

**Managing fragile ecosystems sustainable mountain development: Earth  
Summit+5 policy analysis and recommendations**

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**Executive Summary**

In anticipation of Earth Summit+5, a special session of the United Nations General Assembly to be convened in June, 1997 to review and appraise the implementation of Agenda 21, this paper seeks to:

- Evaluate the merits of a cross-sectoral approach to sustainable mountain development
- Construct a conceptual framework useful in analyzing the multiple issues contained within sustainable mountain development
- Recommend substantive policies to further current efforts in sustainable mountain development.
- Identify strategies to enhance the effectiveness of the Mountain Forum
- Suggest possible strategies to increase the visibility of and attention to sustainable mountain development issues at the Earth Summit+5 meeting in June, 1997.

This paper argues that substantive and powerful reasons do exist to approach sustainable mountain development issues through a cross-sectoral approach. Nonetheless, notable differences in mountain ecosystems between developed and developing regions need to be recognized. At the global level, we recommend the re-enforcement and institutionalization of a normative mountain regime. Regionally, inter-state cooperation holds significant promise in the mid-to-long term future. Actual implementation of policies promoting sustainable mountain development will occur primarily at the national level.

Despite its success, the Mountain Forum should expand its base of support to include local mountain communities, other environmental organizations and the general public. Finally, in anticipation of Earth Summit+5, the Mountain Forum and other mountain advocates should seek to raise awareness of sustainable mountain development as a legitimate environmental and development concern.

## INTRODUCTION

### The Authors and Task

The authors of this paper are a group of six graduate students in the Masters of Public Affairs program at the Woodrow Wilson School for Public and International Affairs, Princeton University. Our primary field of study is International Relations (IR). As part of a four-week IR workshop, the Mountain Institute in its capacity as the global focal point for the Mountain Forum (MF) requested that we analyze the policy context of sustainable mountain development and provide policy recommendations.

The future of the mountain agenda is a timely issue in light of the approaching United Nations (UN) Earth Summit+5. Proposing appropriate policy initiatives required careful consideration of the administrative and political feasibility of a cross-sectoral approach, the nature of mountain characteristics and their optimal level of policy coordination. General and specific tactical strategies for the Mountain Forum to advance the mountain cause were drawn from this analysis.

### The Research

We approached these projects as policy analysts and not scientific experts. Although our limited knowledge and experience on mountain issues would seemingly be disadvantageous, we hoped that our newness to the field would allow us to contribute a fresh look at mountain problems and, in particular, mountain policy.

We began our task by trying to identify the traits that historically characterize mountain regions and are vital to maintaining these unique ecosystems. This information was largely gathered from environmental non-governmental organization (NGO) reports, news articles, and UN Committee on Sustainable Development (CSD) updates on the World Wide Web.

Then, we proceeded to analyze relevant policy documents, including Agenda 21 and the Alpine Convention, to determine: 1) the effectiveness of Chapter 13 of Agenda 21 in providing an appropriate policy framework for sustainable mountain development; 2) whether regional agreements would be more suitable policy model; and 3) if inclusion in other chapters in Agenda 21 would sufficiently address sustainable mountain development needs.

Our next step was to interview worldwide regional contacts. Considering our limited time period, we were not able to reach as many individuals as we had hoped. The input that we did receive verified the major characteristics of

vertical landscapes and helped us to differentiate mountain needs according to the different development statuses of nations. It also showed us areas where initiatives have been taken to implement the recommendations of Chapter 13; UN and NGO reports helped confirm or add similar information.

We hope that this paper will serve as a conceptual policy framework for approaching these issues and be a focal point for further discussion of the mountain agenda.

## **EARTH SUMMIT+5**

### **Towards Earth Summit+5**

The mountain movement has gained considerable momentum over the last twenty years. Mountain environments first formed part of UNESCO's Man and Biosphere Program in 1974. Since then, numerous mountain ecology and development programs, international NGO consultations on the mountain agenda, and global and regional information networks have been established.

From June 3-14, 1992, more than 100 heads of state gathered in Rio de Janeiro, Brazil for the first UN Conference on Environment and Development (UNCED), also known as the "Earth Summit." Delegates addressed problems of environmental protection and socio-economic development and at the conclusion of the conference adopted Agenda 21, a 300-page plan for achieving sustainable development in the 21st century. Chapter 13 of Agenda 21 is "Managing Fragile Ecosystems: Sustainable Mountain Development."

In order to monitor and report on the implementation of the five Earth Summit agreements, including Agenda 21, delegates created the CSD. It was agreed that the United Nations General Assembly would meet in a special session (UNGASS) in 1997 to review and appraise implementation of Agenda 21. This review, called "Earth Summit+5," and scheduled for June 23-27, 1997 in New York, will examine how well governments, international organizations, and sectors of civil society have responded to the environmental challenges raised in Agenda 21. More specifically, the objectives of the Earth Summit+5 are:

1. To revitalize and energize commitments to sustainable development
2. To frankly recognize failures and identify reasons why
3. To recognize achievements and identify actions that will boost them
4. To define priorities for the post-97 period
5. To raise the profile of issues addressed insufficiently by Rio.

Earth Summit+5 will involve three groups of participants: governments, major groups, and international organizations. Thus, heads of state and other high level government officials, NGOs, and UN agencies and non-UN international

bodies will contribute to the preparations for the June review, as well as participate in the special session of the General Assembly.

Earth Summit+5 will be preceded by the Fifth Session of the CSD (CSD-5), designated as the preparatory committee for the UNGA special session, which is meeting from April 8-25, 1997. Preparations for CSD-5 will in turn be undertaken by the Ad Hoc Intersessional Working Group (Working Group), which will meet from February 24-March 7, 1997. These two sets of meetings will review all documents which will be submitted to Earth Summit+5. In addition, the meetings are also scheduled to discuss the organizational agenda of the June special session. Finally, these meetings are scheduled to discuss the format/structure of the outcome of Earth Summit+5 and to determine whether a declaration, plan of action, or other type of document will be produced.

