

## VII. Towards Integrated Environmental Management in Doon Valley

In the last four chapters various issues of natural resource management in the Doon Valley have been analysed within the framework of individual natural resource utilisation. It may well be that there are other aspects concerning the sectoral management of natural resources which have not been adequately covered here. The need for environmental management of economic activities in the Doon Valley has, in principle, been accepted at the highest administrative level. Search for a comprehensive regional development policy for Doon Valley has started, and this new search is governed by the following decisions (Anon, 1988b):

- Declaration of Doon Valley as an 'Ecologically Fragile Zone'.
- Cessation of mining and quarrying activities in the Mussoorie hills and Sahasradhara area.
- Conservation of forest areas.
- Afforestation of partly/wholly denuded areas.
- Regulation and Planning of urban growth in the Doon Valley.
- Imposition of strict control over the location of new industries.

The above decisions reflect the determined nature of the administration's attitude to natural resource management and regional planning. Whether this determination is universal or specific to Doon Valley, however, will decide whether such perspectives can be extended to other mountainous areas. This means that these decisions must be backed by environmental analysis as the basis of decision making.

The applicability of any measure of integrated environmental management is not straightforward. If it simply becomes speech making and assembling in workshops and seminars, it will be of no real consequence for the actual practical problems of the world. The issue is much wider and deeper because it is involved with the fundamental rearrangement of resource use patterns by human societies and a better

understanding of nature and natural processes (Bandyopadhyay and Shiva, 1988b; Dashman et al., 1979).

Therefore any serious administrative steps, such as the ones listed above for the Doon Valley, will have to be examined in a broader framework. It is not yet proven whether the above decisions will be universally welcome in the valley or if they will be equally applicable in other foot-hill urban areas like the Doon. The success of integrated environmental management in Doon Valley, as in any other area, lies in its becoming a socially acceptable and a transferable model. Otherwise, however well intentioned the measures taken in Doon Valley may be, if they are not applicable elsewhere and the area becomes an island in the environmental crises, rather than a testing ground for all mountain environments, they cannot be accepted as a formula for successful integrated environmental management. Hence, the importance of analysing these decisions within the framework of specific socioeconomic parameters in the Doon Valley, itself, and within the perspective of the general characteristics of neighbouring mountain areas.

Specific environmental issues usually emerge as a result of change, and such changes are brought about by technological innovations and the use of resources for economic expansion. As a result, a dichotomy, sometimes real, sometimes fictitious, emerges in the case of all environmental issues. Conservation is pitted against growth and even against social equity. No major steps can be taken without clarifying this apparent dichotomy between the dominant pattern of economic growth and the requirements of environmental conservation. Though this dichotomy is universal in character, in the case of the developing nations the theoretical and the practical aspects of it become more complex and emotionally charged in the context of parameters such as social equity, unemployment, and poverty. The situation in Doon Valley is no exception and integrated environmental management cannot be successful without considering these parameters. The conflicting and

cooperating aspects of economic growth, environmental conservation, and equity need to be understood if integrated environmental management is to play a role that goes beyond token environmental determination and become a part of the larger social programme.

### The Growth - Conservation - Equity Debate

In the last few decades environmental concerns have largely been expressed as a cautionary critique of accelerated destructive changes in the environment. These changes are, almost without exception, the result of activities aimed at economic growth by application of modern technologies or increased resource requirements of an increasing population. Because of various reasons, including the supposed absence of economic alternatives, environmental concern has been wrongly, but predominantly, identified as obstruction to economic growth against the larger interests of the unemployed and the poor. The Doon Valley case is most interesting in this respect because the advocates of industrial growth and the critics of the environmentalists argued that environmental concern is a luxury of the rich that the poor cannot afford. This argument creates the impression that concern for environment and ecology conflicts with concern for economic growth and employment. The former is seen as a pastime of the rich while the latter is seen as the only hope for the poor.

Integrated environmental management cannot be successful unless this conceptual conflict, dominated by emotional outbursts from both sides, is solved. No doubt there are environmental pressure groups for whom the commitment to environment is a tactical step to ensure a better environment for those who live away from the pollution and poverty of the congested urban settlements. On the other hand, there are others who relate to the living conditions of the poor and their access to basic natural resources (Bandyopadhyay and Shiva, 1988b). Their commitment to environment is not tactical and is rooted in their concern for human survival. In addition, there is a third group that is committed to the philosophy of economic growth and attempts to improve the conditions of the poor mainly through industrialisation. Some members of this section harbour an unshakable faith in the ability of industrial growth to provide a better life for all people. For them, the conflict between growth and conservation is the same as that between bread and

beauty. The following statement from Malik (1984) clearly establishes the bread versus beauty argument of this third group, the industrialists of Doon Valley:

