

8. RETHINKING THE ENERGY DEVELOPMENT PARADIGM

A basic feature of the HKH region is that the majority of the population that lives in the countryside, quite removed from the amenities of modern cities and towns. These people are forced to lead simple lives, extracting virtually all their energy requirements from their environment. The price of this energy self-sufficiency, particularly for the poor and specifically for women and children, can be quite enormous in terms of human effort. This tedious and arduous labour is aggravated by the low efficiency of end-use devices. As a result: i) biomass is the principal fuel for cooking and space heating; ii) animate energy is the main source of mechanical energy; iii) the domestic sector is the main consumer of energy; and iv) cooking and space heating are the dominant end uses. People in the region are, therefore, bearing the cost of excessive reliance on traditional energy resources and technologies (as well as other economic activities due to mountain specific conditions) (Bajracharya 1986; Rijal et al. 1987; Junejo and Sharma 1994).

Emergence of New Development Philosophies and Their Energy Implications

Recognition of the dilemma between progress and human well-being has led to the emergence of two important development philosophies (WECD 1987; UNDP 1993; UNDP 1994; UNDP 1995).

1. The concept of sustainable development incorporating inter-generational equity with an emphasis on meeting basic needs and conserving environmental resources.
2. The concept of human development incorporating intra-generational equity with emphasis on 'universalism of life claims' and, to quote the Human Development Report 1994, *"the right of all human beings to a just opportunity to make use of their potential capabilities"*

These concerns stress that energy must be considered both as a critical input to socioeconomic development and as a source of environmental degradation as stated in Agenda 21, Chapter 9 (Keating 1993). It is also important to realise that energy is not an end in itself, but merely a means to the ultimate end of human development. The

success of an energy strategy in the context of the HKH region depends on its relevance to development priorities and its adaptability to changing approaches and strategies in the mainstream of development.

The role of energy in development must be conceived both as a means to satisfy basic human needs and as an input to economic transformation. For example, energy is required not only to meet the increasing demand created by promotional activities to support on-going agricultural diversification and intensification in the HKH region, but also to meet the needs of poor people for provision of the basic necessities of food, shelter, and better health (Ramani et. al. 1995; Philips et. al. 1995; Vinod Kumar et. al. 1987; ILO 1987 Paul 1985; FAO 1993; Khator 1989). This has necessitated the redefinition of energy sector goals along with the reorientation of energy programmes to those that are sustainable from the perspective of mountain communities.

Redefining Energy Sector Goals

The objective of the energy system is to provide energy services. Energy services are the desired and useful products, processes, or services that result from the use of energy—for instance illumination, cooking, space conditioning, etc. The energy chain that delivers these services begins with the collection or extraction of primary energy, which is then converted into energy carriers that are suitable for end uses. These energy carriers are used in end-use devices to provide the desired energy services, as presented in Figure 16.

It is noteworthy that it is useful energy which determines the extent of fulfillment of energy needs and improvement in the physical quality of life. Therefore, better efficiency of energy use permits significant improvements in the physical quality of life without increase, or even decrease, in the amount of primary energy, while at the same time it reduces the release of effluents into the environment (Codoni et al. 1995). Also, when a particular energy carrier is used efficiently, or a shift is made into more efficient energy carriers, then inefficiently-used sources will be available for alternative uses. For example, large-scale dissemination of improved cooking stoves could possibly facilitate the use of animal dung as farmyard manure (Goldemberg 1988).

Mountain development and the related field of poverty alleviation are believed to be feasible if development is both equitable (in group, gender, generational dimensions) and sustainable in both its environmental and fiscal aspects (deLucia 1994; UNDP 1995). This would require a significant change in the energetics of mountain lives. The provision of energy thus needs to be considered from the point of view of the twin objectives: i) to ensure energy security; and ii) to sustain and increase economic growth.

- i) *Energy Security*, i.e, a minimum level of the energy needed must be ensured in order to meet the basic needs of the mountain people. Energy security means that cooking and space heating are of prime importance for mountain communities and must be ensured. At this point, it is also important to estimate the required amount

of energy in order to gauge the feasibility of its provision (Philips et al. 1995; Ramani et al. 1995).

- ii) *Energy for Growth*, i.e., sufficient energy must be ensured to support economic growth as perceived by the countries of the HKH region. It is not sufficient to remove energy constraints alone. What is more important is the identification of the lead role that energy can play in increasing the productivity of the mountain population. This would mean that the energy requirements for agriculture, industry, and transport must be met.

These twin objectives are believed to be feasible if appropriate energy system transformations can be conceptualised and made sustainable.