### Prospects for Chapter 13

Much is still uncertain about both the procedural and substantive aspects of Earth Summit+5, but will hopefully become clearer following the meetings of the Working Group in February/March and the CSD-5 in April. Thus, it is difficult at the present time to determine whether and how mountain-related issues raised in Chapter 13 will be addressed in June. Interviews with individuals closely involved in the post-Rio process provide some insights on the future of Chapter 13 and the commitment of the international community in addressing mountains issues. However, as these views are often contradictory they reflect and add to the uncertainty surrounding Chapter 13.

Among the more optimistic views expressed is the belief that Chapter 13 is "the most dynamic chapter with so many interested people, institutions and organizations -governmental and non-governmental- worldwide." In particular, the various initiatives on mountain issues undertaken since Rio indicate the importance of mountain issues. Accordingly, the problem is not that mountain issues lack interest and, consequently, that they will be overlooked or disregarded. However, relevant individuals and organizations must formulate the "ideas and plans" necessary to carry out the specific activities laid out in Chapter 13. In addition, key governments must promote mountain issues more aggressively.

Despite such optimistic views, more pessimistic views about the future of Chapter 13 have also been expressed. These views have raised four primary reasons why Chapter 13 may not be considered for review at Earth Summit+5. First and foremost, Chapter 13 is likely to be overlooked or disregarded because mountain problems are not viewed as an important issue by many governments as well as groups. Mountains have not emerged as a priority in any of the governmental or group position papers submitted thus far in preparation for Earth Summit+5 with the exception of the paper submitted by the "Mountain Agenda."

Second, Chapter 13 is likely to be overlooked due simply to logistical limitations. With 300 pages and 40 chapters, Agenda 21 is too cumbersome and too time-consuming to be dealt with chapter-by-chapter, issue-by-issue. The CSD in its meetings, for example, has already combined discussion of related chapters into clusters. Mountain issues have been incorporated into the land cluster, which comprises Chapters 10 through 15.

Third, Chapter 13 is likely to be overlooked because some governments, particularly the developed countries, are actively opposing a chapter-by-chapter review of Agenda 21. These countries want to focus on future priorities for the CSD, rather than specific failures of the past. More specifically, these governments fear that a chapter-by-chapter review will find that a major obstacle to the implementation of Agenda 21 is the lack of financial and other resources, and consequently, that they will be called upon to provide those needed resources. Not surprisingly, other governments, such as Brazil, have indicated interest in examining each chapter of Agenda 21.

Finally, Chapter 13 may be disregarded because some governments believe that mountain issues should be treated in regional, rather than global, fora. According to this view, other more appropriate issues should be addressed by Earth Summit+5.

### **MOUNTAIN ISSUES: A CROSS-SECTORAL APPROACH**

Chapter 13 provides a cross-sectoral approach to the mountain issues. This is contrary to traditional evaluations of development and environmental issues on a sectoral basis - for example protection of biodiversity, land degradation, economic development, infrastructure development, deforestation, etc. Why should we address these issues from the perspective of mountains as a unique ecosystem? In our view, mountain advocates have put forth effective arguments demonstrating why a strategy that encompasses all of these issues - cutting across the various sectors of development - should be adopted. To quote the International Organizing Committee of the Mountain Forum:

Mountains make up one-fifth of the Earth's landscape and are home to at least 10 percent of the world's population. Mountain peoples ... have become guardians of irreplaceable global assets. Their homelands serve as storehouses of timber, minerals, meat and hydroelectric power.... At least half of humanity depends on mountain watersheds for their supplies of fresh water. For more than 1 billion people, mountains are sacred places. (IOC of Mountain Forum, September, 1995)

Beyond this, mountain people face economic hardship, political isolation, and environmental degradation of their homelands. Mountains harbor economic,

political, social, and environmental challenges that defy simple or simplistic classification.

### **Holistic Approach is Needed**

In facing such a wide array of challenges, a policy-maker cannot isolate and treat as independent any one factor. In developing strategies of sustainable economic development, one must consider the policy's impact on the inherently fragile nature of mountains. Nor can one ignore how such development may inexorably alter the delicate balance that cultures have developed in order to survive in mountains. Solutions to eliminate the use of harmful agricultural practices will require among other things the understanding of mountain cultures, knowledge about mountain ecosystems, and the development of infrastructure and education to support alternative means of livelihood.

These issues and others are inter-related. Moreover, many of these issues are common to mountains throughout the world. As such, an integrated solution holds the most promise for success.

### **Administrative Efficiency**

The multi-dimensional task of addressing sustainable mountain development cuts across many sectors. As this has become apparent, so has the need for administrative efficiency. The scarcity of financial support for the cause of sustainable mountain development seems to dictate that organizations and institutions be created with the ability to appreciate the variety of problems faced by mountains and to design and implement sophisticated, holistic strategies.

### **Political Potency**

As is self-evident, to examine sustainable development from the perspective of mountains raises awareness of these problems and highlights the need to have a separate chapter in Agenda 21. Moreover, for the Mountain Forum and other mountain advocates, it is much easier to promote one self-containing chapter rather than lobbying for inclusion in multiple issue-based chapters.

At a more complex level, the existence of Chapter 13 creates political accountability for all participating states. As has been demonstrated by the action taken since Agenda 21's inception in 1992, Chapter 13, even in its non-binding nature, has put pressure on states to: 1) acknowledge the existence of policy needs of mountains; and 2) begin to develop strategies for addressing these needs. This creation of accountability is an extremely potent tool for regional, local and non-governmental actors in pressuring states to develop policies addressing sustainable mountain development. Chapter 13 can be seen

as the starting point in the efforts to further institutionalize international, regional, state, local, and non-governmental efforts to address mountain issues.

