

Policy in High Places

Environment and Development in the Himalayan Region

Piers M. Blaikie
Syed Zahir Sadeque



International Centre for Integrated
Mountain Development
Kathmandu, Nepal

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Foreword

For over 2,500 kilometres, the Hindu Kush-Himalayan range dominates the landscape of Asia. The world's highest mountains cradle thousands of glaciers that collect winter snow and feed the mighty rivers of the region throughout the dry season. On its slopes and in its valleys, rangelands, forests and agricultural lands nurture some of the world's most valuable biological diversity. These lands also provide subsistence for over 140 million people with rich and diverse cultural traditions. These mountain resources are in turn changed and sustained by these hardy, yet poor, mountain people. Environment and economy are intertwined in the livelihoods of the Hindu Kush-Himalayas in complex ways that are still only partially understood.

This diverse set of unique mountain habitats spans eight countries from Myanmar to Afghanistan. How this land is being used, and the effects of this use on both the local inhabitants and the one billion people living downstream, is shaped by a myriad of factors: physical, economic, and political. The political, or policy elements, of this dynamic story are in many ways the most intriguing, and the most important for agendas that seek to help mountain people improve their lives and environment. Understanding policies that influence land-use behaviour in this context is critical to moving an agenda forward to find satisfactory upstream solutions for mountain policy-makers.

ICIMOD is committed to helping mountain people – both policy-makers and farm/herder households – find and adapt policies and practices that facilitate better economic and ecological futures for them. In 1998, with support from the Global Mountain Initiative, the Centre undertook a series of country studies to explore land policy, land management, and land degradation issues in the Region. The study was entitled 'Land Policies, Land Management and Land Degradation in the Hindu Kush-Himalayas'. Professor Piers Blaikie, a noted expert on land and environmental issues in the region, acted as the Chief Academic Advisor for this undertaking. ICIMOD

Social Scientist, Dr. Syed Zahir Sadeque, served as the Project Coordinator. Seven studies were carried out in six ICIMOD member countries: Bangladesh, Bhutan, China, India, Nepal, and Pakistan. Eminent researchers on land issues were contracted as Team Leaders and, in turn, they organised research teams to cover both biophysical and socioeconomic dimensions of land use. This current volume was written by Professor Blaikie and Dr. Sadeque based on these earlier country case studies.

This publication, then, directly addresses the issues of policy-making with regard to land resources in the Hindu Kush-Himalayas, including policies for forestry, agriculture, biodiversity, land tenure, and the role of the State. Given the variety of conditions and histories of the region, as documented in the case studies, its scope is ambitious. Given also traditional rational policy approaches, its analysis is also provocative. On both fronts, the authors take on issues over which there is still considerable debate. They ground their findings in an approach that recognises the multi-stakeholder, political process involved in policy-making and challenge some older paradigms. In fact, we hope that it is this willingness to tackle the most critical issues surrounding the Himalayan land use policy debate with a different perspective that will be part of the value of this publication to the region.

This study should serve to sharpen and focus the debate on land resource policies and, hopefully, serve as a basis for more realistic and locally beneficial policy-making. Many of the conclusions are directly relevant to current efforts to identify institutional and technical solutions that are locally driven, but nationally and internationally informed. As States within the region redefine their roles and look for the right balance in a more decentralised and globalised world, they need to be directly mindful of the impact of their decisions on the productivity and sustainability of the dynamic mountain environments in which they live.

J. Gabriel Campbell
Director General
ICIMOD

Executive Summary

A broad interpretation of land policy could include any policy taken by the state or other institution that affects the use and management of land, directly or indirectly. The potential range of choice includes policies restricting land use (e.g., prohibition of shifting cultivation or urban land-use planning), land taxation (rates, revenue classes), mortgaging, tenure, ownership, titling and cadastral surveys, policies on share-cropping and renting land, forest policy (including social and community forestry), national parks, urban zoning, trekking and tourist regulations, national environmental policy (e.g., national environmental strategies), industrial policy, energy policy, hydro-electric schemes, settlement and resettlement policy, road construction and hydro-electric projects, and policies that include foreign designed and financed Integrated Rural Development Projects and other decentralised, formal policy-making and implementing institutions which, through their project activities and local policies, affect land use and management. This is a formidable range of policy areas. In addition, there are six nation states and at least twenty sub-national administrations (e.g., States, Provinces, Autonomous Regions) and also projects and programmes that also might be said to make land policy and have implementing powers in the HKH region. Clearly, choice had to be exercised. The following policy areas are studied: forest policy; national parks and wildlife; agriculture; property, tenure, titling; and national environmental policy.

The criteria used within the five areas are comparability of themes and issues between different countries; major policy controversy and debate; and support from good secondary data, academic studies, project evaluations, and other sources.

The current document is an overview of findings from Bangladesh (Chittagong Hill Tracts), Bhutan, China (Yunnan Province), India (two studies, one in the North-east and one in the North-west), Nepal, and

Pakistan (North West Frontier Province and Northern Areas). Its approach is formed around three related ideas. The first is policy as process, which examines how policy is made and takes the view that the rational policy model of policy making is inappropriate and simply does not explain how policy is, or should, be made. Instead, it is a more political process shaped by bureaucratic and administrative regimes (often colonial in origin), by powerful environmental narratives (or sets of assumptions shared amongst networks of professional people in the region), and other political, commercial and business interests. Policy is often messy and diffuse, and outcomes often unintended. Secondly, the idea of stakeholders in environmental policy was introduced to identify the unequal distribution of political power of stakeholders, and to draw attention to those who, while in a large majority, had little say in policy, and sometimes became victims of it, rather than beneficiaries. This is not to say that the majority of farmers and pastoralists in the regions have a monopoly of virtue, merely that their interests and knowledge are seldom represented in policy. Thirdly, the idea of access to resources and sustainable livelihoods treated as a material necessity and right were used to draw attention to them in the inevitable conflicts that will arise in adjudicating between conservation agendas, the 140 million resource users, and other interests.

International and national environmental policies,' including land policy, are seen here as a negotiation between international agendas promoted by a variety of players (multilateral and bilateral donors, big international NGOs (BINGOs), on the one hand, and national political and bureaucratic interests and professional styles, on the other. Ecological modernisation is the term used to imply a number of salient policy reforms. These include the economic appraisal and valuation of resources as the major criterion for policy; accountable, transparent institutions; full and informed citizen participation; and the installation of the precautionary principle in decision-making in the face of scientific uncertainty. All these points pose serious challenges to any society, but especially in the HKH region. These agendas have been incorporated into national environmental plans and strategies as part of the first moves towards the goals of ecological modernisation). Yet they have met with only partial acceptance (primarily from new policy communities), more often professional opposition, putting 'old wine in new bottles', and foot dragging. New initiatives have been taken too, but their cumulative impact, both environmental and social, is still quite small. Different countries have responded differently, the more powerful able to resist international pressures, although in India internal pressures through the free press from intellectuals, social movements, and even political parties have also been effective in pushing certain environmental agendas. In China, too, the impacts of land degrading and polluting policies also have generated

internal pressure for reform. It cannot be expected that a study based on evidence of the impact of international and national environmental policies will produce much in the way of discernible impact on the ground. It is a slow process and presents some severe challenges to administrative and decision-making practices and to the institutional means for resisting unwarranted claims by the state or other powerful interests.

Forest policy in all countries except China is dominated by Indian forestry policy, along with some of its colonial origins. It remains the best organised and substantial policy-making institution in the region, and its environmental legacy of 100 years' management of forests is clear. Yet it is becoming increasingly difficult to sustain the overseeing of forest working plans and to police them. Entrusting more of the management of forests to local people has become more necessary for this reason, though social forestry in India is limited to certain types of forest only and has moved very slowly in terms of total area. Nepal's Community Programme, likewise, has been heralded a success from an environmental and (to a lesser degree) a social point of view, but the actual area (and therefore environmental impact) remains small. Even in the case of participatory programmes such as these there have been winners and losers with regard to livelihoods as a direct result of policy. In the case of the Chittagong Hill Tracts, Bangladesh, forest policy, along with other environmental policies, contributed to what is widely recognised as a large-scale abrogation of local peoples' rights to a living. The peace accord, following 20 years of resultant hostilities, has promised rectification of the results of this policy (gazetting tribal forest land, flooding their best paddy land, outlawing shifting cultivation, being the only alternative to livelihoods from the land) and failing to find land to support the livelihoods of c. 130,000 displaced persons. Logging bans have been in operation in all countries except one. They are at the same time an admission of failure of current management practices, an effective stop-gap measure, easy to implement, somewhat leaky (but much less so than previous measures to restrict cutting), and politically fragile. In China, there is an enormous amount of legislation about forest use from at least three different levels of authority, but it is seldom, if ever, enforced. There have been cycles of reckless clear felling, followed by assiduous replanting - to be followed again by felling. Here, to suggest policy reform is locking the door after the horse has bolted, since there is a more fundamental issue of a series of radical policy shifts that can either produce extreme land degradation or effective re-forestation, and environmental policy in the conventional sense has had little impact at any time.

Agricultural policy in all countries has not been able to incorporate environmental concerns, but has been much more concerned with issues of

food security and especially the introduction of improved or high-yielding varieties. Hill particularities (niche, fragility, diversity, and remoteness) have not been sufficiently recognised by national agricultural research agendas and extension policy. While local environmental knowledge has been recognised in academia, it has not been thought through and implemented in most countries, although there are small, usually foreign-financed projects attempting to bring farmers' and research station knowledge together. Imported conservation packages (e.g. SALT) have seldom been widely adopted. In summary, there has been little in the way of widely implemented agricultural policy in the region, and therefore little environmental impact. By far, it is the indigenous technologies of terrace design, cropping practice, composting and water management that have been more or less left unaffected by agricultural policy but which have driven the direction and pace of environmental change on agricultural lands

National Parks, biodiversity, and wildlife projects and policies perhaps express more completely than any other the international agendas of such institutions as WWF, IUCN, environmental charities, and interest groups in the West. Many, with some honourable exceptions, have unfortunately adopted a neo-colonial style of exclusion and 'fortress conservation'. Many parks in the region have also adopted the practices of the forestry services in the same country. This is made more likely since the value placed on endangered species or habitats is different from those of the range of people living in, and earning a living from, the local area. Where the principles of negotiation, compromise, and the open recognition of tangible benefits from the park have not been adopted, the projects are almost always an ignominious failure (at least one example appears in the study). Where they have been adopted (and it takes exceptional professional skills and charismatic leadership from project staff and amongst the local people), it sometimes works well from both a social and environmental point of view. The most recent methodological innovation as part of ecological modernisation is the economic valuation of biodiversity. While intellectually attractive, it usually depends upon the assumption of enough tourists willing to pay for the conservation of biodiversity (and thereby generate revenue for local people who would be then persuaded to conserve the resource). Many such sites in the region simply do not have the ability to attract tourists and eco-tourists in sufficient numbers to make local conservation economically worthwhile. When there are enough tourists, as in the Annapurna Conservation Area Project, the economic valuation of nature is a viable instrument for implementing policy. The environmental impacts of the various categories of parks and protected areas in the region have been mixed - sometimes exclusion without benefits has induced local people to poach and destroy the resource, and in others success (and the flow of visitors) has brought its own problems.

The issues of land tenure and titling are central to the three policy areas above. The history of land tenure and reform is varied in the region, though in many there has been a slow move from a variety of customary tenures to either de jure or de facto privatisation, or to state control. The latter in many countries has required extensive policing and has engendered resistance over many years. Where policing was not effective, forests disappeared fast (e.g., after the nationalisation of Nepalese forests). Where the social capital underpinning mutual trust to use resources sustainably disappeared (e.g., in contemporary Yunnan after the breakdown of the commune and collective responsibility), the resource disappeared likewise. A gap constantly opens up between local institutions and the state in the rights and obligations involved in land tenure. In some areas institutions to manage common property resources still exist and have survived the encroachments of the market and the state, while in others they have not. While private tenure has been promoted by powerful international institutions, it is not clear empirically whether they have performed better environmentally than CPRs. There is some economic theory that says so, and examples of changes from open access to private property with concomitant improvements in environmental management can be found, but the environmental impact of private land titling remains ambiguous.

The study ends with a number of specific and strategic conclusions. Both avoid calls for better implementation, more policing, and less corruption. While all of these are desirable, a call for them, in many ways, is a symptom of systemic failures and prompts more fundamental questions about how policy is made. Strategic conclusions are that the state, in almost all the countries studied, is facing, increasing pressures in policing coercive and exclusionary land policies, or in maintaining anything more than a token presence in other sectors such as agricultural extension. Decentralisation, participatory and locally developed management systems, and the development of locally appropriate 'hybrid' knowledge (the negotiation and adaptation of outside and local knowledge) will have to be brought into the mainstream, and it is better that this inevitable direction is assisted and channelled by state institutions, NGOs, and other local organisations, rather than it becoming an environmental and possibly social disaster. The state must still have important and strategic roles to play in such policy areas as land tenure and reform, the provision of infrastructure, agricultural research, pricing policy, and national environmental plans and the coordinating roles which these imply. With regard to the process of developing a more accountable and locally appropriate style of environmental policy, there are both huge challenges and dangers. The challenges are to shift the syllabi, training, job descriptions, career structure, and ultimately, behaviour of many professionals at all levels – from the most senior civil servant to the forest or park ranger. Also, the training of

local people, political entrepreneurs, and village-level officials is equally important. Local language manuals (sometimes written with rather than for local people), networking, and local conferences and workshops will all play their part. Issues of land degradation and sustainable production will sometimes play a leading part, but in different ways within specific social contexts. The study does not assume that more local management will not be without dangers, and there are key decisions, discretion over which must be carefully weighed (e.g., whether logging bans, either regional or local stay in force). There are cases, too such as in some of the north-eastern Indian states, in which state involvement in land policy has been historically slight, but current local institutions and customary tenure have lost the respect and the social capital on which they depended. The study also makes a number of specific sectoral recommendations, many of which focus on accountability to stakeholders, and independent and, where possible, monitoring and evaluation undertaken independently and with client participation.

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Our greatest debt is to the country teams for their untiring efforts in collecting data and information that were often lost in the maze of dysfunctional bureaucracy and inadequate cataloguing and reference sources. Despite all the odds, it is because of their collected materials and support to us in probing further that the present study has become what it is. We would like to thank Dr. Ahmed Kamal and his Bangladesh Team, Dr. Pema Gyamtso and his Bhutan Team, Dr. Cai Yunlong and his Chinese Team, Mr. T.N. Dhar and his North West Indian Team, Dr. B.P. Maithani and his North East Indian Team, Dr. Kailash Pyakarul and his Nepal Team, and Mr. Vaqar Zakaria and his Pakistan Team for finalising the regional study.

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Dr. T.S. Papola, Head, Mountain Enterprise and Infrastructure, where the second author is a staff member, was kind enough to let the second author concentrate on the task in hand, often freeing him from other divisional responsibilities. This kind gesture made our task far more manageable.

JT/JTA	Junior Technician/Junior Technical Assistant
MFAI	Ministry of Food, Agriculture and Irrigation (Nepal in the 1970s)
MOA	Ministry of Agriculture
MOF	Ministry of Finance
MoLand	Ministry of Land
MPFS	Master Plan for the Forestry Sector (Nepal)
NARC	National Agricultural Research Centre
NEMAP	National Environmental Management Action Plan (Bangladesh)
NGO	Non-governmental Organisation
NPC	National Planning Commission
PCJSS	Parbatty Chattagram Jana Sanghati Sangstha, Organization of Chittagong Hill Tracts' people
SACC	Socialist Agriculture Cooperative Committee (China)
SALT	Sloping Agricultural Land Technology
SMS	Subject Matter Specialist
SPARRSO	Space Research and Remote Sensing Organisation (Bangladesh)
SPCS	Sarhad Provincial Conservation Strategy (NW Pakistan)
SRDI	Soil Resources' Development Institute (Bangladesh)
T&V	Training and Visit
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
UNFPA	United Nations Fund for Population Activities
USAID	United States Agency for International Development
VTE	Village and Township Enterprise
WW2	World War II
WWF	World Wildlife Fund

Glossary

Ban Jach	forest administrative service of Nepal in the early twentieth century
Birta	a land grant made by the state to individuals
Bun	local name in Meghalaya of bunds separating plots on slopes where cut biomass is heaped for burning as part of slash and burn cultivation
Chhuzhing	irrigated paddy land
Dzongkhag	district
GAREMA	a local CBO
Garos	an ethnic group in Meghalaya
Guzara	Traditional privately-owned forest in Northern and North West Pakistan
Jagir	Land grant from the state for military or civil service in lieu of salary
Jarul	A hardwood tree of <i>Albizzia</i> spp. for making rollers for boats
Jhum	Shifting cultivation by slash and burn method
Jhumia	Indigenous people practising Jhum cultivation
Kanal	Local measure for a land unit (0.02 ha)
Karbari	Tribal leader of the smallest unit under a Headman
Khas	State property
Khasi	Ethnic group in Meghalaya
Khedda	Wild elephant trapping system
Kipat	Communal land system, rights granted by kings in recognition of existing communal tenure

Mir	Traditional hereditary ruler in the Northern Areas of Pakistan
Mulki Ain	Nepalese law, literally meaning 'law of the land'
Panchayat	Lowest local government unit
Shariah Law	Islamic law
Talukdari	A land revenue collecting functionary (usually hereditary)
Taungya	Traditional agro-forestry method of cultivation within a forest
Teraï	Foothills and plains in Nepal and northern India
Tseri	Slash and burn cultivation
Tuki	Literally a kerosene lamp, symbolically carrying the light forward
Union Parishad	Union Council (renamed in Bengali)

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Scope and Focus

Scope and Focus



One

Left Barren slopes after cutting down trees - Northern Areas, Pakistan
 Vaqr Zakaria

Right Top Soil erosion in Lu Quan County, China
 Cai Yunlong

Right Bottom Land use in Yunnan, China
 Cai Yunlong

Chapter One

Scope and Focus

Land Policy

In 1998, the International Centre for Integrated Mountain Development (ICIMOD), with support from the Global Mountain Programme, initiated a comparative study entitled 'Land Policies, Land Management and Land Degradation in the Hindu Kush-Himalayas' in six countries: Bangladesh, Bhutan, China, India, Nepal and Pakistan. The study demands that primary attention be paid to the causal linkages between land policy, land users, their land management strategies and the environmental outcomes. Its key focus is the impact of policy on land management and environmental outcomes. It must also be able to make constructive suggestions on how to improve policy in terms of its actual or potential environmental and socioeconomic effects and reduce adverse impacts where they can be shown to have occurred. The second focus is on the way in which land policy is made in the countries under study, its assumed environmental justifications, and the socioeconomic effects it has upon the livelihoods of resource users. This implies that issues of environmental justice, democracy, participation, and equity — socioeconomic and political issues rather than narrower technical ones — should be discussed. This chapter deals with the scope of the research, and the following one with its approach.

There are three substantive areas that the study must examine — land policy, land management, and land degradation. The intersection between land and policy, therefore, constitutes the central focus of this research. However, a reasoned and justified excursion into the non-intersecting parts of the three sets is also necessary. On the policy side, the politics and realities of policy-making, the international ideologies and styles of environmental policy, national priorities and preoccupations, why policies turned out the way they did, and what are the ground realities of implementation will all, at different points, have a bearing on environmental impact. On the land management and degradation side, the dynamics of land-use change and land management quite outside policy effects are usually far more

important in shaping land management practices (and sometimes leading to land degradation) than policy itself. Thus, it is important to have an understanding of the socioeconomic context in which hill farmers and pastoralists earn their livelihoods. They are the principal targets of any land policy that attempts to bring about changes in the use and management of land-based natural resources. They may actively build upon policy opportunities, or passively, covertly, and even actively resist these policies. To understand their response, it is necessary to refer to the circumstances under which they live and to their own institutions that govern collective action. Much has been written already about the dynamics of the society-environment relationship in the region and this research did not attempt any substantive contribution in this area. Rather, it drew upon existing literature, when relevant to land policy, on a need-to-know basis, and, more importantly, delved into more complex socioeconomic issues.

A broad interpretation of land policy could include any policy taken by the state or other institution that affects the use and management of land, directly or indirectly. The potential range of choice includes policies restricting land use (e.g., prohibition of shifting cultivation or urban land-use planning), land taxation (rates, revenue classes), mortgaging, tenure, ownership, titling and cadastral surveys, policies on share-cropping and renting land, forest policy (including social and community forestry), national parks, urban-zoning, trekking and tourist regulations, national environmental policy (e.g., national environmental strategies), industrial policy, energy policy, hydroelectric schemes, settlement and resettlement policy, and road construction and hydroelectric projects plus policies that include foreign-designed and foreign-financed integrated rural development projects and other decentralised, formal policy-making and implementing institutions, which, by their project activities and local policies, affect land use and management. This is a formidable range of policy areas. In addition, there are six nation states, at least twenty subnational administrations (e.g., states, provinces, autonomous regions), and several projects and programmes that might also be said to make land policy and have implementing powers in the Hindu Kush-Himalayan region. Clearly, choice has had to be exercised. The following policy areas were selected by the authors of this report and the country teams for each of the participating nations in this study.

- Forests. This includes a range of management structures (e.g., state, reserve, joint management, social/community, private and commercial, as well as forestry components in integrated and multisectoral projects).
- National parks and wildlife. This includes parks, bioreserves, and wildlife projects managed by national administrations, and those

designed (and sometimes partly implemented) by international and bilateral donors.

- Agriculture. This is a broad area of policy with many potential impacts on land management and degradation — including agricultural research and extension policy, promotion of particular technologies and crops, and credit provision managed both nationally and by international and bilateral projects.
- Property, tenure, titling. This includes land reform, common-property institutions, new arrangements of rights and obligations under community forestry, and policies that alter property regimes and are linked to changes in land taxation.
- National environmental policy for each country (including national environmental strategies and action plans). These were considered necessary to provide a context in which land policies are made and carried out. Much environmental policy in the region is primarily concerned with land anyway. In addition, it might be expected that there should be legal, institutional, and policy changes that follow from the adoption of a national environmental policy that are relevant to more specific policy areas. Thus, national environmental policy, insofar as it is linked to land policy, was also included.

Within the five main policy areas, the range within which to concentrate is large, and strategic thinking had to be brought to bear at an early stage to avoid spreading effort too thin. The criteria used for choosing areas within the five were as follow.

- Comparability of themes and issues between countries
- Major policy controversy and debate
- Support from good secondary data, academic studies, project evaluations and other sources

It was also decided that each participating country team should be able to choose up to two optional policy areas that were of particular importance in their country but which lay outside the four common ones. It is common place to emphasise the diversity of the Hindu Kush-Himalayan region, and where there were seven country studies (including two from India), it was not surprising that there were important policy issues that were specific to one country. In spite of the self-imposed limitations, the scope of this study remains wide, and the literature on many of the topics is formidable. Therefore, it was felt that the best way to make an original contribution to any part of this much-researched and written about subject was to take a different and innovative approach to the environment and to policy-

making, in general, and to collect and use data in a distinctive manner to serve this approach. The reader, therefore, will not find the conventional approach used in many consultants' reports in this field. Instead, many of the assumptions on which the conventional approach is often based are themselves questioned.

