The Role of ICIMOD: A Presentation of the Centre

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The statements, the papers, and the play presented over the last two days, as well as the discussions based on them, have focussed on the problems of development and ecology in the Hindu Kush-Himalayan region. Again and agian, it has been shown that very close inter-relationships exist between these two major problem areas. In fact, development of any mountain region poses a dilemma from the ecological point of view. Development, almost by definition, implies the exploitation of available resources, but the particular vulnerability of mountain ecosystems makes it necessary to manage slopes and their resources with particular care. It is more difficult here than anywhere else to find an ecologically sound method of land use which will preserve the productivity of the system for the future.

This is especially true of humid, tropical and sub-tropical high mountains, such as the central and eastern Himalayas, where it is the vegetation cover alone which must prevent the deeply weathered soils on slopes from being washed away by the long and heavy monsoon rains. However, the drier western and northern parts of the Hindu Kush-Himalayas are by no means in a better situation. The constraint of low and variable rainfall, which severely limits natural biological productivity, and that of the high risk of erosion on slopes, combine to make these dry mountain regions equally sensitive to even quite small disturbances. Of course, we need to distinguish between natural processes occurring without man's interventions and man-induced deterioration of the land.

It is also clear that strict conservation of these mountain regions is to be excluded as a solution. On the contrary, these areas must continue to be developed in order to improve the standard of living of the local people and to promote further growth of national economies, two objectives which normally should go hand-in-hand. This, then, is the mammoth task ahead of us: to conciliate the development of these mountains and valley areas with sustained use of the ecosystems and their resources, not for the sake of the environment alone, at least not primarily, but rather for the sake of the people of the region and for their descendants. This is, indeed, a huge task for the local people themselves, for their governments, and for the international community.

In order to come as close as possible to meeting these objectives, it will be necessary to continue to deal with a number of key constraints to development of a more general nature, such as the scarcity of capital and new skills, insufficient education, as well as the lack of physical infrastructures, such as roads, and of those of social services, such a hospitals. In addition, a series of more specific problems will have to be tackled. The list of problems includes: how to halt deforestation caused by the over-exploitation of firewood; how best to help farmers increase the yields of rice, maize, potatoes, and other crops in the valleys and on less steep slopes; how to achieve a smooth transformation from subsistance agriculture to ecologically sound and economically viable market-oriented land-use systems; how to make sure that the construction of roads and power lines is done in such a manner that they do not provoke landslides.

Practical problems such as these reflect the broader question of the inter-relationships among population, resources, and environment. Participants seemed to agree that reducing population pressure on the land and natural resources will be decisive in solving the problems of the region. The only way to achieve this seems to be through intensification and diversification in the land use sector, while at the same time creating alternative sources of income not directly dependent on land exploitation. In this respect, special attention will have to be given to industries using local resources, including cottage industries, as well as those based more on craftsmanship rather than on the availability of raw materials, such as precision mechanics. And, not the least of concerns, is the development of tourism. Such a change in the socio-economic structure and system in the Hindu Kush-Himalayan region would involve considerable further changes in population dynamics, in particular those linked to rural-urban and highland-lowland migration. However, the mountain regions would not be abandoned, as one might fear from observing some of the present trends.

The need for an integrated approach

Another conclusion of the symposium was to recognize that such a target scenario of development will never be reached without following an integrated approach to development at all levels which takes into account the myriad inter-linked factors (ecological, economic, social, cultural, technological) involved in the functioning of the many man-environment systems of the Hindu Kush-Himalayas.

This integrated approach, which particularly takes into account environmental conservation, should be adopted for the development of small, circumscribed rural areas, as well as for regional and national planning. Rural development should be linked with that of urban areas. Planning in the energy, transport, construction, industrial, and commercial sectors must not be carried out in isolation. In addition, social issues, in particular education, public health, and population policy, must also be taken into account in integrated plans, programmes, and projects. But, again and again, symposium participants have raised the question of how to translate this concept into reality.

Before dealing with the obstacles to the application of an integrated approach, the international dimension of the problems dealt with here and of their possible solutions needs to be emphasized. A number of participants have spoken in detail of how the ecological and development problems in the Hindu Kush-Himalayas transcend national boundaries and how the ecological problems experienced in the highlands have serious repercussions on the lower valleys and lowland areas. Development planning should take into account the wider inter-country interactions, as well as the lessons learned in the various countries and the know-how available in the region and elsewhere. Exchange

of information and co-operation is needed to deal effectively with the problems of development and ecology in the Hindu Kush-Himalayas and in their adjacent lowlands.

Obstacles to integrated development

It would be naive to assume that it is easy to introduce an integrated approach at any one of the three levels where it needs to be adopted, at the level of the local administrator/technician/farmer, at the agency level in governments, and at the international and bilateral agency level. In fact, the application of an integrated approach is seriously hampered by a number of very basic obstacles. The first one to mention is the lack of awareness on the part of planners, decision-makers, local administrators, and managers of the need for an integrated approach. It should be noted, however, that considerable progress has been made over the last decade as regards the heightening of such awareness, in particular among top-level decision-makers and executives of national and international agencies. Unfortunately, it appears that their goodwill is very often not translated into action due to "economic constraints"—as most of them would explain.

In reality, I believe these people face other obstacles to to an integrated approach which are at least important as the reason they give. These obstacles involve:

- the sectoral structure of governments, and of international and bilateral technical co-operation agencies, as well as of their subordinate management units;
- insufficient knowledge about inter-relationships between sectors, and about methodologies and practical tools of integrated planning and development action;
- lack of information on and evaluation of failures and successes of development programmes and projects;
- lack of trained personnel capable of implementing integrated approaches in planning, applied research, and development action;
- insufficient exchange of information and co-operation among decision-makers in the various economic, education, and social welfare sectors, and also between these officials and scientists;
- insufficient regional co-operation to take advantage of the information and experiences of other countries and to avoid duplication of efforts in documentation, training, evaluation, research, and technical advisory services;
- disappearance of the knowledge and experience of local farmers, pastoralists, and technicians, as well as that of many development projects due to the lack of systematic collection of unpublished information and data;
- dispersion of scientific and developmental knowledge concerning the region in many countries outside the region, often recorded in a language not widely known in the region.

Regarding the problem of insufficient information and gaps in knowledge, the problem is not so much with different sectors, but rather with understanding the inter-relationships in mountain systems between sectors, such as forestry and agriculture, forestry and hydrological management, hydroelectric development and watershed conservation, livestock development and horticulture, horticulture and industrial development, and so on.

Intricately interwoven with the concept of integrated mountain development are four other concepts concerning systematic inter-relationships. These concepts are:

- the watershed management concept concerned with the hydrological connection between upstream and downstream, between upland use and lowland consequences;
- the ecosystem concept concerned with ecological stability and the conservation of life support systems;
- the population carrying capacity concept concerned with the balance in the inter-relationships between population, resources, and environment;
- the concept of socio-economic integration where development is not merely an economic process, but also a social and cultural one, and where development or underdevelopment in one sector is considered to influence all other sectors.

In my view, there is a lack of knowledge of how to bring these concepts together into more comprehensive and holistic models which better reflect on real life situations, particularly at the micro-world level, and which provide improved methodological tools for successful development planning and integrated development projects. Furthermore, there is a lack of scientific validation of generalised statements and assumptions on man-made erosion and the increased occurrence of landslides, the amount of firewood consumed, the efficiency of alternative energy devices, and so on. There is also insufficient testing of many new technologies in the specific environments of the Hindu Kush-Himalayan region.

In analysing this list of obstacles hampering the application of an integrated approach, it becomes apparent that almost all those mentioned have to do with one of the following groups of activities:

- documentation collection and information dissemination;
- specific types of training, seminar activities, and applied research;
- programme and project evaluation, and technical advice.

This analysis, naturally, leads to the conclusion that what is needed in order to reduce and, in the long run, to remove major obstacles to the application of integrated approaches to mountain development, is an institution which serves as a focal point and clearinghouse for integrated mountain development based on ecologically sound environmental management. This institution would have to make information available, provide expertise, train personnel and evaluate lessons learnt, and generate knowledge where it is still missing. One would also conclude that such an institution, while focussing its services exclusively on the Hindu Kush-Himalayan region, would greatly benefit from having an international character so that knowledge, expertise, and resources could be made available from a wide range of countries.