### **Precedence**

Chapter 13, "Managing Fragile Ecosystems: Sustainable Mountain Development," is but one chapter devoted to a "fragile ecosystem." As acknowledged in the introduction to Chapter 12, "Managing Fragile Ecosystems: Combating Desertification and Drought,"

Fragile ecosystems are important ecosystems, with unique features and resources. Fragile ecosystems include deserts, semi-arid lands, mountains, wetlands, small islands and certain coastal areas. (Agenda 21, Chapter 12, Introduction)

Beyond the identification of these ecosystems, Agenda 21 has chapters on oceans, freshwater resources, and the atmosphere. As the presence of these chapters illustrate, a cross-sectoral approach is needed to fully capture all of the dynamics of fragile ecosystems. Ample precedent has been set for a stand-alone chapter addressing mountains as an ecosystem rich in their complexity of needs and prevalence throughout the world.

### **MOUNTAIN DEVELOPMENT: LEVELS OF ANALYSIS**

Despite the universalistic approach of many analyses of mountain issues, all mountain issues neither apply to all regions of the world nor affect them in the same manner. It is, therefore, useful to divide mountain issues into two categories: 1) those which affect almost all mountains; and 2) those which are particular to specific areas. Within the latter category, general issues usually have specific meanings depending on whether one is referring to developed countries (DCs) or less developed countries (LDCs). By dividing up the themes of the mountain agenda in this way, we can best determine the optimal level of discussion and policy treatment of the issues.

We believe that this important "DC-LDC" division has been neglected in previous debate. The intention is not to highlight differences in order to create a potential threat to the mountain movement's unity, but to demonstrate that global statements about mountain problems risk neglecting important development-related particularities. The level of development in a certain state or region affects the way in which problems are manifested because of the variance in resources available to treat these problems. Moreover, while the development process may solve some mountain problems, it can create others. Thus, the nature of the problems found in mountain massifs tends to be related to a state's point on the development continuum. Less developed areas can therefore profit from the experiences of more developed areas since they

will be able to foresee problems that will arise in future stages of development.

### **Problems Facing All Mountains**

- ***Loss in Biodiversity.*** Mountains contain unique species of fauna and flora that must be preserved. All humankind has an interest in preventing the unnatural destruction of species both for the sake of those species and for human interest. Plants are often a source of new medicines, and the diversity of animal life will counteract the pressure towards uniformity that modern societies places on domesticated animals.
- ***Undervaluation and Uncompensated Downward Flow of Resources (Water, Wood, Minerals, etc.).***

For less advantaged mountain peoples worldwide, economic problems could be alleviated if local products could be sold in the lowlands for higher prices. These prices would represent the "true value" of mountain-made products because they would reflect the difficulty in obtaining inputs and the long period of time that hand-made products require to make. Unique products often made from all natural materials need to be valued more if such small-scale production which is consistent with sustainable development can support the local population.

As with local production, mountain communities need to be better compensated for the local resources which are used by lowlanders, dams on water, deforestation, and heavy mining all affect mountain peoples' livelihood, but they are not usually involved in the projects nor in the distribution of their profits.

- ***Damage to Fragile Environments.*** Mountains worldwide are particularly sensitive to natural or man-made changes. For example, the slow rising of the world's temperature is causing shorter snow seasons, a recession of glaciers, and pressure on animals and plants to migrate to higher latitudes. All mountains ecosystems, because of the slow process of change and adaptation, will have difficulty adjusting to other shocks like natural disasters or destruction from increased human activity.
- ***Deterioration of Mountain Cultures.*** Each populated mountain range contains unique culture(s) which form part of the world's global trust. The special knowledge that mountain peoples possess on how best to maintain mountains while extracting valuable resources from them (such as herbs) must not be lost. The culture of mountain peoples is also a rich resource for other societies.



- *Threat to Spiritual Landscapes.* Societies from Hawaii to Peru, from Japan to Uganda, often associate their mountains with sacred forces. The power associated with these forces may be undermined in indigenous peoples' minds if the state attempts to make mountains more accessible. Mountains are also believed to be places of healing, inspiration, communal identity and spiritual transformation. Altering those attributes could be damaging for those societies.

### Problems Relating to Level of Development

- *Economic Issues (Infrastructure, Poverty Level, Economic Marginalization)*

#### *Developed States*

In general, there is a tension between the desire to bring the standard of living of mountain peoples up to the level experienced in the lowlands and the risk of overdevelopment which will threaten the uniqueness of the mountain way of life. Economic problems vary across the developed region, with some communities significantly less advantaged than the rest of the generally wealthy states. They need better education, health care, and diversification of economic activity. Some areas do not necessarily suffer economic hardships, but desire the amenities found only in the lowlands.

Indubitably, mountain communities should not be excluded from opportunity for economic development. Improving health care and education can be done without endangering the mountain environment. However, certain methods of raising these communities' average income by building industry or increasing modern tourism sector can endanger fragile mountain ecosystems. Tourism has been encouraged in developed states because it brings an inflow of funds and investment from the state. A rise in tourism, in the Alps for example, has brought more roads, industry, and overall access to the mountain communities. Tourism can also provide an alternative means of livelihood for mountain peoples no longer able to support themselves by farming. However, the increase in roads, traffic, and overall congestion which accompanies increased tourism causes water and air pollution and other dangers to the ecosystem. Increasing the level of modern tourist amenities can also threaten the unique way of life of traditional habitants of the region. The construction of modern hotels, the importation of big supermarkets, and the provision of entertainment facilities (theater, bars) more common to lowlands risk undercutting traditional forms of lodging, food, and entertainment and changes the general environment. Ski resorts

represent a primary type of mountain economic development, but are environmentally invasive. In regions that lack adequate average snow cover, high demand for artificial snow-making puts a strain on water and energy supplies.