*A country which is SO MUCH POVERTY STRICKEN, RIDDEN WITH EMPLOYMENT PROBLEMS cannot afford the luxury of BEAUTY alone. No man can afford to lose job. No man can survive without BREAD. No man can afford UNEMPLOYMENT. When we talk of the 21st century, have we ever thought that we will be taking with us thousands of unemployed, half-fed, half-naked and ill-health people to the 21st century ? No, we cannot afford to close industry.*

Environmental management in Doon Valley has to face this debate both in the theoretical context of a dichotomy between economic growth and environmental conservation and in the practical context of upholding the overall public interest in the Valley as well as outside. This dichotomous situation needs to be properly understood and addressed by determined natural resource managers. Because of the characteristic conditions prevailing in developing countries, a special management approach that is different from those of the industrially advanced countries is needed. In the industrially advanced countries, with much lower levels of unemployment, environmental opposition to economic activities tends to create less intense conflict with the working people involved in the activity. In the specific situation of developing countries where there are high rates of unemployment, the negative environmental impacts of industries are defended by working people also.

This intricate relationship of poverty, unemployment, and environment poses the most difficult challenge to environmental management in the developing countries, especially countries such as India where the values of a democratic parliamentary process are deeply rooted. The complex interrelation of these three parameters is not new to the world of economic development or natural resource management. The basic theoretical dichotomies or confusions associated with the two commitments, of economic growth and environmental conservation, express themselves in almost every practical context. There is no doubt that, frequently, the privileged raise issues that threaten the bread of the poor. Yet it is



undoubtedly true that the long-term interests of the nation as a whole are dependent on the continued productivity and ecological stability of the resource systems (Bandyopadhyay and Shiva, 1988b). Nevertheless, the expressions of environmental concern in the Doon Valley, as in many other parts of the country, were initially ignored and classified as a luxury of the rich. The growth of industries leads to instant and visible forms of employment in the context of the cash economy. The partial overlap of the interests of the job-seeking poor and the profit-seeking employers provided the basis for a common platform from which these two groups could oppose environmental criticism. The concern over the establishment of these very industries and their negative environmental impacts on these very employees were thus made marginal.

When the unemployed and the poor involve themselves in political battles against conservation oriented natural resource use, it creates a situation where the most important issues influencing the potential for long term human survival in a highly polluted environment can hardly be discussed. The possible relocation of about 200 highly polluting lime kilns and some obnoxious industries scattered throughout the city of Dehradun is a case in point. Efforts to bring about this relocation were opposed by a massive workers' rally because they feared unemployment would result. The dichotomy between environment and employment in the socioeconomic parameters of the valley was clearly demonstrated.

In such situations, where emotions run high, it is impossible to talk of long term human interests when the burning issue is limited to bread for tomorrow. In a free and democratic society where poverty and illiteracy is overwhelming, there are these special challenges to integrated environmental management that are not technical in nature and need deeper socioeconomic understanding. Removal of poverty, thus, becomes a prerequisite for integrated environmental management. The daily wage labourer in the lime kilns is not immediately concerned for the environmental impact of the limestone quarries if it means hunger. The destitute woman and child hacking away at the rich undergrowth in the Doon forests are not interested in the need for conserving the forests if this necessitates an end to their meager daily earnings. No strategy for integrated

environmental management can afford to ignore the basic issue that integrated environmental management has to first ensure the satisfaction of the basic needs of all people, because its success completely depends upon popular support.

The whole debate about growth, conservation, and equity has clearly divided the population of the Doon, both rich and poor, into identifiable groups. The influence of these groups is quite balanced, and this is not the case in other parts of India. In fact, the conservationist groups gain the upper hand by virtue of more systematic research and dissemination. The campaign for conservation in Doon Valley was initiated by the more articulate and influential urban groups who were perturbed by the rapid environmental deterioration. Encouraged by this, the rural people joined the campaign for conservation when the adverse effects threatened agriculture and animal husbandry. On the other hand, rich urbanites, who had a stake in the growth of industries and mining, mobilised the support of the urban poor who worked in these industries. The division being complete, the conflict between growth and conservation became acute. Debate about whether growth or conservation necessarily ensure equity slowly faded into the background. It is against this complex backdrop that integrated management of natural resources in the Doon Valley has to operate. This is not an extraordinary situation. Wherever environmental concern has delimited itself from speechmaking and has endeavoured to actually change situations, it has had to face the problems generated by the conflicts involved in the growth, conservation, and equity debate. Notwithstanding these difficulties associated with effective environmental action, by virtue of its montane characteristics, the Doon Valley offers the most promising platform for innovative experiments in integrated environmental management. In the following section an attempt will be made to outline an agenda for these innovations.

