
<b>Total :</b>	<b>14,26,258.80</b>	<b>17,19,755.66</b>

Table No. 12.

Present bamboo consumption and future  
requirement of bamboo in Nos.

<u>I t e m</u>	<u>1 9 9 2</u>	<u>2 0 0 1</u>
Rural area	5,42,85,048	6,40,56,360
Urban area	4,83,45,200	6,39,07,450
<b>T o t a l :</b>	<b>10,26,30,248</b>	<b>12,79,63,810</b>



In addition to the requirement for rural and urban areas as shown in the above tables, consumption for repairs/replacement to house, furniture, agricultural implements are to be taken into account. The following assumption has been made in this connection on the basis of study carried out by this zone in Kolar District :

- i) About 1.3% of timber is replaced annually for construction purposes.
- ii) Assuming the life of furniture to be 50 years, 2% timber is replaced every year.
- iii) The average life of agricultural implements is about 10-12 years. Thus about 8% timber is replaced every year.

The data collected in Mysore district shows that in rural areas about 71% of the total timber used are utilised for construction purposes, 1% for furniture and 28% for agricultural implements. In urban areas approximately 76% of the timber is used for building construction, 7% for furniture and 17% for agricultural implements.

On the conservative side if one percent timber is replaced annually for house construction, the total quantity required will be about 17,183 M<sup>3</sup> in the rural and 4394 M<sup>3</sup> in the urban areas. At the rate of 2% annual replacement in case of furniture the total quantity of wood required will be 484 M<sup>3</sup> in rural area and 809 M<sup>3</sup> in urban areas. Similarly at the rate of 8% replacement for agricultural implements, the total quantity required for repairs will be 54213 M<sup>3</sup> for rural sector and 7864 M<sup>3</sup> for urban sector. The following table shows the estimated quantity required annually for repairs and replacements for various item :

Table No. 13.

Quantity of wood annually required for repairs and replacement.

S.N.	I t e m	Unit	Rural	Urban	Total
1	Building cons- truction.	M <sup>3</sup>	17183	4394	21527
2.	Furniture	M <sup>3</sup>	484	809	1293
3.	Agricultural implements.	M <sup>3</sup>	54213	7864	62077
T o t a l :		M <sup>3</sup>	71880	13067	84947

In addition to the quantity required for repairs and replacement about 69085 M<sup>3</sup> will be required annually for house construction, furniture and agricultural implements due

to population growth.

Total requirement of timber thus comes to the tune of 1,54,000 M<sup>3</sup> per annum. Annual consumption of firewood at the present rate would be 1426259 MT which would increase to 17,19,756 MT in 2001.

#### 5.5 Production of wood in Mysore District :

Data of production of wood was collected from Deputy Conservator of forests of all the four Divisions namely Chamrajnagar, Mysore, Hunsur and Kollegal of the District. Production statistics is as follows :

Table No.14.

#### Production Statistics

S. N.	Item	Unit of meas.	1986-87	1987-88	1988-89	1989-90	1990-91
1	Timber	m <sup>3</sup>	12009.20	9637.48	4399.23	4825.18	4326.46
2	Firewood	m <sup>3</sup>	9172.84	9390.41	8680.95	14017.25	9100.25
		Tonnes	3276.01	3353.72	3100.30	5006.15	3250.09
		(1 tonne = 2.8 m <sup>3</sup> stacked)					
3	Bamboo	No.	239000	485767	665869	504803	546000
4.	Dry & dead bamboo.	Tonnes	-	-	2917.75	2825.20	1234.09

5.6 Import and Export data of the District :

The data regarding the movement of wood and bamboo going out of the Mysore District and coming in the District was supplied by the Deputy Conservator of Forests, Vigilance, Forest Mobile Squad, Mysore. The following table shows the import and export data of last five years.

Table No.15.

Table showing the import and export of wood and other items from other Districts.

