Methodological Issues

Methodologies for integrated and area planning using 'consistency' models and regional planning techniques are reasonably well-developed. They, however, need to be modified and adapted for integrated planning on an area basis for mountain regions in respect to (i) incorporation of environmental issues into the plan framework and (ii) intersectoral integration at the area level. On both these counts, existing methodologies are deficient. Plan models, mostly using an input-output framework to determine demand-supply balances and consistencies, have not internalised environmental parameters, and regional and area plans have mostly been an amalgamation of sectoral schemes and programmes without paying much regard to linkages among activities. The standard procedure for area planning exercises involves one or the other variant of the following sequence.

- Preparation of a resource inventory
- Review of infrastructural development
- Assessment of the level and patterns of development of different economic activities
- Study of the institutional mechanisms of the development process
- Analysis of the gaps in infrastructure, human resource, and institutional arrangements
- Identification of the potential development of different activities
- Planning for the provision of necessary resources, facilities, and institutional mechanisms for the realisation, as well as development, of the identified potential

Under each of these steps are a number of conceptual and technical issues. Numerous manuals and guides have been developed to elaborate and resolve them. What is important for the present purpose is to identify the critical modifications to be made to concepts, issues, and methodologies to account for the **mountain perspective**. This perspective, as developed in the past work of ICIMOD, consists of a set of **mountain specificities**, namely, inaccessibility, fragility, marginality, diversity, niche, and human adaptation mechanisms. The first three broadly represent constraints and the remaining three, opportunities, in mountain development. Basic factors underlying these specificities, their operational and development implications, as well as externalities of development interventions directed to different specificities, have also been elaborated in earlier work at ICIMOD. A number of ICIMOD activities used this framework to develop approaches to sustainable mountain development, particularly in the area of agriculture and farming systems. Based on both the conceptual work on mountain perspectives and application-oriented research and demonstration, ICIMOD has also

tried to elaborate upon the concept of **sustainability**, particularly in terms of its indicators, positive and negative, in respect to agriculture. A training manual for mountain area development planning is an idea worth considering. It should, however, be borne in mind that training for planning methodologies for integrated mountain development needs to be based on substantive and real world situations which could be used not only as illustrations of a standardised methodology of area planning, but also to lead to modifications and changes in the methodology itself.

Important factors and characteristics derived from mountain specificities, warranting distinctive techniques and methods for integrated area planning in mountain regions, have been indicated in earlier sections. Their methodological implications are recapitulated here.

First, the intimate and interactive links between environment and development necessitate complete **incorporation** of environmental considerations into development planning for mountain areas, instead of the generally practised, post-formulation assessment of environmental impact of a project or a programme. Efforts in the past have focussed mainly on categorising areas as resource-abundant and resource-deficient or on zonation of environmentally-sensitive areas (e.g., into green, red, and orange categories). The concept of carrying-capacity has also been used to assess the extent to which development activities could proceed without endangering the environment. These approaches have succeeded in highlighting the importance of environmental protection; but they have fallen short of evolving approaches that can strike a balance between environmental and developmental needs. Environmental impact analysis, on the other hand, has been applied to judge specific projects or programmes, without necessarily having a range of options for consideration. Methodologies for evolving alternatives from which a set of development activities causing minimum damage to the environment could be chosen for mountain regions, in general, and for specific areas with a varying resource base, in particular, have not been adequately developed. A quantitative assessment of the environmental sensitivity of different activities, in terms of both resource-use and resultant processes and activities, is needed. Ideally, an aggregate **index, or coefficient of environmental impact,** for each potential development activity is required. There are essentially two steps in this exercise: One, indicators of ecological health in terms of the state of natural resources need to be developed and, two, the extent to which a development activity affects these indicators, directly and indirectly, has to be assessed. Activities should be indexed according to their income-generating potential also in order to choose an activity structure that is sustainable in terms of both its impact on the environment and potential for income generation on a continuing basis. Simultaneously, the development plan should provide for the possible regeneration and replenishment of environmentally-sensitive resources which would be depleted, even if slowly, in the process of economic development.

Secondly, integrated planning in mountain areas requires the use of linkage analysis in operational aspects and not merely as a tool for estimation of demand-supply balances and output and investment requirements. For, due to the problems of inaccessibility and marginality, production linkages do not materialise without interventions. This is true of both linkages between infrastructure and directly pro-

ductive activity and those between different activities or different links in the production and marketing chain. Thus, development of transport infrastructure and power supply in themselves does not necessarily lead to the development of income-generating activities, nor does wide-scale prevalence of manually-operated, low-productivity activities, even considering the potential for high productivity and better incomes through use of power and access to outside markets, bring about development of energy and transport facilities. Similarly, production of primary commodities, even though on a significant scale, does not encourage development of processing facilities, thus depriving the producers of better incomes and others in the area of employment opportunities. Even an activity like tourism, for which mountain areas have a comparative advantage, is often found to have more 'leakages' than 'linkages' because there is no integrated approach to planning to link it with other local activities. **Integration** in mountain areas, therefore, has to be a **concrete** aspect of planning and not a mere methodological device. It must, at the same time, be recognised that, in operational planning, integration can be effective only if appropriately reflected in coordination among different sectoral agencies and departments, insofar as the responsibilities for sectoral development and activities and resources for that purpose are divided among line agencies.

