

Estimation of Biomass Requirements

All surveyed villages are almost totally dependent on biomass for cooking and heating. This section attempts to estimate the biomass requirements assuming that the present trend of consumption will continue in the future. There are various methods of estimating biomass requirements. This study uses the 'litterfall' method which is appropriate for the kind of data available.

Litter is mostly used in the study area for fuel. Litter includes both leaf litter and branches/twigs. Since branches and twigs are more important for meeting the fuel requirements of households, the estimation of biomass requirements takes into consideration only branches and twigs.

The annual volume of litterfall in the study area is assumed to be 3,100 kg per ha. Branches and twigs account for only 30 per cent of the total litterfall or about 930 kg per ha per year. Fodder consumption is not included in estimating the biomass requirements. The cattle graze mostly in the forests, except during the winter months. Fodder collected from the agricultural waste is used to feed the cattle during winter.

First, the total and per capita fuel consumption per year were estimated for each hamlet. Assuming that the fuel consumption is equal to the fuel requirement, per capita and total fuel requirements at the village level were estimated by taking the population data for 1981. The forest area requirement for 1991 and 2001 was estimated on the basis of population projections for these years. These population projections were made by assuming that the growth rate trend during the past two decades (1961 to 1981) would continue in the future. In addition, the decline in the death rate, resulting from various State policies such as family planning, was also considered in making these projections.

Apart from population a number of climatic factors affect the energy demand. These factors include temperature, rainfall, and sunshine hours. The effects of these factors were also considered in estimating the fuel requirement for this study. Data relating to temperature and rainfall are available from the two meteorological observations carried out in the district. A detailed study was undertaken in three sample villages to estimate sunshine hours in different seasons. Table 4 shows population projections, total litterfall, and forest area required to meet the fuel requirements for selected villages in 1991 and 2001.

The increase in forest area needed to meet the fuel requirements for these villages in 1991 varies from a low of 10.5 per cent to a high of 30.5 per cent. In order to meet the requirements in 2001, the forest area would have to increase from 16.6 per cent to 64.7 per cent. Thus, substantial increases in the forest area would be needed if the biomass demand is to be met through forests only.