Participating Countries

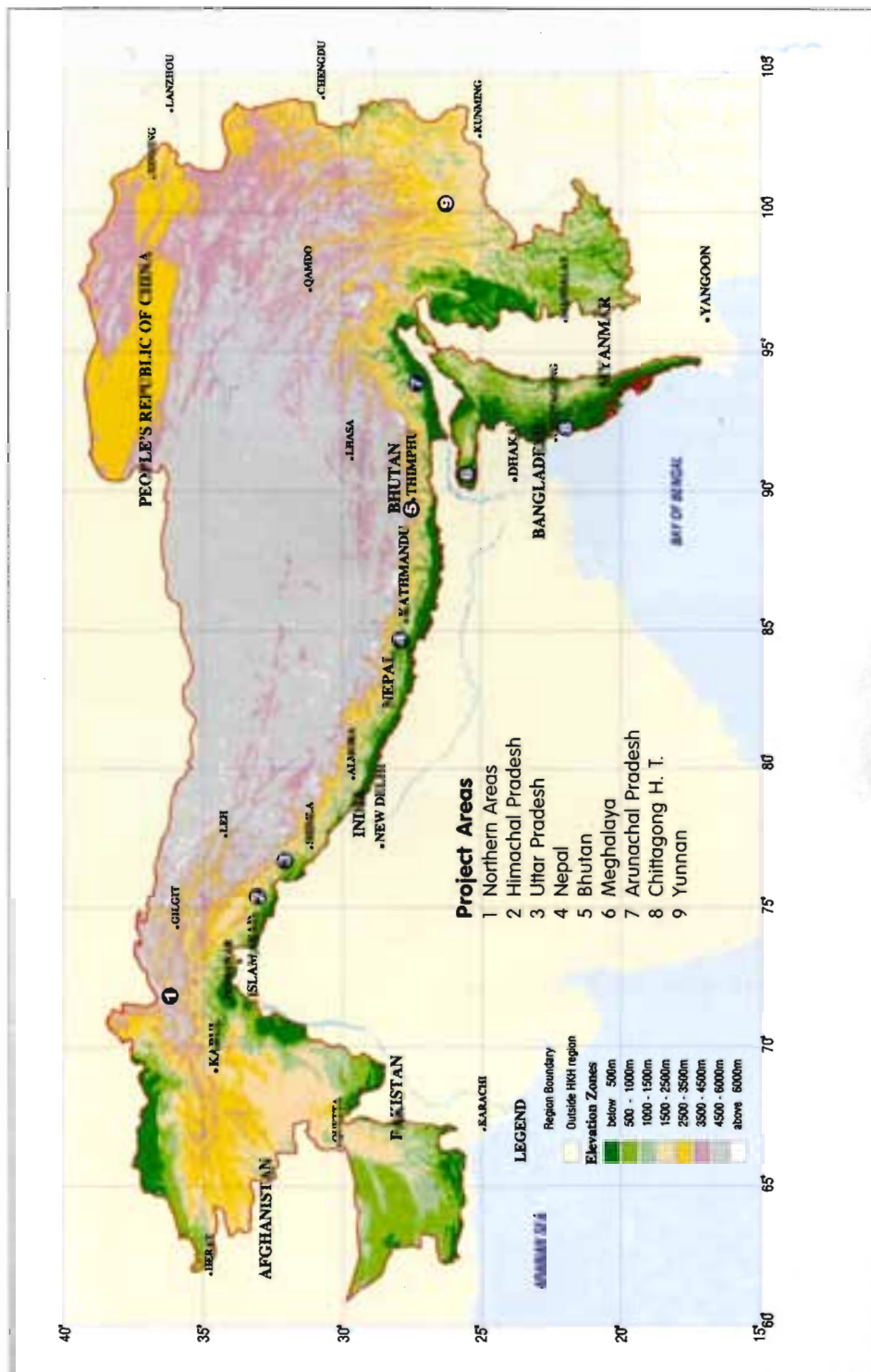
The participating countries in this project were Bangladesh (Chittagong Hill Tracts), Bhutan, China (Yunnan Province), India (two studies: one in the northeast and one in the northwest), Nepal and Pakistan (North West Frontier Province and Northern Areas) (Map 1).

Programme of Work

The intellectual framework was developed in a participatory way between the country teams, ICIMOD staff, and the authors of this report. The first author was the external consultant while the second author was the ICIMOD staff member in charge of the project. The framework was discussed by the country team leaders at an induction workshop held at ICIMOD from 27–29 May 1998. The framework was comprehensively reviewed and changes were made and agreed upon, ensuring that the revised framework was deemed appropriate by all country teams and that a sense of common ownership of the approach was established. The country teams then started work (with varying lengths of delay for three of the country studies). The authors of this report visited as many of the country teams as possible (Bangladesh, China, India, Nepal, and Pakistan). Unfortunately, a visit to Bhutan could not be arranged. Discussions about preparation of the country studies were held, field trips organised, and a number of interviews with key actors in each country arranged by the country team leaders. The field visits by the authors of this report were particularly useful, enabling first hand experience to be gained and a comparative perspective to be developed for each country visited. Final country reports were due on 1 November 1998, a final round-up workshop was organised from the 4–5 November 1998, and a draft final report was delivered four days after that. The report was subsequently revised into the present format.

Levels and Scale

A multilevel and nested hierarchical research approach in each country was followed. Firstly, a perspective was formed in which global environmental agendas were defined, and the various ways in which these had become international policy, negotiated by multilateral, bilateral, and non-governmental organisations (NGOs) with national actors were examined. Secondly, national environmental policy, as far as it concerned our definition of land policy, and specific policies



Map 1: Countries participating in the research

concerning land were identified and evaluated. In some cases, there was an additional subnational tier (e.g., the state in India, the province in Pakistan and the province in China) that had important repercussions on policy-making and implementation. Thirdly, case studies were chosen from secondary sources, either alone or followed up by brief field visits. The choice of these was determined by the degree to which they illustrated general themes in the country study. The project did not have the resources to undertake any more than limited primary data collection other than that collected from key interviews at state level and local case-study level. Thus, there are many policy issues that have had to be illustrated with only a few local case studies, then filled out by other secondary sources at the local or subnational level, whenever possible, to illustrate national themes. The issue of responsible generalisation from one scale to the next and from one country to another is important in such a diverse area from the environmental, cultural, and political points of view.

Approach



Top	Cleared slopes and road used for carrying timber - Northern Areas, Pakistan <i>Vaqr Zakaria</i>
Bottom	Road damaged by debris in Yunnan, China <i>Cai Yunlong</i>

Chapter Two

Approach

Approaches to Evaluating Land Policy

As already stated, the main goal of this project is the evaluation of the impact of land policy on land management by resource users and its subsequent effects on environmental outcomes and livelihoods. The results would, in intention at least, then be communicated to policy-makers who would have rational grounds for improving their land policies in the light of any policy recommendations. However, there are three important challenges to the fulfilment of this goal, and they are central both to the way in which this study is written as well as to our approach to analysing policy and recommending change.

- Proving the policy effect. There are difficulties of providing unambiguous, empirical proof of the policy effect upon environmental outcomes (with a few evidence-based exceptions). They have implications for the scientific justifications for environmental policy, suggesting that these may often have shaky foundations, and that other social and ethical criteria, in addition to environmental ones, may be added.
- Competing criteria for evaluation. Plural definitions and criteria exist for evaluating environmental outcomes, particularly the definition of land degradation. While an individual may place one definition above others, our view is that this does not imply acceptance of conventional assumptions about single authoritative criteria. There are links between knowledge, science, and policy-making (mostly concerning the environmental justifications for policies that also have socioeconomic impacts) that must be examined.
- The rational model of policy-making. This dominant model of policy-making assumes that truth talks to power, and that policy-makers listen to truth (particularly scientific truth) and adopt policies that are in the public good. It is often assumed that policies are not substantially captured or affected by professional and political interests. There is so

much literature and evidence that policy does not work in this way that alternative approaches, which are more realistic and helpful, must be explored.

Proving the Policy Effect on the Environment

The dominant and conventional method of undertaking research of this type is to identify positive scientific evidence of the difference in environmental outcomes between a policy and no-policy situation. This can be done by making a with-without comparison in different locations during the same period in time or a before-after comparison in the same location at different points in time, or by comparing the outcomes of two different policies either at different locations or at different periods of time. That all other conditions are equal has to be shown to exist to some tolerable degree, and then the differences in environmental degradation must be assumed to be due to the policy effect. This method is the toughest in terms of standards of proof, is respected by other scientists, and is most likely to be accepted by many of the audiences of this study. However, there were some substantial reasons why this method could only produce convincing evidence of the policy effect in a few cases. There are three major obstacles to the successful use of this method.

- One of the most important obstacles to disentangling the policy effect is the impact of socioeconomic change that operates in the same locations and over the same period as the policy effect. For example, in the Hindu Kush-Himalayan region, population growth, rapid urbanisation outside the mountain areas, economic liberalisation programmes, the increasing importance of non-agricultural incomes for rural populations, and labour withdrawal from the agricultural sector due to out-migration are all known to be important elements of environmental and socioeconomic change, and to be highly spatially variable. However, they may have more important impacts upon environmental management than the policy effect in which we are interested. It is difficult to know with any degree of certainty.
- The second difficulty is that policy is often a shadowy process, fitful in implementation, and sometimes it never really leaves the paper on which it is written. For example, national environmental strategies involve a long drawn-out process in which it is impossible to be clear-cut about the effects of that policy. The implications of a single policy tend to be diffuse over time, between sectors and between policies. In other instances, the policy may involve a distinct change in the behaviour of resource users, but only for a period that is insufficiently long for any discernible environmental effect to occur. For example, at

present, there are total logging bans in Pakistan, India and China, and, although they are not completely adhered to, they have resulted in an abrupt change in behaviour. Nonetheless, the actual environmental impact of this policy is quite complex and not as clear-cut as might be imagined. Trees are still cut, probably at a much lower rate than before, but lie *in situ* and are only sometimes transported to road- or railheads in anticipation of the lifting of the ban, or of the possibility of illegal export from the area. In some areas in more remote locations, trees will continue to be cut by local farmers because policing is sparse or chooses to look the other way (e.g., in some states of northeast India). However, the whole process is of comparably short duration and spatially diverse from the point of view of affecting any verifiable indicators of environmental change.

- Finally, the complex and ill-understood nature of anthropogenic environmental change in the Hindu Kush–Himalayan region creates difficulties in two ways. The first is in the unambiguous identification of the policy effect. The second is that the scientific justification of land policy, based upon assumed cause-and-effect relations between land use and land degradation, is often shaky, and, therefore, the authority of policy-making institutions, based as it is partly on scientific knowledge, sometimes may rest on questionable foundations. This latter point will be discussed in more detail, particularly in Chapter 8. Partly, the complex process of sorting out anthropogenic processes in land degradation is a general problem and there is a sizeable literature concerning the historical difficulties that scientists have had in assessing the degree of degradation in a variety of different ecological settings outside the Hindu Kush–Himalayan region. For example, the semi-arid tropics, particularly in sub-Saharan Africa, have been the site of the 'overstocking controversy'. An impressive story of overgrazing and degradation of rangeland was built up over many years to the extent that it shaped many environmental policies and seemed impregnable. Indeed, any attempt to oppose it often met with hostile responses. Yet, today, the scientific assumptions on which the reality was constructed are less authoritative and have been contested by stakeholders. Anthropogenic causes of vegetational and geomorphic change in the semi-arid range are still debated, but they do appear from today's vantage point to be much less decisive than previously thought. It is clear that a similar rewriting of the anthropogenic role of environmental change in the Hindu Kush–Himalayan region has been under way for 15 years or so. An explanation of the causes of environmental change and land degradation, in particular, anywhere in the world, is usually complex, multivariate, largely site-specific and not fully understood in a scientific sense. While there has undoubtedly been some progress in

universalising some of the key relationships between land management and soil loss and productivity, there are still formidable unsolved problems in developing effective predictive modelling, especially in non-temperate environments (Biot et al. 1995).

The problem of understanding the causes of environmental change is a particular issue in the Hindu Kush–Himalayan region. The literature on this subject is voluminous (see Ives and Messerli 1989, the Proceedings of the Mohonk Conference, and continuing review and research in such journals as *Mountain Research and Development*). The importance of man-made environmental degradation in the region has been a source of wide debate, and, indeed, has given rise to what is known as the theory of Himalayan environmental crisis. Briefly, this asserts that anthropogenic or accelerated erosion is a serious and general problem and is driven by population growth of humans and livestock leading to deforestation. Extension of cultivation on to steeper slopes, clearance of forest for agricultural purposes, and unsustainable use of the forest for fuelwood and fodder have been the major land-management practices that have caused accelerated erosion, sedimentation of river beds, and increasingly severe flooding downstream. The evidence for such a crisis has been as voluminous as it has been ambiguous, for scientific and technical and epistemological reasons. The Hindu Kush–Himalayan region has for most, but not all, localities high natural erosion rates; however, the anthropogenic contribution (including policy effects) is often difficult to separate. For example, recent work by Carson (1985), Ramsay (1987) and others has suggested that rapid orogenesis and associated down-cutting by rivers in many parts of the Hindu Kush–Himalayan region may be responsible for much of the mass wasting and high rates of sedimentation. These and other related findings substantially tipped general opinion for a while against the theory of anthropogenic causation behind the Himalayan environmental crisis. However, the authors of this study are more cautious and, as will become apparent in the following discussions, take the view that there are environmental problems in the Hindu Kush–Himalayan region — in some areas, for some people and for some of the time — that, sometimes, these are serious, and that they are recognised as such by most of the major stakeholders (e.g., Jodha 1995).

In addition to the more general problem of assessing the credibility of the theory of environmental crisis, there are problems that make tracing the policy effect rather more difficult. The measurements of both dependent variables (erosion indicators) and independent variables (natural and anthropogenic causes) have to be made through a period of time that is long enough in order to be able to indicate change in their status, and this has been problematic in the Hindu Kush–Himalayan region. For example, there is a high degree of uncertainty over the evidence about recent deforestation,

and there is some counter evidence that forest cover may have improved in some locations (even if not in condition and composition) (Byers 1987; Gilmour and Fisher 1991; Ives and Messerli 1989). Bearing in mind that forestry departments in different countries in the region make claims — to manage forests so that their extent and quality do not decline in future — that are based on measurements of actual or potential forest decline, this uncertainty has considerable policy implications.

In spite of these difficulties in finding persuasive proof, there are instances in which the footprint of policy can be identified when it has been long established and profound (though not necessarily beneficial). Examples in this report include the Great Leap Forward in the early 1960s in China; the property reforms away from communal control towards the responsibility system in Yunnan Province, China during the 1990s; the nationalisation of forests in Nepal from 1954; illegal clear-felling in violation of forest plans in Pakistan; and the existence of the Indian Forest Service in managing some forest areas, sometimes for over 100 years. These are, in the approach taken by this study, policy outcomes and, even if they were not intended, they were shaped by policy. It is interesting to note that all but the last example were unintended consequences — a general point to which this report will return. However, excepting these and a few other cases, hard proof of the policy effect was impossible to obtain, either because the data did not exist, or because the standards of proof were too high in a complex and multivariate reality. The view of the authors of this report was to use the conventional methods for demonstrating environmental effects of human action whenever it was persuasive and could show convincing results, but to employ much less rigorous methods for most of the analysis.

There are also implications of these difficulties with scientific proof for policy-making. Many land policies are claimed to rest upon scientific foundations, but these are as uncertain as those that underpin the theory of Himalayan environmental crisis. The assumed justification of much land policy in the Hindu Kush-Himalayan region, as well as elsewhere, is that the state has the responsibility and right to manage the environment based on scientific principles of management that operate above the competing interests of users. The problem arises when sometimes these scientific principles cannot be proved to operate using conventional positivist standards of proof. Thus, forests are being gazetted, shifting cultivation and timber extraction banned, environmental laws passed, and national parks and bioreserves established, all with far reaching socioeconomic and cultural implications for resource users, but often with scientific justifications that do not reach standards of proof commonly claimed for rational policy-making.

Competing Criteria for Evaluation of Environmental Change

It is notoriously difficult to define and measure land degradation. Choices are based on methodological, epistemological and, ultimately, ideological grounds, and their exploration in this report is not a mere academic exercise but has direct policy implications. Queries include degradation for whom? Using whose criteria? How much does a given rate of degradation matter? Over what time period? How much is anthropogenic, and in principle, avoidable? So much for the difficulty; however, a view on what definition(s) to use has to be taken.

There is, of course, a common sense view of degradation that is shared by many scientists, forest department officers, and informed observers alike; and is constituted by a number of key scientific and socioeconomic assumptions; and may also be supported by mind pictures of extreme evidence of degradation (e.g., landslides, clear-cut forests, bare soil, gullies, and so on). Yet, such a common-sense approach has not been a reliable guide in the past. Literature abounds with examples of soil conservation officers and authors from the colonial and post-colonial periods in Africa and Asia pronouncing serious and terminal degradation caused by unwise land use on the part of farmers and pastoralists. These common sense views have been challenged for two reasons. The first is methodological, with the result that visual evidence of degradation is taken in lieu of scientific evidence. This is understandable since scientific data are usually not available. Indicators of anthropogenic erosion have attracted increased criticism. Landslides are a case in point, where they may be viewed as natural (they would have occurred anyway irrespective of current land use) and part of a stock-and-flow model, in which there are always landslides in evidence, but they heal either through natural processes if left alone or through remedial action on the part of resource users. Recent literature has suggested the idea of resilience and the possibility of reversibility. This study is not denying that there may be serious environmental problems in the Hindu Kush-Himalayan region; however, there are plural definitions of what they are, the universal generalisations on which much policy relies are no longer safe, and criteria other than conservation and scientific management must be considered.

The second reason for challenging the common sense view is epistemological and focuses on whose definition of degradation counts in the policy-making process. The definition of land degradation used here is a 'decline of the potential of land to a lower rank, meaning a permanent reduction (except at prohibitive cost) in the ability of land to produce value in the future' (adapted from Blaikie and Brookfield 1987). The controversy

arises chiefly through what constitutes value and what decline means to different people. Definitions incorporate all manner of scientific, professional, economic, cultural, and social assumptions and, in policy formulation and implementation, it is usually those definitions of land degradation that are held by powerful actors in land policy that prevail. Typically, these include career professionals in forestry, agriculture, conservation, international consultants, and some multilateral and bilateral aid agencies. Definitions of land degradation and the degree to which it is a problem to be solved by policy vary between them and, in some cases, contradict each other. However, most of these powerful actors, in at least four countries of the Hindu Kush–Himalayan region (Pakistan, India, Nepal, and Bangladesh), who shape land policy, share various versions of the Himalayan environmental crisis. It is this powerful theory that both depends on and, also, drives particular definitions of land degradation. However, there are significant variations of definitions between different actors. Here are three examples.

- Various scientists have framed the problem of land degradation principally as one of soil loss from slope failures of various kinds brought about by deforestation, inadequate terrace design, and so on; however, farmers may be more interested in the problem of changing soil-nutrient status and crop yields and attribute slope failures and soil loss to reasons other than their own actions. Indeed, farmers may sometimes deliberately cause landslides, and often turn existing ones to their advantage.
- Deforestation of hill slopes was, and still is, considered a symptom of development rather than degradation by land revenue departments in Nepal and India, provided that cleared land was (is) used for agriculture and generated (generates) revenue for the state.
- The conversion of single-canopied, mature sal (*Shorea robusta*) forest to multi-canopied, coppiced secondary forest by local farmers would be considered degradation by most professional foresters, but it is considered as environmental enhancement by farmers who extract a greater volume and diversity of forest products after conversion, and as a conservation-neutral event (depending on the technical details of the forest management in question) by some soil scientists.

The approach taken by this study to what is land degradation is a plural one, so that a number of definitions are accepted provisionally as different and potentially of equal value. However, this is not a relativist position (any definition and explanation of land degradation is as good as the next). All definitions and assumptions about environmental change will be tested against their relevance to the long-term sustainability of the livelihoods of

the 140 million inhabitants of the region. This rests on scientific understanding about land degradation that is mediated by the degree of uncertainty and disagreement about the issue; and, also, based on lay views from various resource users. The judgement, therefore, does not take at face value bureaucratic and professional justifications of particular land policies, which rest on seemingly scientific and non-political assumptions, but interrogates them in terms of the socioeconomic and cultural impacts of policies based on which criteria of justice and ethics also have to be weighed against claims of environmental conservation. In other words, the issue of whose definition of land degradation counts remains in the forefront of this evaluation of land policy in the region.

Rational Model of Policy-making

There has been a great deal of rethinking about policy and policy-making, including environmental policy, over the past 20 years; particularly over the last five. Many of the directions challenge accepted objectives and norms of policy-making. A few, interesting and emancipatory though they might be for some readers, start from premises that are so far removed from most audiences of this report that there is not much point in using them since they do not readily convert to constructive comment. However, there is one model of policy-making that is still dominant in many circles but which this project does not, unreservedly, adopt. It is the rational model of policy-making, and the reservations that the writers of this publication have about it have important effects upon the conclusions reached. The importance of this approach to policy will be demonstrated later in this section.

The rational model of policy-making is as follows.

- The scientist (e.g., from forestry, hydrology, geomorphology, and pedology) identifies the degree and causes of land degradation (e.g., land use or deforestation) in a particular area and its impacts (e.g., accelerated erosion, declining crop yields).
- Objective and generalised truths about the state of the environment in terms of land degradation and human interference are generated.
- The impact of human actions, including those mediated by policy, on these rates of erosion/indicators of degradation are identified according to some reasonably persuasive experimental design.
- These findings are presented to policy-makers.
- Policy-makers accept the findings and improve land policy in the light of them.
- New policies alter the way in which farmers use and conserve their natural resources, and the policy cycle starts again.

This is a simplified and naïve version of the rational approach to environmental policy-making, but it captures much of what policy-makers claim to do. It is an apolitical process in which expert knowledge is dominant and is, therefore, usually wielded by a policy elite of scientists, a handful of senior professionals from the departments of agriculture, forestry or wildlife, and international consultants. As empirical evidence from this report shows, policy simply does not happen like this. Politics imbues every scientific fact and rational action: bureaucratic and professional agendas frame policy problems and policy implementation. New scientific research fails to reach policy-makers' ears or is merely disregarded. Some have called the links between science and policy 'mutual construction' (Barnes and Edge 1982; Shackley and Wynne 1995; Jasonoff and Wynne 1997). Different agendas in land policy are contested — some reach the pages of policy documents and stay there, but never live on to the implementation stage. This study therefore develops its own modifications to the rational approach, and avoids ending up with yet another set of technical recommendations that do not take into account alternative understandings about both policy-making and land management.

Analytical Concepts

This research used four analytical concepts that provided the basis for a distinctive research framework.

Policy as process

Land policies, like any others, seldom have all the effects intended by the policy-maker, and often have unintended ones. Policies are shaped by political coalitions, pressure groups and compromise, and all have histories that are both national and local and which vary greatly throughout the Hindu Kush–Himalayan region. Implementation occurs in different and varied ways that come from the professional and cultural agendas of implementing agents (revenue officials, senior forestry professionals, forest rangers, police, and so on). Each of these agents has a professional view and style regarding implementation. For example, foresters are usually trained to grow trees, often in single species' stands and plantations, but are not trained to be social foresters whose main task is to help communities manage multispecies' forests for their own subsistence use. Therefore, it might be expected that, to a degree, a community-forestry programme may be implemented reluctantly and in a style that is only participatory on paper and not in practice. This will have considerable environmental implications. Therefore, it is seldom a straightforward matter of accepting social/community forestry as a number of specific intentions that can be traced on the ground, because those intentions are interpreted in all sorts of ways or, sometimes, are disregarded altogether. To take another example,

policy-makers in the finance ministries of a number of countries in the Hindu Kush–Himalayan region may take a view that cadastral survey and individual titling allows maximisation of land revenue and extension of cultivated land into pasture and forest. Therefore, they may not take kindly to forest conservation and to measures that limit the extension of cultivated land. In both cases, the professional views and styles of the main people involved are important and affect the policy as implemented on the ground.

As we have mentioned above, policy is also interpreted 'at the interface' (Long and Van der Ploeg 1989) by the major stakeholders (e.g., farmers, pastoralists and other resource users), and outcomes may include poaching, prosecution, or connivance in certain infringements. This research should, therefore, study policy on the ground, as actually experienced, not just on the statute book. Thus, this approach will avoid a naïve, legalistic acceptance of policy — just accepting what a policy document says and its objectives and its policy instruments as the rational outcome of scientific information used for the public good. It must also be acknowledged that the formal substance of land policy is important and will be the initial starting point and focus of our approach. However, even at the policy-making stage, various stakeholders will interact politically, make representations, and stake claims. Even more so, stakeholders in government and civil society will determine the outcome of policy, as it unfolds, on the ground.