### *Developing States*

Generally, there is a lack of infrastructure and a near absence of resources devoted to public services for mountain people. A local expert on mountain development issues cited the inaccessibility of public services (education, health services) as the primary problem facing mountain people. Lack of access to education is an extremely limiting factor in efforts to develop alternative means of living. The degree of marginalization is such that little effort has been made in many developing states to understand the local mountain peoples and to determine their needs.

There has been significant development of the tourism industry in developing nations in recent years. While mountain tourism has brought money to developing states, too often profits are not shared by local mountain communities. Furthermore, profits are often not re-invested into offsetting environmental degradation caused by this increased tourism.

- *Population*

### *Developed States*

Many people living in the mountains in developed states are finding more incentives to leave the mountains than to stay. Young people are afraid they will not be able to sustain themselves and seek the better standard of living found in the lowlands. The depopulation of the mountains needs to be discouraged, however. First, as people leave the mountains, their unique culture cannot be preserved. Secondly, in many areas, such as the Alps, humans have developed a harmonious equilibrium with nature. Some species of fauna and flora may actually depend on human presence for their survival. The upkeep of farmland prevents pastures from being overtaken by forests and other vegetation which would overrun current flora and reduce the living space for certain animals.

### *Developing States*

As a result of improved health services and steady-to-increasing population growth rates, mountains in developing countries often experience unsustainable levels of overpopulation. The trend of out-migration to the lowlands is not strong enough to counterbalance the

other two factors. At these rates there is not enough land to support the number of people. Alternative sources of income that are less land-intensive and more labor-intensive must be developed in order to preserve the fragile ecosystem while also ensuring that mountain peoples have the option of remaining in the mountains and earning a sustainable wage.

At the other extreme, some under-populated regions in developing states pose a security risk for those states. As mountains often represent international borders, the depopulation of otherwise barely demarcated national boundaries reduces civil control and allows possible encroachment by neighbors, thus increasing state vulnerability. The marginalization of people living in border areas, a lack of public infrastructure, or the disenfranchisement of these communities which serve as the only representation of the state in these remote territories can only further serve to reduce security on mountainous national borders.

- *Agriculture*

*Developed States*

The farming way of life cannot be sustained in many mountains in developed states because of increased competition with lowland products. The difficulty of farming conditions makes it unprofitable without special techniques for intensive farming or subsidies to offset competition. The European Union has many assistance programs for farmers and shepherds to encourage them to stay, but it is not clear how long these costly programs will last. States feel they have an interest in preserving agriculture in the mountains because it maintains the mountains' beauty and encourages tourism. However, in order for this goal not to be labeled a luxury and eventually subject to budget cuts, states also need to be aware of the importance of agriculture for preserving cultures and keeping a balanced ecosystem.

*Developing States*

The primary problem in developing states is that mountains are increasingly unable to sustain antiquated agricultural techniques that are being used at an ever-increasing rate. Note that this problem is tied to the increases in population. Over-use of land on mountain hillsides has led to soil degradation which forces people to either continue to over-use specific plots of land or to degrade ever larger plots of land in search of suitable soil. Farmers need to be taught more about the fragility of the soil as well as about advanced methods of farming that may allow them to preserve the soil. Alternative crops or crop-rotation

can also be used as methods to preserve the thin layer of top-soil found on mountains.

## **POLICY RECOMMENDATIONS**

Now that we have identified the most fundamental sustainable mountain development issues, and the extent to which they are a common interest of all nation-states, the next appropriate step is to consider policy solutions to these growing concerns. The aim of this section of the paper is not to reiterate or even to assess the effectiveness of existing policies for achieving sustainable mountain development, for we leave that challenging task to the experts. Rather, this paper identifies the *optimal* level of policy coordination for addressing the numerous mountain issues - that is, among global, regional or national levels.

Those issues which apply to all mountain ranges would ideally be treated at the global level, such as through Chapter 13 or other regimes. However, because global policies are generally normative goals, there also needs to be overlap with policy development and implementation at both the regional and national levels. Issues that were divided above according to development level should only be covered in the most general terms in global-level discourse. Thus, they need to be treated more substantively at the regional or sub-regional levels, where the degree of development and other variant factors tend to converge. As will be discussed below, potential for cooperation varies according to region, necessitating a further evaluation at the national level. As a result, we also evaluate what can be done at a national level. As well as a short-term substitute for higher level policy formation, national policies are advisable in their own right under certain circumstances, such as when mountain ranges are contained within one country.

### **Policy on the Global Level**

On the global level, sustainable mountain policy should be both *general* and *normative* in nature. Mountain policy at the highest level of governance must be general in scope because one of the chief ends of multilateral agreements is to emphasize the similarities and de-emphasize the differences among nations or regions. Only in such a context can global inter-state cooperation be sustained. Global mountain policy must also be normative in nature because multilateral agreements can only serve as a *consensual definition* of "good" behavior in an environment where enforcement capacity is limited. Global mountain policy is only as effective as each nation-state's willingness to implement the prescribed sustainable development strategies. Without the ability to enforce national compliance, global institutions, such as the UN, must inevitably couch their policies in normative terms as a way of delineating good and bad behavior. Since most states do not have an interest in being labeled the pariah of the international community, compliance is achieved indirectly.

