ENERGY DEVELOPMENT STRATEGY

The supply analysis indicates that the levels of total energy supply in the district are comparable with FAO norms or Advisory Board on Energy (ABE) recommendations. However, the analysis of energy consumption, particularly for fuelwood, shows a higher level of consumption than is environmentally viable. The apparent consequence of such a consumption scenario is a degrading ecosystem, particularly the rapidly disappearing forest area. An intensive effort to improve the biomass situation is long overdue.

In general, the existing environmental degradation would necessitate that the district development strategy move away from the dependance on hill resources and/or that hill resources be managed in an environmentally viable manner. This would imply a closer examination of activities that can lead to environmental degradation, for example, excessive use of biomass for timber, fodder and fuel use, and land use patterns (construction, mining, industries, etc).

The strategy for energy development in the district should focus on the following in order to reduce the almost total dependance on hill resources for energy supply and to improve the energy supply situation in the district:

i) reducing absolute biomass energy consumption and improving the biomass fuel situation in the district and

ii) expanding rural electrification by extending grid and expanding electricity generation capacity.

The implications of this general strategy of energy development on different end uses is discussed below.

Household Cooking, Water Heating, and Space Heating (Thermal Heat Requirements in the Domestic Sector)

The use of biomass fuel is high in these end uses because it is locally available at no monetary cost. It has been observed that as the economy of a region develops, household fuels also change from biomass to non-biomass (kerosene, LPG, electricity, etc) depending on their availability. In urban areas this fuel shift implies moving from one commercial fuel to another. But in rural areas, due to easy access to biomass fuels, these changes do not occur very rapidly. Hence, in rural areas, despite the improvement in the economy, dependance on biomass fuel continues. The shift from biomass fuel to non-biomass fuel would be particularly appropriate in the hills because of environmental reasons. However, this does not seem viable in the present socioeconomic context, as pointed out earlier. Hence, energy conservation coupled with the management of fuel resources becomes the immediate task. Various remedial measures have been suggested, such as i) improved stoves, ii) use of pressure cookers, iii) biogas plants, iv) solar cooking devices, v) solar water heaters, and vi) integrated systems for space heating, water heating, and cooking.

In Almora District, previous attempts to popularise improved cooking-stoves became largely unsuccessful mainly due to the slowness of the units. A closer examination of the sociocultural and other practices associated with domestic energy consumption should precede the introduction of any energy device. On the other hand, use of solar cookers or biogas plants would depend upon solar radiation, ambient temperatures, etc.

Household Lighting

The use of improved kerosene lamps can be encouraged in villages without electricity supply. Attempts to encourage electric lighting using fluorescent tubes in areas with electricity supply can lead to efficient use of electrical energy.

Commercial Uses

The measures to conserve energy can be more effective in the commercial sector than in the domestic sector. Hence, these should be considered on a priority basis. Some of the conservation measures include the use of i) efficient stoves for cooking in restaurants and eateries and ii) efficient space heating in offices, hospitals, etc.

Service Sector

Water pumping and street lighting are two major energy consuming activities in this sector. Although the use of street lighting has been currently limited only to urban areas, in the long run its extension to rural areas can be foreseen. In rural areas the use of electricity is mostly for pumping water for irrigation and drinking purposes.

Energy Consumption in Industries

The development of new industries should be governed by environmental criteria. In the existing industries , particularly those based on biomass, fuel energy audit should be carried out to look into the possibilities of energy conservation and cogeneration.

The end use oriented energy development strategy discussed above would require a bottom-up approach in planning when the local energy needs are identified through a participatory approach. The planning for energy development in the service sector, industries, and agriculture can be done at the district level, taking into account environmental and economic factors.