Policies turn out in all sorts of unintended ways: sometimes in a dramatic and environmentally disastrous manner (for example, the Great Leap Forward in China, or the nationalisation of forests in Nepal, both of which wreaked havoc with forest resources) and sometimes they have little actual impact at all (presumably, an unintended outcome). The research required to understand these informal processes is both difficult and time-consuming. It requires a deep understanding of the politics of the administration involved and of the face-to-face contacts with ground reality. Also, the evidence for the politics of policy is often anecdotal and sometimes may not be convincing in terms of positivist science, but, nonetheless, it is still important in tracing the impact of policy upon environmental change. However, in cases where commentaries, critiques, research studies, and key informants are available, this research aims to move beyond a formalistic treatment of land policy and to be able to explain how the policy process has proceeded. Using the ideas of Long and van der Ploeg (1989), this report focuses on intervention practices as they evolve and are shaped by the struggles between different participants, rather than simply on intervention models and the ideal-typical constructions. Interviews of key personnel, knowledgeable civil servants, village leaders, and politicians have been important in this approach. Most of the country

studies have built on focus group discussions, workshops, and other interactive dialogues with stakeholders. Thus, much of the evidence of the informal aspects of policy-making is anecdotal and qualitative.

In summary, some key differentiating descriptors of the rational and new ways of policy analysis are given in Table 2.1.

Table 2.1: Some characteristics of conventional and new approaches to policy analysis	
Conventional	New
Normative Rational Authoritative Implementation: separate from policy State functionaries and target populations	Process Political Negotiated Implementation: part of policy Actors with their own projects

The advantages of this approach to policy are as follow.

- It goes beyond the narrow legalistic description of policy, which is not an adequate description of the independent variable.
- It avoids the inflexible normative approach to policy and the usual list of (unrealistic) policy recommendations.
- It indicates what the realistic opportunities and constraints are to land policy in a given political and administrative situation.
- It taps into recent policy discourses concerning the legitimacy, realism, and efficiency of policies based on unexamined scientific and political claims that attempt to regulate the environment.

There are also disadvantages that must be addressed. They are that readers of this study may instinctively reject this approach as too arbitrary, aimless, and at the mercy of political forces that subvert any rational intention. As one commentator put it, there is an understandable desire to ‘rescue policy from the indignity of politics’ and to somehow enforce the rational model that gives back the power of decision-making and executive capacity to the policy-maker and professionals in the various sectors. The answers that we would give to this view are as follow. Firstly, it must be stated that a sense of direction and executive agency and a belief that policy can and should be made for the public good must both be kept firmly in view. Secondly, stakeholders (and claimants to be stakeholders) in the Hindu Kush–Himalayan environment will and should have a political stake in the formulation of policies that affect them, and that a model in which the state and its policy elites predominate brings with it many dangers. These are that their claims (based on science) are often not as sound as believed or,

sometimes, just plain wrong; that they may put some stakeholders above others and inadvertently become political; that if vital interests (in this case, livelihoods that derive from natural resources) are sacrificed without negotiation and compensation, policies are costly, if not impossible, to implement; and, finally, that policies may well contravene notions of justice and fairness. These arguments address some of the issues involved in current debates about good governance. We see little reason to exclude environmental policy issues in the Hindu Kush–Himalayan region from these debates.

Stakeholders

The approach does not envisage a simple, one-step analysis of links between policy and environmental outcome. Instead, it recognises that there are individuals and institutions that lie between land policy and environmental outcomes. These can usually be identified as the various land users, other interested parties, policy-makers, and implementers themselves. Policy-makers and other interested parties shape policy and its implementation as part of a long drawn-out process; and land users adapt their ongoing land-use practice to new policies, as they experience these policies on the ground. Therefore, all the major stakeholders in the four areas of land policy have to be identified with their agendas, objectives, and action spaces. In some cases, in which political forces have shaped (or blocked) policy and the ways in which it operates on the ground, the report discusses these.

The identification of stakeholders has been derived empirically. Usually in each country they are drawn from the following groups: international professionals associated with multilateral and bilateral aid donors; senior civil servants; politicians and people with informal political power (e.g., local leaders of various kinds); hill farmers and pastoralists; local-level bureaucrats, government employees, and forest rangers, who implement land policies at the local level; business and trading interests; timber contractors and the timber industry; in some countries, the environmental or 'green' intelligentsia (particularly in India where they are able to exert its power through the free press there); social movements and informal political organisations; and, non-governmental and community-based organisations. Their powers in policy-making vary enormously from country to country.

There may be other important players that have an inadvertent role in affecting land policy on the ground, but who are not strictly speaking stakeholders (e.g., the military, as is the case of the Chittagong Hill Tracts in Bangladesh, the North West Frontier Province in Pakistan and in some of the

hilly areas of the eastern hill states of India). Clearly, the reality of insurgency and military activity has profound effects upon land policy and must be acknowledged. Also, there are other policy areas that have contingent impacts upon land policy in unforeseen ways (e.g., transport policy, road construction, and hydroelectric projects).

The advantages of identifying stakeholders in land policy are as follow.

- The focus is widened from policy and environment to include people who exercise choice in ways often overlooked and unpredicted.
- Future interested parties in land policy, and their likely reactions to it, can be identified, and a more politically realistic policy developed.
- Ethical and political issues regarding environmental rights can be clearly identified.

Access to land-based resources

The most numerous stakeholders in land policy in the Hindu Kush-Himalayan region are farmers and pastoralists who earn their livelihoods from the use of a range of natural resources and from other non-agricultural income opportunities. Livelihood is the focus of the impact of the land policies upon farmers of different characteristics (e.g., gender, wealth, demographic characteristics of the household, non-farm income, and so on). Any land policy must impact upon the livelihoods of hill farmers and pastoralists in both the short and longer term. Farming households can be seen at a point in time with an array of assets and access rights (entitlements, they have since been called by Amartya Sen). Some are wealthy and some are not. Some have access to large amounts of household labour and others do not. Women may not have certain entitlements that men expect, and so on. All are faced with choices from time to time (e.g., at the beginning of an agricultural calendar) to put together a portfolio of income-earning opportunities that together make a livelihood. Some of these income-earning opportunities are provided directly by the environment that is structured by their supply from nature (fodder, fuelwood, soil nutrients). Others are regulated by social institutions (e.g., property regimes, government policy, labour-sharing arrangements, gender division of labour). Thus, each household has a pattern of access to environmental resources that is constrained by the household's own capabilities (e.g., labour power, gender division of labour, skills, capital, social capital) and a set of institutions that govern access and practice concerning land-based natural resources. These institutions include common property resource-management institutions, other forms of communal tenure, private tenure for land (and sometimes forest), forest

user groups, pastoral associations, and community-based organisations as well as government policy in the narrow sense.

A central part of this study is to trace the impact of policy upon changes in access to land-based resources by different groups (e.g., rich, middle, and poor farm households) and for different ecological zones (e.g., mountain, hilltop, hill, valley bottom, and so on). Once an understanding of how different groups access these resources (private land for agriculture, pasture, fodder, timber, other forest products, and so on) is established, then the impact of a particular policy upon these patterns of access can be clearly determined. A policy can block out and deny certain income opportunities, or alter pay-offs and, hence, incentive structures. It can also enhance opportunities for certain types of households, for men and not women, for valley-bottom and not hilltop villages. For example, blanket logging bans, which are in force in the majority of the countries studied in this report, have a set of differentiated impacts in both the short and long term on the livelihoods of various resource users: men and women, furniture-makers and logging contractors, small farmers who sell timber, farmers who rely upon the forest for subsistence purposes, and so on. It is not suggested that rights to a livelihood as envisaged by rural resource users should remain inviolate and that no restrictions should ever be put on them. Nevertheless, it is suggested that these rights should be fully recognised and, if their abrogation is to be considered in the name of public interest, the grounds must be both ethically and scientifically solid, they should be negotiated, and if compensation is the outcome of these negotiations, it should be scrupulously observed. As this report will show, many scientific claims on which policy is based are not solid; resource users' rights are not fully understood (they are not negotiated with resource users so bureaucratic routines are launched regardless); and compensation is inadequate or simply never paid at all.

In summary, the economic, social and cultural aspects of hill agriculture and forestry and their main dynamics must be understood if both the environmental impact of land policies and hill farmers' reactions and adaptations to these policies can be satisfactorily followed through.

Advantages of this concept are as follow.

- It provides an explanatory framework for the changes in access and the responses of the major stakeholders in land policy.
- It puts people, their livelihoods, and the environment that they use at the centre of the framework, rather than the agendas of governments (e.g., revenue collection, conservation, and sets of recommended

agricultural practice and land use according to professional and administrative norms).

- It helps to define land degradation in terms of the major stakeholders who use land.
- It puts ethical issues of gender, equity, and difference centre stage.

Environmental Changes as Policy Impact

This concept assumes that land degradation and environmental change in general in the Hindu Kush–Himalayan region is brought about mainly by decisions and actions of individuals and informal institutions that lie quite outside government policy altogether. It also assumes that the impact of government land policy on land degradation has been patchy, depending on other more pressing issues of farmers, and often with unintended consequences on environment and people. Therefore, land policy impacts upon directions of environmental change that are already underway and powered by other demographic, economic, and social forces. It is essential that these forces are specified together with their varied environmental impacts, and that it is understood how they are modified by government policy.

Therefore, the present study will look at the policy process not exclusively from the rationalist–scientific perspective high on the agendas of governments, but from the perspective of land users themselves and the environmental impact that comes along with the policy package. It will also look at policy as it affects the society and economy, and the accompanying environmental shifts that are taking place in the mountains of the region: a narrower but more focussed area of study rather than the whole nation states encompassing the Hindu Kush–Himalayan region.

How to Use This Study

This study is the central output of a large research project, funded and organised by ICIMOD. It draws upon seven country studies, some of which have been published already by ICIMOD. Much material in the country studies was used directly, particularly in Chapters 4–7. However, the overall research design, commentary, and interpretation remain largely those of the two authors. A reader who wishes to look into the details of the sectoral aspects of land policy may read Chapters 4–7 and those country studies already published, which deal with those sectors in each country in more detail. For those who are interested in the strategic and more theoretical aspects of environmental policy, Chapters 1, 2, and 8 are suggested. Those who require a short summary of the argument of the whole study are invited to read the next section. It is like an executive summary and, for those who

approach the study in that manner, we hope that it will fulfil the function of informing a busy professional reader.

Summary Argument of the Study

The study addresses five areas (forest policy; national parks, biodiversity and wildlife; national environmental strategies; agriculture; and land tenure and titling) in six countries (Bangladesh [Chittagong Hill Tracts], Bhutan, China [Yunnan Province], India, Nepal, and Pakistan). Its approach was formed around three related ideas. The first is policy as process, which examines how policy is made and takes the view that the rational-policy model of policy-making is inappropriate and simply does not explain how policy is, or should be, made. Instead, it is a more political process shaped by bureaucratic and administrative regimes (often colonial in origin), powerful environmental narratives (or sets of assumptions that are shared amongst networks of professional people in the region), and other political, commercial, and business interests. Policy, therefore, is often messy and diffuse, and outcomes often unintended. Secondly, the idea of stakeholders in environmental policy was introduced to identify the unequal distribution of political power and to draw attention to those who, although in a large majority, have little say in policy and sometimes become victims of it rather than beneficiaries. This is not to say that farmers and pastoralists in the region have a monopoly on virtue, merely that their interests and knowledge are seldom represented in policy. Thirdly, the idea of access to resources and sustainable livelihoods, treated as a material necessity and right, was used to draw attention to the inevitable conflicts that will arise in adjudicating between conservation agendas, the 140 million resource users, and other interests.

International and national environmental policies, including land policy, is seen here as a negotiation between international agendas promoted by a variety of players (multilateral and bilateral donors and international NGOs, on the one hand, and national political and bureaucratic interests and professional styles on the other). Ecological modernisation is the term used to imply a number of salient policy reforms. These include the economic appraisal and valuation of resources as the major criterion for policy; accountable, transparent institutions; full and informed citizen-participation; and the installation of the precautionary principle in decision-making in the face of scientific uncertainty. All these points pose serious challenges in any society, but especially in the Hindu Kush-Himalayan region. These agendas have been incorporated into national environmental plans and strategies as the first move towards the goal of ecological modernisation. However, they have met with only partial acceptance (primarily from new policy communities) and with, more often,

professional opposition, putting 'old wine in new bottles' and foot-dragging. New initiatives have been taken, but their cumulative impact, both environmental and social, is still quite small. Different countries have responded differently. The more powerful are able to resist international pressures; although, in India, internal pressures from intellectuals through the free press, social movements, and even political parties have been effective in pushing certain environmental agendas. In China, too, the impacts of land degrading and polluting policies have generated internal pressure for reform. It cannot, therefore, be expected that an evidence-based study on the impact of international and national environmental policies will produce much in the way of discernible impact on the ground. It is a slow process and presents severe challenges to some administrative and decision-making practices, and to the institutional means for resisting unwarranted claims by the state or other powerful interests.

Forest policy in all countries except China is dominated by Indian forestry policy, along with some of its colonial origins (which have survived to a considerable degree). It remains the best organised and substantial policy-making institution in the region, and its environmental legacy of 100 years of management of forests in much of the region is clear. Notwithstanding, it is becoming increasingly difficult to sustain the overseeing of forest working plans and to police them. Entrusting more of the management of forests to local people has become necessary for this reason, though social forestry in India is limited to certain types of forest and has moved slowly in terms of total area. Nepal's community forestry programme has been heralded a success from an environmental and (less so) a social point of view, but the actual area (and therefore environmental impact) remains small. Even in the case of participatory programmes such as these, there have been winners and losers with regard to livelihoods as a direct result of policy. In the Chittagong Hill Tracts in Bangladesh, forest policy, along with other environmental policies, contributed to what is widely recognised as a large-scale abrogation of local peoples' rights to a livelihood. The peace accord, following 20 years of hostilities, has promised rectification of this policy (which resulted in the gazetting of tribal forest land, flooding of the best paddy land, outlawing of shifting cultivation, and failure to find land for about 130,000 displaced persons). Logging bans have been in operation in all countries except one. They are, at the same time, an admission of failure of current management practices and an effective stop-gap measure that is easy to implement if somewhat leaky (but much less so than previous measures to restrict cutting) and politically fragile. In China, there are enormous amounts of legislation about forest use from at least three different levels of authority, but they are seldom, if ever, enforced. There have been cycles of reckless clear-felling, followed by assiduous replanting, to be

followed again by felling. Policy reform, in this case, is a matter of locking the door after the horse has bolted, since there is a more fundamental issue of a series of radical policy shifts that produced either extreme land degradation or effective re-forestation. Environmental policy in the conventional sense has had little impact at any time.

Agricultural policy in all countries has not incorporated many environmental concerns. It has been much more concerned with issues of food security and especially the introduction of improved or high-yielding varieties. Hill particularities (niche, fragility, diversity, and remoteness) have not been substantially recognised by national agricultural research agendas and extension policy. While local, environmental knowledge has been recognised in academia, it has not been thought through and implemented in most countries, though there are small, usually foreign-financed projects that are attempting to bring farmers' and research station knowledge together. Imported conservation packages (e.g., sloping agricultural land technology [SALT]) have seldom been widely adopted. In summary, there has been little in the way of widely implemented agricultural policy in the region, land, therefore, little environmental impact. By far, it is the indigenous technologies of terrace design, cropping practice, composting, and water management — all more or less left unaffected by agricultural policy — that have driven the direction and pace of environmental change in agricultural lands (Ojha 1999; Sharma and Jodha 1992).

National parks, biodiversity, and wildlife projects and policies, perhaps, express more completely than any others the international agendas of such institutions as the World-Wide Fund for Nature, the International Conservation Union, environmental charities, and interest groups in the west. Many, with some honourable exceptions, have unfortunately adopted a neo-colonial style of exclusion and 'fortress conservation'. Much of the style of parks in the region has been adopted from the practices of the forestry services in the same country. This is made more likely since the value put on endangered species or habitats by these institutions is different from those of the people living and drawing a livelihood from the local area. Where the principles of negotiation, compromise, and the open recognition of tangible benefits from the park have not been adopted, the projects are almost always ignominious failures. Where they have been adopted (and it takes exceptional professional skills and charismatic leadership from project staff and the local people), it sometimes works well from both a social and environmental point of view. The most recent methodological innovation as part of ecological modernisation is the economic valuation of biodiversity. While intellectually attractive, it usually depends upon the assumption of enough tourists who are willing to pay for the conservation of biodiversity (and thereby generate revenue for local people who could be

then persuaded to conserve the resource). Many such sites in the region simply do not have the ability to attract tourists and eco-tourists in enough numbers to make local conservation economically worthwhile. When there are enough tourists, as in the Annapurna Conservation Area Project in Nepal, the economic valuation of nature is a viable instrument for implementing policy. The environmental impacts of the various categories of parks and protected areas in the region have been mixed; and sometimes exclusion without benefits has induced local people to poach and destroy the resource, and, in other cases, success (and the flow of visitors) has brought its own problems.

The issue of land tenure and titling are central to the three policy areas above. The history of land tenure and reform is highly heterogeneous in the region, though in many cases there has been a slow move from a variety of customary tenures to either *de jure* or *de facto* privatisation, or to state control. The latter in many countries has required extensive policing and engendered resistance over many years. Where policing was not effective, forests disappeared fast (e.g., after the nationalisation of Nepalese forests). Where the social capital, underpinning mutual trust to use resources sustainably, disappeared (e.g., in contemporary Yunnan in China after the breakdown of the commune and collective responsibility), the resource disappeared likewise. A gap constantly opens up between local institutions and the state in the rights and obligations involved in land tenure. In some areas, institutions managing common-property resources still exist and survive the encroachments of the market and the state, while in others they do not. While private tenure has been promoted by powerful international institutions, it is not clear empirically whether it has performed better environmentally than common property resource tenure. Economic theory says so, and examples of changes from open access to private property with concomitant better environmental management can be found, but the environmental impact of titling private land remains ambiguous.

The study ends with a number of specific and strategic conclusions. Both types of conclusion avoid calls for better implementation, more policing, and less corruption. While all of these are desirable, a call for them, in many ways is a symptom of systemic failures and prompts more fundamental questions about how policy is made. Strategic conclusions are that the state in almost all the countries studied is facing, in different ways, increasing pressures in policing coercive and exclusionary land policies, or in maintaining anything more than a token presence in other sectors such as agricultural extension. Decentralisation, participatory and locally developed management systems, and the development of locally appropriate 'hybrid' knowledge (the negotiation and adaptation of outside and local knowledge) will have to become more mainstream, and it is better that this inevitable

direction is assisted and channelled by state institutions, NGOs, and other local organisations before it becomes an environmental and, possibly, social disaster. The state must still have important and strategic roles to play in such policy areas as land tenure and reform, the provision of infrastructure, agricultural research, pricing policy, and national environmental plans and the coordinating roles that these imply. With regard to the process of developing a more accountable and locally appropriate style, there are both huge challenges as well as dangers. The challenges are to shift the syllabuses, training, job descriptions, career structure, and, ultimately, behaviour of many professionals at all levels from the most senior civil servant to the forest or park ranger. The training of local people, political entrepreneurs, and village-level officials is equally important. Manuals in local languages (sometimes written with, rather than for, local people), networking, local conferences, and workshops will all play their part. Issues of land degradation and sustainable production will play a part in different ways within specific social contexts. The study does not assume that greater local management will not be without dangers, and that key decisions will not need to be made, the discretion over which must be carefully weighed (e.g., whether logging bans either regional or local stay in force). There are cases, too, such as those in some of the northeastern Indian states, where state involvement in land policy has been historically slight, but current local institutions and customary tenure have lost the respect and social capital on which they depended. The study makes a number of more specific sectoral recommendations, many of which focus on accountability to stakeholders and, where possible, monitoring and evaluation undertaken independently and with client participation.

Overview of International & National Frameworks for Land Policy



Three

Top	Soil erosion on upper reaches and crops on fields - Yunnan, China <i>Cai Yunlong</i>
Bottom	Children at play on abandoned terraces of pine trees - Northern Pakistan <i>Vaqr Zakaria</i>

Chapter Three

Overview of International and National Frameworks for Land Policy

Introduction

This study differentiates between land policy and environmental policy. There are some aspects of land policy that may have environmental implications but are usually not considered to be part of environmental policy (although many should be), e.g., land titling, property relations, and land-revenue issues. There are also environmental policy issues that are not directly linked to land (e.g., energy policy, pricing policy for timber and other natural resources, and others), and these have not been included within our brief. However, land policy in all countries of the region is situated within more general environmental policies and forms a central part of the latter. In all countries, too, national environmental strategies or action plans are in various stages of formulation and implementation. Therefore, we first address these more general aspects that form a national framework in which land policy is made and implemented. There follows a summary discussion of all the national environmental strategies and overall planning frameworks of Bangladesh, Bhutan, China (with particular reference to Yunnan Province), India, Nepal, and Pakistan, followed by a discussion of environmental policy in all countries of the region.

National frameworks for environmental policy existed in a number of countries in the region before the late 1980s when an international agenda started to emerge following the World Commission on Environment and Development (1987) and UNCED (1992). Much of the groundwork for national environmental strategies had already been laid in some countries by such institutions as the land boards in India, national, provincial and local laws on environmental issues in China, and the Environment and Urban Division in Pakistan. As may be expected, different national political and administrative cultures in these countries had resulted in quite diverse frameworks for the management of land. However, after the early 1990s, an international agenda for environmental management gathered momentum, and national environmental strategies and action plans were

introduced. The story thereafter, in each country, is one of how in different ways each country reacted to these new international initiatives. For some, it was business as usual, perhaps with some re-labelling of ongoing policies. For others, new administrative structures were formed to coordinate and implement these plans and strategies. For yet others, new projects and programmes were introduced on the ground quite rapidly. There was also much foot-dragging and, in some cases, covert political resistance to particular policies (e.g., the more participatory policies of forest management) that were seen to run counter to established bureaucratic and professional norms. In short, political agendas of all sorts, e.g., at the national level, within government administrations, and of different resource users, engaged with the international model of environmental policy. This model, as will be shown in the following discussion, is one of ecological modernisation. Briefly, it is systemic, integrated, and rational. It assumes that environmental costs can be measured and treated by a structure of market-driven incentives and regulations. It implies, amongst other requirements, an effective system for the collection and monitoring of environmental information, clear legal instruments for pollution control, and property rights for land use, and an impartial and effective implementation on the part of the state. The model, as expressed in most of the national environmental strategies and action plans, is heterodox in style and pays considerable attention to participatory and equity issues and citizen participation. The central point is that institutions that manage the environment should be accountable and rational. The following subsections summarise the experience of national frameworks and the impact of the new international agenda at the national level and, in subsequent chapters, at lower levels.

Bangladesh

The only region of the country that is within the terms of reference of this study is the Chittagong Hill Tracts. This area has had such problematic relations with the rest of the country that any discussion of national environmental policy must be preceded with a brief outline of these problems. The Chittagong Hill Tracts' region has been in political turmoil throughout the last two and a half decades. There are issues still unresolved despite the treaty signed by the Bangladesh Government and the Parbattya Chhattagram Jana Sanghati Sangstha (PCJSS), the organisation that has earned the recognition to speak for the hill people. Indeed, implementation of the treaty introduced fresh tension into the peace process. Before we go deeper into the environmental policy disaster in the Chittagong Hill Tracts, a familiarity with the characteristics of the region and its particular history, which is distinctly different from other regions of the Hindu Kush-Himalayas, will be helpful.

The Chittagong Hill Tracts are politically in a transitional phase. Since the late 1950s and early 1960s, the demography and land-use history of the Chittagong Hill Tracts' have been influenced by the effects of the Karnaphuli hydroelectric power plant. While its construction could well be justified on the grounds of overwhelming national need, the failure to foresee and solve the profound socio-environmental impacts upon local people has led to a policy disaster of the highest order. The resentment generated by the dam led to a fresh search for identity of the hill people within the framework of the then East Pakistan. The Kaptai Dam not only displaced huge numbers of hill people from the best quality irrigated lands, it also affected the land-use pattern of others upslope from the flooded areas.

From the early 1970s, the grievances of the hill people of the Chittagong Hill Tracts surfaced vigorously and the outcome was a prolonged armed conflict with the Bangladesh State. During the period of armed conflict, state policies were driven by principles of state security, resulting in all kinds of distortions in most policy areas, and particularly in environmental policy. Frequent displacement and resettlement of the hill and plains' people, strategic terrain preparation and development requirements were the most important policy processes unleashed in the Chittagong Hill Tracts. All these have had deep impacts on land use, land-management practices, and, allegedly, land degradation. Furthermore, most land policies in the region have an internal colonial logic, characterised by appropriation by the state of resources necessary for the livelihoods of local people and criminalisation of displaced people by the hydroelectric project.