Item	Unit	Import					Export				
		86-87	87-88	88-89	89-90	90-91	86-87	87-88	88-89	89-90	90-91
Timber	m3	6541.72	7411.88	32465.8	24790.95	3638.83	3607.81	9714.95	4637.79	6579.11	11876.52
Poles	No.	75250	75280	83539	96316	45868	-	-	-	700	-
Fire-wood.	m3	1007.685	18207.75	26179.25	7685.79	2607.58	1251.26	2469.07	3201.31	439.31	1253.50
	Tonnes	359.89	6502.77	9379.73	2744.93	931.28	446.88	881.81	1143.32	156.89	447.68
Bamboo	No.	79176	393792	276581	1830051	531278	-	-	-	-	-
Dead & dry bamboo.	Tonnes	-	-	-	-	-	124.22	63.40	43.71	-	-
Char-coal	Bags	-	-	620	9150	10280	-	-	440	-	215
	Tonnes	-	-	18.6	274.5	308.4	-	-	13.2	-	6.45

(† Bag = 30 kg.)

In the above table (14 & 15), the following conversion factors for firewood and bamboo (stacked volumes) which are being following in the Karnataka Forest Deptt (as supplied by the Chief Conservator of Forests (General) has been used.

1. Firewood : One Tonne = 2.8 M<sup>3</sup>
2. Bamboos : One Tonne = 5.850 M<sup>3</sup>

5.7 By taking into account, the production, export and import data; the net quantity of wood and bamboo available for consumption has been worked out which is shown in the following table.

Table No.16

Net available wood in the District for consumption

Item	Unit	1986-87	1987-88	1988-89	1989-90	1990-91	Average of last 5 years.
Timber	m <sup>3</sup>	14943.11	7334.41	32227.24	23037.02	3911.23	14776.11
Poles	No.	75250	75280	83539	95616	-	65937
Firewood	Tonnes	3189.02	8974.68	11306.71	7594.19	3733.69	6595.66
Bamboo	No.	318176	897559	942450	2334854	1077278	1114063
Dry & dead bamboo	Tonne	124.22	63.40	2874.04	2825.20	1234.09	1349.14
Charcoal	Tonne	-	-	5.4	274.50	301.95	116.37

Thus, against the annual requirement of 1,54,000 m<sup>3</sup> of timber for various purposes such as building construction, furniture, and agricultural implements, the average availability is only to the tune of 14726.11 m<sup>3</sup>. It creates a huge gap between the demand and supply. Some quantity of poles are having been imported into the district, which may cater to the needs in a small way. Still the gap is too big to putforth any viable explanation. A systematic study is required to be carried out by the State Forest Deptt. to assess unrecorded wood production. As against fuelwood requirement of 1426259 MT, the supply is meagre 6960 MT leaving an alarmingly large gap. About 51% of the requirement is met by agricultural waste. Even then the gap between demand and supply is wide enough to putforth any viable explanation. No record is available to show how this gap is filled up.

The consumption of kerosene per person per annum in the rural area and urban area of the district is only 8 litre and 15 litre respectively. Similarly use of alternative sources of energy such as L.P.G., Solar, Wind Energy etc. is also very limited. This resulted in heavy pressure in the forest for firewood consumption.

## 5.8 CONCLUSION :

As per study made regarding wood consumption in Mysore District the annual requirement of timber works out to be 1,54,000 m<sup>3</sup> for various purposes such as building construction, furniture and agricultural implements. As per the Divisional Forest Officer (Territorial)'s figure available, the production of timber works out to be 14,726.11 m<sup>3</sup> including imports annually. Thus, there is a huge gap between the demand and supply. Further to certain extent this may be due to the facts that some quantity of poles are being utilised for the construction purposes in rural areas. However, the accountability of timber utilised in the rural areas by taking saw pit license from the Forest Department is not forthcoming in this study. This may also constitute to a great extent for the supply of timber in rural areas. The Forest Department should take an intensive study to know how much of unrecorded timber is being utilised by the consumers. In this regard, this organisation will not be in a position to go ahead the details of this activity.