### **Possible Agenda for Integrated Environmental Management**

The historical background of natural resource management, and the present dichotomy between growth and conservation in the Doon Valley, should be seen as a convenient point for looking into the future. Though the future will be strongly influenced by the economic and

demographic trends in India in general, its course can also be substantially determined by the consciousness of the residents and the six guidelines that were mentioned earlier and that were accepted by the Doon Valley Board. The overall development policies of a country are largely determined by the national planning institutions, and they attach little significance to the specific needs of small areas such as Doon Valley. Yet, it is also apparent, from the analysis in the last few chapters, that small isolated attempts to change the course of the socioeconomic and environmental future of a region can lead to new types of decisions.

Future projections made in the absence of a clear policy framework can hardly be considered objective. In this section the possible agenda for integrated environmental management will be discussed on the assumption that future socioeconomic policies in the Doon Valley will be based on environmental and, perhaps, some ecological understanding, lay stress on resource sustainability, and will work towards the satisfaction of basic needs for all the valley residents. The strong participatory trend in the valley, and the environmental awareness among many residents, including the administration of the valley, makes Doon Valley a favourable region for such a process. These favourable factors indicate that formulation of development policies based on integrated and environmental perspectives is very feasible in the valley. Yet there are many gaps which need to be bridged, and these constitute an important element in the agenda for integrated environmental management. The initial successes of informed environmental action have increased both the possibilities in and expectations from the Doon Valley for setting a trend of integrated and ecosystemic development. The following sections will try to indicate what steps could be taken from the perspective of integrated environmental management to address these expectations.

### **Generation of Information on Environmental Parameters**

A clear understanding of the environmental parameters was identified earlier as an important element in the environmental management of natural resources. Quite independent of the location of Doon Valley, gathering of extensive information on natural resources

and related processes has by now been recognised as a major task for natural resource management (di Castri et al., 1980; Whyte 1984). There is a growing awareness, as well as published literature, in this direction. This is, however, not a simple task because the conceptual framework for it has yet to be widely accepted. The generation of information on the environmental parameters of any region requires an innovative and creative use of both disciplinary and interdisciplinary knowledge. The nature of these difficulties has been described by di Castri (1984) in the following words:

*Much ecological research is indeed of a basic generic character and, to be useful, needs to be supplemented by site specific studies. And the variety of climatic, biological and socio-cultural systems found in the world means that specific land-management programmes just cannot be blindly transferred from one place to another, as one might transfer a piece of chemical technology for example.*

*But even when geared to practical ends, research may not produce applicable results, because it is addressing what the managers consider to be the wrong questions, because it does not take sufficient account of the needs and perceptions of the potential users of research findings, because the solutions proposed by scientists and feedback procedures are not adequate for shaping future research.*

*Even when sound data exist, they are often not applied. There may be lack of political interest in receiving objective advice on the ecological consequences of environmental policies. The social and economic costs of application may be too great. Many data remain inaccessible and are not presented in a form that can be readily used by planners and decision-makers.*

Despite such difficulties, the situation is hopeful. The presence of a large number of natural resource research and training institutions provides a niche for the growth of interdisciplinary understanding and ecosystemic knowledge. The platform for such an exercise could be the generation of the Master Plan for Doon Valley which is being drawn up by the Town and Country Planning Organisation. The most central challenge is that of understanding the hydrological cycle in the valley in a



quantitative manner. This information will provide the direction for designed human interventions to improve the lean period water supply. Another challenge lies in understanding the dynamics and kinetics of air pollution throughout the valley. The impact of urban-industrial areas on the forests and wildlife must be understood in detail. The hydrological role of good canopy, broadleaved forests on the southern slope of Mussoorie hill, and the role of limestone deposits in water conservation is not known in clear and quantified terms. All these could become major programmes for the generation of vital environmental knowledge. This knowledge is also vital in elevating environmental action from the tendencies of empty speechmaking. A simple coordination of research within Doon Valley can go a long way in this respect.

### Research on Institutional Characteristics and Innovations

Every form of economic activity needs a suitable institutional framework for execution. Simonis (1989) points out that:

*Economic policy manifests itself in and works through particular institutions. Therefore, the ecological orientation of economic policy requires new institutions and abolishing or redefining old ones.*

With the transformation from a purely economic management style to one with integrated environmental objectives, there is a need for new institutions. These institutions may either be governmental or non-governmental, research or functional, executive, or judicial. The continuous evolution of institutions is the indicator of a legal-administrative system that is enriching itself from its experiences. The establishment and the evolution of new institutions, that will learn from environmental experiences and research, are part of the essential process of integrated environmental management. In this task, people's participation can be of immense significance. For example, their participation can ensure the success of reforestation programmes. Experience from the Doon Valley has shown that citizens' participation, in matters such as water resource planning, has led to multidisciplinary interactions being taken by various departments. In the absence of institutional renovations and innovations, environmental decisions cannot be realised in practice. Stressing the need for new

institutions, a local daily in Dehradun (Himachal Times 1983) wrote:

