Fuel regions or fuel-use regions are uniform regions constructed by synthesising the indigenous domestic fuel system data of the villages representing the different zones. There could have been elements of functional-modal regions integrating with these regions if there had been substantial modernisation diffusing from specific nodes located within the zones. Both in gross and minor details the fuel-use zone corresponds more or less completely with the altitudinal-ecological zones. These altitudinal-ecological zones through a whole spectrum of physical properties control very largely the biogeographic diversity, the vegetation cover, which in its own turn influences greatly, almost determines the fuel-use patterns. Literally every aspect of the fuel-use system is ultimately related to the biotic and physical conditions of the zones. What remains, therefore, to be done is to synthesise the more significant elements in terms of the specific zones. The zones then become, more or less, the fuel-use regions.

We propose that the regions be constructed on the bases of the consumption level of woodfuel for all purposes, the hardship experienced by women in collecting woodfuel, and the level of modernisation. On the basis of these three criteria, we now propose to synthesise the overall character of fuel use zones. Woodfuel is the major component in fuel complex and is related at once to both the tradition and the environmental states. Modernisation has been aimed at coping with the fuelwood crisis that also eventually reduces the environmental burden on women. Hence these criteria have been chosen:
A. Outer Himalayan Fueluse Region

This zone is comprised of three districts, Hamirpur, Bilaspur, and Una; of which the first and the third are parts of the New and the second a part of the Old Himachal Pradesh. The belt extends toward the east as well but in a narrow belt. The two representative villages, Moginand and Mahsa Tibba, belong respectively to Old and New Himachal of this narrow belt in Nahan and Solan districts respectively. Woodfuel consumption accounts for only 50 per cent of the total domestic fuel consumption because in this zone, the remaining consumption total is share by animal and crop residue. Terrain and climate, both, have promoted agricultural and livestock raising. Almost 50 per cent of the total fuel consumed for cooking is provided by woodfuel, about 30 per cent by dung, and about 20 per cent by crop residue. Woodfuel contributes almost 50 per cent to the total fuel consumed separately in heating water and room. About 70 per cent of the total fuel consumption is accounted for by cooking alone and the collection of woodfuel in the total fuel consumption during winter and the pre-monsoon seasons are about 60 per cent and 90 per cent respectively. Women have now to travel about 3 kilometres everytime they go to the forest to collect fuel, this is about 6 times the distance they were travelling to woodfuel resources in 1947. The women have to walk up to the forest for collecting fuelwood at least six times a week and each time they bring about 2 bundles of woodfuel weighing 60 kilograms. The environmental status related to the problem of availability of woodfuel is indicated by the perception of the people of the stability of forest cover. In this region almost
100 per cent of the households consider the availability of woodfuel as difficult because as the same proportion of households perceive the forest cover has shrunk. About 95 per cent of the households perceive that the current level of woodfuel availability is not sufficient for the household needs, neither will it be sufficient for the future needs. As a response to the critical situation in woodfuel availability about 64 per cent of the households have shifted to kerosene where available and also to improved chullah. The region has, thus, a critical woodfuel status and has high level of adoption of modernisation of fuel and modern fuel-hearth.

B. Lower Himalayan Fueluse Region

The zone corresponds to the Lower Himalayan altitudinal-ecological zone. The total domestic fuel consumption in this zone is substantially higher than that of the Outer zone but the proportion of the woodfuel, animal dung, and livestock residue consumption in the total is practically the same as that of the Outer. However, the amount of woodfuel, animal dung, and agricultural residue consumed in all purposes together is higher than that of the Outer zone. The level of consumption of woodfuel in all the four domestic purposes is higher here than in the Outer zone. 100 per cent of all the households perceive the difficult availability of woodfuel and the shrunk status of the forest cover and as much as 75 per cent of them perceive that the woodfuel resources are not sufficient for their present needs. There is 100 per cent awareness level
of the presence of the fuelwood saving devices and high awareness of availability but the willingness to adopt is only up to 60 per cent. In this zone some households have indicated first preference for solar cooker and improved chullah and some for pressure cooker. Quite some households are planning to shift to L.P.G. (liquified petroleum gas) but a larger number have shifted to kerosene. Overall, almost as many households have shifted to non-traditional fuels as are planning to do so. The use of modern hearth equipments is much more limited here than in the Outer zone, on the other hand the extent of use of modern cooking utensils is much larger. Surprisingly there is little use of biogas energy. The women are now travelling to forest a distance that is about 4 times that of the distance of 1947, but it is much less than in the Outer zone. The women carry heavier bundles and the frequency of collection is larger in this zone. On an average the women bring almost 100 kilograms more of woodfuel from the forest than in the Outer zone. In an overall assessment this region is transitional between the Outer and the Lesser Himalayan zones.