As against the fuel wood requirement of 14,26,259 MT the supply is 6,960 MT, thus, leaving an alarmingly a large gap between the demand and supply. The consumption of kere-sene per person per annum in the rural area and urban area of

the district is only 8 litres and 15 litres respectively. Similarly use of alternative source of energy such as L.P.G., Solar, Wind Energy etc. is also very limited. This resulted in heavy pressure in the forest for firewood consumption. In this regard, 51% of the requirement of firewood is made out of the agricultural waste, still there is a wide gap between the demand and supply. The details firewood brought out from head loads are not forthcoming in this study. This may also be one of the factor for bridging the gap between the demand and supply which requires a detail study. In case of urban areas, the chances of using alternate source of energy is slightly more than that of rural areas. The Department should take up intensive study in order to popularise the alternative source of energy by installing smokeless chullas in the rural areas, gohar gas plant wherever it is applicable and the extension wing attached to the Forest Department should popularise the tree planting programme in the rural areas under the Social Forestry Scheme.



APPENDIX - A

Sampled villages for data collection in rural sector

Stratum - A

S.No.	Name of village	No. of house- holds selected.	Total No. of persons in the households selected
1.	Doddahundi	10	82
2.	Altahundi	10	69
3.	Hosahalli	10	55
4.	Deshipura	10	52
5.	Kalenahalli	10	56
6.	Kaleyinahalla	10	48
7.	Madahallikoppalu	10	71
8.	Srikanthapura	10	47
9.	Hosavidu	10	73
10.	Bhimanbidu	10	61

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APPENDIX - 'B'

Sampled villages for data collection in rural sector

Stratum - 'B'

S.No.	Name of village	No. of households.	Total number of persons in the households selected.
1.	Bendagahalli	10	58
2.	Dasawarajapura	10	69
3.	Ganganahalli	10	64
4.	Nadakalemole	10	70
5.	Basavanahalli	10	74
6.	Karadimaryanahalli	10	78
7.	Yarahalli	10	76
8.	Chidravalli	10	74
9.	Madapura	10	57
10.	Kelsur	10	52
11.	Elivala	10	54
12.	Chimpali	10	54
13.	Kodvandi	7	37
14.	Doddakoppalu	10	87
15.	Hosahundi	10	56
16.	Kilagare	10	57
17.	Tenkalakoppalu	10	56
18.	Naranhalli	10	75

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APPENDIX - 'C'

Sampled villages for data collection in urban sector

Stratum - 'C'

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S.No.	Name of village	No. of house- holds selec- ted.	Total No. of persons in the households selected.
1.	Mysoore	20	110
2.	Priyapatna	20	126
3.	Tagadooru	20	147
4.	Kalale	20	146
5.	Telanur	20	120

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DOMESTIC WOOD CONSUMPTION  
(DATA COLLECTION FORM)

SCHEDULE - A

District :

Division :

Name of the owner of the house :

1. S.No. of the Stratum/Town.
2. Name of Village/S.No. of Block.
3. S.No. of Households.
4. Type of Building actually visited as a sample unit.  
Kuchha/Pucca/Multi-storeyed.
5. No. of storeys total and used for living only (to be filled in if more than one storey).
6. Serial No. of the Building out of the total building to be visited in the village.
7. Ward No. hHouse No. in Municipal area and cities wherever available.
8. No. of households living in the building.
9. Total number of persons living in the household.
10. Average annual income of the family. Nature of occupation (Service/Cultivation/Business).
11. Average plinth area occupied by each house includes verandah covered by roof and floor.
12. (a) No. of living rooms.  
(b) No. of storage rooms.  
(c) No. of common rooms.  
(d) Other category viz., bath rooms, latrines, kitchen, cow-shed etc.

Camp :

Signature : .....

Date :

Name of Surveyor : .....

Designation : .....

F O R M 1(a)

EXISTING USE OF WOOD FOR HOUSE CONSTRUCTION

YEAR OF CONSTRUCTION :

S. N.	Item	No.	Size LxWx Thick- ness (Mtr.)	Quantity of wood used in m <sup>3</sup> sawn wood.	Source Forest/ Market	Species used.
1.	Door					
2.	Windows					
3.	Roof					
	Poles					
	Ballies					
	Beams					
	Rafters					
	Purlin					
	Parata					
	Plankings					
	Reapers					
	Supporters					
4.	Ventilators					
5.	Floorings					
6.	Others (Bamboos etc.)					

Note : Doors and Windows include the frame and panels.