After considering these fundamental aspects of international relations and of regime theory, we recommend that the Mountain Forum lobby for the following initiatives on the global level:

- ***Strengthening of the Mountain Issues in the Global Policy Agenda.*** Chapter 13, "Managing Fragile Ecosystems: Sustainable Mountain Development," explicitly declares that mountains are a global trust of biological and cultural diversity. Not only are mountains formally recognized as a global concern, but also endorsing states of Agenda 21 have made themselves accountable before all the actors of the international community. While Agenda 21 may not be a legally binding multilateral agreement, all actors - international, regional, national, local, individual, and non-governmental - in effect have been empowered to pressure participating governments more formally to comply with the terms agreed upon at the 1992 Earth Summit. Furthermore, Chapter 13 may provide states with the needed guidance to remain on course with the implementation of stated objectives. In candid terms, any move by the UNGASS to parcel out the review of goals articulated in Chapter 13 to the germane sectoral chapters of Agenda 21 increases the probability that international actors will de-emphasize mountain issues as a global concern. The marginalization of the mountain agenda would take the wind out of actors' sails to press ahead with implementing the needed mountain policies.
- ***Development of a Global Repository of Information.*** The development of a global repository of information would serve to raise the consciousness of the international community on the various mountain issues and reduce the costs incurred by governments at all levels to implement the needed mountain policy. Information about the policy implications of the unique biophysical and socio-economic characteristics of mountains collated at the global level would provide all actors interested in sustainable mountain development with immediate and free access to such data. Local, national, regional, and global actors should be encouraged to contribute information concerning the latest development technology and policies that achieve sustainable mountain development.
- ***Institutionalization of the Mountain Agenda on the Global Level.*** Ideally, the tremendous but necessary responsibility of gathering and disseminating this information should be entrusted to a permanent UN office specifically devoted to mountain issues. This office would be responsible for documentation, monitoring of progress, and information collection and dissemination, attempting to create the level of transparency and accountability needed to encourage appropriate sustainable mountain development policies.

An alternative and perhaps more politically and fiscally feasible avenue would be the development of a permanent office that is specifically devoted to *fragile* environments: deserts, semi-arid lands, wetlands, small island states, coastal areas, and mountainous areas. Such an office is likely to gain immediate and genuine support from the actors involved in other fragile ecosystems. While *ad hoc* or temporary UN offices have made noteworthy contributions to the advancement of mountain issues, only a permanent office would increase the likelihood that the mountain agenda remains a serious global concern in the future.

### **Policy on the Regional Level**

National governments are increasingly recognizing that while the implementation of sustainable mountain policy relies on the willingness of each country to pursue such an agenda, some of the most daunting barriers to national policy implementation can be overcome by pooling their resources. The extent to which states can pool their resources – human and financial capital, data, information, technology, policies – on a *global* level is limited and for the near future is likely to remain at the level discussed above. In some instances, regional pooling of resources makes more sense. When states share mountain massifs, similar development status, and environmental problems, regional cooperation is advantageous. This realization is even more blatant in regions where the mountain ranges cross national territorial borders. With this in mind, we recommend:

- ***Institutionalization of Inter-Governmental Conferences.*** Inter-governmental conferences (IGCs) at the regional level have occurred all over the world, save North America where the development of an IGC is underway. National commitments to engage in regular IGCs within their respective regions will allow for greater exchange of information between states (e.g., perhaps the development of a regional database). Analog to institutionalization at the global level, regular IGCs on a regional level will play an important role in further enhancing transparency and accountability of national efforts.
- ***Institutionalization of Regular NGO Consultations.*** Non-governmental organizations have played an extremely important role in advancing the mountain agenda. NGOs serve as a channel for local interests and are effective organizations at collecting and disseminating information. Indeed, regional NGO consultations have taken place all over the world. The mountain agenda can only be further promoted by national, regional, and global bodies allowing NGOs to systematically contribute to the debate on sustainable mountain development.
- ***Development of Regional Agreements or Conventions.*** In the mid-term, as nations regularly engage in regional IGCs, they should begin to

develop binding regional conventions that crystallize and institutionalize national commitments to sustainable mountain development. In the developed world, particularly in Western Europe, the need for a regional convention was recognized, and the rare combination of capital and government attention allowed the governments in Europe to formulate and implement the Alpine Convention. The Council of Europe, which includes Eastern European countries, has also developed draft charter on mountain regions.

Similar conventions are needed in the developing world, particularly in Africa, Latin America, and Asia, but for slightly different purposes. Along with the previously cited gains nations accrue by engaging in regional cooperation, developing regions may be able to overcome one of the most fundamental stumbling blocks of mountain policy implementation: insufficient capital. Again, capital is not so much a concern for the advanced industrialized countries, but for developing countries, such impediments often paralyze policy implementation. A regional body may be able to more readily attract from external donors - individual countries or multilateral financial institutions - the requisite level of capital to finance mountain policy initiatives than individual countries seeking external financial assistance.

The above recommendations do depend on the extent to which neighboring states are politically and economically able to cooperate. Many factors, including differences in development status, can unfortunately pose an obstacle to regional coordination.

### **Policy Needs at the National Level and Lower**

The nature of policy on the national level is fundamentally different than that on the regional or global levels. Assuming one can speak of "policy" on the global level; global initiatives must remain general, aspirational, and normative in nature whereas national policy is concerned with actual implementation. The devices of policy implementation are national laws and their accompanying regulations. If on the global level nations are successful in formulating general expressions of what they collectively recognize to be issues of common concern to the world community, and if they are successful in developing aspirational goals and guidelines to correctively address these issues, it then must fall to the nation-states to forge actual legal and regulatory implementation frameworks. These national frameworks must concretize the often amorphous expression of global collective will into effectual policies, with due regard for the specific political, geophysical, and financial constraints of each state. Given that these diverse constraints vary widely from state to state - obviating in most cases even the theoretical possibility of producing a detailed policy template that will fit every nation - and given the absence of any supranational authority or enforcement mechanisms, sovereignty and responsibility in today's

international system rests primarily at the nation-state level. It is up to national lawmakers to devise and implement corrective policy on the national and local levels, just as it is also up to the state to work with other nations on the regional level to achieve collective benefits.