How ICIMOD came into being

These were the ideas launched by two international meetings. In December 1974, in Munich, an international workshop on the development of the mountain environment was organized by the German Foundation for International Development. A second meeting was organized by UNESCO in the framework of its Programme on Man and the Biosphere (MAB). The regional meeting on integrated ecological research and training needs in the Southern Asian mountain systems, particularly the Hindu Kush-Himalayas, as it was entitled, was held in 1975 in Kathmandu, in collaboration with the MAB National Committee of Nepal. As most of you certainly know, it was this meeting, attended by delegations from most of the countries of the Hindu Kush-Himalayan region, which strongly recommended the establishment of an institution servicing the countries of this region and focussing on documentation, promotion of research and training on integrated mountain development, and technical advisory services in this field. The meeting also welcomed the offer of the Kingdom of Nepal to host the proposed institution.

Following the endorsement of this recommendation by the 1976 session of UNESCO's General Conference, UNESCO as it was sored the development of the Centre-UNESCO as it was soon called–in the framework of its MAB Programme.

Eight years have passed since the regional MAB meeting in Kathmandu. The need for such a centre is felt even more strongly today than in 1975. In 1981, when the first issue of the journal *Mountain Research and Development* appeared, it included a letter to the editor commenting on, "the need for a centre for the study of mountain environments", submitted by Joseph Allen Stein, a noted scholar on mountain housing and human settlements. Stein eloquently described the situation as follows:

"At present, even concerned administrators and technical officers are frequently at a loss, confused by conflicting ideas, instructions, and advice. In their haste to do something, they often do more harm than good. While notable work is being done by conservation and scholarly organizations, and both cultural and environmental conservation measures are helping to save some outstanding specimens of natural and cultural importance, the main problems, the level of understanding and technique of the local administrator/engineer/farmer remain nearly untouched. And the decision-making apparatus is still based upon short-term considerations, often oblivious of long-term consequences. This is further compounded by obsolete planning and engineering practices, probably well-intentioned, but nevertheless damaging.

The situation requires a new approach, with access to information, advice, and knowledge that is seldom at hand. Although huge sums are currently funding research, research institutions, and education for technicians and professionals, there are no institutions or centres for the study of the mountain environment in which competent, practical training and advice for those whose work affects the ecology of their environment is offered on a regionally pertinent basis. Numerous experts have long ago pointed out the need for research and training on a systemic regional basis, linked with accessibility to the international pool of knowledge and experience. Although good examples can be found of mountain housing, communications, road building, erosion prevention, forestry, dam siting, siting of tourist and other industries, and solar heating from which useful lessons may be learned, these are not widely known and are not always pertinent to specific regional conditions and needs."

Structure and main activities of ICIMOD

Now, almost three years after the writing of this letter, the Centre actually exists and work can start tomorrow. We now must rise to the opportunity and challenge that this Centre provides. What then will ICIMOD actually do and how will it function?

Firstly, it needs to be pointed out that the Centre is an autonomous international institution under the authority of a Board of Governors. In other words, it is neither a Nepalese, nor a Unesco, nor a Swiss, nor a German centre, to mention the four founding sponsors. The composition and constitution of the Board of Governors are laid down in the Statutes, and the major objectives and functions of the Centre are defined there. These objectives and functions represent the character of ICIMOD, its terms of reference, the framework of its competence, and its activities.

The objectives of ICIMOD are set out in Article I of the Statutes as follows:

"The primary objectives of the Centre shall be to help promote the development of an economically and environmentally sound mountain ecosystem and to improve the living standards of mountain populations of the Hindu Kush-Himalayan area which, for the purpose of these Statutes includes Afghanistan, Bangladesh, Bhutan, Burma, China, India, Nepal, and Pakistan. To this end the Centre will serve as:

(a) a multi-disciplinary documentation centre;
(b) a focal point for training and applied research activities; and
(c) a consultative centre in scientific and technical matters for all the countries of the region upon their request.

In Article II of the Statutes, the main functions and activities are outlined:

1. In fulfillment of its foregoing objectives, the Centre shall have the following activities:
   (a) collect, evaluate, and make available information and results of
      (i) research programme and projects;
      (ii) development projects; and
      (iii) other published and unpublished material related to the ecologically sound development of hill and mountain areas;
   (b) assist in the identification, preparation, execution, and evaluation of relevant programmes and projects;
   (c) give advice to governments and non-governmental institutions of the said area of new programmes and on all issues related to the development of mountain areas;
   (d) serve as a clearinghouse for information for all parties engaged in such development and help to make use of existing know-how;
   (e) produce and distribute relevant information for the different client and target groups;
   (f) support and undertake post-graduate training in all subjects relevant to mountain development;
   (g) host national, regional, and international seminars and conferences in order to strengthen the idea of economically and ecologically sound development of hill and mountain areas on a worldwide basis;
   (h) promote, conduct, and co-ordinate applied and problem-solving research activities;
   (i) perform such other related activities as may be appropriate in the furtherance of its objectives.
2. The Centre will provide assistance, advice, and support to countries and non-governmental institutions at their request.

A closer look reveals that each one of these activities has been carefully chosen to address the list of obstacles to the application of an integrated approach which was presented earlier.

Regarding documentation, the Centre will focus on the collection, collation, classification, and storage for retrieval of published and unpublished data and information on integrated mountain development and on the Hindu Kush-Himalayan region in particular. The Centre will also function as an abstracting, translating, and indexing institution establishing liaison with relevant information programmes and agencies internationally, in particular in the participating countries of the region.

The second major function of ICIMOD will be to develop and maintain a multipurpose publishing and information dissemination programme for a wide range of clients and potential users of the Centre. This information dissemination programme might,

therefore, include in its activities, among others:

- publication of a regular ICIMOD Newsletter distributed free to collaborators, actual and potential, comprising news and comments on matters related to integrated mountain development in the Hindu Kush-Himalayas and more specifically on Centre affairs; a first issue has already been distributed here;
- provision of printed and illustrated educational material for use in schools, extension centres, community discussion and project groups, women's and adult education programmes. Such material should make use of the local language and the visual idiom;
- an information service to meet requests from development agencies and others for data, information, and references;
- publication of major monographs, proceedings of seminars, workshops, symposia, project appraisals, and evaluations.

Regarding training, it should be understood that ICIMOD will not engage in organizing formal training programmes. If requested, however, it may provide advice on how to make formal training programmes within the region more relevant to integrated mountain development. ICIMOD's training and seminar activities will treat various aspects relevant to mountain development with special emphasis on promoting an integrated approach. Courses and seminars would normally be of short duration and, when possible, would include field demonstrations and case studies. Priority target groups will be planners and decision-makers, agency executives and administrators, project personnel, teaching staff, extension workers, and local administrators. Seminars which provide a forum for dialogue between experts in fields related to integrated mountain development and decision-makers will receive particular attention.

The Centre's research functions come under the following objectives:

- translating the concept of integrated mountain development into practical development planning and action programmes, including applying it to project planning and appraisal;
- synthesizing, evaluation, and transcribing research data in order to facilitate their application to integrated development;
- identifying problem areas as well as opportunities for development and relevant gaps in knowledge;
- evaluating proposed, ongoing or completed development programmes and projects to identify strengths and weaknesses, successes and failures, expected or possible unexpected side effects, and direct consequences. Such evaluation can, of course, be done only in close co-operation with agencies responsible for planning and implementing the programmes and projects concerned;
- stimulating, co-ordinating, and, in selected cases, executing and possibly partially financing research needed to fill the gaps in knowledge.

Finally, ICIMOD will function as a technical advisory service on all matters related to the promotion of integrated mountain development based on ecologically sound environmental management. In particular, the Centre offers its participation in feasibility and appraisal studies of development projects in the Hindu Kush-Himalayas.

Collaboration and sponsorship

It needs to be emphasized that it is not intended that ICIMOD play a competitive or parallel role to any existing institution, but a complementary one in furthering the effectiveness of the national, bilateral, and international bodies already operating in the region. The states in the Hindu Kush-Himalayan area and the bodies referred to are warmly invited to participate in the activities of the Centre and to use its services.