P O R M 1 (b)

EXISTING FURNITURE ITEMS

YEAR OF MANUFACTURE :

S. N.	Item	Nos.	Size	Approximate quantity of Sawn wood in m3.	Spp. used	Sources of supply
1.	Chairs					
2.	Tables					
3.	Wooden Almirah.					
4.	Cots					
5.	Others (Specify)*					
	(a)					
	(b)					
	(c)					

\* Such as Cane, Bamboo, Reed etc.

F O R M - 1(c)

AGRICULTURAL IMPLEMENT

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Item	No.	Size	Quantity of wood used m <sup>3</sup> .	Source of supply.	Species used.
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1. Plough

2. Yoke

3. Bullock  
Cart

4. Leveller

5. Tool  
handles  
(Axes,  
Sythe  
spal  
etc.)

6. Winnower

7. Persion  
Wheels

8. Others  
specify.

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F O R M - 1(d)

FUEL CONSUMPTION PER ANNUM

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S.N. I t e m	Firewood (Qtl.)	Agri. waste (Qtl.)	Cow-dung (Qtl.)	Gas (Ltr.)	Charcoal (Qtl.)	Coal (Qtl.)	Kerosene (Ltr.)	Electricity (Unit)
1. Cooking								
2. Heating								
3. Lighting								
<hr/>								
Total:								
<hr/>								



F O R M N O. II  
F U E L C O N S U M P T I O N

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S.N.	C a t e g o r y	Source of supply
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1. Fire wood
2. Agricultural Waste
3. Animal Dung

Schedule-B (General)

- |    |                                 |   |
|----|---------------------------------|---|
| 1. | Type of equipment used          | Ordinary Chula/Smokeless Chula/Bio gas, |
| 2. | Education level of the village. |   |
| 3. | Approach facilities             |   |
| 4. | Service facilities              | Hospital, School etc.                   |

Camp :

Date :

Signature :

F O R M N O. III

OTHER FOREST PRODUCE USED IN THE HOUSEHOLD

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S.N.	I t e m	Qty./Kg./Year	Source of supply
1.	Thatch Grass		
2.	Fencing Branch wood		
3.	Green manure		
4.	Fencing thorn		
5.	Fodder by lopping		
6.	Fodder Grass		
7.	Others		

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VILLAGE-WISE REGRESSION ANALYSIS : RURAL POPULATION

INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD  
STRATUM - 'A'

S. No.	Dependent Variable	Constant	Co-efficient of X	Standard Error of co-efficient.	Standard error of Y estimate.	t value	R <sup>2</sup>	R
1.	Building construction.	0.81397	-0.0091	0.08983	0.3185	-0.083243	0.00128	-0.0357978
2.	Furniture	0.0084	0.00073	0.00407	0.01442	0.001097	0.00403	0.0634622
3.	Agricultural implements.	0.23626	0.01199	0.02917	0.10332	0.01203	0.02068	0.143805
4.	Total timber	1.08798	-0.00229	0.09552	0.33831	-0.001464	0.00007	-0.008462
5.	Firewood	0.85222	-0.06061	0.03992	0.1414	-0.061097	0.22363	-0.472892
6.	Bamboo	-9.85386	3.2117	1.93805	6.86409	3.49512	0.25555	0.505524

LOWER INCOME GROUP WISE REGRESSION ANALYSIS : RURAL POPULATION

INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD

STRATUM - 'A'

S.N.	Dependent variable.	Constant	Co-efficient of X.	Standard errors of Coeffic.	Standard error of Y Estima.	t value	R <sup>2</sup>	R
1.	Building construction.	2.30922	-0.31584	0.12117	0.50997	-0.324245	0.45926	-0.676878
2.	Furniture	0.02822	-0.00494	0.00383	0.01611	-0.004848	0.17242	-0.41523
3.	Agricultural implements.	0.25118	-0.0196	0.03075	0.12942	-0.019446	0.04834	-0.219871
4.	Total Timber	2.58862	-0.34039	0.10693	0.45003	-0.349842	0.55884	-0.747554
5.	Firewood	0.622187	-0.034653	0.04083	0.17185	-0.0177428	0.08259	-0.2873852
6.	Bamboo	0.49421	1.99519	3.88385	16.34620	1.841359	0.03193	0.178701