*Unless clear cut and long term administrative and legal infrastructure are not set up to actively fight the rampant rape of the valley's flora and fauna the Doon ecology is not going to even get a breathing space to convalesce..... Drastic and unprecedentedly harsh and stringent protective measures are required to counteract the malcontent responsible in bringing about the current ecological state in this valley.*

This desired institutional innovation will not occur automatically. Partly due to the inertia associated with institutions, partly due to opposition from vested interests, the external pressure of popular participation and the internal consciousness of the need for innovation are essential. The area where institutional innovation needs to be tested most urgently in Doon Valley is probably that of the land management in urban areas. In the absence of an organic evolution of institutional values and cultures, efforts of integrated management may not be effective at all. It is reported that, although the concept of the Master Plan for Dehradun is certainly creditable, there are confusions within the administrative structure responsible for its execution (Rastogi, Rastogi, 1985).

The most significant aspect of the institutional achievements in Doon Valley is in the field of law. The public interest litigations against limestone quarrying and air-pollution have been mentioned earlier. Their impact, particularly that of the first case, has been far reaching. The case brought to the fore the lack of internalisation of the parameters involved in the monitoring of quarrying in the Himalayas. Bhagwati (1988) described this impact as a new dimension of legal research in India, on law, natural resources, and development. The establishment of a new programme on Law and Natural Resources at the Indian Law Institute in Delhi is a direct reflection of such developments. The new possibilities related to law and natural resources in general, and mineral resources in the mountains in particular, are immense. The direct achievement has been the introduction of preconditions concerning environmental reclamation in the quarries.

The instances in Doon Valley also identified serious gaps in the administrative training and capabilities at the

district level that need immediate institutional response. The National Institute of Administration, being located in Mussoorie itself, could very well undertake this exercise in the Dehradun district on an experimental basis.

This relates to the administrators' grasp of the environmental characteristics of the districts they administer. In the current phase of accelerated economic activities and complex socioeconomic conditions, the district administration may find it almost impossible to make environmentally informed decisions on urgent matters of natural resource management. These matters may relate to quarrying, or to afforestation, or to land slides, or to water scarcity, or to air pollution, and it is the district authorities who have to quickly make decisions concerning these issues. This is simply an impossible task. In districts such as Dehradun, the number of institutions, which deal with environmental monitoring and management, may become useful in this respect. In the neighbouring districts of Tehri, Garhwal, or Uttarkashi, however, basic ecological information for urgent decision making may be totally absent. And if the administrators in Dehradun are hard pressed because they lack adequate information one can imagine the situation in less fortunate districts. Making available environmental information to the district administration becomes an important part of institutional innovation. This requires more exposure to the principles of integrated environmental management at the administrative trainee level and a toning up of environmental information gathering and analysis at the district level.

### **Realistic Projections for the Future**

The record of environmental interventions in Doon Valley, as in many other parts of the world, is dominated by opposition to environmentally destructive economic activities. Where environmental interventions have been weak is in projecting the future situations of integrated environmental development. In fact, the policy guidelines for such projections have also not been outlined clearly. Quantitative statements about the valley crossing its "carrying capacity" are heard here and there. Yet there is no clear articulation of the basis for calculating this capacity. Carrying capacity calculations should be based

essentially on environmental models but as of today there is no model, except that of the current pattern of economic activities.

While the current pattern of economic activities has received very important corrective inputs for the future expansion of the valley, the attention given so far mainly predetermines the industrial growth of the valley. A holistic and multi-dimensional projection of the future is yet to be done for the valley. It is here that public opinion will have to play an important part. The provision of future situations is not merely a mechanical computer-modelling task. The framework needs to come both from the people and the policy makers in terms of what they want the valley to be. In the absence of popular participation in this process there is always the risk of generating an unrealistic supposition that may assume that the Doon Valley is an environmental preserve for the residents. The future situation needs a dynamic framework clearly keeping the valley's resource linkages intact within it and outside.

Finally, the future situation, if it is to be realistic, has to ensure that the basic resource needs of all people will be equitably met. All knowledge of mountain environments and all institutional innovations will be ineffective if there are a large number of people whose basic needs will not be satisfied in the future plans for Doon. The programme for integrated environmental management must essentially start from this platform of basic needs' satisfaction. Here the whole issue becomes partly non-local, by virtue of the movement of population to and from the valley, and is closely integrated with the Garhwal region to the north and the plains to the south. Thus, it is connected with issues of natural resource management over a much larger area. The immediate positive aspect of this real integration is that the influences of a small area such as Doon Valley can catalyse consciousness about the need for integrated environmental management over a much larger area. The full potential from the experiences of research and action in Doon Valley cannot be realised unless its impact spreads systematically over larger parts of the country, resulting in major debates and policy changes to enhance the role of integrated environmental management.