Chapter 13 calls upon the endorsing states to address these issues, providing a general framework for analyzing and approaching this task. This naturally gives rise to the need for nations to construct national implementation policies to address what has been identified as globally ubiquitous and dangerous trends, and secure the mountain environments and cultures within the scope of their territorial sovereignty. In this context, it should be noted that few problems are purely of national concern: not only are mountains often transnational in scope but they also demarcate international boundaries in many instances. In addition, issues such as the preservation of biodiversity and of mountain cultures, and the sustainable use of mountain resources, have been identified as global goods in which every nation of the world has a stake in preserving. Thus, every nation bears not only national responsibility but regional and global responsibility. Because many problems impact transnationally and globally, there exist incentives for states to monitor and encourage each other and to work collectively to produce solutions. Yet first, nations must tackle globally or regionally ubiquitous problems *in their particular manifestation* within their own borders.

The mountain problem may be classified into two major policy areas representing what should be considered not only national goods, but also as global goods: the preservation of fragile mountain environments and the support and protection of mountain cultures. As stated above, national policies must approach these subcategories of sustainable mountain development in a holistic manner. There is, at first glance, what seems to be an inherent tradeoff between economic development and environmental and cultural preservation. The exploitation of mountain resources has an impact on mountain environments and mountain peoples. They and their cultures are woven into the fabric of the mountain ecosystem. (Indigenous peoples, like lowland farmers, are caretakers of their habitats and, as such, their important service should be valued.) Their means of existence and livelihood in turn impact the environment in which they live. A holistic solution must ensure the sustainability use of mountain resources and the development of sustainable mountain economies for indigenous peoples while preserving their unique mountain cultures and recognizing and ensuring their human and societal rights. Balanced solutions are possible which refute the notion that mountain development is a zero-sum game in which at least the environment, mountain cultures, or economic development must be sacrificed to achieve the other goods. However, such balanced solutions are often neither sought nor achieved. The task is to produce national policy frameworks which codify such balanced solutions.



The dilemma common to all aspects of sustainable development is that of providing a public good. Mountain products - used here as a general term for cultural handicraft products of indigenous peoples, raw materials - minerals, water, lumber, flora, fauna, etc. extracted from mountain environments - or even mountain recreation (mass tourism, recreational development of mountains, etc.) provide a (major) source of income not only for mountain people but also for private concessionaires and many state governments. Yet market prices of mountain products or the costs of developing mountain "economies" rarely adequately reflect the true cost of producing, providing, or "harvesting" these products. The extractions of mineral and biological materials have a weighty impact upon inherently fragile mountain ecosystems. First, these resources are often by nature finite or, for ecological reasons, can only be reproduced very slowly. Thus, the mountain resource base is vulnerable. Further, their extraction also tends to disrupt the delicate mountain ecological balance, leading to "side effects" beyond just the depletion of the resource base. Yet market prices for these products do not reflect the negative externalities of these "side effects," the negative impact of the damages or losses incurred. Similarly, developing a mountain summit for recreational purposes, creating a ski resort, or opening remote and fragile mountain environments to tourism, involve but rarely reflect the accompanying environmental impact upon once pristine, natural landscapes. This is a market failure typical in the "provision" of a public good: in this case "healthy" mountains. Only with great difficulty do free markets adjust prices to reflect the costs inflicted, essentially, on the entire globe due, for example, to losses in biodiversity, or the scarring or destruction of spiritual landscapes.

Sustainable mountain development requires the correction of this market failure. The overexploitation of mountain ecosystems will continue until prices reflect actual marginal costs to the globe. As with many other such public goods, national governments must be called on to regulate mountain economic production, mountain development, and/or the tapping of mountain resources, in such a way that the true costs of these enterprises are reflected and the negative externalities are internalized by the economies themselves.

The preservation of traditional mountain cultures is another public good undervalued by free markets. For traditional cultures to survive, indigenous peoples must find means of livelihood that support them yet are also sustainable from an ecological perspective. Destructive agricultural practices must be supplanted by sustainable methods. Providing sustainable means of economic livelihood for indigenous peoples in traditional mountain industries also requires pricing that allows traditional cultural industries to survive. Otherwise, non-sustainable economies will develop and persist, and out-migration of people unable to support themselves due to an eroding environment, the exigencies of subsistence living, or insufficient market returns for their products, will continue. Both will result in the loss of globally important mountain cultures.

Many indigenous mountain peoples are marginalized by the societies with which they coexist. Often these marginalized people have no voice in decisions which bear upon their lifestyle. Their marginalization, exacerbated by physical isolation and often by little or no outside support recognizing the important yet tasking role these peoples serve as not only national but global caretakers of the mountain landscapes and of their cultural heritage, leads to added pressure on out-migration. Beyond the threat of cultural loss, there is a security dimension to out-migration and marginalization, as discussed above. Furthermore, provision of alternative means income to mountain communities is a necessary component of the answer to the security problem of illicit drug cultivation which tends to prosper in remote, inaccessible areas away from government checks or controls. In general, therefore, it is in the state's interest that indigenous communities find sustainable means of livelihood and that their marginalization is diminished.