The other important exception one needs to take into account is the special character of the Chittagong Hill Tracts with their distinct duality in many respects *vis-à-vis* the main land. The region has both hills and plains with forest and agricultural lands, inhabited almost equally by recently settled plainsmen and the original hill people. They speak different languages, practice both plough and swidden ('jhum') cultivation for horticulture and agriculture. However, the most important element that has distinguished the Chittagong Hill Tracts from the rest of the country is the Manual of 1900, which was still the instrument of administration until 1989 and was effective until May 1998. What it actually means for policy processes in the Chittagong Hill Tracts is special status for the region in the constitutional framework of the country. It also means most national policies do not have any relevance for the Chittagong Hill Tracts, in terms of both enactment and participation in the policy-making processes.

Following the peace treaty in 1998, a quasi-separate status was accorded for the Chittagong Hill Tracts, leading to the suspension of the armed conflict of

the last 22 years. Optimists among the hill people feel that they will be able to have more control over environmental policy-making processes.

A National Environment Policy (NEMAP) was launched in 1992 and had the following objectives.

- Sustenance of the ecological balance and overall progress of the country through protection and improvement of the environment
- Protection of the country against natural disasters
- Identification and control of activities that pollute and degrade the environment
- Environmentally sound development in all sectors
- Sustainable, long-term and environmentally sound use of all resources
- Active association with environment-related international initiatives to the extent possible

The NEMAP embodies environmental policies for 15 sectors: agriculture; industry; health and sanitation; energy and fuel; water development, flood control and irrigation; land; forest, wildlife, and biodiversity; fisheries and livestock; food; coastal and marine environment; transport and communications; housing and urbanisation; population; education and public awareness; and science, technology and research.

For the purpose of management, implementation, funding and coordination, the NEMAP identified the following main issues.

- Institutional issues: intersectoral coordination, ensuring people's participation, monitoring of NEMAP, legislation and methodology of people's participation
- Sectoral issues: health and sanitation, forest, biodiversity, natural hazards, education and awareness, industry, water, agriculture, energy, fisheries, land, housing, transport
- Local issues: salinity and shrimp, coastal marine issues, Barind Tract, wetlands, hill-cutting, Madhupur Tract
- Long-term issues: regional water-sharing, urbanisation, climate change, research and development

Since the present study focuses on land policy and land management, only land resources, forestry, and biodiversity are highlighted here. Virtually all available land is utilised for agriculture, forestry, fishing, settlements, and urban development. It is felt that land-use priorities have to strike a balance

between the competing needs of these sectors. Major land-use conflict arises from uncoordinated action amongst the ministries and agencies concerned with land management. Yet, little attention has been paid to formulating a national land-use policy to conserve and make optimum use of this scarce natural resource. Gradual loss of agricultural land, loss of soil fertility, soil degradation, landlessness, distribution of 'khas' land, and the cumbersome land registration system are the major issues that have been addressed by the NEMAP and a number of specific actions has been proposed in this regard (Table 3.1).

It can be seen that the NEMAP has all the hallmarks of the ecological-modernisation project of international donors. The problem arises of complete non-implementation in the Chittagong Hill Tracts for political and, until recently, military reasons. As this report will show, many of the environmental policies prior to the NEMAP, as applied to the Chittagong Hill Tracts, were highly discriminatory against hill people. They repeatedly abrogated environmental entitlements and were punitive in both cultural and economic terms. The NEMAP acknowledges, at various points, the issues of landlessness and poverty. It, nevertheless, remains a paper exercise until new, devolved and accountable policy processes can be developed. This, as every involved politician and activist in the Chittagong Hill Tracts will tell you, is a far from easy task.

Bhutan

In comparison with all other countries in the region except China, Bhutan initiated a national framework for environmental policy only quite recently. The National Environment Strategy was developed in 1997. The strategy was formulated over a period of three years and was based on a series of consultations, technical meetings, regional workshops and, finally, a national workshop. The National Environment Secretariat coordinated the formulation of the strategy. Thus, the strategy was the outcome of national, rather than international, initiatives, and the Royal Government of Bhutan managed to exercise considerable political and practical independence over its formulation. The two international events that triggered the formulation of the strategy were the Brundland Report (1987) and the Rio Declaration (1992). However, it should be noted that the strategy is prepared by and for the Royal Government of Bhutan. Its contents and intentions reflect the true Bhutanese philosophy of spiritual and material development while respecting the concerns for conservation of the environment. Much of it retains a distinctive cultural style, although the detail and operationalisation can be expected to be similar to environmental policies elsewhere.

Table 3.1: Key issues and specific actions suggested in the NEMAP for land resources

Key issues	Recommended actions	Types of action	Actors/agencies	Specific actions
Unsustainable land use	Development of sustainable land-use management	Policy	MoLand, agricultural research organisations, universities, community organisations/NGOs	Action research/farm research
Loss of soil fertility	Study of indigenous sustainable land-use practices Soil fertility status survey and classification of soil according to fertility; appropriate care for soil nutrient deficiencies	Project	Research organisations, community organisations/NGOs, people	Study to increase efficiency of the production system and its application
Management of degraded land	Inventory of degraded land, its mapping and recommendation for appropriate use	Project	SRDI, research organisations, universities	Survey projects on soil fertility conservation and mapping
Status of land resource: inventory, classification and legal status	National land-use survey in collaboration with research institutions and private sector	Project	SRDI, SPARRO, research organisations	Survey and mapping
			Directorate, DLR, research organisations, private sector	Land-use survey, land classification on the basis of physical uses and legal status, and formulation of recommendation for subsequent replication

Table 3.1: Key issues and specific actions suggested in the NEMAP for land resources (cont'd)

Key issues	Recommended actions	Types of action	Actors/agencies	Specific actions
Age-old land registration and records of land right system	Modernisation of land registration and land right recording system with the help of computer assistance such as GIS	Policy/Project	DLR, MoLand, research organisations	Pilot study and formulation of recommendation for subsequent replication
Absence of land policy providing for land-use planning and addressing the policy, and land reform/ land fragmentation/ land tenure/ landlessness/ land settlement such as distribution of khas lands	Formulation of comprehensive land policy	Policy	MoLand	Formulation of land-use plan; land reforms incorporating agrarian and tenure structure; programmes for giving <i>khas</i> lands for settlements to the poor and encouraging environmentally sound and sustainable land-use patterns
Soil conservation issues	Soil conservation measures in areas with high soil erosion	Project	DoF, CHTDB, community organisations/NGOs, people	Pilot project to develop appropriate agroforestry practices, plantation and land-use practices for the conservation of soil with active participation of local people

Source: NEMAP 1995

Notes: CHTDB: Chittagong Hill Tracts Development Board; DLR: Directorate of Land Records; DoF: Department of Fisheries; MoLand: Ministry of Land; SRDI: Soil Resource Development Institute; SPARRO: Space Research and Remote Sensing Organisation.

The environmental policy-making body at the national level is the National Environment Commission. The members of the commission are the heads of the ministries. The National Environment Secretariat seeks policy guidance and approval of its work plan from the commission. Within the country, the process of formulation of the strategy was initiated mainly because of the following concerns.

- The current population growth rate of 3.1% per annum will double the population by 2015. The pressure on limited land resources and the fragile ecosystem will increase significantly.
- At present, development programmes that are uncoordinated and have diverse and unconsidered environmental ramifications. There are many isolated projects wasting resources from duplication of activities. A holistic approach is necessary, not only to avoid duplication, but also to prevent abuse of the resource base for future generations.
- The government's aim is to provide improved living conditions for the rural community on sustained resources. The local community and district administrations were consulted and involved deeply in the process of formulating the strategy.

The strategy aims 'to raise the material well being of our citizens and to meet their spiritual aspirations without impoverishing our children and grandchildren. The key is to find a development path that will allow the country to meet the pressing needs of the people, particularly in terms of food, health care, and education, without undermining the resource base of the economy. New industries, new agricultural markets, and new forestry products need to be carefully developed with respect to their broader environmental ramifications.'

In the Bhutanese context, it is clear that development per se cannot be isolated from respecting and promoting what the government claims its people stand for: their beliefs, culture, and values. Material achievement intertwined with the promotion of Bhutanese systems and values contributes to sustainable development.

The strategy defines hydropower development, self-sufficiency in food production, and industrial development as the three avenues of sustainable national development. It then identifies the following five, key cross-sectoral issues that are essential to the successful integration of environmental concerns while pursuing national development.

- The need for information systems on land ownership and use, demographics, social and cultural trends, and local institutions

- The need to develop local institutions that facilitate popular participation
- The need for environmental legislation based on environmental quality standards
- The need for training and education in natural-resource management
- The need for effective monitoring mechanisms including environmental indicators and effective enforcement procedures

The strategy was formulated only in 1997 but some sectoral strategies had been already implemented, including the following.

- Environment Impact Assessment Guidelines for Bhutan were drafted by the National Environment Secretariat in 1992.
- Preparation for the National Environment Protection Act was under way before the initiation of the strategy.
- Implementation of an environmental sector programme under long-term development collaboration with the Danish government. All environment-related programmes are being coordinated and implemented under this programme.

The National Environment Secretariat is working on the operational aspects of the strategy so that the necessary legal framework will be in place by the end of the Eighth Five-Year Plan.

Turning now to the implementation of the strategy, it is, of course, too early to look for any substantial evidence other than those processes that predated the strategy and that could be incorporated into it as ongoing policy. The following areas are, therefore, a matter of intention at this stage rather than substantive progress.

- The required legal framework for effective management of natural resources and the environment should be in place. The framework should be developed and agreed upon by all stakeholders concerned.
- The national capability to coordinate the implementation of the strategy in particular and the management of the environment in general has to be strengthened.
- There will be a requirement for fiscal incentives to encourage the public and private sectors to develop economically without unnecessarily compromising the natural resource base.
- The education and extension campaign should be conducted continuously to create mass awareness for the sustainable management of natural resources. This will require concerted efforts from both public and private organisations.

In summary, Bhutan's environmental strategy, in spite of a markedly independent authorship, does bear a strong resemblance to other national environmental strategies in the region, namely an integrated approach based on updated environmental data, coordinated action between government departments and civil society, and careful attention being paid to the tendency for a proliferation of foreign-funded projects with disparate agendas. However, it does not have to engage with well-developed and entrenched professional and administrative practices that characterise environmental policy elsewhere, particularly in India and Pakistan.

China

China has a long history of national environmental policy marked by many abrupt reversals that have been brought about by swift changes in political strategy. Many policies, caught up in these profound alterations, are overwritten and forgotten. It is perhaps worth making a fundamental distinction between China's environmental policy over the past 50 years and those of all other countries in the region. This distinction is that China has had the ability to mobilise, even galvanise, its people to transform their social and natural environment rapidly in the most profound ways, and this is simply not comparable with any other country. An illustrative example, which was witnessed by the authors of this report and the members of the country team, is worth recounting here.

We had assembled at a vantage point overlooking a hillside in Luquan County, Yunnan Province, along with a number of local officials and farmers. With the help of local people, the landscape could easily be read as a policy text in a way that only in certain instances was possible elsewhere in the Hindu Kush-Himalayan region. For example, the visual evidence of complete and rapid deforestation during the Great Leap Forward was obvious, as was its immediate impact of the collapsing of many landslides upon a two-kilometre irrigation canal that had been constructed across the hillside at approximately the same time. The canal had been overwhelmed, and the water supply had dried up almost immediately after its construction. Further upslope, evidence of earlier shifting cultivation was evident, where trees and secondary brush had failed to re-colonise after this type of cultivation was banned. There followed a period of re-forestation, but the forest was largely cleared again at the time of the Cultural Revolution. In the valley floor, a small earthen dam had been constructed so that downstream paddy fields could be irrigated. Today, the reservoir is entirely filled with over four metres of silt and has been converted into non-irrigated paddy fields. Current evidence of new cultivation on steep slopes, particularly of tobacco, is clear. Most of this is illegal and reflects the powerful and over-riding priorities to meet cash requirements imposed by

the responsibility system for economic units in the country. Also, local discretion has been used informally to grant poor and desperate people the right to cultivate steep slopes; otherwise, they might starve. Here is a prime example of the environmental footprint of land policy as discussed in Chapter 2.

This example illustrates a simple but significant principle about land policy in the Hindu Kush–Himalayan region. It is that national politics, style, and management culture are profoundly important, and they vary enormously between countries. International environmental agendas of ecological modernisation must, therefore, expect different interpretations and political reception of their project in different countries. Also, in countries as large and diverse as China (and particularly those with a federal and/or decentralised structure, as in Pakistan and India as well as China), there are large regional variations in policy and its implementation. There is a considerable degree of variation in the speed and thoroughness with which environmental policies are formulated and implemented.

Of all the countries in the Hindu Kush–Himalayan region, China perhaps has the worst environmental problems. There seems to be much more certainty about the degree and seriousness of anthropogenic erosion and land degradation than in the rest of the Hindu Kush–Himalayan region (at least on the part of researchers and civil servants). The contentious theory of the Himalayan environmental crisis, mentioned in Chapter 1, gives way, in China as a whole and in its three provinces within the Hindu Kush–Himalayan region, to unequivocal accounts of desertification, salinisation, deforestation, and greatly accelerated soil erosion. Discussion of any national environmental policy has to acknowledge the scale of the crisis.

- Desertification

Desert and deserted land area amount to 153.3 million ha, 15.9% of the total land area. The direct economic loss caused by wind erosion and desertification amounts to 4.5 billion 'yuan' per year. Deserted land has increased by more than 100,000 sq.km since 1949. Cultivated land area influenced by desertification amounts to 10 million ha, accounting for 7.9% of total cultivated land.

- Soil erosion

Soil erosion has either destroyed or seriously impaired about 1.63 million sq.km, 17% of the total land area, compared with 1.16 million sq.km at the beginning of the 1950s. Eroded cropland amounts to 44.5 million ha, 35.1%

of total cultivated land. In the Loess Plateau, the cradle of ancient Chinese civilisation, soil erosion affects 43 million ha, about 82% of its total area. The flow of topsoil into the Yellow River has been vividly called a 'massive haemorrhage of the main artery of China'. The area of 'inferior land' and 'red desert', caused by serious soil erosion in mountain and hilly areas in southern China, has increased by more than 38% since the 1950s. 'Rock-desertification', as a result of soil erosion in the karst mountainous and hilly areas of southwestern China, is especially shocking.

- Salinisation and gleisation

The area of salinised cropland covers about 6.67 million ha in northern China. Salinisation, mainly scattered in arid and semi-arid regions, results from poor soil drainage and improper irrigation practices such as excessive irrigation, flood irrigation, and irrigation without drainage. In coastal areas of eastern China, it is mainly caused by seawater flowing backwards. In addition, soil gleisation is serious in southern China, affecting 20-40% of paddy fields.

- Land pollution

The emission of waste water, waste gas, and waste residue in urban and industrial zones and the increasing application of chemical fertilisers and pesticides have seriously increased land pollution. Polluted cropland amounts to 10 million ha, of which 3.33 million ha are polluted by sewage irrigation, 5.33 million ha by atmospheric pollution such as acid rain and fluorine pollution, and 0.9 million ha by solid wastes and garbage. The annual loss of grain caused by cropland pollution amounts to approximately 12 million tonnes.

- Mined land

In the process of exploiting mineral resources, topsoil is destroyed by stripping, sinking and piling up waste ores and slag. It is estimated that mined land covers 13.33 million ha. Coal mining has caused the most serious damage. About 13,000 ha of land are destroyed each year, and usually it is land in the plains with high capability.

- Declining land capability

Lack of manure application on cultivated land has caused a decline in organic content of soil. The components of chemical fertiliser have led to an imbalance in nitrogen, phosphorus and potassium. Now, average organic

content of soil is 1-2%, and less than 0.6% in 9% of cultivated land. Fifty-nine per cent of cultivated land is deficient in phosphorus, 23% is deficient in potassium, and 14% is deficient in both phosphorus and potassium. Application of vast amounts of chemical fertiliser has resulted in soil that is hardened and impervious to water, and has caused a reduction in land capability.

Among the above types of land degradation, land desertification and soil erosion are the most widespread and have the greatest influence. Both occur in impoverished regions. It is stated in 'China's Agenda 21: The White Book on Population, Environment and Development of China in the 21st Century' that there are two regions of extreme poverty. One is the 'Three Wests' (Hexi West, Dingxi West, and West Hai-gu) in the arid region of the Loess Plateau, and the other is the karst region of Yunnan, Guangxi, and Guizhou provinces. The former is seriously threatened by desertification and the latter by rock desertification.

The history of formal environmental legislation in China is lengthy, and, for purposes of this report, only recent legal history is recorded in any detail. There have been three National Conferences on Environmental Protection, the last of which was held in 1989. At that conference, eight areas of environmental protection were identified and have been stipulated in the laws, rules, and regulations of the country. This was followed in 1992, not long after the UN Conference on Environment and Development, by approval from the central government of ten countermeasures for environment and development as follows.

- To pursue the strategy of sustainable development
- To adopt effective measures to prevent and control industrial pollution
- To carry out comprehensive renovation and control of the urban environment, and to handle the Four Evils (air pollutants, water pollutants, earth-surface pollutants, and noise pollutants) in cities
- To raise the efficiency of energy use and improve the energy structure
- To popularise eco-farming, to plant trees and strengthen protection of biodiversity
- To promote scientific and technological progress for strengthening environmental study and developing environment-related industries
- To protect the environment through economic measures
- To strengthen environmental education and to heighten environmental awareness of the public
- To improve the environmental legal system and reinforce environmental management

To work out China's plan of action in line with guidelines from the UN Conference on Environment and Development

The Constitution of the People's Republic of China also has a number of clauses on environmental protection. For example, the 26th clause states "The state aims to protect and improve the living environment and ecology, prevent pollution and other social effects of pollution". The ninth clause identifies "Such natural resources as minerals, rivers, forest, rangeland, wasteland and so on, all belong to the state (namely, belong to the public of the whole country), except for those that belong to the collective according to the law. The state guarantees the reasonable use of natural resources, conservation of precious wildlife and wild plants, and prohibits any organisations and individuals from occupying and destroying natural resources by whatever means. According to article 10 of section 2, "All organisations and individuals who use the land must use it reasonably." These stipulations illustrate the rigid protection envisaged by law. There has been intensive legal activity to provide environmental protection through statutory law throughout the 1980s to date. However, these laws are seldom enforced, and the rule of law in all aspects of life was disregarded at particular periods of recent Chinese history.

Moving on to provincial legislation, the Yunnan Provincial Government has adopted many national laws and added to or amended others. The responsibility for enforcement lies with every city, county and relevant department, and the county itself may also add its own stipulations. For example, in 1995, the Standing Committee of Luquan People's Congress enacted the Interim Provisions on Environmental Protection of Zhangjiu River Basin in Luquan County. This is the only regulation about environmental protection made by Luquan county. The Environmental Protection Station of the Urban Construction Bureau of Luquan County is responsible for detailed planning and enforcement.

Thus, there is a formidable list of environmental laws at the national, provincial, and county level. The environment is also an important issue in the Constitution. However, it is fair to say that there is a good deal of local autonomy at the provincial level (in some provinces more than others), and at the county level and below. Enforcement is delegated to decentralised levels where personal discretion is exercised. A general tendency prevails today whereby economic growth and the fulfilment of responsibility targets take precedence over environmental conservation. In Yunnan, there are some serious and all too evident signs of industrial pollution of agricultural land, clear-cut forest, high sediment loads in many rivers, and environmentally detrimental technologies employed in road construction and in mining.

These activities are specifically forbidden by law; they have also been clearly documented elsewhere in China. The causes for non-enforcement of environmental laws and plans, and for the persistence in often ruinous land management will be discussed in the following chapters. However, we can conclude that it is neither a failure to recognise the seriousness of land degradation nor to pass laws to prevent such practices that has led to the problem.

India

The Indian National Conservation Strategy was launched in 1992. The policy statement, rightly, concedes that the "objectives of conservation and sustainable development will require integration and internalisation of environmental considerations in policies and programmes of development in various sectors." It then goes on to list in some detail the measures required to be taken in the following sectors: agriculture, irrigation, animal husbandry, forestry, energy generation and use, industrial development, mining and quarrying, tourism, transportation, and human settlements.

International cooperation has been stressed and so has the need for strengthening institutions and legislation. Training, research, environmental education, role of NGOs, and resource accounting have been listed as important inputs. It has also been stated that women at the grass roots' level should be actively involved in the conservation programmes, and constructive partnerships (in environmental contexts) established between the central and state governments.

Within each of these areas more detailed plans were made. Extracts from areas covered in this report are illustrated below.

Agriculture

- Sustainable farming (including animal husbandry)
- Plant protection policies (use of biofertilisers and biopesticides)
- Integrated nutrient supply
- Restrictions on diversion of prime agricultural lands to other uses
- Land use according to land capability
- Upgrading animal stock, restoration and protection of grazing lands: encouraging stall-feeding and rotational grazing, regulating animal population
- Conservation of water and energy in agriculture
- Encouraging appropriate crop-rotation patterns
- Strengthening rural local bodies to ensure decentralisation and optimal resource management

Forestry

- Preservation and restoration of forests
- Increasing forest/tree cover through massive social forestry and afforestation programmes and increasing productivity of forests
- Meeting fuelwood, fodder, non-timber forest products, and small timber needs of rural/tribal populations in consonance with the carrying capacity of the forests
- Restricting use of forest lands for non-forest uses and, where this is unavoidable, insisting on compensatory afforestation
- Afforestation on common property land resources by local communities
- Encouraging tree farming
- Involvement of local communities/NGOs in afforestation

National parks and wildlife

- Formation of a National Wildlife Action Plan
- Covering of four per cent of the country's land with national parks and sanctuaries
- Establishment of biosphere reserves and protected areas

Two substantive points regarding India's National Conservation Strategy can be made. Firstly, perhaps above all others in the Hindu Kush-Himalayan region, it was based on existing experience of a large and experienced civil service. While this may be an advantage, it allowed the National Conservation Strategy to be presented as a new and integrated approach to the environment and land policy without necessarily changing the policies and implementation styles at all. Many of the items were ongoing programmes and projects and were on the books in any case. Many of the enduring and pressing difficulties and debates about forest and national park policy that current policies face were not really addressed by the new strategy. This is not surprising since its emphasis was neither on fundamental issues of how the responsibility of management of natural resources should be shared between the state and other stakeholders nor what criteria should be used regarding sustainable and equitable use. Instead, there is a distinct impression of 'old wine in new bottles'. Also, the strategy did not address the particular technical, administrative, and political aspects of land policy in the hill areas of India. Together, these aspects provide a qualitatively new policy challenge that the strategy largely avoided.

Secondly, the potential for the National Conservation Strategy's role to transform environmental policy and ultimately to improve land

management and achieve a more just land policy varies enormously between the different hill states of India. While the western states have historically been under the administrative control of an established forestry and agricultural service, the eastern states (the 'seven sisters' as they are called, although they are now eight) were much more independent from imperial control in the past, and their special status is enshrined in the Constitution. The Forest Department has relatively little control of the forests in these states, and relations with the centre have been fraught with suspicion and with strategic and military matters. Also, the planning capability of all states in environmental and other sectors in the northeast is severely limited. There are networks of patronage permeating political activities involved in raising funds for elections that lead to the cutting and disposal of timber, and the involvement of local leaders right up to senior ministers, that occur on a scale that is not found in the western hill states. It is unlikely that the comprehensive intentions of the National Conservation Strategy will lead to more efficient and sustainable use of natural resources in the near future. It has been through other means that have little to do with the existence of the National Conservation Strategy that the centre has been able to exert some degree of restraint, as will be described in Chapter 5.

Nepal

The Nepal Environmental Policy and Action Plan (NEMAP) was prepared by the government with support from the World Bank in 1993. This document analyses the country's environmental issues in a multisectoral framework and sets forth a strategy for maintaining the country's natural environment, the health and safety of its population, and its cultural heritage as economic development occurs. Below is a summary of the Nepalese government's environmental policy and sectoral policies related to agricultural land, forest and rangelands, and biodiversity conservation.

There are five main aims as follow.