It is to be expected that the level of participation in the activities of ICIMOD will vary from country to country, at least in the beginning. In particular, regarding appraisal, evaluation, and the provision of advice, the Centre can become active only upon the request of the authorities concerned. In fact, it will be a guiding principle for ICIMOD to seek an agreement with the appropriate authorities prior to becoming involved in any national or international activity whatsoever in any country.

As a member of the Board of Governors of ICIMOD, I am confident that the combined wisdom of the participants at this symposium will help shape the 1984/85 work programme for the Centre to reflect its objectives and functions, to be sound from a technical point of view, and to respond to the needs and interests of the countries of the Hindu Kush-Himalayan area regarding this first operational phase of ICIMOD. This shall, indeed, prepare the way for the adoption by the Board of the next two years' programme. On the other hand, I think we will also have to be patient. As much as we would all like to see ICIMOD launching fully-fledged operations as soon as possible, we will have to take into account the constraints of the budget and the time it will take to recruit personnel and to set up the physical infrastructure of the Centre. Priorities will have to be set.

ICIMOD was most fortunate to have had for its preparatory phase a very dynamic Regent. I would like to take this opportunity to express my sincere appreciation to Mr. Gueller for his work–including the organization of this symposium. As from spring 1984, ICIMOD will have as its Director the notable scholar and development expert, Dr. Colin Rosser. The Director shall administer the Centre, including recruitment of staff, and shall be responsible to the Board for its operation and management, and for ensuring that its programmes and objectives are properly developed and carried out. The Board of Governors has not yet considered the internal structure of ICIMOD, and it might not be fair to my colleagues on the Board to present my ideas to this assembly. Hence, I would like to restrict myself to the comment that it would seem quite obvious that operational task forces and/or units will have to be set up to deal with the major functions of the Centre as outlined earlier, that is to say, documentation, information, dissemination, investigation, evaluation and research, training, as well as consultation services. Flexibility–not the establishment of a rigid superstructure–will be the key to success.

Finally, Ladies and Gentlemen, I would like to make a plea to all governments represented here, to all institutions participating in this symposium, to all practitioners and research scientists present: ICIMOD cannot survive without your co-operation and participation. In order to fulfill its objectives, ICIMOD seeks the close collaboration of experts in fields relevant to the Centre and even more so with national, bilateral, and international agencies engaged in the Hindu Kush-Himalayas.

I feel strongly that both agencies operating in the region and ICIMOD would benefit from co-operative activities, as well as from exchange of information and ideas. ICIMOD offers its services to all those agencies and institutions which are concerned with development and science in the region and which share the ultimate objective of improving the well-being of the local people through sustained use of resources. In return, ICIMOD hopes to receive support from within the region and from other parts of the world.

Formal sponsorship of the Centre is open to all Member States

and Associate Members of UNESCO, international, governmental and non-governmental organizations, and private and public institutions of a scientific and non-profit nature.

Formal sponsorship implies a contribution in cash or kind to meeting the costs of operating the Centre and of carrying out its activities. The specific rights of formal sponsors of the Centre are laid down in the Statutes. Four seats on the Board of Governors are reserved for the financial sponsors. Let me take this opportunity to express UNESCO's hope that other governments and institutions will follow the example of His Majesty's Government of Nepal and the governments of the Federal Republic of Germany and Switzerland to sponsor ICIMOD. I would like to suggest that other countries in the Hindu Kush-Himalayan area also consider this possibly seriously. If ICIMOD is to develop into the highly useful and successful operation, which UNESCO and I take it all of you would like it to become, the acquisition of new sponsors will be decisive.

Before closing, a last word on the future role of UNESCO in ICIMOD. On Monday, the Director-General of UNESCO, Mr. Amadou Mathar M'Bow, will take the floor during the inauguration ceremony, and will no doubt address himself to this question. If is, therefore, not opportune and not necessary for me to elaborate on this point now. However, I am pleased to underline once again that UNESCO takes great interest in the Centre, as demonstrated by the presence of the Director-General during its inauguration ceremony. UNESCO's a support for the Centre shall continue through the Programme on Man and Biosphere as ICIMOD begins in the near future, I sincerely hope, to fulfill our collective expectations of what it can contribute to this region.

The author greatefully acknowledges that a few paragraphs of this paper are based on the unpublished mission report entitled "A Prospectus for Living with Mountains" prepared for UNESCO by Professor Kevin O'Connor, New Zealand (June 1981). Also referred to is the ICIMOD brochure (1982) which had been prepared jointly by Messrs. P. Gueller, J. Seelhofer, Ms. J. Damlamian, and the author.

Some Lessons and Problems in Eco-Development

A.D. Moddie

I have been asked to speak by old friends as one of the four original movers of the international mountain environment movement, which we started in the years 1973–5. I have not prepared a statement, but I will speak directly and sincerely, and not in the usual conference language. I am grateful to ICIMOD for the opportunity to be here and to meet old friends of this endeavour, as well as those of us who were present at the first international conference on this subject in Munich, 1974. Once there were only four, then forty, now I do not know how many.

Ten years ago when I came to Kathmandu, I was asked by a person from an international organization who I represented. I said then, "I represent no one. I represent a concern for mountain environment". I can say the same today, and I hope that all of us, whatever governments and institutions we represent, share that concern sincerely and deeply. And, in doing so, I hope we will be able to surmount the boundaries of countries, institutions, and disciplines and become a society of friends, as we did at Munich. That way, half our problems can be overcome.

May I just offer you a few of the major underlying lessons I have learnt in eco-development in the last decade, and some practical problems from our experience for ICIMOD.

Major Lessons of the Last Decade

This is an age of multiplying institutions. With it has gone the realization of the limitations and incapacities of institutions. Expectations and promises have been high; realization of those expectations and promises has been low. There has not been enough understanding of the social dynamics of institutions. It is well to remember this at the start of a new institution like ICIMOD, before rigidity, bureaucratization, and a loss of innovative, experimental zeal set in. Institutional vitality is essential for new eco-development tasks.

The next lesson is that reality, real people, and real work are in the micro-world of the Himalayan people. We need to redress the past preponderant imbalance of the macro-institutional world, by putting the micro-world in the centre of the picture. The real decision-making with soil, water, plants, and livestock is there. The real role of the institutional world is to be facilitators, resource-mobilizers, and science providers; the final decisions are made by the hill family in the hill village. How can we facilitate their decision-making, instead of living in the delusion that we in the macro-world are the real decision makers?

The third lesson is the question: How far has the macro-institutional world itself been a part of the problem with old, unchanging, and rigid ways, with old performance norms which do not induce new and better performance from its performers? How can we expect the hill man out there to change his traditional ways, if we first do not change? To the extent we are part of the problem of eco-development in the Himalayas, to that extent we are impediments to the solution or amelioration of problems. And there is, after many plans and much expenditure, a marked gap between the last development office and the village. The processes of development themselves; e.g., forestry practices, dam and road building, and tourism appear to be increasing threats to our eco-systems, of the Himalayan life-support systems. For example, mistakes over twenty years ago in the days of the Bhakra dam were understandable; but we have repeated the same basic mistake of ignoring the upper catchment eco-system twenty years and twenty dams later in all Himalayan countries.

Some Practical Problems for ICIMOD:

Some scientists in India, and also abroad, are questioning: How far is the international land classification relevant to the realities of land use in the mountain regions of developing countries? ICIMOD might re-examine this question, especially to see land classification in the perceptions of local hill farmers. With rising populations, and hardly any class I and II lands for developed agriculture, and with no practical prospects of any government being able to materially alter this basic situation, should we not begin with this hard reality, and modify both classification and its consequential steps for land-use planning?

So far, foresters have acted and believed as if the prime function of forest is to produce wood and other commercial forest produce to maximize revenues. Belatedly, a few foresters are beginning to realize that the prime function of a forest is water conservation. In this context, hill springs, too, are seriously threatened by deforestation, as the perennial source of water for most people in the hills. ICIMOD should promote the prime importance of water in Himalayan eco-development, and the preservation and recharge of hill springs as a primary subject.