MIDDLE INCOME GROUP WISE REGRESSION ANALYSIS : RURAL POPULATION

INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD

STRATUM - 'A'

S.N.	Dependent variable.	Constant	Co-efficient of X.	Standard Error of co-efficient.	Standard Error of Y estim.	t value	R <sup>2</sup>	R
1.	Building construction.	0.29319	0.04803	0.11309	0.39694	0.050957	0.02205	0.148477
2.	Furniture	0.03508	-0.00348	0.00427	0.01498	-0.004179	0.07656	-0.276689
3.	Agri. implements.	0.39654	-0.01531	0.03142	0.11027	-0.016555	0.02883	-0.169789
4.	Total Timber.	0.72482	0.02924	0.11766	0.41296	0.031192	0.00766	0.087528
5.	Firewood	0.86690	-0.06791	0.05185	0.18198	-0.072303	0.17659	-0.420232
6.	Bamboo	9.3327	-0.2295	1.95921	6.87650	-0.097181	0.00161	-0.0412

HIGHER INCOME GROUP WISE REGRESSION ANALYSIS : RURAL POPULATION

INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD

STRATUM - 'A'

S.N.	Dependent variable.	Constant	Co-efficient of X.	Standard Error of co-efficient.	Standard Error of Y Estima.	t value	R <sup>2</sup>	R
1.	Building construc.	2.19702	-0.12559	0.10468	0.76258	-8.014489	0.26462	-0.514416
2.	Furniture	0.07362	-0.00437	0.00255	0.01861	-0.004268	0.42271	-0.650165
3.	Agri. Implements.	0.39258	0.01193	0.03309	0.24107	0.011946	0.03148	0.177416
4.	Total Timber.	2.66322	-0.11803	0.13723	0.9997	-0.117376	0.15607	-0.395056
5.	Firewood	0.59312	0.00086	0.03373	0.24574	-0.000988	0.00016	-0.012747
6.	Bamboo	13.47634	0.02148	2.94041	21.42025	-0.094067	0.00001	0.003652843

VILLAGEWISE REGRESSION ANALYSIS : RURAL POPULATION

INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD

STRATUM - 'B'

---

S. N.	Dependent Variable.	Constant	Co-efficient of X.	Standard Error of co-efficient.	Standard Error of Y Estima.	t. value	R <sup>2</sup>	R
1.	Building construction.	0.90843	-0.02731	0.064	0.28406	-0.0246956	0.01144	-0.106972
2.	Furniture	0.01155	0.00038	0.00275	0.01220	-0.001979	0.00121	0.034814
3.	Agri. implements.	0.3322	-0.00754	0.02944	0.13065	-0.007426	0.00408	-0.06387
4.	Total Timber	1.25193	-0.03443	0.07962	0.35339	-0.034524	0.01155	-0.107474
5.	Firewood	0.79559	-0.05447	0.02753	0.12218	-0.0545217	0.19662	-0.443423
6.	Bamboo	84.76891	-8.95086	5.57663	24.75170	-8.8086956	0.13868	-0.372404

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LOW INCOME GROUP WISE REGRESSION ANALYSIS : RURAL POPULATION

INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD

STRATUM - 'B'

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S. N.	Dependent Variable.	Constant	Co-efficient of X.	Standard Error of co-ffic.	Standard Error of Y estimate	T value	R <sup>2</sup>	R
1.	Building construction.	1.71434	-0.24496	0.11437	0.63083	-0.249299	0.23422	-0.4839677
2.	Furniture	0.00052	0.00014	0.00055	0.00302	-0.000089	0.00409	-0.063953
3.	Agri. implements.	0.09795	0.0053	0.03277	0.18076	0.005135	0.00174	0.0417258
4.	Total timber.	1.81281	-0.23953	0.11782	0.64987	-0.243697	0.21602	-0.4647804
5.	Firewood	0.84721	-0.07728	0.04180	0.23055	-0.050233	0.18560	-0.4308076
6.	Bamboo	3.3079	1.49177	2.34528	12.93619	1.260504	0.02626	0.162062