- To manage natural and physical resources efficiently and sustainably
- To balance development efforts and environmental conservation for sustainable fulfilment of the basic needs of the people
- To safeguard national heritage
- To mitigate the adverse environmental impacts of development projects and human action
- To integrate environment and development through appropriate institutions, adequate legislation and economic incentives, and sufficient public resources

The main problem that Nepal faces, perhaps more than any other Hindu Kush–Himalayan country, is that the NEMAP requires a strong national apparatus to coordinate and implement it, and this exists to a lesser degree than in the case of some of its neighbours. The government relies heavily on international support for policy formulation and implementation. A number of Nepalese professionals have, for good reason, drawn attention to the dependent nature of Nepalese environmental policy upon a diverse and swiftly changing range of development styles and fashions, most of which are imported from abroad. Foreign aid in the sector is often in the form of projects. This makes coordination and the establishment of an overall national (Nepalese) style on policy all the more difficult. Furthermore, the counterpart system, whereby the most able and ambitious government servants take leave of absence from their regular government posts to serve in foreign projects, further robs the national cadre of its best personnel. Projects, too, tend to become the central focus of policy-making rather than an overall coordinated approach as demanded by the NEMAP. Thus, the NEMAP has tended to remain a paper tiger, and no central cadre in the government has either much professional interest or the critical mass of able reformers to make it operational. At the same time, there are a number of more localised efforts in a number of sectors that could, incidentally, be interpreted as following the general spirit of the NEMAP.

Pakistan

The National Conservation Strategy is generally accepted by the government and the international donor agencies as the national environmental action plan. The strategy was prepared through a process of consultation that was unprecedented in the history of policy-making in the country. The National Conservation Strategy Steering Committee, which was chaired by the Deputy Chairman of the Planning Commission, consisted of 16 members and accorded representation to the federal government, industry, NGOs, and the media. A total of 30 background papers, including sector and prescriptive papers on agriculture, forestry, nature capital, soils, water use, environmental economics, and environmental legislation, were prepared by sector and area specialists responsible for preparing programmes of consultation with other experts, implementation agencies, grass roots' workers, and communities.

The strategy identified 14 core areas in which policy intervention was considered crucial to preserve Pakistan's natural environment. These include issues such as maintaining soils in croplands, the preservation of forestry and plantations, and the conservation of biodiversity.

The approval of the strategy by the Cabinet was followed by the establishment of a Cabinet-level Implementation Committee chaired by the

Minister for the Environment. This committee formulated a five-year plan of action for implementation of projects in key areas identified in the strategy. It has been active in soliciting donor funding for the purpose. One of the key policy decisions was the establishment of a National Conservation Strategy Unit in the Ministry of Environment, Local Government and Rural Development to coordinate and monitor the implementation of the strategy and to provide institutional support to federal and provincial government agencies, donors, and NGOs. The National Conservation Strategy Unit thus serves as a focal point for environmental policy implementation efforts.

With reference to mountain areas in particular, the unit has been instrumental in coordinating with the International Conservation Union to implement a biodiversity project in the Northern Areas with the assistance of the Global Environment Facility.

Whether the initial momentum unleashed during the process of the strategy's formulation has been carried through to the implementation stage is, however, a moot point. In general, government officials have expressed fears that recognition of the National Conservation Strategy as a policy document is confined to the federal government. The strategy that was formulated as a result of a unique consultative process has failed to have an impact on local-level planning initiatives. The process was originally intended to be carried through to the provinces, and provincial conservation strategies were to be formulated for each administrative unit. To date, only the Sarhad Conservation Strategy has been approved. A strategy for the Northern Areas is currently in process and initial focus group meetings are being carried out in the region. The Northern Areas' Conservation Strategy is expected to be ready in about three years. The general issues addressed in the plan are given below and are called core programme areas.

- Maintaining soils in croplands
- Increasing irrigation efficiency
- Protecting watersheds
- Supporting forestry and plantations
- Restoring rangelands and improving livestock
- Protecting water bodies and sustaining fisheries
- Conserving biodiversity
- Increasing energy efficiency
- Developing and deploying renewables

- Preventing/abating pollution
- Managing urban wastes
- Supporting institutions for common resources
- Integrating population and environment programmes
- Preserving the cultural heritage

The decentralised structure of planning in Pakistan has had effects both beneficial and harmful to national environmental planning. Firstly, the process initiated a wide-ranging process of consultation that may facilitate further exercises of local and participatory planning. Secondly, plans, since they are locally formulated within general guidelines, can reflect the environmental and social priorities appropriate to the region. How much these priorities reflected the interests of a wide range of social groups, or merely those of a coalition of the policy elite and the leading landed interests, is open to question. Finally, the whole planning process in a federal structure such as Pakistan, and particularly in the Northern Areas with its provisional political status, is extremely slow: so slow that the initial momentum seems to have dissipated through time. In Pakistan, each province has been charged with formulating its own provincial conservation strategy. This is a lengthy procedure and, as yet, the only strategy approved is the Sarhad Provincial Conservation Strategy (SPCS) in 1992 with assistance from the United Nations Development Programme and a number of national state agencies and NGOs. However, it is difficult to trace through definite changes in policy or the addition of new ones at this time.

Environmental Impacts of National Environmental Strategies

What could one expect after five years or so after the majority of countries have national strategies and plans? A national strategy or action plan can be likened to a lever connected to a complex set of linkages that start at the initial strategy paper and pass through an action plan to end at implementation on the ground. At each linkage, there occurs a degree of slippage and noise added to the original transmission and a delay in time before the impulse is transmitted to the next linkage. Ongoing bureaucratic procedures, national and local politics, and conflicting interests and interpretations provide the source of this slippage and noise, and it is naïve to expect anything else. Also, national strategies and action plans are comprehensive and have ambitious goals, so that it is more reasonable to expect that they are seen as part of a process of reform that may take many years to fulfil. However, an evaluation has to take a hard look at any pervasive and self-perpetuating practices, styles of administration, and

politics that stand in the way of ecological modernisation and other reformed styles of policy-making and implementation and may stall any progress in the foreseeable future.

National environmental strategies are almost always intellectually coherent, integrated documents. Nonetheless, some criticisms of omission can be made. They require far-reaching administrative reform, quite intense conscientisation, training, and altered professional behaviour at all levels, from the minister right down to the forest ranger/junior technician as well as the formation and successful running of countless committees and local organisations that manage natural resources. So, it is not reasonable to expect actual environmental impacts from these strategies, except where the strategy requires easy to implement, rapid policy alterations, usually of a technical nature, involving a single major decision or where ongoing policy was already in place. What one can expect in the medium term is evidence of movement in the intermediate links in the process (consultation, reflection, changes in legislation, decentralisation of planning, reorganisation of administrative and executive powers, and so on).

The evidence of such administrative, legal, and policy reform that is required to take national strategies further is rather meagre in most countries. While there is a difference in the time at which these initiatives started (India and Pakistan first, shortly followed by Bangladesh and Nepal, and China and Bhutan later), almost universally there is an initial burst of enthusiasm, sometimes wide consultation within government and — unusual for some administrations — within civil society too, and then a quite rapid process of de-energisation, institutionalisation and, finally, fossilisation. The initial impetus for national environmental policies was provided by multilateral organisations and bilateral aid agencies. Many countries embarked on wide and lengthy consultative processes, and, typically, a number of task forces and consultative committees were set up. After this point, it is possible in many, but not all cases, to see a process of run down, and many of these committees have yet to file reports after some five years or so since their formation.

There is also another characteristic of national environmental policies that is pervasive in some instances, but difficult to prove, without the kind of intensive research that this study could not undertake. Some senior policy officials and other informants from international and bilateral agencies privately mentioned this characteristic, and it is therefore stated here with some hesitancy. It is what might be called the 'old wine in new bottles' tendency. Ongoing projects are fitted into the new programme, and these will be carried out on the ground in ways that are unchanged. New populist rhetoric will appear to grace ongoing programmes, but foot-dragging will

occur where the rhetorical device cannot serve. For example, the Forest Department in Nepal published its Five-Year Action Plan, and in it were references to the Nepal Environmental Policy and Action Plan. However, it is difficult to avoid the impression that this plan was following predetermined strategies with new labels. The problems identified therein were national and generic in nature without being grounded in specific regional issues. The National Conservation Strategy of India also seems to be similar. The document fully recognises the complexity of the problem and it lists various regulatory and promotional measures that had already been taken prior to the strategy (e.g., establishment of the Department of Environment, Central and State Pollution Control Boards etc.). However, there has been little progress in the actual implementation of policy and enforcement of laws and regulations. Accounts of other national environmental strategies would come to similar conclusions. The environment is seldom at the top of any political agenda for long and many of the necessary measures that are implied are complex and costly to undertake. There are a number of reasons that have contributed to this process of run-down.

- It might be assumed in conventional policy analysis that policy-making is a matter of 'talking truth to power'. This means that, provided the policy is rational, coherent, and scientifically justified, it will be accepted politically and will then be a matter of implementation by the civil service. However, it never is. Furthermore, it is even further away from this assumption in governments that (a) have problems of executive capacity; (b) a less-than-secure political and administrative control of many of their more remote regions; and (c) contain government servants who see certain new policies as contrary to their professional interest. All the issues typically mentioned in these documents are political in a number of ways. First, environmental strategy is cross-departmental and requires cooperation (e.g., between departments of forest and land revenue) that can engender turf wars; there are several examples of these in the country studies. Policies also imply new alignments of stakeholders that require strong government and a certain degree of independence from competing interests. Strong government is not a hallmark of the region.
- There are important contradictions in national environmental strategies with preceding development dogmas that have usually emphasised economic growth at (almost) all costs. In many countries, the strategy is used by business and commerce to legitimise the externalisation of environmental costs resulting from their activities. A commonly heard sentiment is 'but can we afford environmental policy?' (e.g., in China). Powerful industrial and agricultural-based political interests in China, India, and Pakistan have been chaffing at

the potential restrictions and raised prices that reflect environmental costs more fully and that any national strategy would lead to.

- National environmental strategies are demanding of organisational and personal skills. They provide a tremendous challenge in that they require that routine-bound, underpaid, often demoralised and under-trained administrations become flexible, learning organisations that must often share information and negotiate with those that they had previously thought of as target populations suitable only for instruction or policing.
- National environmental strategies are 'retro-fitted', in that they have appeared in already set administrative structures and routines that fulfil a completely different set of objectives. Certain administrative changes have usually followed (e.g., a department of environment, new inter-departmental committees and boards, and decentralised consultative institutions). These changes are always difficult to bring about and much of the implementation of the environmental policy involves a high degree of learning by doing, something that any bureaucracy finds difficult.

Foreign Aid, Land Policy and Sustainability

Many national environmental strategies, as well as conservation projects and other programmes with environmental relevance, rely heavily on foreign funds and some contribution to project personnel (which can be major in some instances, e.g., Nepal and Pakistan). Indeed, a degree of coercion, applied by the weightiest multilateral organisations, some of the better-funded international NGOs and bilateral agencies, has been going on as part of the globalisation of environmental policy (or ecological modernisation, as it has been styled in this report). As this report has claimed, ecological modernisation engages with entrenched administrative, political, strategic, and ideological positions at the national level. These are discussed throughout this report because they provide a realistic assessment of what environmental impacts, land policy, and, in more general terms, national environmental strategies, might have in the foreseeable future. There are other aspects of ecological modernisation that do not engage with resistance: in fact, quite the opposite, especially where there are new employment opportunities for government employees at higher levels in the form of training and promotion, superior equipment, and so on.

The researchers for this study talked to many officials from national governments of the Hindu Kush-Himalayan region and from international and foreign institutions. Many of their opinions are as impressionistic as they are contradictory, but there appears, through the mass of diverse

opinion, a number of broadly held views regarding national environmental strategies and their broad environmental goals. Some will resonate in some countries more than others, and in some sectors of the civil service more than others. Four main issues emerge.

- Job descriptions for many professionals may have to be completely rewritten to fulfil certain aspects of national environmental strategies with the effect of confusion, loss of morale, and professional pride (the Forest Departments of at least three Hindu Kush-Himalayan countries are prime examples).
- Coordination between different policy-making and implementing units is essential to a comprehensive and integrated national environmental strategy. This can precipitate 'turf wars' for which there are no, or inadequate, means to resolve.
- The overarching and strategic vision of a national environmental strategy is difficult to sustain for all but a few of the reforming policy elite in any country: for the routine, daily life of most agricultural, forestry and wildlife officers at the divisional and district levels (and below the provincial level in Yunnan Province in China), it still means little.
- Therefore, for many, there is an attitude of passive resistance against perceived threats, comprehensive ignorance for many more, and of opportunistic enthusiasm for those few who can benefit their careers and skill levels.

The implications for the sustainability of momentum for national environmental strategies are, therefore, mixed and, of course, vary between countries and sectors. There are, in some locations, networks of committed, usually younger professionals, often, but not always, foreign trained who carry certain projects of the national environmental strategy forward. Training and re-orientation of other cadres is also part of most strategies, although their efficacy is seldom evaluated, and impacts are difficult to follow through.

Bureaucratic Styles and Cultures

It is useful to examine land policy at the national level by comparing policy-making style and culture to three ideal stereotypes. These exist only in abstract and not in reality, and, indeed, a particular land policy may borrow a number of characteristics from more than one ideal type. Nonetheless, the ideal type has a number of assumptions that are consistent with a particular policy style. The three ideal types are classic, populist, and neo-liberal. This report wishes to make no judgement about which style is 'best': indeed, a

pragmatic and mixed policy may be best suited to particular national contexts. Each style has a number of ideological and philosophical assumptions. Each faces contemporary problems in environmental management in the region. They also face some degree of contradiction and confusion in their sets of assumptions.

Within an historical perspective, the classic style derived its origin from the colonial state. It is a prescriptive, top-down and authoritative approach. It is expert led and is justified by formal science. In spite of resistance from local people and from anti-imperial and anti-state sentiment world-wide, the style has strong resilience and survives in many state organisations. This report details a number of examples in forestry and agriculture in the region. The populist approach is usually more egalitarian and anti-state. Virtue in all things, the approach assumes, resides with the people. Its typical institutional vehicle is the NGO, and its origins are undoubtedly international. In certain countries, Nepal for example, Nepal, the dominance of foreign aid in the national development budget and imported development ideas have led to a considerable undermining of state authority in development matters. More and more funds go to NGOs which are seen to bypass cumbersome bureaucracy and a less than transparent accountability of project resources. More fortunate government employees are seconded to these projects, or leave the government sector altogether. It is they who become recruits to the neo-populist style and leave the professionals from the classic mould in government often to mount a rearguard action against the new style. It claims to be a bottom-up, people-orientated, and decentralised approach. It aims to be participatory and talk up local technical knowledge and local resource-management institutions. Again, there are plenty of examples in this report (Table 3.2).

Finally, the neo-liberal approach to environment, launched initially by the World Bank (1992) in the early 1980s, takes an economic approach to the environment in which individuals, being rational utility maximisers will, if they bear the cost and reap the benefits of managing and deriving utility from natural resources, seek to use them sustainably. Environmental costs of any activity must be identified and internalised, thus policy seeks to eliminate subsidies and promotes clear property relations (implicitly, private property being preferred). This style has since been underpinned by a growing literature on environmental and institutional economics and certain aspects have been attached to conditionality clauses of loan agreements. It is this style that is dominant in most national environmental strategies, though there are a number of points at which populist sentiments prevail, particularly regarding participatory management and local rights to resource use.

Table 5.2: Three paradigms of environmental conservation from Biot et al. (1993)

	Classic	Populist	Neo-liberal
peasant behaviour	ignorant, irrational, traditional	virtuous, rational community-minded	rational, egocentric
diagnosis of environmental problem	environmental solutions	socio-political solutions	economic solutions
immediate causes of environmental problems	mismanagement by users	mismanagement by state, capitalists, transnational corporations, big business	poor government policies and bureaucratic rules and regulations
structural causes of degradation	overpopulation, backwardness, lack of foresight, ignorance	resource distribution, inappropriate technologies	inappropriate property rights, institutions, prices, and rapid population growth
institutional prescription	top-down, centralised decision-making	bottom-up participation	'market' policies, property rights, resource pricing, self-targeting safety nets
academic discipline; profession	science; bureaucrat	sociology; activist, NGOs	economics; development professional
gender orientation	gender blind	virtuous but victimised women	gender myopia
research framework	systematic empiricism	rapid/participant rural appraisal, community as unit of analysis	methodological individualism
orientation to market	not considered	exploitation	pareto-optimality and externalities
models of peasant society	conservative, paternalistic	egalitarian	democratic / liberal
views of collective action	deficient	essential and unproblematic	conditional rationality
technology	soil conservation works particularly terracing	agronomic techniques of conservation	/political entrepreneurs not specified

These styles of environmental policy-making all appear in the national environmental strategies, but the dominant one is the neo-liberal which forms a central, but not exclusive, position in most documents. It is the coherent rationality that runs through most of the documents. There are also strong populist tendencies that promote a more participatory style. Often, the ideology of a populist approach is taken for granted (e.g., it is more democratic, sensitive to differences of wealth, gender, and culture), but there is little in the way of the rationality in a participatory approach. In other words, why should a participatory approach to agricultural research, forest management, land use, and so on work any better in an environmentally technical sense than the existing classic top-down approach? There has to be an evidence-based case why, for some policy areas, it may be a more effective approach from an environmental management point of view. In the following sectoral chapters, such a case is presented. Moreover, this study claims that the classic approach is becoming practically and politically increasingly fragile. Instead, a decisive, though painful, re-orientation towards a blend of market-led and populist land policies is advocated. However, the populist alternative is also prone to dangerous assumptions and wishful thinking. A more participatory and decentralised style of environmental management does not avoid new conflicts. It cannot assume the virtue of the 'community' regarding either equity or efficiency in environmental management. It leaves the state, in various ways, with a difficult refereeing and regulatory role. In this respect, the recommendations of the World Bank (1992) and this report are not in disagreement.

Forestry



Top	Cleared slopes with crop field in Hunza, Pakistan <i>Vaqr Zakaria</i>
Middle	Bare tree stumps of Guzara forest in North-western Pakistan <i>Vaqr Zakaria</i>
Bottom	Piled up timber lots awaiting transportation, Chilas, Northern Pakistan <i>Vaqr Zakaria</i>

Chapter Four

Forestry

Introduction

Forestry is one of the most important sectors in land policy, as defined in this study. It is central to most environmental as well as development issues in the Hindu Kush–Himalayan region. Firstly, it provides the most valuable natural resource in commercial terms in the form of timber and other forest products for almost every country (or hill districts thereof). Secondly, natural forests are closely integrated into all but a few farming systems in the region and provide multiple subsistence requirements for farmers and some pastoralists. Forests are also the major repository of biodiversity and perform soil and water conservation functions that are superior to almost all other land uses. Indeed, it is the priority of these different forest benefits that forms the basis of current policy debate in the sector.

There is another reason why forestry is a central issue in land policy. It is that forest policy is the best articulated of all the land policies discussed in this report for all countries except perhaps China. In some parts of hill India for example, the forestry service has been managing forests for about 100 years and, therefore, the environmental impacts are most marked. Arguably, for most countries in the region, forestry is the best-developed professional administration with a long history stretching back into the imperial past of the subcontinent, and this includes legal and regulatory experience, training, and an established professional career structure. The main institution that dominates the subcontinent is the Dehradun School of Forestry to which Indian, Nepalese, Pakistani, and Bhutanese foresters have been sent either for many years before independence or after it. While Pakistan, Bangladesh, and Nepal now have independent forestry schools, it is fair to say that the syllabuses, textbooks, and professional ethos at the school at Dehradun, together with its imperial history still, with its legal and regulatory substructures, maintain a strong continuity today and permeate much of the profession and policy throughout the region, except in China.

The professional qualities of the forest service obviously have advantages in effective policy-making, and it has to be said that there would be far less forest than there is today without the forestry services of the countries of the region. The view that this report takes is that the Dehradun institutional presence in the subcontinent is both part of the solution to as well as part of the problem of effective and socially acceptable natural resource management.

Much of the policy discourse about forest policy in the region deals with the contending criteria for the management of forests. How should forests be managed, who for and to what ends? The stereotypical, classic approach has the following elements.

- Forests must be managed in the national interest in which commercial concerns remain central.
- Customary rights of local users must be recognised, but as a residual management objective, and should be carefully prescribed by law.
- Scientific management of forests is a matter for the state to lay down and implement.
- Watershed protection roles of forests have now been re-affirmed by a tacit acceptance of the theory of Himalayan environmental crisis.

Why then is there any reason to challenge this approach? Why have more populist pressures built up and engaged with the classic approach? Firstly, a cursory glance at the history of forestry in India, Pakistan, and Nepal will reveal a long resistance to government policy on the part of local people. Burning of government forests and poaching have been commonplace over many years and have taken new and political forms today. Social movements, such as the Chipko movement, the testaments of such leaders as Bahaghuna in India, the exposure offered by the free press in countries such as India, and the separatist movements of both a violent and more constitutional form, are all widespread throughout the region. While narrow concerns over forest management are only a part of these movements and form a subtext for a more general anti-state and self-determining role for local people, they remain an important part, and they are also central to this report. It is simply neither realistic nor constructive to confine discussion to the apolitical and technical aspects of forest policy. Indeed, to do so is to ignore the causes of the current problems and to disregard willfully any political (in the widest sense) sources for their resolution. Every country and locality presents different politics of engagement, although there are commonalties.

Secondly, the traditional criteria for forest management, and for judging the success or failure of forestry programmes, point to serious strains appearing

in all countries, except, perhaps, Bhutan. Widespread cutting, both legal and illegal, has increased in many areas of the region. The calling for logging bans in all countries except Bhutan is a symptom of crisis, not of sustainable and long-term planning. In China there have been devastating periods of deforestation that have been recognised, catalogued, and widely discussed in some policy circles there. Yet, the reaction in many circles has been that established forestry practice must somehow intensify its surveillance of the forest, strengthen its institutions, and 'dig in for the long siege'. Certainly, there is evidence, which this report briefly reviews below, that forests in many parts of the region are deteriorating (particularly in the heavily forested states of northeast India). Such a reaction to a general acceptance of retreat has led to a polarisation in public debate, as well as a 'conspiracy of rhetoric', whereby well-tried, but increasingly ineffective, custodial policies of the old style carry on, arm-twisting by international agencies becomes more commonplace, and policy statements suggesting radical change remain on paper but are not implemented.

One of the key controversies in the academic and policy-making communities is the meaning, significance, and extent of deforestation. How much this debate actually matters in policy circles and in actual policy formulation is a moot point; probably not much. This report takes the view that bureaucratic and administrative cultures and political and strategic considerations are probably more important in shaping forest policies on the ground than academic debates, particularly those surrounded by so much uncertainty. Closure on this issue is beset by many problems. There are, predictably enough, serious data problems. Firstly, only official data of commercial felling are available. These data only concern a proportion of total extraction and are subject to serious under-reporting. This occurs for many reasons: deliberate under-specification of timber volumes by the forestry officials; felling of trees that is altogether unrecorded; and overharvesting on the part of contractors above the amounts sanctioned by the management plan. The rates of forest removal and thinning in forests not controlled or jointly managed by the forestry service may go unrecorded altogether. Alternative methods of assessing changes through time from satellite imagery and aerial photographs have been more promising, but expensive ground verification is often necessary. The most intensively researched country in the region has been Nepal. Even here, there are still unresolved debates. Up to the early 1980s and the implementation of the Nepal-Australia Forestry Project, the conventional wisdom was that the Nepalese hills were losing their forest cover fast. A number of Nepalese foresters and academics questioned this and provided evidence for an increase in forest cover in many areas (e.g., Mahat 1987). Most recently, new data are emerging that suggest that, even in districts that have enjoyed the environmental success of community forestry, the forest may be exhibiting signs of thinning, overuse of the forest floor, and reduction in crown

cover. The intensity of research into changes in forest cover elsewhere in the region is much lower, and the uncertainty therefore higher. Thus, in this report, only a brief and non-quantitative summary of change is given. No original research could be undertaken, and the listing below is a summary of a best estimate.