Too long have the three communities of the villagers, scientists, and administrators lived in separate worlds. How to devise working organizational systems to fuse these for sub-catchment eco-development? This, too, is a task for ICIMOD on the basis of mutual learning processes. The hill villagers' "science" of inherited experience and wisdom should be a starting point for applied research.

In particular, how are we to make people's participation and cooperation in the management of local natural resources meaningful? How are we to revitalise traditional forms of local village social action processes? It is crucial for all eco-development to have the involved responsibility of the local people.

Some of our scientists are also questioning the application of high technology agriculture and animal husbandry, as in the USA and the Punjab. In hill areas ICIMOD should examine the optimum mixes of appropriate technologies-high or low-for subsistence hill farmers with hardly any class I and II lands, at least until enough water can be harvested and hardnessed for higher starting productivity. Until then, how to raise the sustainable productivity of dry-land mixed farming, with soil and water conservation?

The crux of the eco-development problems is attributed to human and livestock pressures of rising numbers on Himalayan eco-systems. Yet the ecological principle of "carrying capacities" is only a phrase in development plans. How is it possible to

transform it into operational use, to see what can be done to reduce constraints and enhance the potentials of eco-systems, and so minimize excessive human and livestock pressures on eco-systems? This may first require a modelling approach, a crucial scientific task for ICIMOD in sub-catchment eco-planning.

Society has been described as "a vast, complex learning machine". I hope, for these and many other problems, ICIMOD will prove to be a useful learning machine in the future.

Finally, may we leave this symposium with the spirit of the Munich Conference of 1974, as a society of friends representing Himalayan eco-development concerns, as friendships are more important than representativeness or specialisation. Such a spirit will help solve our problems. It will also bring us closer to the realities of the situation, and make us better equipped for mutual learning processes, which all development problems demand.

Activating Research toward Development

Corneille Jest and A.E. Manzardo

Several matters have bothered us when we have tried to consider the question of what is to be done to conserve our mountain eco-systems. One major hurdle has been the lack of communication between research scholars and developers. Often, the two speak different languages and work undertaken by one group seldom seems to affect the other. This creates a situation where there is duplication of effort or worse, where one group operates in unnecessary ignorance in spite of the presence of research which is already available. We would like to address several issues concerning this lack of communication in this paper and expand upon two topics which are crucial to this discussion: the role of social science in development and the importance of documentation.

The Role of Social Science in Development

Decision-makers and planners have shown some impatience, if not irritation, with the results and attitudes of academic scholars. It seems that this attitude is indicative of a wide lack of communication between scholars and developers. This paper explores some of the reasons for this lack of communication and proposes some ways in which the situation could be remedied.

A major cause of this communication gap is the difference between the occupational demands of both groups. For example, in the time frame available to the developer, decisions often must be made quickly. The constraints created by deadlines, the demands of budget preparation, and the fiscal year are always with him. The time frame available to researchers is much longer, almost luxuriously long from the point of view of the developer. Although long-term research provides more accurate data and insight into the yearly cycles basic to an agricultural society, the developer often cannot hold up his decision, even if the information is felt to be vital for his plan.

Academic researchers are trained to research their fields exhaustively. Their occupation demands that they try to collect as much information as possible to support their analyses. The presentations of a scholar often show his justifiable pride in the size of his collection, so reports tend to be long and highly detailed. Developers, on the other hand, tend to demand only enough data to make their decisions. Any additional information only slows down the decision-making process. Thus, what might be a source of pride to the scholar is a burden to the developer.

One of the problems the developer encounters in trying to use scholarly work in his decision-making process is the unavailability of these works. Scholars face difficulties in making their research available to a large audience. They publish in a great number of journals throughout the world, but only a few of which are regionally based or devoted specifically to the problems of development. Thus, a developer would have to wade through a great deal of information before he found something directly relevant to his work. For this reason, developers are often unaware of research which could affect their decisions. This is one of the reasons why decision-makers tend to rely heavily on quick surveys rather than depending on research which might be already available.

The limited circulation of information is another problem. Although scholars publish throughout the world, only a few libraries carry their work, and these, for the most part, are far from where actual decisions are made. Likewise, researchers often find it difficult to gain access to reports written for developers and, therefore, the problems encountered by the developers are unknown to them. The lack of space in government offices makes the saving of reports a difficult practice. For the developer, it is again a question of paring the information down to that which is essential. This attitude, of course, is appalling to the researcher who needs to accumulate as much data as possible to reach his own conclusions.

There are other differences as well. Researchers often start with less defined problems and less defined geographic areas for their research. Scholars need to wander and find the thread of useful research. Their research categories are often based on units such as watersheds, ethnic or cultural areas, and villages, all of which have no real meaning within the political context of the developer. The decision-maker is concerned instead with wards, panchayats, districts, and zones. There is often, therefore, no direct correspondance between the areas of concern of the two.

Development work has traditionally followed what could be termed an "engineering" model. Developers order research and implementation through purchase order contracts and look for specific and directly definable skills. They like to hire "specialists" to do specific tasks under "terms of reference" and "scopes of work".

The use of an engineering metaphor might better be explained as follows: If one were to build a bridge, one would hire a civil engineer who would measure the river, look at the surrounding area, do calculations, and make a plan. The bridge would then be built according to the specifications of that engineer's plan. For the engineer and his work it doesn't matter whether the bridge is being built in Peru, Chicago, or Kathmandu. There may be changes in material, but for the most part the techniques would be the same. The engineer is a specialist with certain skills to be applied to a specific task regardless of where it is to be done. Engineers, therefore, travel throughout the world and do their work on demand.

Public works, such as bridge-building, is part of development, but there are other development tasks, as well. Currently, development includes health, education, and agriculture, as well as engineering. Although each of these fields require expertise of a very real sort, we are discovering that the need to work with people makes these other forms of development very sensitive to where they are being undertaken. Most development work, therefore, requires attention to culture and communications, as well to the specialist's techniques.

Traditionally, the solution to the problem of communications was handled by bringing in yet another specialist. Once the technicians developed their plans, the "extension expert" was brought in on a "purchase order" to sell the expert's plan to the people. This system is clearly flawed. Gradually, we are learning that projects cannot be planned by experts without the direct participation of the people themselves.

Developers often complain that anthropologists tell them why projects *cannot* be done. Anthropologists realize that projects planned without reference to local conditions or without concern for local problems must fail. Once plans are better tailored to the local context, the negativism of the anthropologists ought to disappear. Research into history, culture, local ecology, geo-logy, and so on are an insurance policy against disaster. History reminds us of the danger of policies being rashly instituted by administrators without proper understanding of the social or political consequences of their acts. Its through a detailed understanding of the context of our decisions that we can best protect ourselves and our environment.

On the one hand, there is the need to act slowly and understand the context of our decisions fully to avoid disaster. On the other hand, the developer needs to make decisions within a limited amount of time so that actions can be taken to solve pressing problems. How can the two be reconciled?

Clearly, the need for a change in the conception of how to go about development has opened the door for the kind of informantion which has been collected for years by researchers. Clearly, there is a need for localized knowledge gathered in the earth, life, and social sciences to modify plans based on the knowledge of the experts. Clearly there is room to learn the communication techniques of scientists who have been living in Nepalese villages for thirty years.

Researchers, on the other hand, must learn about some of the needs of developers and to understand the constraints under which they operate. The credibility of the researcher will increase as he learns to formulate both analyses and conclusions more rigorously and more economically–to get to the point. This comes of understanding how much information is needed to reach a specific decision and presenting enough data—and no more. Surely research will lose some elegance, but at least it will be used and the confidence of developers and their concommitant support will likewise grow.

Similarly, scholars ought to shake themselves loose of the notion that culture change is something which is somehow tacked onto the end of an ethnography. Cultures have always changed and always will change. The notion of a steady-state culture is a holdover from the days when colonial governments rationalized secondary rule. What we now call "development" is a continuation of this process of culture change. The refusal of individual researchers to recognize this can only blind them to the facts.