The above arguments demonstrate each nation's inherent interest in sustainable mountain development. The following serves as a general conceptual framework for developing a holistic package of national policies to address the problems and opportunities of mountain development:

- ***Development of Comprehensive National Mountain Laws.*** Though this option of articulating a unified comprehensive law or body of laws has been rejected by some national governments, the need for national policy statements is highlighted by ubiquitous non-sustainable practices and the need for consistency of approach. The potential contributions of a national policy statement on mountains are 1) a unified approach to integrated resource management in the high country; 2) the explicit identification of criteria and principles for sustainable mountain resource management; and 3) an increase in national control and accountability. Such statements serve as models for international comparison and increase transparency as well. On the whole, such unified national policy statements are beneficial. They tend to enhance the effectiveness of mountain policy implementation, and they have an important normative influence on other states.
- ***Greater Government Attention to Environmental Impact Studies.*** There is a lack of incentive for governments to ensure that environmental impact assessments (EIAs) are undertaken for mountain infrastructure and economic development projects. EIAs must be consistently undertaken by all national governments and must be executed in an informed manner which accounts for the differing environmental dynamic of mountain ecosystems. International normative guidelines, analog to Chapter 13, could be developed as guidance for national governments.

- *True Valuation of Mountain Resources.* Market prices often do not reflect marginal cost of mountain resources and products. Subject to market forces, resources (e.g. water, tree products, medicinal plants, etc.) are being undervalued. Market prices do not reflect the finite nature of resources, nor the negative externality of removing/harvesting these resources. Concerning small indigenous industry, in order to provide economic opportunities in mountain regions in environmentally sustainable ways while retaining traditional mountain industries and preserving indigenous culture, some system of national price supports, either through subsidies or protected appellations could be necessary. Prices should reflect the value of the public goods provided by mountain communities.
- *Empowerment of Local Communities in Decision-Making Processes.* Often, mountain communities affected by national policies are not involved in the decision-making process which affects mountain environments and their lives. National policies must guarantee indigenous participation in these policy processes, tapping indigenous knowledge and guaranteeing that their voices and social rights are respected.
- *Alternative Livelihood Opportunities - Labor, not Land-Intensive Industries.* Outmigration, unemployment, and overexploitation are the result of a lack of alternative sustainable industries in the mountains. Indigenous caretakers must be assisted in preserving or developing alternative, sustainable means of livelihood. Support for indigenous handicraft industries is support of national and global culture. National policies should be instituted to facilitate industries which are environmentally sound and provide these communities more security than subsistence living. High-altitude agriculture programs, research in alternative food production methods other than grossly inefficient and destructive "slash-and-burn" techniques, and increasing the environmental and economic feasibility of mountain economies all serve to provide alternatives to and hedge against environmental degradation, out-migration, depopulation, and cultural loss.
- *Increased Infrastructure: Education (enfranchisement, empowerment, awareness of political rights, knowledge of sustainable land use techniques, etc.), and Social Services (health care, public services).* Often, a lack of educational infrastructure in mountain communities serves (or exacerbates) the vicious circle of land degradation, out-migration, and marginalization. National governments must be called on to provide adequate, environmentally and culturally specific educational opportunities for indigenous mountain people. This should be viewed as an issue of human rights. Often, marginalized mountain communities are not provided by the state with the same, or

even adequate, social infrastructure enjoyed by urban or flatland communities. Basic infrastructure projects, such as electrification, improvement of agricultural land on mountain ridges, and environmentally sensitive road construction, all serve to secure mountain communities and facilitate social intercourse and communication of ideas and cultures. Without such services, out-migration and marginalization with all of their consequences will continue.

Of course, policy issues are, by nature, allocation issues. For national policies to be implemented, governments must be able to fund them. The success of mountain policy thus depends on the financial constraints faced by each state. To some degree, policies aimed at a true valuation of mountain resources may provide the funding for a package of mountain policies. A global initiative aimed at strengthening mountain policy may raise international burden sharing, distribution, and equity issues. The dilemma of funding needed for mountain policies is an issue which must be further explored.

### **RECOMMENDATIONS FOR THE MOUNTAIN FORUM**

The Mountain Forum (MF) has been a successful catalyst for coordinating and disseminating information about sustainable mountain development among specialized agencies. Its role in increasing awareness is crucial for mobilizing support not only among organizations or peoples committed to mountain issues but also within the general public. For such a reason, we recommend the following general strategies for strengthening and expanding MF's capacities and influence:

#### **General Strategies** (longer-term goals are marked with an \*\*)

- ***Establish Better Communication Channels with Local Communities.*** While the MF's electronic mechanism is a laudable, modern way to exchange information transcontinentally, it appears to marginalize local mountain communities who do not have access to such technology. MF remains a top-down information network of professionals and scientists. For example, its recent e-conference announcement lists an agenda item as "Voices from the Hills," but it is highly unlikely that many indigenous or other mountain peoples are going to be able to express their opinions on-line. Who will voice or interpret their needs and experiences?

Local knowledge bases and less techno-centric communication channels should be established to promote a truly cross-cutting, top-bottom network of mountain peoples and professionals.

- ***Start a National Media Campaign to Promote General Public Awareness.*** The MF has a very limited consumer base. While it attracts

individuals or organizations with particular interests in mountains, it fails to reach those people who remain uninformed about the uniqueness of these fragile ecosystems and the development problems highlands face. The more advertised the mountain cause becomes, the more likely it will generate a wider pool of support and discussion.

In order to educate the general public, MF should consider exposing the mountain agenda in articles for *Newsweek*, *Time*, or *National Geographic*. Articles dealing with ecotourism should be promoted to travel magazines, such as *Condé Naste Traveler*. As the Earth Summit+5 date approaches, MF should advocate the importance of a mountain discussion by placing editorial pieces in national and international newspapers.

The wide audience coverage of television programs should also not be overlooked. In addition to documentaries, travel shows, such as those sponsored by the Lonely Planet, could be potential channels for educating the public on the specialties of mountain ecosystems and proper tourist care.

- ***Work with Mountain Tourism Associations and Outdoor-oriented Companies.*** As previously mentioned the benefits of tourism can be outweighed by its costs if tourists are not fully educated on mountain characteristics and given precautions for respecting the ecosystems.