- India (northwest). Official forestry statistics suggest an increase in forest cover under most categories of forest. This trend is contradicted by the majority of observers, academics, and activists. The rate of decline is relatively gentle but is more serious in local pockets.
- India (northeast). There is strong evidence of rapid deforestation. Arunachal Pradesh has the best preserved forest but here, as in most of the other six hill states, rapid deforestation, exceptionally so in certain areas, is reported.
- Nepal (hills). It is likely that the forest area and status are stable or gently declining in most places. There are exceptions in the relatively small areas under community forestry and in small reported pockets elsewhere.
- Bhutan. Forests occupy about 72% of the total area and, therefore, the country has one of the best natural forests in the region. The area is fairly stable but deterioration of forest quality due to subsistence needs is reported in some areas.
- Bangladesh (Chittagong Hill Tracts [CHT]). Quite rapid decline of forest cover in the most densely populated western area due to shifting cultivation and both illegal and legal felling.
- Pakistan (Northern Areas, North West Frontier Province). Episodic deforestation over the past 20 years has occurred, particularly since 1988. At present, there is rapid deforestation as a result of high timber prices and illegal felling.
- China (Yunnan). Most areas have undergone marked fluctuations of deforestation and afforestation that accompanied China's varied political projects over the past 60 years, but the net position at present is widespread deforestation. This has been verified by official statistics and publicly discussed at the local level.

Bangladesh

The forest policy of Bangladesh followed the political subdivision that occurred with the end of the British Empire, and then the winning of independence from Pakistan. The Forest Policy of 1894 was felt inappropriate for the needs of Pakistan after independence and was replaced by the Forest Policy of 1955. Its salient features were as follow.

- Forestry should be given a high priority in the national development plan.
- Sound management should be extended to private forests.
- Necessary powers should be obtained to control land use under a coordinated programme of soil conservation and land utilisation in areas subject to or threatened with soil erosion.
- Public support should be enlisted for the execution of forest policy.
- Forests should be classified on the basis of their utility and objectives.
- The beneficial aspects of forestry should be given precedence over the commercial.
- Forest area should be increased by measures such as reserving 10% of land irrigated by canals and 10% of water for raising irrigated plantations; growing trees along canal banks, sides of roads, railway tracks, wastelands, and so on; encouraging farm forestry on a cooperative basis by village communities in compact blocks of cropland set apart for the purpose.
- Timber harvesting techniques should be improved (a special provision for then East Pakistan, now Bangladesh).
- All forests should be managed under working plans.
- A properly constituted forest service of fully trained staff should be made responsible for the implementation of forest policy.
- Forest research and education should be organised along proper lines.
- Wildlife should be protected, and their habitats protected and improved.

This classic forest policy, with an additional focus of the watershed protection role of forests that emerged at the international level in the late 1980s, still emphasised commercial forestry at the expense of conservation. The recognition of people's rights has also appeared, but, further than 'enlisting public support' — something which, with regard to the Chittagong Hill Tracts, the government has signally failed to do — there is no evidence of any implementation of a more participatory and accountable forest policy.

Parallel to the rising concern over continuing deforestation and consequent environmental impacts in India, Pakistan (that at that time included East Pakistan) promulgated its Forest Policy in 1962. The policy dealt with five aspects: forestry, watershed management, farm forestry, range management, and soil conservation. Policy directives for range management and soil conservation were especially applicable for areas that are now in (West) Pakistan.

- The management of forests should be intensified to make it a commercial concern.
- Use of forest products should be improved to reduce rotation, and regeneration accelerated to keep pace with increased harvesting.
- Government-owned wastelands should be transferred to the Forest Department for raising plantations.
- Timber-harvesting in the Chittagong Hill Tracts and Sundarbans should be further accelerated.
- Rights of the Forest Department to forest should be acquired progressively.
- Soil conservation should be given priority in forests and on private lands.
- Farm forestry should be the concern of the Department of Agriculture in non-project areas and of the Agricultural Development Corporation in project areas.
- Research should be directed to form shelterbelts and windbreaks as well as to select fast-growing commercial species for each ecological zone.

This policy was a sharp reversal to that of maximisation of timber-revenue, and involved the aggressive 'gazetting out' of large areas, and control by 'dictat' of the habitat and means of subsistence of large numbers of the inhabitants of the Chittagong Hill Tracts.

The first national forest policy after the independence of Bangladesh in 1971 was notified in 1979. A new set of guidelines followed, rather similar to those of the 1962 act, except that it emphasised research and training and mass mobilisation for the support of forestry policy. In the Chittagong Hill Tracts, this was a far cry from the actual situation, following the flooding of many tribal lands by the vast Kaptai Dam hydroelectric project and continuing abrogation of subsistence rights by a centralising and commercially minded forestry service. A critical evaluation of the impact of the Forest Policy 1979 indicates that the hopes for expansion and qualitative improvements expressed in the policy were not realised for lack of implementation. The policy was also, along with the Kaptai dam, a trigger for armed resistance in the Chittagong Hill Tracts. It contributed to the social unrest that would render its implementation impossible for a whole generation.

The current National Forest Policy 1994 was officially announced in 1995. It was an amendment of the Forest Policy 1979 and was formulated to implement a 20-year forestry master plan. The Government of Bangladesh,

assisted by the Asian Development Bank (AsDB) and the United Nations Development Programme (UNDP), prepared the forestry master plan to preserve and develop the nation's forest resources. The plan provides a framework to optimise the forestry sector's contribution to stabilising environmental conditions and assisting economic and social development. Three imperatives have been identified: sustainability, efficiency, and people's participation. These imperatives are in tune with the Agenda 21 forest principles, adopted at the 1992 United Nations Conference on Environment and Development held in Brazil. It is pertinent that the terms 'sustainability' and 'people's participation' appeared for the first time. The latter, it might be said, offers some of the political compromise required for a peaceful settlement to the present insurgency.

Bhutan

The Forest Service Division in the Ministry of Agriculture is responsible for the management of the national forest resources in Bhutan. The Planning and Policy Division assists in the analysis and formulation of forest policy. The technical inputs and other experiences from the field and other staff of the division form the basis for policy analysis and revision. The concerns and views of the local community are supposed to be incorporated in this process through the participation of the field staff with local interests.

At the national level, the National Environmental Council is the overall coordinating agency for national environmental issues. Conservation and other forestry operations are guided by the National Environment Secretariat. A number of international agencies and some bilateral donors are major partners in managing the forest resources. This international community provides the funds needed for meaningful management and conservation programmes ranging from establishment of an efficient information system to enhancement of national capacity. In this respect, it may be noted that the Government of Bhutan exercises careful screening of donors, ideas, and consultants.

This screening has avoided the involvement of too many donors and their ideas with different development intervention styles; a situation that can be witnessed in a number of other countries in the region. It has also enabled the government to present a distinctive nationalist style of environmental policy that is perhaps as much about making a statement about international relations and its cautious approach to modernisation, as about environmental policy per se.

The forestry management style is an interesting case. Until recently, forests were controlled by the government. However, within the overall

decentralisation policy and the changing role and functions of the forests, there has been a gradual loosening of this state control and a change from policing to extension. Management of forest resources is now shared with the local community. Also, institutional strengthening and further legislative clarification are taking place. The result is that the government still remains the custodian of forest resources, but is now concerned with effecting a smooth transition between management styles that avoids a destabilising vacuum or a polarisation between government and local resource users. However, one major institutional constraint to effective forestry management is the lack of local expertise with technical competence in planning and management. In fact, there are staff shortages in many forestry operations.

Over the last three decades, forest policy has shifted its focus from that of revenue generation to protection of the environment. At the beginning of planned development in the 1960s, it was recognised that a major contribution to the national exchequer would come from forests. The then forest policy was, therefore, to exploit forest resources to generate revenue. It was contemplated that revenue from forests would grow at 10% per annum. This revenue was required for investment in roads, education, health, and agriculture.

However, in 1991, forest policy became conservation oriented: aimed at multiple use of forest resources and involvement of local people in planning and management. Revenue generation was no longer important, although necessary, and could be obtained from scientifically managed areas. The main areas of policy were as follow.

- Preserving the natural ecological balance by maintaining at least 60% of the land area under forest cover at all times
- Developing and managing wildlife reserves in each ecological zone
- Conserving and managing forest resources on a sustained yield basis
- Banning the export of round timber (This is a recent addition to the policy.)

Forestry policies in Bhutan are supported by the Forest Act 1969 and the Forest and Nature Conservation Act 1995. While both acts provide the legal framework for effective forest management, the 1995 act is aimed more at conservation. Some salient features, which can be considered improvements over the 1969 act, are listed below.

- The use of forest resources should be based on scientific management plans.

- Those forests not owned by any individual will continue to be maintained as government-reserved forests.
- Plants that are listed in Schedule 1 are declared to be totally protected.
- Based on management plans approved by the Ministry of Agriculture, local people can now develop and maintain community forests in government-reserved forests approved by the Ministry of Agriculture.
- An individual can develop or register his land as social forest.
- Unlike in the past, trees from social forests belong to the people and there is no need to pay a royalty to use them.
- The procedure for establishing wood-based industries has been streamlined. Authority to grant licenses to establish wood-based processing plants now rests with the Ministry of Agriculture.
- The lack of legal provision for soil and water conservation programmes on private land is now addressed. The act empowers the Ministry of Agriculture to take up soil and water conservation programmes on private land if the government finds it necessary to protect soil, water, and wildlife resources.
- In order to provide smooth marketing of forest products, including those from social and community forests, the Ministry of Agriculture is to issue rules regulating their transport, import, and export.

The underlying objective of the act is to involve local people in forestry management to meet their own requirements and thereby release pressure on government-reserved forests. The government acts as a facilitator and provides technical and advisory services to individual farmers and community groups. This act was formulated and adopted by the people through their participation in the National Assembly. People can provide feedback on the act so that the government can improve it.

Forestry management can be divided into three broad programmes: production forest management; protection; and social and forest extension. Each of these is highlighted below.

- Production forest management programme. The Forest Service Division prepares management plans for reserved forests so that the demand for fuelwood and timber, in particular, is met. At the end of the Seventh Five-Year Plan, a total of 38 management plans had been prepared and implemented. Their objectives are to conserve the natural environment, to meet the increasing demand for forest products and to generate revenue on a sustainable management principle. One component is, therefore, afforestation: logged areas are planted with seedlings before closing the area for regeneration.

- Protection programme. This programme consists of forest fire prevention activity through which fire incidences are checked and controlled; insect and disease control activity to control bark beetle and other epidemics; and forest legislation activities that cover a whole range of legal aspects including the amending, revising, and enforcement of acts.
- Social and forest extension programme. This is a new programme placed at district level under the decentralisation policy. It has the following five, broad components: designation of community forest areas to be managed by local people; community afforestation or reforestation initiatives in degraded areas; agroforestry and private forestry on privately-owned agricultural land; allocation of dry fuelwood for rural consumption; protection of forests from fire and encroachment. Under this programme, the following two national activities deserve to be mentioned. The second of June is celebrated as Social Forestry Day throughout the country. Seedlings are planted in institutional compounds and degraded forests by local people and communities. Environmental studies are now incorporated into the school syllabus. A Nature Study Centre has been established by the Forest Service Division to facilitate school children's study of nature and the environment.

In assessing the overall impact of forest policy, it is necessary to stress that deforestation has never been a critical problem in Bhutan, mainly because of low population pressure and tight state control over forest resources. Nationalisation of forests in 1961 and logging operations carried out by a single organisation that was directly and continuously supervised by the government demonstrated this control. This limited the uncontrolled expansion of commercial logging by regulating the actions of powerful individuals, and community and government interest groups. Furthermore, it resulted in maintaining a good forest cover; Bhutan has avoided excessive forest degradation, with 72.5% of its total area is under forest cover. However, with increasing demand for forest products, the following are some localised problems that show that the forest is subject to some degradation.

With so much forest cover, there should not be a shortage of fuelwood. However, shortage in Thimphu is typical of growing scarcity in some urban areas where the population is concentrated. This has become an urgent national issue; the Ministry of Agriculture is already exploring alternatives to fuelwood consumption. The first target groups are the armed forces, monastic bodies, and some educational institutions.

Some forest areas have been encroached to cultivate agricultural crops, mainly cash crops. There are cardamom plantations in the subtropical humid forests of Sarpang, Zhemgang, Danaga, and Tsirang districts. About 3,500 ha of cardamom plantation were recorded during the Seventh Five-Year Plan. Since this figure was derived from satellite imagery, the actual figure will be greater. These plantations are now showing signs of land degradation, such as landslides and gully formation, mainly because of poor drainage systems.

Cattle-grazing is allowed in government-reserved forests on an annual payment basis. This has resulted in overgrazing that has led to serious problems of soil degradation, gully formation, poor vegetative cover and composition, and poor regeneration processes. Cattle are let loose in forests and are free to graze. Forest areas are also subjected to mounting pressure from the need to develop infrastructure. New roads are constructed through forest areas, open spaces are created to erect electricity transmission lines, and there are other needs, such as construction of buildings, for educational and agricultural extension purposes.

The Ministry of Agriculture should be able to address these emerging problems with the new Forest and Nature Conservation Act. For example, with the change in forestry rules that allows full rights to use and sell timber under the social forestry programme, the option of timber plantation on 'tseri' (land used for shifting cultivation) has become attractive in many areas. This alternative use of tseri will provide fuelwood, leaf litter, fodder, and other minor forest products. Consequently, it will release pressure on government-reserved forests and help the government in managing its forests in a sustainable way.

China

In China, there had been a 'forest policy' under the Xia, Shang and Zhou dynasties for many centuries, but what might be termed contemporary policy was only initiated in 1932 under the Guomindang administration. Thereafter, a several laws and regulations were promulgated from 1979 until the most important revision of forest rules under the market economy system. It is true to say that Chinese forest policy has been much less stable than Indian. Quite abrupt political changes had profound environmental impacts (e.g., the Great Leap Forward, the Cultural Revolution, and the DaGuoFan movement) and many of these were devastating. However, a high degree of local mobilisation has enabled people to deforest and re-forest the same area a number of times over the past 50 years. Most of these mass movements, however, swept aside whatever forest regulations were in place at the time. The present sets of laws dealing with devolution of powers of

management and regulation of market driven forces, which are now impacting on forests throughout China, were passed at the ninth National People's Congress in 1998.

After the establishment of new China, forest ownership was reformed with land reform. The general policy of forest ownership can be outlined as the following: large areas of forest belonged to the state; small areas of woodland belonged to the town, village, or individual according to the convenience of management and production. Woodland previously belonging to individuals or peasants still belonged to them. After enacting these policies, peasants obtained their woodlands and managed them according to their own wishes, meanwhile being exempt from usurious loans. On account of active government support, these peasants, just liberated from semi-feudal society, were strongly motivated to manage their forests. From 1956 to 1979, the government guided forest farmers in a socialist way. The first step was to establish a socialist agricultural cooperative community (SACC). The second step was to incorporate a forest cooperation community into the SACC.

During the Great Leap Forward, the Cultural Revolution, and the DaGuoFan (food prepared in a large canteen cauldron), communism dominated the whole political environment and was, therefore, also the way in which forests were managed. Almost all previous systems and institutions were swept away. Forestry production virtually broke down.

After 1978, forestry production was normalised. The State Council drew up Twenty-five Rules of Forestry. The whole country acted on the principle of Three Fixations; that meant fixing of forest and mountains ownership, fixing of boundaries of private mountains, and fixing of forestry contracted responsibility system. However, in practice, the system of Three Fixations was too simple and lacked any practical theory and management techniques (Zhang Jianguo et al. 1992). The main problems were caused by uncertain forest tenure.

- Forest farmers feared that the policy would change abruptly, as it had done in the past. Thus, after distribution of woodlands to farmers, they were only eager to cut down trees immediately, lest they were dispossessed once more.
- The revision of the property regime did not consider the forest farmer's benefits, so that the farmer lost any interest in planting trees.
- The system of forest ownership became divorced from day-to-day production realities. Forests were consumed, and resources destroyed. Farmers wanted land for food production and to satisfy their

commitments to the responsibility system. The last thing they wanted to do was forest production.

Set alongside abruptly changing property regimes, great uncertainty and powerful economic incentives to convert forest land, there was an extensive array of regulations and government officials that were supposed to encourage the conservation of forests. Local governments at different levels organised related departments to set up forest management organisations and appoint forest management staff. The main tasks of forest management organisations are forest conservation, preparation of contract agreements with units owning woodlands, delimiting the boundaries of forest conservation areas, and organising the masses to protect forest resources. The main tasks of forest management staff are inspection of woodlands, preventing the destruction of the forest, and putting offenders in the hands of a special government agency for punishment.

The current problems faced by forest management in Yunnan province, as in many other forested areas of China, are that forest areas are under enormous pressure from demands of the responsibility system and for land for food production. Many of the poorer peasants have become more vulnerable to food shortages and are obliged to place additional land under cultivation; officials simply look the other way, since denial would lead to serious hardship. Also the policy of placing economic growth above sustainability has led to a reluctance to invest in environmentally safe road construction, adequate industrial waste and domestic effluent treatment, and the planting of trees. Exceptionally high sediment loads were observed in most of the larger rivers of Luquan County and adjacent areas, and these have been verified by local officials.

India

The history of forest policy in British India, dating from the 1860s, shows that three major objectives of forest policy have been recognised and prioritised at one time or another. These are fulfilment of commercial demands for forest products, preservation of the subsistence needs of local resource users, and preservation of watershed conservation roles.

One of the first comprehensive national policy statements was issued in 1894 and modified in 1904. The objectives of the policy were as follow.

- State forests were to be administered for the public benefit.
- Forests on hill slopes should be protected.
- People were allowed to satisfy their subsistence requirements from minor forests only.

- Wherever a demand for cultivable land existed and could only be supplied from the forest area, land should be relinquished without hesitation.
- Royalty for the government must be collected for various facilities enjoyed by the people of the area.

These objectives were to be reached by the definition and specific regulation of a four-fold classification: preserved forests, timber-supply forests, minor forests, and pasture lands. The subsistence rights of local people were codified in regulations that allowed limited access to the latter two types of forest. The main aim of the Forest Policy 1894 was revenue collection, but also to satisfy the local people by granting them rights and concessions. There was no intention to improve forest management in general; this had to wait until the Indian Forest Act of 1927. However, there is also a history of resistance to the more exclusionary of the imperial forest regulations around the early decades of the twentieth century. While the policy of 1894 had a clear environmental impact, and could be judged an environmental 'success', it is reputed to have caused the out-migration of up to one-third of the population. People's livelihoods had been severely undermined, particularly through the withdrawal of grazing rights. Resentment simmered for some time and culminated in deliberate fire-setting over large areas of Almora District in 1916. The framework for forest management was elaborated upon in the Indian Forest Act of 1927; and partly in response to these problems. In modified form, it remains intact today.

After the partition of British India in 1947, the Government of India declared its own forest policy in 1952. This emphasised a national target of 20% forest cover in the plains and 66% in the hills. However, it was not until the Forest Conservation Act of 1980, and the National Forestry Policy of 1988, that the prioritisation of conservation of forests for watershed management became one of the most important elements of policy.

In the three decades after independence, the shrinking of forest areas and degradation of remaining forests continued. Alarming diversion of forest lands for non-forest purposes also occurred. Encroachments kept mounting, and the situation became politically sensitive. Voices were raised against vandalism and exploitation of forests. The Chipko movement was one such social movement that resonated with the agendas of other smaller movements, environmentalists, and NGOs elsewhere in the country. In the meantime, the Indian Constitution had been amended and forestry made a concurrent subject. The centre could now enact forestry laws. The Forest Conservation Act of 1980 was promulgated to check deforestation. The law made the prior approval of government obligatory for de-reservation of

reserved forests or for use of forest lands for any non-forest purposes. This piece of legislation had a salutary effect on diversion of forest lands, the rate of which came down drastically. However, it also caused some resentment because many projects, for which forest land was required and for which there were no other alternatives, were greatly delayed. The government banned green-felling above 1,000m in the Uttar Pradesh Hills in 1981.

Environmental concern at the international level increased in the 1970s and 1980s. Sustainability of development was the new official rhetoric as stressed in the Brundtland Report (1987). In 1988, a new Forest Policy was again presented by the government to the Indian Parliament. An altogether different paradigm now emerged that reflected these new, global environmental concerns. The policy assigned top priority to the environmental role of forests. The basic objectives were as follow.

- Maintaining environmental stability through preservation and restoration of forests.
- Conserving natural heritage by preserving natural forests and checking soil erosion.
- Increasing forest cover through massive afforestation and social forestry programmes and increasing forest productivity.
- Meeting requirements for fuel, fodder, non-timber forest products, and small timber for rural and tribal populations.
- Creating a massive people's movement for achieving the above objectives. Special emphasis was placed on involvement of women in forest resource management.

A more populist and watershed management approach had arrived. Both the National Forest Policy of 1988 and the central government's Guidelines of 1990 laid down the path that would lead to increasing emphasis on joint forest management. Joint forest management may be a comparatively new slogan, yet it has distant, but still audible echoes, many decades old, in the history of forestry in the Uttar Pradesh Hills. To a certain extent, community cooperation has its roots in the old cultural traditions and values of Uttarakhand, which reflected a closely knit social structure and social concord. However, joint forest management has a more radical agenda and directly challenges the established custodial and often exclusionary style of forestry practice.

In Himachal Pradesh, forest management systems have passed through many stages and vicissitudes through the last century and a half. In the time of princely states, the king ruled supreme, and the community had no rights. In British times customary rights were recognised but decisions were

still vested with the colonial power and the forest bureaucracy. Then appeared a spell of forest over-exploitation during the three decades following independence. Strict custodial approaches were adopted that caused simmering reactions. In the 1970s, the metaphor of social forestry began to assume currency from within India. Then came the period of donor-driven social forestry programmes. Donors advocated participation but retained decision-making authority in ways that inhibited the evolution of effective decentralisation. Lately, some corrections to this approach have been attempted. The National Forest Policy of 1988 distinctly shifted the policy stance towards the protective role of forests and the meeting of community needs as the 'first charge on usable forest resources'. The Joint Forest Management Guidelines (1980) lent a sharp edge, at least on paper, to the objective of involving and empowering communities in forest resource management, and this included the sharing of benefits. The extent to which these intentions became realities is discussed later in this report.

Nevertheless, a number of qualifying statements should be made regarding the implementation of joint forest management. First, joint forest management was only undertaken on degraded lands within villages and avoided handing over any management of more valuable forests. Secondly, the share of non-timber forest produce given to the village varies between 20-80%, and is usually less than 50% (in contrast to the community forestry programme of Nepal that allocates all the harvest, including timber, to the community). Thirdly, the actual implementation of joint forest management in the hills is still, after eight years, extremely slow. The reasons for this are discussed later.

Nepal

Nepal's history of forest policy according to Hobley (1996) can be divided into three broad periods: privatisation (1768-1951), nationalisation (1951-87) and populism (1987 to date). It was only in 1925 that formal forestry policy and administration (then known as 'ban jach') started. The establishment of the first Department of Forests took place in 1942. The forestry tradition soon came to resemble that of India, and the influence of Dehradun became firmly established. Forest policy and administration at the time was merely about how to export more timber from the 'terai' to British India, and to supply wood and wealth to the ruling, feudal Rana families. The Rana regime (1846-1951) had, by the end of their rule, distributed almost one third of the forests of Nepal to various Rana families and other clients in the form of 'birta' and 'jagir' tenure.

The influence of the post war era (WW2) of institutional development of forest services on a global scale began to make its presence felt, most of

which was designed in the context of a more centralised management system and through which foresters were trained as single minded in their aim to protect and exploit forests for commercial purposes (Westoby 1989). Although Nepal had little experience of industrial uses of forest, it was not out of touch regarding the whims of industrial forestry. The classic forestry education of Dehradun Forestry School, to which almost all Nepalese foresters were sent for training, made the forest service very technically oriented. This was reinforced by the autocratic political regime of the time that made the forest service an extremely authoritative and centralised institution.