Like tourists photographing the main squares of Kathmandu without showing taxicabs or telephone wires, the researcher who ignores change is painting a false picture for himself and for his readers. In Nepal, for better or worse, the social landscape now contains community forestry, community health, integrated rural development, agriculture development banks, corporations and input organizations, cooperatives, and small farmer programs. If these are not understood and placed into perspective, then the local culture is somehow being distorted. The developer, therefore, becomes part of the field of the researcher as the researcher becomes part of the field of the developer. The two have grown together and the need for symbiosis is clear. What is missing is the means. As there is need for mutual support, somehow the two must find their way together.

Suggested Solutions and the Role of Documentation

Several changes in current practices could improve the situation. One must look for individuals to work on local projects who are willing to examine local situations and work within the context of the field. This does not limit hiring to local nationals. Often, urban nationals have less experience in understnding the rural problems of their own countries than experienced foreign researchers. This is especially the case as donor agencies begin to hire former members of voluntary agencies to be part of their regular staff.

Initially, at least, it is those who have had the proper experience in the field who ought to be hired to direct research or work on development planning. Nationals need to be given experience, however, if they are willing, through counterpart training and educational programs to make sure that talented and trained manpower in rural social and economic analysis are available to the nation. This is slowly becoming the case in Nepal.

In order to facilitate this, there needs to be an improvement in local educational facilities, especially library facilities. A research library needs to be opened in Nepal, which contains not only local project reports, research papers, and theses on Nepal and the Himalayas, but larger theoretical works and journals as well, so that local work can better be placed into the international context and so that local researchers and planners could better benefit from the experience of others. This could be partly accomplished if donor agencies would stop discarding reports and journals after a fixed period of time and make them available to the scholarly community, either by donating them to the university library (with a contribution to enable these items to be processed and stored), or on an "open table, take what you need" basis. An improved library would make it easier for developers, especially short-term consultants, to carry out their work more efficiently.

Localizing training would be an improvement in the long run, although initially unpopular to those standing in line for training abroad. Money now spent on transportation and support abroad could be better spend in the host country improving educational facilities, increasing teachers salaries, and providing improved education for many more than those who could now be accommodated for training abroad.

Other ideas come to mind as well. Seminars involving joint participation of researchers and scholars ought to be more common. This could be supported by the publication of a bi-annual development journal. The university ought to publish a periodic list of both foreign and local scholars currently working in the country, along with their topics, so that developers can find out about work being done of interest to those planning projects. Likewise, it would be useful to have a wider distribution of the list of projects currently underway, so that scholars can see how they might be affecting their work. These are largely small improvements in communication in which small investments might have large effects.

A great deal has already been said about the collection of field data and its use in analysis and development planning. Debates continue between scholars in Nepal, but the basis data continues to be collected as it has been done for the last thirty years. The collection of data has come after a considerable investment of time and money by scholars and their research institutions. Unfortunately, little of this data has found its way to the desks of developers and decision-makers. It is important to collect this data and to see that surveys are properly done, but it is equally important to see that materials are made available for use.

Comments on the 1984/85 Draft Programme

Mr. J.R. Dunsmore

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Mr. Chairman, Distinguished Delegates, Ladies and Gentlemen,

May I start by speaking as the delegate from the Overseas Development Administration (ODA) of the United Kingdom (UK) and offer the warmest good wishes of the Administration for the success of this symposium and the launch of this important new International Centre.

Moving on now to make a few comments on the proposed Work Programme my views are purely personal. Seven years ago His Majesty's Government of Nepal (HMGN) requested the cooperation of the UK in the implementation of one of its Integrated Rural Development Programmes: the area covered by the programme lies in eastern Nepal and covers the four hill districts of the Kosi Zone–hence the name, The Koshi Hill Area Rural Development Programme and the aeronym KHARDEP. Five years ago my unit of ODA, the Land Resources Development Centre, was asked to take responsibility for the professional aspects of the ODA input to KHARDEP and, until six weeks ago, I was responsible for the London end of the work; this involved visiting the area once or twice a year.

Six weeks ago I began a 12-month resident assignment as Senior Technical Adviser to KHARDEP and during the next 6–9 months consideration will have to be given by HMGN and ODA to whether ODA can usefully continue to assist with KHARDEP during the 7th Development Plan 1985–90. It is against this background that I would like to make a few points.

The general picture in Nepal was clearly and comprehensively described to us on Thursday by Professor Malla and some specific reference to the Kosi area was made this morning by Professor Numata I need not therefore speak further on that aspect.

"Integrated Rural Development Programme" (IRDP) is, I feel, something of a Humpty Dumpty term. You will remember in Alice Through The Looking Glass, when challenged about his use of a word, Humpty Dumpty replied "When I use a word it means just what I choose it to mean–neither more nor less" Let me say first therefore that when speaking of KHARDEP as an IRDP we do so, I believe, because it has the following characteristics—

1. It covers a specified and limited area for which a planning and implementation agency has been established.
2. The Programme started with an assessment of the resources of the area–socio-economic (1) and agro-ecological surveys (2) plus sectoral studies on health, communications, cottage industries and so on. On the basis of this assessment, priorities for development were defined and an Outline Plan (3) for 5 years prepared. (From the start it was recognised that we would have to think in terms of a much longer-time scale than that–10–15 years at least–before a major impact would be clearly identifiable. However, like most other agencies, ODA is understandably reluctant to commit itself for more than 5 years at a time. Also the five year concept fitted into the 5-year Development Plan of HMGN).
3. The Outline Plan is refined annually into a defined programme for the coming year.
4. The programme is multi-sectoral all the sectors, we felt being linked or interdependent.
5. The aim was to assist a range of socio-economic groups with initial emphasis on two–the poorest and on those in areas with relatively high potential.
6. Lastly, it was hoped to involve, to an increasing degree, the people themselves in the planning as well, of course, as the implementation process.

As we now look towards the next five days my query which follows a point raised by Dr. Glaser, is to what extent do we need to aim for integration of the implementation programme except in the natural resource field. Coordination/integration between work on crops, livestock and forestry and the related needs for inputs, credit and marketing is, I am sure we all agree, essential. But having once assessed the whole range of resources of an area and decided on a programme for their development, is there an over-riding advantage to having an integrated mode of *implementation* as opposed to a multi-sectoral approach? Thus, in our case, having decided to build a road from Dhankuta to Basantapur, the Department of Roads could get on with it, while the Health Department concentrated on training the paramedical staff needed to man the Health Posts, the Education Department aimed to raise standards in the schools and others made efforts to increase off-farm employment through the further development of cottage industries. I appreciate that during the implementation there is a need for an authority to oversee the monitoring and evaluation of individual projects and to undertake the longitudinal studies required to assess the overall impact of the Programme. One must also regularly review progress and re-assess priorities. This presents no difficulties as most countries have 5-year plans into which quinquennial and mid-term reviews would fit easily. On the other hand, if we decide that integrated implementation is necessary, how, in the context of well-established vertical and sector-specific agencies, do we introduce a matrix? Put another way, how do we define the coordination role that will be needed for integrated implementation?

I would now like to make a few specific comments on the Draft Work Programme 1984–85. I fully support the emphasis placed on the role ICIMOD can play in information dissemination. In the last two days we have had spelled out to us very clearly the complexity of the situation which faces us. Frank exchange of information I am sure will make each of us more effective in our work and encourage us as we tackle the intractable but not impossible tasks we have.

Mention is made of the identification of areas where no published information seems to exist. There must be many people who have must much practical experience who have never realised the value of their knowledge and have never written a paper in their lives. I hope ICIMOD can encourage them to do so or to have accounts of their experiences tape-recorded.

I am pleased to see the reference to grey literature–we can often learn more from this and get the knowledge more expeditiously than with formal publications. Again none of us likes publicising our failures and indeed some can be politically sensitive. We are more likely to warn our colleagues of lessons learned from them in discussion at seminars and workshops, the organisation of which will be an important role for the Centre. Of the seminars proposed, the one on off-farm employment would be of particular relevance to the Kosi Hills, where a quarter of the families have less than 0.25 ha of cultivable land yet craftmanship of the highest order is applied to make everyday household goods–skills which could be used for increasing incomes: for example, some of the finest handweavers in the world are found in the area as is evidenced by the exhibition of their work which will open in the British Museum in London this month. (December 1983).

I believe also that a useful contribution could be made to a seminar on Mountain Environment and Human Health on the basis of work in the Kosi hills and doubtless KHARDEP could itself benefit from such a seminar.