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MIDDLE INCOME GROUP WISE REGRESSION ANALYSIS : RURAL POPULATION

INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD

STRATUM - 'B'

---

S. N.	Dependent variable.	Constant	Co-efficient of X.	Standard error of coefficient.	Standard error of Y estimate.	t value	R <sup>2</sup>	R
1.	Building construction.	1.85897	-0.16544	0.07287	0.35157	-0.004099	0.24367	-0.493628
2.	Furniture	0.03741	-0.00389	0.00159	0.00767	-0.004099	0.27277	-0.522269
3.	Agri. implements.	0.74079	-0.07132	0.02134	0.10296	-0.066535	0.41114	-0.641201
4.	Total Timber.	2.63717	-0.24065	0.08336	0.40218	-0.237148	0.34251	-0.585243
5.	Firewood	0.72725	-0.04282	0.02866	0.13827	-0.080543	0.12246	-0.349943
6.	Bamboo	122.763666	-13.232838	6.11048	29.48206	-13.42625	0.2292	-0.4787571

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HIGHER INCOME GROUP WISE REGRESSION ANALYSIS : RURAL POPULATION

INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD

STRATUM - 'B'

S. N.	Dependent variable.	Constant	Co-efficient of X.	Standard error of coeffic.	Standard error of Y estimate.	t value	R <sup>2</sup>	R
1.	Building construction.	1.10850	-0.02543	0.05567	0.53338	-0.025475	0.01862	-0.136440
2.	Furniture	0.03008	0.00034	0.00260	0.02489	0.002105	0.00158	0.039617
3.	Agri. implements.	0.30896	0.02231	0.02736	0.26211	0.0220788	0.05703	0.2388102
4.	Total timber.	1.447896	-0.00283	0.07513	0.71988	-0.026019	0.00013	-0.011346
5.	Firewood	0.59128	-0.01721	0.02682	0.25697	-0.029211	0.03607	-0.189934
6.	Bamboo	22.08547	-1.22043	2.7461	26.31153	-1.3586956	0.01764	-0.13281

VILLAGE WISE REGRESSION ANALYSIS : RURAL POPULATION

INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD

STRATUM.- A+B

S. N.	Dependent variable.	Constant	Co-efficient of X.	Standard error of coeffic.	Standard error of Y estimate.	t. value	R <sup>2</sup>	R
1.	Building construction.	0.87890	-0.02140	0.04959	0.28455	-0.019417	0.00711	-0.0843409
2.	Furniture	0.00994	0.00058	0.00218	0.01248	0.005825	0.00272	0.0521886
3.	Agri. implements.	0.30323	-0.00163	0.02067	0.11862	-0.001941	0.00024	-0.01541276
4.	Total timber.	1.19964	-0.02431	0.0585	0.33573	-0.024271	0.0066	-0.081234
5.	Firewood	0.82488	-0.05802	0.02165	0.12422	-0.057766	0.21649	-0.465288
6.	Bamboo	40.14923	-3.04589	3.96259	22.73921	-3.0970873	0.02222	-0.149062