Thirdly, in view of the centrality of women and their proven potential for hard work and enterprise, the gender dimension needs to be completely integrated into development planning in mountain areas: the 'special programme' approach is neither adequate for the development of women nor for using their potential to develop mountain areas and communities. Any planning methodology, therefore, needs to incorporate the **gender dimension** as well as the environmental dimension. Ways to equip women to participate effectively in new, dynamic activities and processes and enable them to make decisions on significant matters that affect improvements in the standards of living and welfare of their families should form an integrated part of area development plans. The principal focus should be on broadening the choices for women in relation to their work and time allocation.

Fourthly, the terrain and altitudinal characteristics of mountain areas require **a distinct treatment of space** in area planning methodology. As discussed earlier, agroclimatic zoning and watersheds provide, within certain limitations, useful concepts for this purpose. Different elevation and altitude ranges, which may also coincide with different agroclimatic and resource zones, could also be adopted as planning units. But in no case is an entire area, used as a planning unit in the mountains, going to be at the same altitude and with similar terrain and slopes (if so, it would not be a mountain area !). Therefore, spatial mapping for preparation of resource inventories and assessment of development potential has to be **three dimensional**. A tool such as Geographical Information Systems (GIS), now widely used for spatial depiction of all kinds of characteristics and their interrelationships, would be most useful for this purpose. It would, however, be necessary to determine the **nature and extent of data** necessary for integrated planning. Given the general limitations in respect to availability of data on a disaggregated area basis, and the time and cost involved in primary data collection, the tendency to ask for large-scale, highly detailed information should be avoided. Prior identification of the kind of information necessary and adequate for a clear conceptual framework of integrated planning should be made.

At the same time, planning on an area basis would also make it possible to fill in data gaps as and when they appear, as part of the process of formulating and implementing plans and programmes.

Lastly, the **institutional arrangements** for planning in mountain areas also need a distinct approach. As argued earlier, mere decentralisation, which commonly means decentralised implementation of the programmes planned from above, is not good enough for mountain areas: planning from below on an area basis is essential. Local institutional capacity-building and people's participation are necessary conditions for successful preparation and implementation of plans in this approach. The vagaries and exigencies of nature resulting from terrain and climatic characteristics have compelled the mountain people to evolve ways of cooperating and working together as communities. Historical, cultural, and ethnic specificities have introduced further specific dimensions to naturally-determined mechanisms in some mountain areas. This phenomenon, which takes the form of indigenously-evolved institutional arrangements, should be used and strengthened as far as possible by providing modern scientific, technical, and management inputs. These should be supplied by government and non-government organisations. Similar use should be made of the indigenous knowledge and practices developed by mountain people over the centuries as a part of their survival strategies. In other words, a methodology for preparing and implementing plans and programmes in mountain areas must incorporate the local institutional and human adaptation specificities, rather than mechanically applying institutional models developed elsewhere.

Chart 1: Interface Between Economy, Environment, and Infrastructure

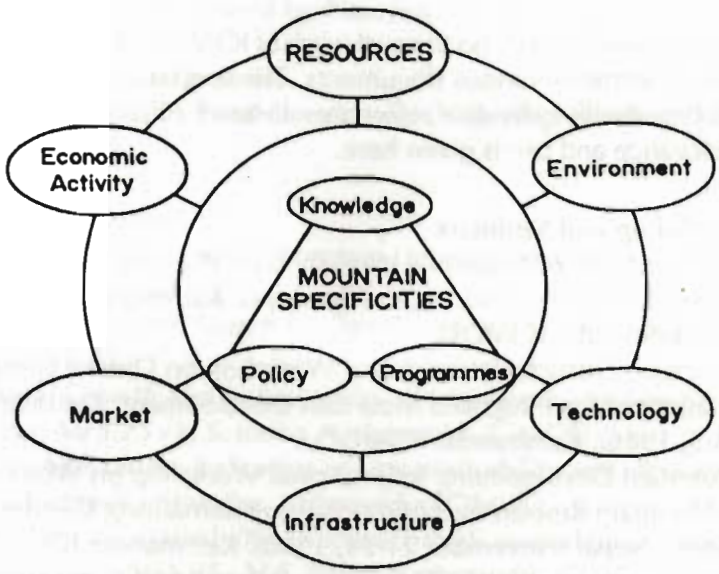

Chart 2: Sustainable Transformation Process