On the question of the training role of ICIMOD the working paper defines an enormous task—I wonder if it is practically possible or whether we should not define more narrowly how ICIMOD could best assist in this essential field–perhaps by concentrating on aspects of integration in the planning and implementation process.

There are other points of detail in the Working Paper on which one could make comments but overall it seems to me to describe a potentially very valuable programme of work in which I wish the Centre every success and with which I hope I may, in some small degree, be associated.

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Views on the Role and Concern of The International Centre for Integrated Mountain Development

Peter Gueller
Regent of ICIMOD (1982–1984)

1. ICIMOD IN THE MAKING

International Signs of Alarm

For several decades, politicians, the international scientific community, and practicioners in development activities have shown growing concern for the degradation of the environment in the Hindu Kush-Himalayas. Certainly, the annual cycle of floods and drought in the downstream areas of the large river systems is nothing new, and the processes of erosion in the highlands and midlands of the hills have been known for a long time. Especially striking, however, is the alarming rate in which deforestation takes place in these fragile mountains. Population has been doubling within the last few decades. This leads to an ever-increasing need for new agricultural and pastoral land, to overgrazing, excessive lopping of leaves and twigs for fodder, to intensified collection of firewood, and timber extraction. Clearance of forests results in increasing amounts and speed of water run-off, erosion, landslides, soil improverishment, and loss of cultivable land. Once the water retaining capacity of the natural vegetation is reduced, the danger of both floods and drought becomes more severe, leading to loss of lives and reduced return of investment in costly infrastructures, such as roads, water storage basins, and irrigation systems.

Two Significant Meetings

The Himalayas are not unique in this situation of environmental stress. Similar processes can be observed in the Andes and in Northern Africa. Even the European Alps, despite a wide range of measures taken during the last century to cope with the destructive forces of water, face new indications of environmental degradation. To discuss these unfavourable developments of mountain eco-systems and to look for more interdisciplinary and international co-operation in coping with these problems, an international workshop was organized in Munich in 1974 by the German Foundation for International Development. The aim was to reach "a feasible compromise between a more intensive development of the mountain regions, with their great variety of resources, and maintenance of their protective function."[1] The worshop raised the idea of creating an autonomous international institution which would be concerned with collecting, preparing, checking, and using scientific information and practical data concerning the whole complex field of mountain development. Such an institution would function as a clearinghouse which would, apart from making information available, also provide expertise and train personnel. One of the main promoters proposed that the new institution should have branches on at least three continents.

Another milestone in the making of ICIMOD was set at the "Regional Meeting for Integrated Ecological Research and Training Needs in the Southern Asian Mountain Systems, Particularly the Hindu Kush-Himalayas," which was organized by Unesco in 1975, in Kathmandu, Nepal.[2] This meeting took place within the framework of UNESCO'S Porgramme on Man and the Biosphere (MAB), with the co-operation of His Majesty's Government of Nepal, and was attended by delegates from many countries and representatives of international organizations. This meeting discussed problems for study, a strategy for ecological research, the establishment of biosphere reserves, and proposals for increasing problem awareness, training activities, and ducumentation. It also recommended the establishment of a regional institute for integrated mountain development. This institute would focus on pertinent documentation, promotion of research and training, and technical advisory services. The meeting also welcomed the offer of the Kingdom of Nepal to host the proposed institution in Nepal.

The Establishment of the Centre

Following several years of preparatory work on ICIMOD, four parties–His Majesty's Government of Nepal, UNESCO, and the governments of the Federal Republic of Germany and Switzerland–agreed, in 1979, to act as founding sponsors of the Centre. An agreement providing the legal basis for this autonomous international centre was signed in 1981 by the Government of Nepal and UNESCO. The governments of the countries of the Hindu Kush-Himalayan region endorsed the efforts of the four sponsors at several sessions of the UNESCO General Conference. The region, as defined in the Statutes of ICIMOD, includes, partially or totally, Afghanistan, Bangladesh, Bhutan, Burma, China, India, Nepal and Pakistan.

1982 and 1983 were dedicated to the development of the logistics, the organizational structure, professional contacts within the region and outside, a draft work programme for the Centre, as well as to the selection of its first Director, Prof. Colin Rosser from the UK, and the preparation of the first International Symposium and the Inauguration of the Centre, in December 1983. These events were attended by representatives of all the eight countries of the region.

Until the summer of 1983, the Centre operated under the authority of an Interim Committee, with executive responsibility held by a Regent. Subsequently, the authority was assumed by a Board of Governors representing the host country, other states of the region, UNESCO, and the final sponsors.

ICIMOD has engaged all countries of the region in the discussion of the work programme. Realistic outlooks for co-operative linkages were developed with some countries. ICIMOD has also attracted the broad interest of the worldwide scientific community. In this initial phase of ICIMOD's profes-

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Presented at a conference at the Chinese Academy of Science, Beijing, February 1984, and included here to present the views of the Regent, Mr. Gueller, on ICIMOD.

sional development, the Centre must now demonstrate how it intends to work and what will be the profits of international co-operation in the Himalayas.

2. CONCERNS AND ISSUES

The primary objective of ICIMOD is to promote economically and environmentally sound development in the Hindu Kush-Himalayas and to improve the well-being of local populations. Let me outline some observations and thoughts which came to my mind while working in Nepal as Regent of ICIMOD.

A Multi-Sector Approach

ICIMOD's concerns cover a vast range of topics. Geology, climate, natural resources, energy production, agriculture, forestry, population dynamics, health, education, national economics, and local habits all interact in an almost inextricable network of relations. Put simply, ICIMOD's interest centres on the human conditions as related to natural processes and the use of natural resources in the hills and the adjacent highlands and lowlands. Natural processes mean the interactions of climate, geology, topography, hydrology, soil conditions, flora and fauna (see figure 1, circle 1). Man is linked with these natural processes in manifold ways through the use of natural resources: agriculture, forestry, the use of water resources, the extraction of minerals and gravel, and nature-oriented forms of tourism (figure 1, circle 2). Reciprocal effects between natural processes and the use of natural resources largely make up the environmental concern. Further, individual and social habits and the spiritual orientation of man have a strong connection with the natural environment, especially in the mountains, and they are especially relevant to his attitude in utilizing natural resources (figure 1, circle 3).

This set of interactions between man and his environment can be completed by two additional spheres of interest of ICIMOD. One is the range of technologies and infrastructures (circle 4) which relates to the use of natural resources (across ways, irrigation technology, hydro-power works) and also to natural processes, either by affecting them negatively through inappropriate construction techniques or by keeping their destructive forces under control. Infrastructural functions of education, communication, and the health system will also have special relevance for social and individual attitudes of the hill population. An additional sphere of ICIMOD's interests are the non-agricultural sectors of the economy and off-farm employment (circle 5). Development of cottage industry, industry proper, trade, and other tertiary activities can reduce pressure on land. These developments can complement the rural labour market and local income generation, a necessary condition for self-reliant growth of social capital. Some industry and trade can be based directly on agriculture and forestry, forming an important extension of the role of these primary sectors in the total economy and the chain of production.

Highland-Lowland Interaction

One of the major concerns for the Centre, which was very much in the minds of its founders, was that mountain development is not simply a matter of dealing with the problems faced in hill communities or watersheds, but also the strong highland-lowland relationships. It has been mentioned that environmental degradation experienced in the highlands have serious repercussions in the lower valleys and adjacent plains, such as silting, flooding, devastation of crops, drought, and human suffering. On the other hand, the same river systems are also the sources of profits carried down from the heights–valuable soil components, irrigation water, and hydro-power. It is, however, not only this water-bound highland-lowland linkage which counts in mountain development. There is a whole series of other interactions which gain momentum in development policy.