VILLAGE WISE REGRESSION ANALYSIS : TOWN POPULATION

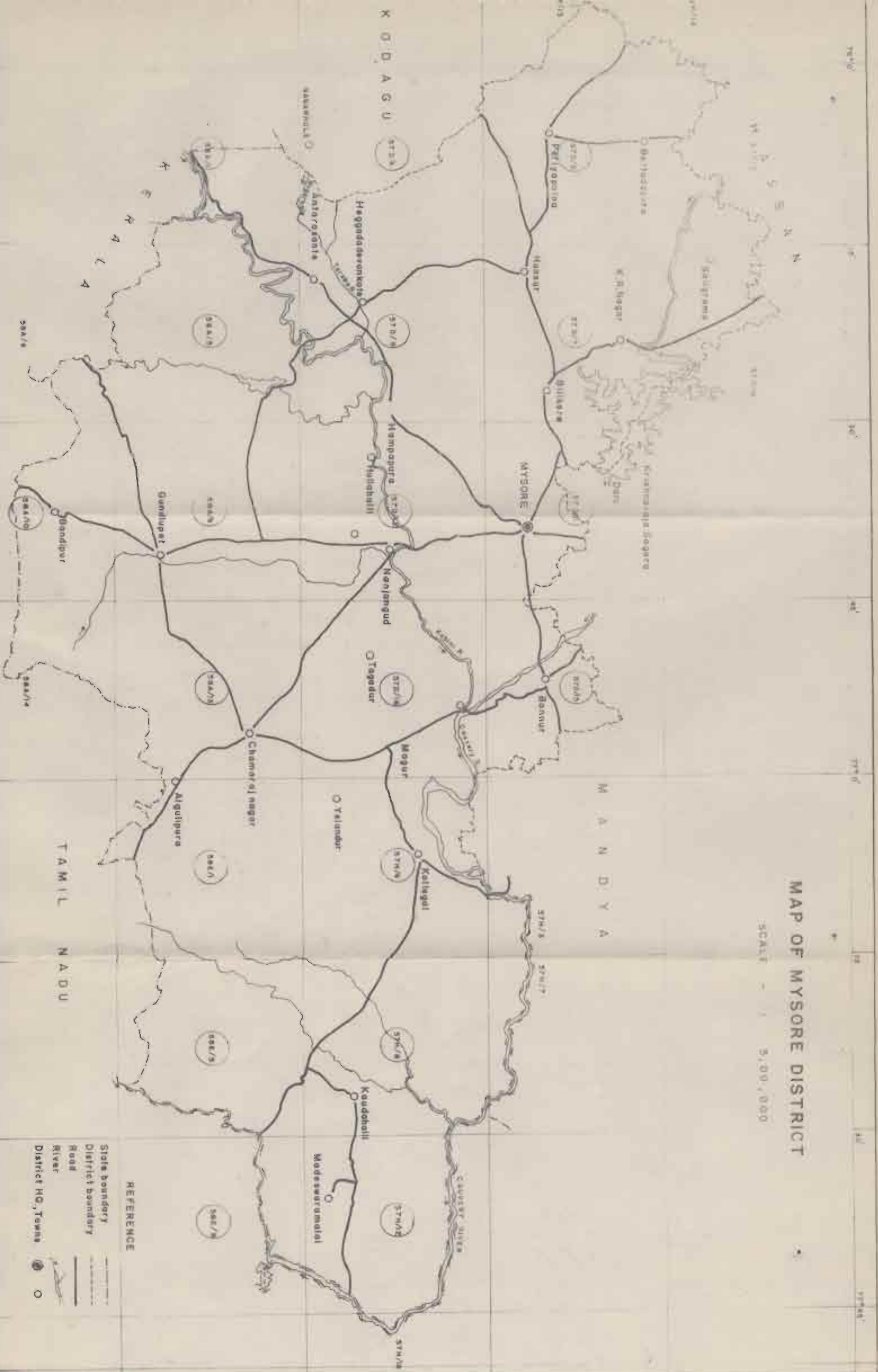
INDEPENDENT VARIABLE : AVERAGE SIZE OF THE HOUSEHOLD

STRATUM - 'C'

S. N.	Dependent variable.	Constant.	Co-efficient of X.	Standard error of coefficient.	Standard error of Y estimate.	t value	R <sup>2</sup>	R
1.	Building construction.	0.16276	0.05608	0.15899	0.25892	0.056451	0.03982	0.199543
2.	Furniture	0.11325	-0.014	0.00809	0.01318	-0.014193	0.49929	-0.706596
3.	Agri. implements.	-0.00125	0.01954	0.09196	0.14976	0.019838	0.01483	0.121767
4.	Total timber.	0.2747	0.06163	0.21300	0.34687	0.062096	0.02715	0.164769
5.	Firewood	-0.11377	0.07279	0.15955	0.25983	0.072580	0.06487	0.254703
6.	Bamboo	42.76452	1.34661	41.21747	67.12249	0.9677419	0.00036	0.018859

# MAP OF MYSORE DISTRICT

SCALE - 1 : 5,00,000



## REFERENCE

- State boundary
- District boundary
- Road
- River
- District HQ, Towns