In the hills, however, during the Rana period there were no specific policies, although there was *de facto* recognition of the 'kipat' system (an ancient form of communal tenure in the hills), the 'talukdari' system (whereby taxes were collected by a local intermediary for the government) and 'indigenous forest management systems' (Fisher 1989). In 1957, the Private Forest Nationalisation Act was introduced with the aim of ending the *birta* and *jagir* tenure exploited by the Ranas. The 1957 act and the subsequent introduction of legal instruments meant that the forestry service began to function simply as a police force and continued to operate against the subsistence needs of the primary users and in favour of the interests of the feudal rulers (Soussan et al. 1995). The Nationalisation Act led to tremendous controversy amongst academics and practitioners alike. Although one of the main intentions of nationalisation was to prevent the destruction of the forest and to ensure adequate protection, maintenance, and use of privately-owned forests (Regmi 1978), this act merely placed all forest land under the control of the Forest Department turning foresters into policemen and licensing officers acting against the interests of villagers. Although the state asserted its ownership of natural resources all over the country, there was little effect in many parts of the hills (Bajracharya 1986; Hobley 1985).

Whatever may be the intention of the 1957 act, nationalisation meant that forests that were managed by local people under traditional systems were adversely effected. Nationalisation was seen then as the cause and not the solution of the forestry problem (Hobley 1985). In this sense, it is necessary to note that there were two fundamental flaws in this act. First, it gave no recognition to traditional systems of forest management by local people for their own needs. This resulted not only in conflict between local communities and the Forest Department, but also in some places a decline in forest quality. This stemmed mainly from the fact that local people continued to exploit forest resources, but felt no obligation to protect or control their use of forests as they had done previously (Arnold and Campbell 1986; Messerschmidt 1995). Secondly, the act contained an *a priori*

assumption that the Forest Department could take effective control over the forests. Even today, Nepal's Forest Department does not have enough manpower to administer even a fraction of the lands nominally under its control effectively, and in the 1950s it contained no more than a handful of trained foresters.

The 1967 Forest Preservation (Special Arrangement) Act further defined forestry offences and penalties and reinforced the role of the Forest Department including the provision to "empower District Forest Officers to shoot wrongdoers below the kneecap if they in any way imperilled the life or health of forest officials" (HMGN 1961; Talbott and Khadka 1994). This act together with several other land-related acts such as the Birta Abolition Act (1959), the Lands Act (1964) and the Pasture Land Nationalisation Act (1974) increased the power of the forest service. The Forest Department became, on paper and in law at least, a powerful institution with a technical as well as a judicial role and an exclusive body for the control of forests. The focus of the provisions emphasised the traditional policing role of the Forest Department, in particular, creating the power to establish Forest Preservation Special Courts to enforce regulations and exact penalties. These arrangements increased the disaffection of local people dramatically and led to even greater hostility towards the Forest Department. It also represented a reversion to an aggressive and military version of the classic model.

The Forest Act 1961 was powerful enough to take action against any suspected person and many landless peasants and their leaders (mostly opposition political leaders) were the victims. The forest service was, in a sense, then used as a political tool to suppress opposition leaders who were fighting for land reform and the restoration of democracy. Apart from this, law enforcement was limited to use against the powerless and poor. These legal instruments and powers were exercised in a discriminatory fashion, with the poor and disadvantaged in particular being the target of Forest Department officials whilst the more influential were able to exploit the forest resources at will (Mahat et al. 1986a). Despite all these powerful forest acts, the forest service remained ineffective. It was able to neither protect the existing forests nor place the forest into active management.

The global wind of modernisation, based on green revolution technology, accelerated the conversion of forest land for agriculture and was supported by government incentives to hill migrants to carry out this conversion. There was a massive policy emphasis in the 1950s to shift populations from the hills to the terai (Bajracharya 1983). In the early 1970s, the government established large and medium-scale, forest-based industries such as the

Timber Corporation of Nepal and Nepal Fuelwood Corporation with a grant from the Food and Agriculture Organization of the United Nations Development Programme (FAO/UNDP). The major forestry activities of the forest service then became inventory control and the marking and licensing of forest products, all of which were concentrated in the terai, while hill forests remained relatively neglected and unmanaged. Wherever the impact of the forest acts and the forest service was least felt and the indigenous forest management system (Fisher 1989) was strongly established, communities continued to preserve their local forest through communal arrangements. In other places, where local systems were not well established and people felt their forest was taken over by the Forest Department, they converted local forest into open access regimes. Although the Forest Act of 1961 had a provision for handing over national forests for local control and some panchayats took advantage of this (see for example, Hobley 1990), it was not until the early 1980s that provision for such local control was put into widespread practice.

The government admitted for the first time in the National Forestry Plan of 1976 that protection, management, and development of forests scattered throughout the kingdom was not possible through government efforts alone. Although the Forest Department was nominally responsible for the management of all forest resources, it did not have the capacity to undertake anything more than a token policing role in most areas.

Despite a clear recognition of the need to develop a partnership between the Forest Department and the panchayat, there was little success. For example, until 1987, only 36,376 ha of forest land were transferred to the panchayat of the target of 1.83 million ha (Karmacharya 1987). Among the causes of failure were the bureaucratic nature of the procedures to hand over forest; the provision of only severely degraded forest to be designated as panchayat forest; the wrong assumption that panchayat was synonymous with community; and control of the forest being given to a committee which in fact constituted powerful elites. The real users of the forest, such as the poor and women, were unaware of the process. Communication between the forest service and the panchayat was only between local politicians and the officer in-charge of the district forest office whose real interest was in the production and sale of commercially important timber rather than sustainable management to meet local needs. Such commercial interests could not be met by these forests, and all forest designated as panchayat forest was much too degraded to give any immediate benefit.

As in other sectors, all projects to be implemented in the forestry sector are required to undergo an initial environmental examination/environmental impact assessment. These requirements are made mandatory by the Environment Protection Act 1997 and the Environmental Impact

Assessment Guidelines for the Forestry Sector 1995. However, these requirements are fulfilled only cursorily as a routine action without much attention to the complex analysis usually expected in a standard environmental impact assessment. This is a key example of policy guidelines that appear from donor pressure and which, from a rational perspective of environmental management, are useful. However, effective deployment is beyond the existing capacity of forestry officials, and although the guidelines are easy to observe on paper (the requisite signature is routinely provided without the scrutiny of the application), their impacts (or absence of potentially damaging ones) are virtually untraceable on the ground.

Pakistan

Pakistan, shortly after independence, enacted a series of forest policies in 1955, 1962, 1975 and, most recently, in 1991. The first two policies were formulated entirely by representatives from federal and provincial governments, with the only element of diversity being provided by the fact that a range of government departments including planning and finance were involved in the process. As in subsequent policies, these two policies also emphasised the management of public forests and were particularly concerned with the expansion of area under forests. The primary objective of forest management, as envisaged in these policies, was the generation of revenue and the maximisation of yields from forests — environmental and social considerations did not figure prominently in the agenda. The forest policies served to set the tone for a top-down approach towards forest management and reinforced the notion that communities had no interest in forest management and no stake in the preservation of the public forests in particular.

The forest policy of 1975 was formulated in response to the loss of forest resources that resulted from the separation of East Pakistan in 1972. The policy marked an important departure from the first two policies in that the drafting committee for the policy included representatives from both governmental and non-governmental institutions. The recommendations of the policy framers were extensively scrutinised by the federal Ministry of Food and Agriculture and by participants in the Inter-provincial Conference in 1974. The policy was approved by the Council of Common Interests, which oversees inter-provincial issues, in 1975, and it remains to date the only forest policy to be approved by this body. The forest policy of 1975 was the first people-friendly policy enacted in the forestry sector, in that it recognised that the management of 'guzara' forests (private forests that are managed by the state for the owners) should be entrusted to the owners themselves, with the state taking on only supervisory responsibilities. The

policy recommended the formation of owners' cooperatives, but recommended that harvesting should be carried out entirely by public sector corporations. This directive was followed in the North West Frontier Province, but never became operational in the Northern Areas as the Northern Areas' Forest Department did not have the institutional capacity to establish a distinct institution to manage harvesting operations.

The policy of 1975 soon fell prey to political expediencies. The government that had formulated the policy was removed in a coup d'état in 1977 and the new government, which did not wish to continue with the initiatives of its predecessor, restarted the process of analysing the existing conditions of forests, rangelands and other natural resources. From 1977 to 1988, forestry continued to be considered a subsidiary of agriculture, and forest policies were enacted as appendages of agricultural policies.

The revival of interest in forestry as a distinct discipline has much to do with the influence of donor agencies that, though active in Pakistan since the 1960s, had become prominent players in development initiatives at the grass roots by the 1980s. The United States Agency for International Development (USAID) was running one of its largest aid programmes and, in 1989, took the lead in introducing a project on forestry planning and development that emphasised the development of farm-forestry plantations and private forests to meet the country's timber and fuelwood needs. The USAID and the Food and Agriculture Organisation (FAO) advocated a new forest policy that would have a more integrated approach to forest management and would incorporate social and environmental considerations. An international seminar on forest policy, held in 1989 and funded by these agencies, proved to be the first step in a consultative process that eventually resulted in the formulation of the forest policy of 1991.

The policy of 1991 represents a turning point in the history of forest policy-making in the country as it was influenced to a considerable extent by donor agencies and Pakistani NGOs involved in implementing forestry programmes at the grass roots' level without necessarily relying on any support on the part of the Forest Department. The most significant contribution of these grass roots' development programmes has been the demonstration of the participatory approach to forest management, and the 1991 policy specifically mentions the replication of participatory forest management programmes such as, amongst others, the Kalam Integrated Development Programme funded by the Netherlands' government. The policy also placed greater emphasis on research and development than any of the previous policies and emphasised the need to preserve biodiversity and contain environmental degradation. With regard to hill forests, in

particular, the policy is ambiguous. While it mentions the need to conserve these forests, it also talks about intensive management of these forests, mechanised forest operations and increasing the density of forest paths. Nevertheless, like previous policies, the 1991 policy is also concerned primarily with public forests and with using these forests to meet national wood and wood-product needs.

Forestry is a provincial subject and national forest policies cannot be effective unless they are adopted by provincial governments and implemented through provincial forest departments. In the Northern Areas, national policies have traditionally had a limited impact, mainly as the region does not even have the status of a province; the infrastructure for policy appraisal, adaptation and implementation, which does exist to some extent at the provincial level, is not fully developed in the region. Policy directives formulated at the federal level are thus rarely implemented or adhered to and are not owned by the regional authorities, even though representatives from the region were a part of the policy-formulation process. When policies give conflicting signals, as in the case of the recommendations on hill forests in the 1991 policy, chances of implementation become even more nebulous and the policy documents tend to be relegated to the back burner.

In the Northern Areas, where the bulk of forest area is privately owned, and the forest areas occur primarily in tribal areas such as Chilas, Darel, and Tangir—where government authority has traditionally been minimal—the only policy guidelines followed are the ones enshrined in the government's agreements with the tribes. Thus, private forest management in the Northern Areas has continued to function primarily according to the provisions of the 1952 agreement with communities, which laid out certain specific forest management principles and procedures.

Commonalties and Differences in Forest Policies

There are some similarities in the paths of evolution that different forest policies have taken throughout the region. The three major purposes for which forest management has been undertaken have remained in evidence in virtually all forest policies since the last century. There has been a slow shift of emphasis — at least on paper — from the commercial objectives of forestry towards soil and water conservation, biodiversity conservation and more participatory approaches. Different foci, first on the recognition of user rights, and then on a participatory-management relationship with local users, have made their appearance in national forest policies at different times, but usually from the mid 1980s. In all forest policies, including those of China, the increasing globalisation of environmental

policy has been felt. These new agendas have been introduced into national policy-making by the financing of donor-driven projects; some through informal arm twisting by the more powerful bilateral donors, and more by formal conditionalities of loan agreements by multilaterals (specifically the World Bank). The degree of international leverage applied to different countries explains a great deal of the different speeds at which the new priorities appeared in policy documents: most in Nepal, followed by Pakistan and Bangladesh, and least in India, China, and Bhutan.

While the language of policy documents in the different countries of the region, excepting China, has converged, even if new approaches appear at different points in time, the degree and style of implementation in each country have both significant similarities and differences. The most important similarity from a historical point of view has been the enduring professional momentum of the forestry service in each country towards centralisation, authoritative management based upon rational principles, and a tendency, both in policy and practice, to favour income maximisation through commercial exploitation of both natural forest and plantations. This is most true of Bangladesh, Bhutan, China, India, and Pakistan, but less so of Nepal's hill forests (although not at all of its terai forests). All forest policies have, to a greater or lesser extent, made the shift of emphasis towards forest conservation for watershed management and biodiversity conservation reasons, as well as towards a more decentralised and participatory form of forest management, at least on paper. The degree to which these new paradigms actually affect the environment and local people does, however, vary considerably between countries.

Similarity between all policies, except for those of China, can be found, and what significant changes in implementation there are seem to be little more than slight shifts of emphasis from the paradigmatic Indian Forest Act of 1927. However, there are significant changes that are neither wholly rhetorical nor cosmetic. Policy did, and still does, matter. There are important differences in different countries both in policy and in the mode of implementation. Regarding the forests of the eight hill states of northeast India, the ability of the centre and the state forestry departments to intervene in the management of forests held under a myriad of indigenous tenure systems remains severely curtailed. India's forestry service was, and still is, big and confident enough to resist all but the most determined attempts by international and bilateral donors. The foreign financial share of forestry operations in India remains trifling, unlike in Bhutan and Pakistan, for example. The new ideas of biodiversity conservation and the (reactivated) watershed protection role of the forest also resonate perfectly with the classic model of conservation (authoritative, scientific, expert, and

exclusionary). Thus, there now appear additional scientific reasons why the state must take extra care to protect the forest and not allow administrative control to slip from its grasp. The idea of participation derives from donor-led projects of social or community forestry and joint forest management in other non-hill lands of India, but has been slow to be implemented in the hills and has been implemented in a manner on the ground that belies the intentions of the programme. As has been said, the actual areas under joint forest management, and social and community forestry in both Nepal and the hills of India remain small. Furthermore, the amount of discretion that local institutions are allowed in the management of social/community forests remains highly contested, and usually rather limited.

Pakistan has mostly followed the style of Indian forest policy, but in the Northern Areas and in North West Frontier Province the federal state has had to negotiate particular forms of joint management control in order to fill the policy vacuum left by the removal of the local princely rulers. Much forest remains in private hands, managed by common-property resource-management institutions, with advice and guidance only of the forestry service. Nepal's forestry policy moved rapidly from its late feudal origins up to the 1950s to a classic, nationalising stance that is drawn from the style of the Deharadun School of Forestry at the time, and to which it sent most of its forestry professionals. It has since reversed some of its priorities and responded to international pressure for a more participatory approach, in which it is now a regional leader.

Bhutan is an interesting case in which the country was concerned to move from a pre-modern administration to a modern one. It also initially adopted a classic stance that emphasised scientific management for commercial ends, but later asserted an independent and more participatory style. There were early successful measures to nationalise all forests, and timber processing was undertaken by a single parastatal company. Increasing pressure from international donors towards sustainability and participation was undoubtedly felt, but the careful screening of donor ideas and personnel mitigated its full force. Participatory forest management is still in the initial stages, and the enabling environment is still being developed and tested. Like Nepal, Bhutan does not have an entrenched confrontational history between forest department and local people, as does India.

The roles of forest in watershed management, as a site for biodiversity and in providing inputs into agricultural systems throughout to the region have been intensively researched. This report cannot review the field in detail but will highlight a number of key scientific issues relevant to forest policy.

Role of Forests in Soil and Water Conservation

Many experimental and empirical studies, particularly in the Hindu Kush-Himalayan region, have shown that forest cover is superior to other land uses in reducing run-off and variability of stream flow, in minimising nutrient loss, and soil movements, such as slumping, gullyng, topsoil loss and mass-wasting, and that these functions are particularly critical in areas of sloping lands. This incontrovertible body of international scientific work formed an important part of the construction of the 'theory of the Himalayan environmental crisis'. It has become a major cause célèbre, particularly in the forest policy debate, and has been used as a scientifically authenticated justification for the re-affirmation of classic custodial roles in forestry protection, and for a focus on watershed management for many projects for at least a decade or more. This report takes an agnostic line on the extent of the generality of the environmental crisis in the Hindu Kush-Himalayan region. However, it is likely that there are serious cases of non-reversible land degradation in some places and also that deforestation has been a major factor. This may be the case particularly in drier areas at high altitude and with less precipitation where the resilience of the biosystem is lower. At the same time, there is a considerable degree of scientific uncertainty surrounding the importance of 'deforestation' (as defined by most forestry services) in accelerated erosion. Part of the problem results from a professional judgement about degradation as being any departure from narrow scientific management norms. Instead, a blanket judgement, concerning other definitions of land degradation and other land uses considered sustainable, may not be made so rapidly and invariably against alternative definitions and practices. There may indeed be other management techniques that can be termed deforestation in formal terms, but that do not increase erosion rates at all. In a general report such as this, all that can be done is to raise this issue, and provide a few illustrations that point to the need to re-examine the scientific justification of outlawing some alternative types of forest use.

For example, conversion of forests to other land uses has complex and often site-specific environmental impacts. Under certain circumstances, conversion of already degraded forest to irrigated paddy terrace or well engineered (sloping, unirrigated) terrace may actually decrease rates of erosion. Again, conversion of mature sal (*Shorea robusta*) forest to coppiced secondary sal forest may actually increase the protection of soil from rain splash and increase the rate of production of useful biomass for subsistence purposes. It is scientific findings such as these that can add important qualifications to the conventional reasons for forest protection on the grounds of watershed protection. There is not much evidence that research findings such as these find their way into the policy debate.

A second example is the much-debated issue of the environmental impacts of shifting cultivation, which will be discussed in the following chapter. However, the policy assumptions that all types of shifting cultivation under all circumstances cause environmental degradation in terms of increased soil and biodiversity erosion and nutrient loss have remained impervious to a developing field of research that underlines the diversity of shifting cultivation techniques and throws doubt on the universal condemnation of shifting cultivation. At present, it is banned in every country under study in the Hindu Kush-Himalayan region.

A third example concerns the focus of forestry research in the region. It is true to say that the vast majority of forestry research, also reflected in forestry syllabuses in forestry schools in the subcontinent, concerns the commercial production of timber for sale. There is also an emphasis on reforestation with single species and establishment of plantations in single stands. The status of research on the management of natural and multispecies' forest is not nearly so well developed. The direction of policy is towards participatory forest management in which multipurpose natural forest must remain the central focus. At present, the Indian Joint Forest Management Research Network is currently undertaking research into this still neglected aspect.

Formal scientific research into forestry management has had little dialogue with the multiplicity of local management systems. It has not had to, since local and official management objectives have been hitherto mutually exclusive. Most hill people have been managing their forest for centuries for a wide variety of purposes. It is only in the countries that used to be parts of imperial British India that the state has had a strong presence in forest management for a long time. This history has marginalised and undermined indigenous technical knowledge and common-property resource-management institutions. In other countries not so affected by this history, it is easier to recognise the survival of local technical and institutional management systems. In Nepal, for example, there are many accounts of such complex and sophisticated technical management systems. However, there is strong evidence that the nationalisation of forests in 1954 undermined both local technical knowledge and the authority of common property resource-management institutions. It is now that a more participatory approach has forced a new dialogue between the state and its science and local people with their knowledge. Participatory management plans constitute this dialogue. However, even this participatory drive on the part of the Indian joint forest management may also further undermine local systems of management, whereby joint forest management committees are set up in parallel and overlapping already functioning indigenous organisations.

The management plan is at present the instrument of implementation of scientific forestry principles at the village, circle and division levels. It specifies areas for re-afforestation and for felling. It details the specific trees to be felled and possible modes of cutting and removal. The scientific basis for harvesting timber for sale has long been established and is reflected in theory behind the plans. However, a more hybrid set of management objectives might be established, through which alternatives are incorporated. Thus, more flexibility in management and more participation of local people and local knowledge, plus the recognition of new scientific research, may not increase land degradation in terms of accelerated erosion at all.

The Story of Felling

The pressures for felling the forest for commercial purposes in the Hindu Kush-Himalayan region are immense and increasing. They are highest in the most densely populated areas with good road and rail connections and close to centres of industrial development. The construction of highways in the region has been frequently made for strategic reasons (e.g., to and within the Chittagong Hill Tracts in Bangladesh, the Karakoram Highway in the North West Frontier Province and Northern Areas of Pakistan, and in four of the states of northeast India). Timber-felling pressures are propelled by high timber prices, in turn created by a large potential demand from the relatively large non-hill populations of these countries. The exceptions to this are the Nepalese hills and Bhutan. (In the Nepalese case, it is the terai forests that satisfy the commercial demand for timber, and where commercial demand confronts subsistence needs in the most stark fashion, but these areas fall outside the brief of ICIMOD and this report).

Timber exports serve a large and growing timber processing industry in almost all countries (for furniture-making, packaging, construction and paper industries). Statistics suggest there has been an enormous increase of production in these industries in the region as a whole. In some cases, timber is the only major revenue-raising activity. In many of the northeast Indian states, the sale of timber provides the main source of income for small farmers as well as more wealthy chiefs, many civil servants and politicians. As stated elsewhere in this report, timber pays for expensive election campaigns and underwrites many local patron-client relations. In northwest India too, there have been intense pressures for felling at an unsustainable rate. To quote Sunder Lal Bahuguna (1986): [with reference to hill areas of Uttar Pradesh]:

"While a moratorium on felling of green trees stands, heaps of sleepers near Thadujab and other places on the banks of the Tons tell the tale of organised plunder of forest... plunder of forests is a common feature in the catchments

of Bahagirathi, Alaknanda, Pindarr, Ramganga and Kosi. In remote areas, where there is nobody to check, the plunder continues unabated."

In China, the most recent move towards a contract system for achieving particular targets has put pressure upon villages, townships, and counties to seek revenues from timber felling. China as a whole is enjoying high rates of economic growth which create a lively local market for timber. Although many regulations are promulgated at the county level and above, they are not well policed. There is widespread confusion in tenurial matters, and many individuals have de facto privatised areas of forests and other natural resources under conditions of great uncertainty, all of which have discouraged sustainable use.

Set against these commercial pressures are laws, regulations, and, in some areas, forest management plans. The major professional task of forestry services is custodial: it has been performed with a considerable degree of success for a long time in India and Pakistan. However, there is no direct incentive to uphold this custodial and regulatory task other than professional pride and fear of reprimand in the case of dereliction of duty. The service at all levels, therefore, acts as a gate-keeper to keen commercial interests that can offer handsome inducements to relax these regulations. Such a situation requires connivance of others in the service, which may explain the patchy nature of the corruption. The symptoms of this kind of rent-seeking are familiar. The purchase of potentially lucrative forestry postings became commonplace at particular periods. The quick turnover and instability of these favourable rent-seeking opportunities mean that the successful incumbent must reap a return on his investment as quickly as possible, thus increasing the rate of flow of black money through the forestry system and rapid illegal felling of trees. There are a number of ways in which these rents may be realised. Contracts for felling are usually put out to open tender. However, a minister may demand that his subordinate submit all contracts to him alone. His own clients will be awarded the contract, even though their tender may not be the cheapest. Indeed, the most extravagant tender may be accepted by the minister, and honoured at the expense of the forest service, and to the benefit of the minister and his clients. Also, there are standard procedures for under-recording timber volumes awarded to contractors, and the difference between these and actually harvested timber will be reflected in the level of inducement.

Much anecdotal evidence of this kind was collected by researchers and the authors of this study. A case study of forestry practices in the Northern Areas of Pakistan also illustrates this issue. This study includes it here, not because it represents the worst case of this type, but because it was well researched and illustrates a widespread challenge to future forest management. The reason for discussing this sensitive issue is not sensationalist, but to draw attention to

the problems of entrusting the sustainable use of forest to a regulatory bureaucracy that has little incentive other than professionals pride and integrity to uphold their custodial role and which is, therefore, particularly susceptible to informal inducements. Also, none of this is new, and in many policy circles it is openly discussed (e.g., during the World Bank country strategy consultation exercise in Kathmandu, September 1998 and in their documents concerning lending policy to countries of the Hindu Kush-Himalayan region).

Participatory Forestry: Fashion or Necessity?