Figure 2 presents this in a systematic way as follows:

1. Downstream transport of hazards and fertile soils. They are negative in nature for the hills and have both negative and positive impacts on the lowland.
2. Gains in irrigation capacities for the lower valleys and the plains.
3. Profit in hydro-power for the more densely populated areas downstream. Storage basins are, at the same time, an essential means for flood control.
4. Trade between highlands and lowlands, based on comparative production advantages and depending on the quality of transport facilities.
5. Tourism, which brings both recreational profit to lowlanders and economic benefit to highlanders–unless the latter are faced with too many negative impacts through consumption of their natural and socio-cultural heritage.
6. Seasonal migration, allowing occasional surplus segments of the hillside labour force to find employment and additional income in the industrial and service sectors of urban centres.
7. Permanent out-migration from the highlands, which can be interpreted as "brain drain" or "leaving behind those with less initiative", but, depending on the situation, also serves to reduce over-population in the hills where there is limited carrying capacity of the traditionally used land.
8. Communication links, opening mountain communities up to that which materially better equipped and more sophisticated lowland societies might communicate–good or bad.
9. Technology transfer, mainly from lowland societies and economies, leaving open the question of highland capacities to absorb it.
10. Production chains, extending from hill agriculture and forestry to related processing industries in the plains. Efforts should be made to concentrate more of the processing well within the upstream areas, thus bringing more profit to the highlands and providing employment to the labour force in the hills.
11. Trading with manufactured goods between highlands and lowlands.
12. Capital transfers, in the sense of private capital flowing mostly downstream, whereas social capital investments in engineering works in the hills might lead to a certain balance.

Facing such a widely diversified typology of highland-lowland interactions, we might question why ICIMOD should deal with that whole spectrum. Not all elements have a direct bearing upon the mountain environment. It should, however, be understood–and this has already been demonstrated with the five basic spheres of ICIMOD's interest (figure 1)–that:

a. the concern for the mountain environment is not only related to the scenery of nature, but also to the human condition in a broad sense, covering economic, physical, social, and cultural aspects; and that
b. mountain development is not only a matter of plans and regulations, but, far more, of action and related economic, social, and cultural backgrounds.

ICIMOD is conceived as a centre for integrated mountain development. It is also quite obvious that such interaction

extends from the mountain regions to the large urban centres of the subcontinent and to the outside world, including wider parts of Asia and the West. A well-known issue in that regard is the one of overcoming constraints imposed by the landlocked condition of some of the Himalayan states. ICIMOD will have to work out how such questions of international relationships will be tackled.

Communication, Education, and Building-up Operational Capacities

Hill populations in the Hindu-Kush Himalaya, as in Nepal, are scattered all over the valleys and ranges. This contrasts with the European Alps, where we find far more compact settlements, well-developed pathways, and a widespread network of motorable roads. Furthermore, the zone of cultivation in the Alps does not extend over the same broad range of altitudes as allowed by the climatic and soil conditions in the Himalayas.

This decentralized pattern of human presence is a great challenge for communication, extension work in all kinds of activities, and building up of operation capacities. ICIMOD can, thus, not lean back and merely concentrate on becoming a think tank. Reaching the farmer, revitalizing and developing the organizational skills of the mountain communities, and decentralizing planning and administrative bodies away from the centres is a provoking task of any government and other agencies concerned with development and conservation strategies. ICIMOD will have to find apropriate ways to assist in this noble endeavour. We may not help by inundating central administrations with yet more knowledge and ideas, if these administrations and the local communities still find difficulty in joining their creative forces across scarcely passable hills and, possibly, mental barriers.

Similar concern is to be given to the operational and administrative capacities of governments. Integrated development policy is a high goal. Even administrations with a long tradition face problems when their departments try to interact and co-operate along common lines of a development strategy. And let us be aware of the difficulties to which any administration or political body is exposed when it tries to embody concern for both economic development and protection of the physical environment. The Hindu Kush Himalaya is confronted with both issues to an almost unprecedented degree.

A Challenge for Science

To mobilize all scientific capacities in the region relating to the issues of mountain environment and development is a must ICIMOD has been approached by–and has already been in contact with–a considerable number of pertinent institutions. The worldwide scientific community is concerned with the environmental and socio-economic situation in the Hindu Kush-Himalayas, as well. Erik P. Eckholm's famous book "Losing Ground"[3], and a series of other publications, dramatically show how the destiny of entire civilizations and cultures has been and is still related to the processes of environmental degradation. No continent has been spared from such experience. Our time has the privilege of being aware of such processes and their consequences, and we use science so as to share the responsibility which arises out of such awareness.

A multitude of branches of science are addressed. Coming back to figure 1, it emerges that natural sciences, social sciences, and technical sciences have important roles: The former one relates to the sphere of natural processes and the use of natural resources (circles 1 and 2). Social sciences (including economics) overlap with the natural sciences in what relates, again, to the use of natural resources, and they extend mainly on the spheres of social behaviour (3), the software part of social infrastructure (4), and the industrial and tertiary sectors of the economy (5). Technical sciences, as well, are concerned with the use of natural resources and they mainly focus on technologies and infrastructures requiring engineering skills (circle 4). It is, however, not only the traditional and specific disciplines of science which are of interest to ICIMOD.

A major concern of the Centre are those fields of study which rely on joint contributions from various disciplines. For example, the genetic improvement of plants is an important subject matter of research. But ICIMOD is looking for clarification regarding the entire set of conditions under which plants grow and are used. This includes the conservation of land and the improvement of soils; land use planning and regulations; accessibility of fields; use of crop residues; the feeding and pasturing habits of livestock; food habits and social habits related to the growing, harvesting, and use of plants; the contribution of plants to ecological stability; etc. The range of interest is vast, indeed, and, correspondingly, the efforts should be vast to take a holistic approach in research.

This list of scientific concerns is not exhaustive. The tasks of communication and extension work between urban centres and rural periphery, and of developing planning and project management at national, district, and local levels of public administrations or non-governmental institutions need a scientific backstopping, as well.

ICIMOD might intend to gain a view of the scientific capacity in the region. It might be eager to know about the number and qualifications for research staff, as well as the fields, type, quantity, and quality of research work which relates to the Centre's concerns.

We are aware how ambitious it is to get such an overview. National requirements as well as individual ones have to be taken into account when we want to evaluate a country's scientific achievements. International research standards play a role, as well, Furthermore, each country will have its specific set of conditions under which science can develop and develop its profile: the political and cultural backing, organizational skills, and the available funds.

Of interest, also, is how the results of research are presented to a wider public; i.e., how they can be communicated to politicians, administrators, actors in the field, and the broader segments of population. We shall discuss later how ICIMOD could take part in related efforts.

Unknowns

ICIMOD is eager to know about the unknowns in mountain development, as perceived by the various countries of its service area. A first draft of such unknowns, leading over to expectations in ICIMOD's activities, has been presented by the host country of the Centre.[4]

Let me cite a few of these unknowns, mainly relating to the use of natural resources in the hills:

a. The origins and consequences of reduced viability of community institutions for resource management, and of the alienation of the individuals from common resources;
b. Potentials of fodder components (trees, pastures, crop residues, and farm fodder), especially in terms of seasonality, nutrient contents, ease of development, cost, etc.;
c. Food-fodder-manure linkages in terms of altitude, accessibility, inputs availability, and seasonal factors;

d. Impact of disruption of the habitat of wild animals and birds, due to drying up springs, on the forest ecology;
e. Effects of forest fires–washing out of nutrients, reduction of the moisture retention rate of soil, mortality of naturally growing saplings and seedlings of forest trees and plants;
f. Potential of irrigation in the hills–viability of various irrigation technologies, namely gravity, sprinkler, lift, and drip irrigation;
g. Determinants of household-specific energy demand, such as ethnicity, altitude, family size, culture;
h. Degrees to which deforestation can be stopped through various innovations–bio-gas, improved chulo-stoves, private tree plantation, hydroelectricity, charcoal.

Such unknowns may be included in a larger framework of questions related to the environmental and economic development in the Hindu Kush-Himalayas. For example:

- To what degree is environmental degradation, in the sense of erosion, soil loss, and landslides, part of natural processes characteristic of the Himalayan climatic and geophysical reality, and to what degree it is related to human intervention?
- Are the natural processes of environmental degradation still too dynamic to be brought under effective human control?
- What is the balance between destabilizing and stabilizing activities of the hill farmer?
- Can we imagine "wet deserts": What is the regeneration potential of land which is no more under cultivation?
- What changes in lifestyles and community behaviour would be necessary to adopt specific types of innovation in energy and fodder production?
- What are the overall effects of improved access ways to the economy, socio-cultural structures, and the environment in the hills?