MF should request the support of tourism organizations in an educational campaign. For example, to facilitate waste disposal in the Maldives, German tourist operations who arrange excursions to the islands give their clients garbage bags that they are expected to utilize and dispose of in their native country. By giving simple advice, such as burying toilet paper along trekking routes, organizations can help tourists maintain harmony in the frequented mountain environments.

Likewise, MF can contract with outdoor companies, particularly those that sell hiking or camping gear. Several participate in an Outdoor Industry Conservation Alliance (OICA) committed to preserving the environment. One of OICA's members, Patagonia, has established an Earth Tax - 1% of sales - that is largely donated to an Environmental Grants Program. Such companies could be instrumental in providing both financial and practical educational resources. For instance, they could place information posters in their stores or hand out mountain agenda pamphlets with every purchase.

- ***Network with Non-mountain NGOs and Information Links.*** MF can also complement their information bank and increase environmental awareness for mountain issues by participating in other organizational

networks. By working with non-mountain organizations, such as the Sierra Club, the Audubon Society, or World Wildlife Fund, MF would be able to tap their more established and diverse membership base and resources. Moreover, it would allow MF to add the mountain perspective to appropriate environmental debates that compose a subset of the mountain agenda. Other Websites, such as EnviroLink, provide additional forums for exposing mountain concerns to a wider audience.

- ***\*\* Employ a Political Liaison.*** MF should have a permanent political liaison that can keep the mountain debate in the political limelight and keep MF participants in contact with policy makers, particularly at the UN. For example, the Jacques Cousteau Foundation, an organization with similar ecosystem interests, has a political liaison that watches for policy initiatives and informs the foundation of relative environmental debates.

To establish a physical presence, MF should consider opening a NY office close to the UN that can more effectively promote exchange. Realizing that this might be a longer-term ambition due to limited capital and resources, we suggest that MF initially try to share overhead costs with other environmental organizations situated in suitable centers.

- ***\*\* Support the Initiative to Proclaim 2000 as the "Year of the Mountains."*** The International Conference in Bishek proposed asking the UN General Assembly to proclaim the year 2000 as the "International Year of Mountains." This idea has great marketing potential for the mountain cause and should be fully supported by the MF. International conferences, special tourist operations, educational programs, stickers, posters, and a new Website are a few of the many initiatives that can accompany this celebration of mountain ecosystems and promote sustainable mountain development.

### **Specific Strategies for Earth Summit+5**

To ensure that the mountain issues raised in Chapter 13 will be adequately and appropriately included in the UN General Assembly's upcoming review of Agenda 21, we recommend that the MF undertake the following specific strategies:

- ***Influence the Agenda of Earth Summit+5.*** The MF should ensure that the review of Chapter 13 is placed on the Earth Summit+5 agenda by participating in the CSD Ad Hoc Intersessional Working Group meetings in February/March and the meetings of Fifth Session of the CSD in April. Because of the likelihood that mountain issues will otherwise be overlooked, the Mountain Forum must lobby for a chapter-by-chapter review of Agenda 21 or lobby for the inclusion of mountain issues as an

agenda item, if the General Assembly will not be reviewing each and every chapter.

If it becomes inevitable that Agenda 21 will not be examined chapter-by-chapter, or that mountain issues will not be included as an agenda item in its own right, the MF should ensure that mountain issues do not get grouped with their traditional "land cluster" partners; in previous CSD meetings, mountain issues were often grouped in the same discussion forum as forests. A potential danger in this happening again is that deforestation has recently attracted much attention and thus, may prevent, or divert attention from, a comprehensive discussion of mountain issues. Instead, the MF should increase the likelihood that mountain issues will not be overlooked by forming a "fragile ecosystems cluster" with other cross-sectoral, geographical issues, such as deserts, semi-arid lands, wetlands, small islands states, and coastal areas. This strategy would elevate the visibility of mountain massifs and fragile ecosystems in general.

- ***Lobby Governments Participating in Earth Summit+5.*** The Mountain Forum should engage in aggressive and continuous lobbying vis-à-vis governments, since it is governments which will play a key role in shaping the outcome of Earth Summit+5. The Swiss government has taken the lead in promoting mountain issues, but the supports of other governments are much needed. In particular, governments which are geographically, politically, economically, and culturally diverse should be targeted so as to avoid the (mis)impression that mountain-related problems are confined to only a small number of countries, or that such issues are esoteric and not a widely shared concern.
- ***Attend and Participate in Earth Summit+5.*** The Mountain Forum must attend and actively participate in Earth Summit+5. The presence of a large and diverse group of organizations focused solely on mountain issues will give credence to the notion that mountain issues demand unique attention. Since many of the chapters of Agenda 21 relate directly or indirectly to mountain issues, the Mountain Forum should ensure not only that mountain issues raised in Chapter 13 are adequately considered, but also that mountain issues are included in the examination of other relevant chapters.
- ***Build Coalitions with Other Participating Organizations.*** The Mountain Forum should take advantage of the presence of a large number of NGOs in New York for Earth Summit+5 to re-new existing ties and create new ones. Networking both formally and informally will allow for the sharing of problems, experiences, and ideas, as well as the facilitation of future communications and joint activities. Such efforts should extend beyond mountain-specific organizations since other

organizations concerned with the environment generally also need to include mountains as an important component of their organizational mandates.

- *Publicize the Importance of Mountain Issues at the Earth Summit+5.* The Mountain Forum should create greater awareness of mountain issues prior to, and during, Earth Summit+5. These activities should include media campaigns, as well as a slide show or photography exhibit in the UN lobby. Working together with better-funded and better-known environmental organizations, and working on its own, the Mountain Forum should create greater public understanding of mountain issues, which in turn will generate pressures for a stronger and continued global commitment to the protection of the world's mountains.

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## Notes to readers

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