C. Lesser Himalayan Fueluse Region

This region is comprised of Shimla and Mandi districts, the former located in the New and the latter in the Old Himachal. The total consumption of the two villages of the zone comes to almost 1 lakh 18 thousand kilograms of which woodfuel accounts for about 83 per cent, much higher than the proportion in the Lower and Outer zones, the rest is contributed by the animal and agricultural residue. Almost 70 per cent of the total fuel consumption in cooking is provided by woodfuel. Because
of the large amount of woodfuel consumption the women have to collect and bring around 14 to 16 bundles of woodfuel 3 or 4 times a week.

Between 1947 and 1990, the distance walked to the forest has increased from 1 to 3 kilometres, a much smaller times of increase than in the Lower and Outer zones. Both males and females transport the woodfuel and other fuels on headloads. As many as 14 to 16 bundles each weighing about 35 kilomegrams are transported 2 or 4 times per week during winter while in pre and post-monsoon seasons the frequency is as high as upto 4 to 7 times per week. All the households have reported that woodfuel availability is difficult and the woodlands have shrunk and the woodfuel supply is sufficient not for the present but for the future needs, because of large scale orchard plantations from which enough woodfuel is derived. Some time back, the good woodfuel trees of the forests have been commercially felled, hence the present shortage. A good 100 per cent are aware of the fuel-saving devices but while most perceive the availability as local, quite a few think it is distant. More than 50 per cent of the households are willing to adopt these devices, and their first preference is the improved chullah. Some are planning to and some have already shifted to kerosene. Quite some households have shifted to electricity. Interestingly, as many households have shifted to all the new fuels as are planning to, and along with it to modern cooking utensils and hearth equipments.

D. Greater Himalayan Fueluse Region

This region is comprised of the districts of Chamba and Kullu, both parts of Old Himachal, as also the kingdoms of rajas. The two
representative villages of the region register a total consumption of 1,09,020 kilograms of woodfuel which is 85 per cent of the total annual consumption. Only about 8 to 10 per cent of the total is contributed by animal residue and 5 per cent by agricultural residue. About 50,000 kilograms of woodfuel goes into the hearth for cooking. To fulfill these extraordinarily large consumption levels women have to visit the forests once or twice per week in winter and 7 times per week during post-monsoon season. They bring about 16 bundles per week, each bundle weighing about 30 kilograms. While in 1947 the woodfuel was obtained at the border of the village, in 1990 they were walking up to 2 kilometres. For as many as 6 to 7 hours the females are engaged in cooking. Although the predominant fuel remains wood the secondary fuel is electricity. All the households have reported that the availability of woodfuel is not difficult even though the woodlands have shrunk. Similarly most households consider that both the present and future need sufficiency is assured. There is widespread awareness of fuelwood saving devices and of their availability. All the households are willing to adopt them, and the first preference is Dhauladhar chullah. Most households are not planning to shift to non-traditional fuels. Almost 85 to 90 per cent of the households are using modern hearth equipments in which they burn woodfuel.

E. Trans-Himalayan Fueluse Region

This zone is comprised of the districts of Kinnaur and Lahaul and Spiti, the former a part of the Old and the latter of New Himachal. The principal characteristics of the region are its rain-shadow character,
extremely unstable and barren slopes, extreme cold, almost 6 to 8 months long winters and great inaccessibility both externally and internally. There is hardly any vegetation cover in the entire region that can be described as a woodland or forest. The total consumption is about 41,000 kilograms of which only about 25,000 kilograms is contributed by woodfuel, a share of about only 60 per cent, easily the lowest among all the zones. Almost 40 per cent of the total fuel is contributed by animal and crop residue. During the long winters as much as 70 per cent of the total consumption is accounted for by woodfuel. As much as 50 per cent of the total energy consumed goes to cooking, the lowest level in all the zones. The womenfolk and the entire village walks up to about 8 to 9 kilometres to the spots from where they collect mainly grasses and bushes which are burnt in place of woodfuel. This is in 1990 as compared to the 1947 situation on where all these inferior vegetation was collected at a little lesser distance of the village. But more or less the situation is same for a long period of time. All the households perceive that the availability of fuelwood is difficult since everyone thinks that the bush and grass cover has shrunk and that the sufficiency level for both the present and future needs for woodfuel is absolutely nil. There is wide awareness of the technological fuel and fuel-saving devices and their first preference is for kerosene and most households are either planning or have shifted to this fuel.