Certainly, answers to these questions cannot be given in a general way. They will differ from country to country, from ecozone to ecozone, and maybe even from valley to valley. It will be one of the most challenging tasks of ICIMOD to take account of the existing variety of natural, economic, social, and cultural conditions within the region when it develops its documentary, training, research, and consultancy functions.

Speculations on the Future

Such unknowns give ample ground for speculation. Let me draw a series of scenarios which can be imagined when we reflect on the future of the environment in this mountain range.

A first could be styled as *Today's Ideal.* It is based on the assumption that all measures which we envisage today will finally prove successful: we will be able to reach a satisfactory reforestation rate in critical areas; we will have a clear distinction between land for pasturing and forests; alternative energies will be developed and applied in time; the health standard of people and animals will be improved, accompanied by reduction of both the human and livestock population; and watershed management and flood control can be successfully realized from the uppermost streamlets down to the mighty rivers, thus allowing an optimal use of hydro-power and irrigation systems. Man and the mountain environment have found a mode of coexistence.

Exodus might be the eye-catching title of a second scenario. Hardship to hill populations due to unbalanced relations between demand and supply of food, fodder, and fuel is increasing and accentuated with the downward spiral characterizing environmental degradation in the hills. Schools, health posts, and other welfare institutions cannot be provided to the widely dispersed settlements in due time. Especially rainy and disastrous summers lead to a massive exodus from the hills down to the more promising plains and cities. Weaker and less ambitious members of the population are left behind. Cleared and terraced land on the steeper slopes is given up and cultivated no more. Erosion and landslides increase drastically as the farmers no longer devote themselves to stabilizing work. Natural re-vegetation is not rapid enough to prevent the topsoil from washing away in the denuded areas. Thus, the drama of shipping environmental degradation downstream along river systems reaches an unprecedented degree.

A third scenario could be entitled *Less Money, More Nature.* Worldwide recession does not come to an end but gains in momentum. The creation of social capital in the countries of the Hindu Kush-Himalayas is faced by a severe setback and the influx of foreign assistance is drastically reduced. *Today's Ideal,* as sketched above, cannot be realized at the planned pace, but, on the other hand, man's technical intervention in the hills goes along less aggressive lines. Tourism is gradually drying up and related pressure on the mountain environment diminishes. Those parts of the hills which are privileged by a rather robust ecology show gains in stability, but others, under fragile conditions, experience more and more hazards; they are finally declared irrecoverable territories and cultivation efforts concentrate on the more promising sites.

Another contrasting scenario, however, can certainly also be imagined: *Superstructures.* Worldwide recession does not paralyze the international community but leads to a very active search for large works which could give new hope and orientation to mankind. Visionary engineering in the Himalayas is among the projects. Rivers are diverted through sophisticated tunnelling to provide irrigation. Large barrages are erected. Finger-like storage lakes penetrate deeply into the valleys and, besides being used for hydro-power, they serve as most welcome routes of transport to and from the hills. The labour potential of the region is absorbed in an unprecedented way, and people see new horizons for applying and developing their skills. Return on investment is large and provides populations with development opportunities and means for the protection of environment. Much later, people will put these efforts in line with the erection of the pyramids or the cathedrals.

We feel that each of these scenarios reflects some reality, but we also feel the uncertainties and put question marks behind some of the assumptions made. Probably no one of these scenarios alone will dominate the future appearance of the Hindu Kush-Himalayas: we might well find that some parts of this large region go rather along the lines of *Today's Ideal,* others will fact *Exodus,* and still others resemble *Superstructures.*

Approaches and destinies in this large area will, no doubt, exhibit variety, and ICIMOD will have to live with this variety. It will, we hope, be able to contribute to development concepts of these mountains which are correspondingly differentiated.

3. ROLE AND FUNCTIONS OF THE CENTRE IN AN INTERNATIONAL DIMENSION

The Hindu Kush-Himalaya ranges transcend national boundaries. The countries in this region have a series of problems in common. The threats, challenges, and opportunities inherent in mountain environments link them together. Mountains are not only barriers and the home of self-willed people, but they have long been zones of intensive cultural exchange and trade, as well as strongholds of spiritual orientation for their inhabitants and, also, for those of the plains. Still, the countries of the region vary

greatly in size, in the ways mountain problems become part of their national policies, in their religious beliefs and cultural backgrounds, in their economies and social structures, in their political and administrative systems, and in their scientific and technical capacities.

However, such variety should be emphasized less for its differences and more as the base for complementary endeavours and as a source of improvement and practical experience. It is in this context that ICIMOD should be able to play a vital role. Its functions have often been described as the ones of a clearing-house where demands for, and supplies of, know-how and experience in mountain development meet. Variety in cultural, economic, and political setting means variety in concerns, views, and approaches. A forum for related multilateral exchange and sharing has for years been felt as the need of the hour.

Still, it must not be overlooked that this region is, in many ways, still only in the making. Political differences dividing the countries must be admitted. Facing this, the Centre should, as Maurice Strong has put it in his keynote address at the Inauguration, "develop a network of co-operative relationships on the technical, professional, and operational level, which take the necessary account of, but do not directly involve, areas of political sensitivity."

Divisive forces within the region should not be overemphasized, as there is a very common interest linking the countries of the Hindu Kush-Himalaya. This region has a cause to defend: the cause of one of the world's largest mountain ecosystems in peril. ICIMOD will have to take part in defending this cause. The Centre is not just one more international organization, but it is, within the framework of international concern and co-operation, a trustee for mountain development, for safeguarding a viable environment in the hills and the adjacent plains.

ICIMOD relies very much on the interaction with, and the support of, the countries of the region. Such collaboration can develop in steps. The least ambitious form of co-operation – not to say that it would be ineffective and not in response to a need – is the organization of international workshops, possibly linked with study tours which demonstrate country-specific approaches in coping with mountain problems.

A next step will consist of international library co-operation, the participation of ICIMOD in existing documentation and information networks and the establishment of an efficient correspondents system related to the Centre's activities.

A third issue is the technical support of, or participation in, international and national training courses for planners and decision-makers, agency executives and administrators, project personnel, teaching staff, and extension workers.

Fourth comes scientific co-operation. ICIMOD is planning to have an international professional staff which will synthesize, evaluate, and translate research data to facilitate its application to integrated development. The Centre will, together with the countries of the region, identify gaps in knowledge of the Hindu Kush-Himalayas and stimulate, co-ordinate, and possibly finance research needed to fill the gaps in knowledge.

Expertise and technical advisory services are a fifth and, probably, the most ambitious form of interaction between the Centre and the countries of the region. Once it has built up its own capacities and establishes the necessary contacts with qualified research teams and private consultants, ICIMOD might participate in feasibility and appraisal studies of development projects.

With all these activities, it is not intended that ICIMOD play a competitive or parallel role to any existing institution, but a supplementary one in furthering the effectiveness of national, bilateral, and international bodies operating in the region. At the first international symposium of the Centre, Dr. Gisbert Glaser sketched the paths along which such co-operation can develop as follows: "It is to be expected that the level of participation in the activities of ICIMOD will vary from country to country, at least in the beginning. In particular, regarding appraisal, evaluation, and the provision of advice, the Centre can and will become active only upon the request of the authorities concerned. In fact, it will be a guiding principle for ICIMOD to seek an agreement with the appropriate authorities prior to becoming involved in any national or international activity whatsoever in any country."

The one-and-a-half years during which I had the opportunity to serve this challenging idea of a mountain centre in the Hindu Kush-Himalaya have been very encouraging in view of an international approach to mountain development in this region. There is no doubt that all the eight countries involved share a concern for the fragility of the environment in this area. Each of the countries might also have its specific and legitimate political interest in the activities of ICIMOD and the way the Centre operates. Personally, I would perceive such political liveleness not as a difficult challenge to the Centre's effective functioning, but as fruitful ground for developing multiple initiatives.

International co-operation in the region should develop along lines which make it easy for each partner to provide the Centre with a maximum of professional support, and to profit from it. I hope that such giving and taking among the partners be developed in a spirit of competition with ideas and interest.

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