The previous sections have described a well-tried and tested management style in all countries except China, some evidence of increasing pressures on forestry services, and also a rhetoric (partly realised in some instances) of the participatory management of forests. More involvement in the management of forests by local people is not only a technical issue, but also an ethical one involving environmental entitlements, and there is a long history of their abrogation that continues today. Forests are used by farmers and pastoralists throughout the region and appear as essential constituents of many aspects of their livelihoods. Forests, wherever moisture conditions are sufficient for the growth of trees, form an integral part of almost all farming systems. They provide an enormous range of essential inputs for subsistence which includes fuelwood, timber for house construction, roofing grass, leaf and grass fodder, medicinal herbs, wild food, and raw materials for petty commodity production (e.g., bamboo for baskets). They are essential sources for nutrients for agricultural soil. It is this 'transference of fertility' that links agricultural land under private property to forest land under state or common property. The practice of shifting cultivation is different, but only in degree, whereby nutrients from existing trees and other biomass are converted to nutrients for private use in situ by burning rather than cycling biomass through livestock.

In virtually all areas of the Hindu Kush-Himalayan region, population pressure on forest use has intensified through demographic growth and through state-sponsored schemes that take land out of use by local farmers (e.g., hydroelectric schemes, private or state plantations, national parks and reserved forests). However, the 'moral economy' of peasant society usually provided a low-level safety net for the poor, and access to the forest for subsistence needs was not usually denied. It may be noted that the more aggressive exclusionary forest policies of the classic mould deny this safeguard of the moral economy, with the result that livelihoods are destroyed and people have had to migrate. The denial of these rights has fallen disproportionately on those endowed with poor private resources of land, upon women who undertake most of the tasks of extracting and using forest produce, and tribal groups at the political margins who found themselves living in the best preserved forest of the region.

Each country has had a different policy history and has been experimenting with a variety of approaches. These are joint forest management, the van panchayat system and social forestry (India), community forestry and community leasehold forestry (Nepal), social forestry (Bhutan), guzara forests, forest cooperatives (Pakistan) and various policy measures in the Chittagong Hill Tracts (Bangladesh). All of them share the following characteristics.

- The recognition of user rights, although having a long history in custom and in law, has undoubtedly been strengthened.
- In principle, these user rights have been re-interpreted in most, but not all, national forest policies as entitlements of local people.
- A substantial shift in the global developmental discourse towards equity, gender sensitivity, and the championing of indigenous knowledge has occurred and has engaged with a classic, male-dominated profession with a custodial orientation.
- Empirical evidence of continuing deforestation in most areas has prompted a search for alternatives that shift the cost of management and policy from the forestry service to local people.

One of the most difficult issues to clarify is the extent to which this policy shift in forest policy is reality, or remains on paper only. Much of this change in direction is donor-driven and it has met with professional resistance from forestry services almost everywhere. There is considerable evidence in the form of the slow uptake of participatory forestry in India and even in Nepal, which is credited with being the leader in participatory forestry. There is a high degree of cynicism amongst many foresters who feel they are disempowered. Their professional expertise is being rendered irrelevant and their authority deliberately undermined. The few pioneers of this type of forestry (forestry professionals as well as intellectuals and activists) deserve mention and their early efforts in many ways helped to shape the form of international intervention in forest policy. However, they failed to form an 'epistemic community' (a cadre of self-referencing and networked professionals who share a common and distinct set of values and behaviour) of sufficient weight within the profession. Instead, they became isolated and often took up employment either abroad or in the foreign-funded projects that promoted their own vision of the future. Professional resistance still remains today in the form of foot-dragging, routine participatory processes (e.g., setting targets for the number of participatory rural appraisals), and reducing their personnel interactions with villages to a minimum. In many areas, participatory forestry remains old wine in new bottles', in the same way as many of the components of national environmental strategies discussed in Chapter 3.

For all the resistance to participatory forestry, enormous changes in the profession have taken place. Syllabuses in forestry training colleges have changed, although not markedly. Social and community foresters are now trained in many colleges although there are reports of discrimination in job selection. Programmes are now established in all countries, and Yunnan is one of the few areas in China that has taken social forestry seriously. It is quite clear that such a major reversal of management objectives, professional expectations, and administrative reform is a long process, and the social and environmental impact from a more participatory approach cannot be expected to materialise in the shorter term.

The measurement of success of such a transformation can never be captured by a single indicator. It is a gradual process. As always with complex and profound changes, the 'learning institution' becomes crucial. One of the most important areas of this learning process is at the interface between the forestry service and the local community. It is in the detail of negotiation and in the form that local institutions take that 'success' takes root. The research undertaken by this project of the impact of social forestry on the ground was of necessity cursory, and can only be briefly summarised here. Firstly, community forestry can be established with wide consensus most easily under conditions of relative abundance of forest and pastures (not a common occurrence). Secondly, socially cohesive villages (e.g., in which a single ethnic group or caste predominates) perform community forestry much better than the obverse (a case study of the Phewa Tal Watershed Management Project is presented elsewhere). Thirdly, the setting up of new participatory forestry groups may undermine or confuse existing groups where they exist. Finally, although gender aspects of participatory forest management have been formally acknowledged and incorporated into reserved places in user groups and forest committees, there has been slow progress in ensuring improved women's control of forest produce under the new dispensation.

A Cautionary Case Study: The Impact of Forestry Policy and Practice in the Northern Areas, Pakistan

This is a summary of a case study reported in the Pakistan country study. It is reported in some detail here since it illustrates well the problems of implementation of working plans, the problem of a long-established mistrust between state and local people over forest use, and the appropriation by local leaders of windfall profits from felling. It should be noted that the choice of case study from this country in no way implies that these problems are any more pronounced in Pakistan than elsewhere.

The procedure for sale of timber from private forests in the Northern Areas is supposed to be as follows. At least 60% of the conglomerate of owners of a

particular forest area enter into an agreement with a timber contractor according to which the standing timber is sold to the contractor who makes the agreed payment directly to the owners. The timber is supposed to be harvested according to principles of forest management as delineated by the Forest Department. Thus, the Forest Department draws up a working scheme for each sale agreement and is empowered to supervise the harvesting operation. The working schemes are made for periods of 10–15 years and contain prescriptions for harvesting of timber from a particular forest area over that period of time. Plans for regeneration of forests are also included in the working schemes. The contractors are responsible for the regeneration of forests as well as the timber harvesting, and the Forest Department provides seeds to contractors for this purpose.

The agreement between the owners and the timber contractors, the terms of which have been supervised by the Forest Department, is then attested by the Assistant Commissioner or the Deputy Commissioner of the district. The timber is auctioned in the open market and the sales' proceeds are then returned as royalties to the state and to the owners, both parties getting 50% of the amount. The amount accruing to the state is actually determined before exit permits are issued for the timber to be taken down-country. The amount is decided upon according to market prices prevailing in the main timber markets of Lahore and Peshawar. Since the timber contractor has effectively purchased the royalties from the owners at the time of finalisation of the agreement, the 50% royalties that are supposed to accrue to the owners are actually paid to the contractor. Seven per cent of the wood volume extracted goes to local communities for domestic use.

The system of forest management is generally believed to have strengthened the role of the timber contractors or the middlemen who control logging operations. Forest owners tend to hand over all aspects of timber extraction and marketing to the logging contractors as the contractors are willing to pay them a mutually agreed upon amount even before harvesting actually begins. The owners do not have the management or skills needed to organise large-scale logging operations, and their reliance on contractors for timber extraction is thus absolute. Marketing is again a specialised activity, and, even if the timber is marketed satisfactorily, the procedures for payment of royalties are normally arduous and the process takes too long. The owners of the forest tracts would, in most cases, rather forego some proportion of the financial returns due to them to avoid entanglement in cumbersome bureaucratic procedures.

The conservation of natural resources is now recognised to be directly linked with tenure considerations, thus people who have tenurial rights over a resource will have an interest in investing in its conservation. When rights

of tenure are not defined, a free for all ensues and a number of stakeholders compete for the right to exploit the resource. The tribal people of Diamar, where the bulk of coniferous forests are located, have never felt comfortable with the system of management of guzara forests, wherein the Forest Department is involved in the harvesting and sale of timber. The general perception is that if the government becomes involved in the timber trade, the rights of the local people will be either subverted or denied altogether. This impression is encouraged by contractors who use this atmosphere of distrust to their advantage and encourage owners to collude with them in practising illegal harvesting.

The forest management systems practised in the Northern Areas have thus effectively reduced the Forest Department to having a side role in the exploitation of forests. The policy of recognising the owner's right to negotiate with contractors for timber extraction and harvesting has, due to the prevalent atmosphere of mistrust in the absence of adequate awareness-raising programmes and in the face of an ineffectual Forest Department, resulted in widespread destruction of coniferous forests. The Forest Department's authority has been further denigrated by the collaboration between owners and contractors. The owners of private forests, particularly in the tribal areas of the Diamar district, do not recognise the authority of the Forest Department to manage their forests and feel that their traditional rights have been usurped without their consent. The working schemes prepared by the Forest Department are generally acknowledged to be irrelevant and are hardly ever followed. The Forest Department has lost out on its royalty rights, as corruption is endemic, fraud in royalty payments is common, and rates of extraction are far higher than prescribed. The restructuring of the Forest Department is one attempt to bolster its image.

The system of timber extraction was working reasonably satisfactorily until 1988. That year was, however, marked by a series of sectarian clashes in the Gilgit district that rapidly escalated into armed clashes between rival sectarian groups. As the newly elected government looked increasingly ineffectual and the law and order situation continued to deteriorate, timber contractors began to exert pressure on the government to issue more timber extraction permits in return for assurances that the contractors would exert political influence to restore peace. The government responded by indiscriminately approving logging contracts and turning a blind eye if the volume of wood extracted was greater than the amount prescribed in the working scheme for any particular block.

From 1988 to 1991, an estimated 10,200 cu. m of wood was extracted from the private forests of Diamar (Iqbal 1998) after payments as low as Rs 100 per cu. m for conifers and Rs 70 per cu. m for fir. The wood was then fashioned

into sleepers and transported to collection points where the Forest Department assessed the value of the produce and collected royalties before issuing exit permits. Communications with Forest Department officials suggest that the royalties collected at this stage have generally been of a lower magnitude than would be expected, and instances of departmental corruption are relatively high.

There have been some instances of imposition of fines for excess cutting, but, up to 1991, the rate of the penalty was just Rs 1,800–2,800 per cu. m. With market prices ranging from Rs 3,500–8,800 per cu. m, the fines were hardly punitive even when imposed. In 1991, the fines were increased to Rs 3,000–3,900 per cu. m, but market prices were still high enough to render the fines ineffectual. The Forest Department policy dictates that once fines are paid by the contractors, transit permits are issued to transport cut timber out of the forest areas and into central depots. With fines at ridiculously low levels, it was no problem for contractors to pay the required 'cess', receive their transit permits and transport timber to the collection points from where it is taken down-country. An estimated 31,130 cu. m of timber was extracted from Diamar within a two-year period from 1991 to 1993. Thus the fine imposition and issuance of permits policy proved, more or less, to be a complete failure.

In October 1992, the federal government imposed a complete ban on logging in response to the widespread floods of September 1992 that were widely believed to have been caused by extensive loss of tree cover in the northern watersheds. The ban did not take into account the timber needs within the country; nor did the directive distinguish between required harvesting of deadwood and illegal logging. In the Northern Areas, the ban effectively meant that cut timber could not be transported out of the forest areas or fashioned into sleepers, and consequently large quantities of valuable timber began to decay on the forest floor, hampering natural regeneration and the growth of grasses. The situation was obviously untenable, and, in 1994, the government allowed contractors to transport cut timber out of the forest areas and into commercial depots for assessment by the Forest Department. The order extended only to timber that had been harvested before the 1992 ban. However, the Forest Department estimates that permits were issued for the removal of more timber than the estimated volume of cut timber in the region.

As permits for cut timber continued to be issued, illegal cutting continued unabated and the government was forced to reconsider its position. In October 1996, the government finally imposed a complete ban on the transportation of timber and the issuance of transit permits was completely stopped. An estimated 11,320 cu. m of timber is now stacked in forest areas and collection points around the Northern Areas.

The ban on logging and transportation of timber seems to have checked illegal cutting to some extent, and has certainly stemmed the flow of timber from the Northern Areas to the timber markets down-country. Although this is a gross wastage of a valuable resource, the government cannot take the risk of allowing the transportation of this timber as the Northern Areas Forest Department does not have the capacity to check illegal logging or violations of the working schemes. The timber contractors, who control the market in Pakistan, responded to the ban by shifting operations to the province of Kunar in Afghanistan, and the timber markets of Lahore and Peshawar have since been flooded with Afghan timber. This development has helped to maintain timber prices at pre-ban levels. Nevertheless, the imposition of the ban is not a long-term solution and the Forest Department has to think in terms of more structural changes in the system of forest management to ensure forest protection.

Conclusions

- Forestry has become increasingly politicised at all levels. The classic model of forestry based upon custodial principles and justified by its own forestry science can no longer be the only arbiter of future policy.
- The classic model has been successful in the past according to its own criteria, but it is now less so, as evidence for continuing forest degradation mounts in most areas.
- In the absence of effective policing, many state forests (e.g., revenue forest, minor forest, unprotected forest) have become open access and have ceased to become forest except in name (and in some statistics).
- There are increasing pressures for felling from commercial sources and from farmers for subsistence needs. Rent-seeking is on the increase in most services, although patchy; and, in some cases, improvements have been made.
- The custodial model may still be appropriate for some biodiversity/wildlife projects on technical grounds, but even here, negotiation with local communities is essential. For other multispecies' natural forest that are used by local people, participation has become a practical necessity. Scientific and institutional knowledge on how to continue and improve early initiatives is either insufficient or not seriously considered in the policy process.

There are ethical issues about environmental entitlements that are currently addressed only through forest regulations. Management criteria, drawn from multiple uses for subsistence, should reflect these ethical issues.

Agriculture



Five

Top

Land use in Yunnan, China

Cai Yunlong

Bottom

Abandoned water reservoir and channel, Yunnan, China

Cai Yunlong

Chapter Five

Agriculture

Agricultural Policy–Environmental Links

Agriculture is by far the most important of all human activities that shape the environmental future of the Hindu Kush–Himalayan region. There is an already extensive literature on hill agriculture, its technology, systems, and its social and economic aspects. However, there is little written on the impact of agricultural policy on the environment in terms of *ex post* studies based on the evidence. There is much more on what future agricultural policy should be. This important body of literature emphasises the specificities of mountain agriculture (fragility, diversity, remoteness, niche, and so on; see Jodha et al. 1992) and the technical options open to agricultural policy. It is also a main research output of ICIMOD. However, there is virtually no secondary material about the environmental impacts of agricultural policies as implemented on the ground. It is not difficult to see why. There are formidable methodological problems in identifying the policy effect and seldom do researchers, government departments, and project designers carry out a baseline environmental survey at the beginning of policy implementation.

It is quite easy to identify potential links between agricultural policy and the environment. There are components of agricultural policy that may be assumed to have environmental impacts, such as livestock policy (numbers, type, grazing/stall-feeding); pasture rehabilitation; reclamation policy on degraded land; pricing policy and subsidies on agricultural inputs; technical and economic aspects of engineering works (terrace upgrading, conservation works); extension policy on environmentally sensitive practices (e.g., promotion of agroforestry, new crops, planting time and density, rotations, and so on); water harvesting; legal aspects of forbidding certain land-use practices (e.g., shifting cultivation); and soil and water conservation techniques, both agronomic and engineering. All these aspects of policy generate potential impacts upon the environment. To this list of possible direct linkages between agricultural policies and environment may

be added other important but indirect policy decisions to support other agricultural development; and this includes road construction, agricultural credit, pricing of agricultural inputs, domestic electrification, marketing, and storage facilities.

Whatever the strength and weight of hypotheses linking the potential effect of a policy to environmental outcome, there is a marked lack of policy-related and empirical evidence. Therefore, only summary attention is given to the environmental impact of agricultural policy per se in different countries, because there is no empirically verified linkage. This project found only three clear-cut examples of where an agricultural project did have environmental impacts, or where policy-makers identified an existing agricultural practice that was considered environmentally harmful. These are the issues of shifting cultivation, environmental problems of monocropping potatoes, and the development of the horticultural industry, particularly apples. These cases are discussed in detail later in this chapter.

National Agricultural Policies

This section provides three illustrative examples of national agricultural policy insofar as they have clear linkages, either by intention or otherwise, to the environment. However, there is an important disjunction between national agricultural policy and actual impacts on the ground. There are two reasons for this that have validity across all agricultural policies. The first is that the prime goals of policies in the region are to boost food production and to encourage the production and sale of agricultural products for which there is a demand (usually in more densely populated non-hilly areas of higher potential demand), and for which the region has a comparative advantage. Environmental considerations are sometimes mentioned, but it is difficult to follow the operationalisation through of these general environmental concerns. Secondly, with some exceptions, agricultural policy does not have a strong impact on what farmers actually do. Even in successful cases of agricultural development, the process is a complex mixture of individual entrepreneurship and largely private organisational capability, in which official assistance is often tangential and opportunistic. Once again, this is how the policy process unfolds on the ground, making it difficult to identify a 'policy effect'.

Bhutan

The mandate of the Ministry of Agriculture is to improve the well-being of the people of Bhutan, to improve national self-reliance, and to conserve the natural environment through the sustainable development of the arable, livestock, and forestry resources of the country. Based on this mandate, the following have been the core sector policies in successive five-year plans.

- National food security

The objective of national food security has three aspects: maintaining broad, national self-sufficiency whereby the export of crops for which Bhutan has a comparative advantage provides sufficient foreign exchange to cover the costs of food imports; achieving a minimum of 70% self-sufficiency in food-grain production compared with the current level of around 65%; ensuring household food security whereby the population has assured access to food at all times.

- Conservation of natural resources

An over-riding objective of the government is to protect Bhutan's fragile mountain environment and its unique flora and fauna for future generations. This means that natural resources have to be used in a sustainable way and involves trade-offs between short-term economic gains and sustained long-term economic development. The protection and management of forest areas and improved land husbandry practices in agriculture are essential to achieving this objective.

- Sustainable economic production and enhancement of rural income

At the farm level, production has to be both economic and sustainable. Government will therefore aim to ensure that appropriate, viable, and ecologically sustainable agricultural technologies are available; rural communities have access to the benefits provided by the market; and, an enabling regulatory framework is in place that allows economic activity to flourish while ensuring the conservation and protection of the natural resource base.

- Social and regional balance and equity

The support and services provided by government in the renewable natural resources' sector will be available and accessible to all without discrimination, while reflecting differences in local, natural and economic conditions.

In pursuance to the national food security policy, the 'chhuzhing' (paddy land) in Bhutan is protected by government because rice is the nation's staple food. No construction of building or development of orchards, and so on, are allowed on chhuzhing. This protection is applied to all chhuzhing, irrespective of the area concerned. The ultimate goal of the policy is that the chhuzhing throughout the country should be maintained and used only to grow paddy as the main crop; it can be used to grow second crops, which may not necessarily be paddy, during winter.

The government has reinforced its position on the protection of chhuzhing recently by calling for more concerted cooperation and by strengthening the legislation to curb illegal conversion. A Land Conversion Committee has been instituted under the chairmanship of the head of the ministry to decide whether conversion is to be allowed or not. The committee is assisted by a field investigation team that conducts field verification and submits the technical findings to the committee for final decision. The government has also instituted an inter-ministry Land Acquisition Committee with the responsibility of identifying and acquiring land required for government purposes. The emphasis is again to minimise the disturbance to chhuzhing.

The Land Act provides the legal framework for using agricultural lands. The following are some of the provisions that have implications for chhuzhing.

- In 1989, the cabinet passed the following resolution and the Land Act was amended. Chhuzhing will not be allowed for conversion to other uses. However, the Ministry of Agriculture and the 'dzongkhag' administration will investigate and identify those areas that cannot be used as chhuzhing and allow conversion. Conversion can also be allowed if there is an approval from the government. In addition, no construction of buildings will be allowed on those areas recorded as chhuzhing in the 'thram'.
- All family members have equal rights over all registered land of the family.
- A household is entitled to 10 ha of agricultural land for each family.
- A member of a family possessing 10 ha of registered land cannot purchase any other land. Nobody can buy land from a family possessing only 2 ha of land. Conversely, a family member having only 2 ha of land cannot sell the land.

With respect to conservation of agricultural land, there is a need for a stronger legal framework. Firstly, there is a need for a legal provision to take up structural conservation measures on private farms. This provision would require mandatory conservation measures of soil and water on private land. The Forest and Nature Conservation Act 1995 now has this provision; however, it is yet to be operationalised by formulating and implementing the required rules and regulations. Secondly, there is a need to identify the upper slope limit beyond which farming is prohibited. Most of the tseri (shifting cultivation) areas and some of the dryland farms are on steep slopes and are vulnerable to severe soil erosion. Further, conservation measures are not taken up on these farms. Bhutan is one of the few countries that has not outlawed shifting cultivation.

Government interventions to achieve food security according to policy are many and varied. The following are some of the major programmes that have been implemented throughout the country and have direct impact on land use and the farming community.

- **Marketing and distribution system** — This programme is to provide assured markets to the farming community to sell their cash crops and other surplus products. Several auction yards have been established in the border areas with India. Also, an export scheme organised by the government has been arranged for cash crops such as apples, oranges, potatoes, and cardamoms. Further, Sunday markets have been established in almost all dzongkhags to facilitate the sale of local produce. There is a nation-wide agricultural input supply system. This system ensures that new varieties of seeds and seedlings, chemicals, and fertilisers are made available to the farmers on time.
- **Rural credit programme** — This programme provides both short-term and long-term loans for investment in agriculture, livestock and forest operations. Credit offices are decentralised in all 20 dzongkhags.
- **Promotion of improved farm machinery** — Through the Agricultural Machinery Centre at Paro, the Ministry of Agriculture is able to develop or identify appropriate farm tools, procure or produce these tools, and sell them to farmers. Since labour shortage is a major constraint in Bhutan, this programme promotes labour-saving technologies which, at the same time, should increase farm production. The mechanisation programme has been taken directly to the farmers by establishing regional centres.
- **Promotion of high-yielding varieties of seeds and seedlings** — This programme aims to identify and develop a package technology to increase agricultural production. The programme aims to provide cash income through promoting cash crop cultivation and also to achieve self sufficiency in food. Some high-yielding varieties of rice, maize, citrus, apples, and potatoes have already been distributed and widely adopted by farmers.
- **Research and extension network system** — The Ministry of Agriculture has established a network of extension centres throughout the country in order to support the implementation of its various development programmes. At the end of 1997 there were 159 agricultural extension centres and 35 renewable natural resource centres. Also four renewable natural resource research stations have been established and are in full operation. These stations are backed up by six substations. The mandates of these centres include the development and provision of better seeds and technologies for the farming community.
- **Irrigation development** — Irrigation development is an important element of the Ministry of Agriculture's strategy towards greater self-

sufficiency in food grains. Therefore, this programme aims to provide technical and material inputs to farmers to construct irrigation channels. Once the construction is completed, it is the responsibility of the farmers to maintain these channels. Water users' associations are formed for every irrigation channel constructed under this programme. The objective of the associations is the most cost effective use of the water.

The database on crop production and crop areas is far from complete and reliable, as there has been no systematic attempt to collect such data on a regular. For the present paper, trade statistics of the Ministry of Trade and Industry have been used for cash crops and estimates of the Central Statistical Organisation have been used for cereal crops.

The main cash crops in the country are apples, oranges, potatoes, and cardamoms. The production of these crops has increased considerably over the last few years. This is indicated by the average increase in apple exports by 23%, orange exports by 273% and potato exports by about 22% from 1991 to 1997. Oranges and potatoes are being grown throughout the country by a large number of farmers. Therefore, the increase in orange and potato production has contributed to the cash income of a wide section of farmers.

The average yield increase of major food crops (rice, maize, wheat/barley) over the last 16 years is approximately 87%. Rice production has increased by about 49%, maize by 113% and wheat/barley by about 99%. Punakha, Wangdue Phodrang, and Paro Dzongkhags now produce surplus paddy, which is mostly sold in Thimphu market. The increase in the maize production is mostly from eastern Bhutan; some surplus maize is bought by the government and supplied to educational institutions.

There is a noted change in farming practices for both dryland and chhuzhing. Improved paddy varieties and maize varieties have gained in popularity. Double cropping of paddy has also contributed to the increase in paddy production. Also, cash crops such as oranges have become the main source of cash income after the establishment of trade relations with Bangladesh.

This increased production of cereals, cash crops, and intact forest cover indicates that the food security policy is being implemented effectively.

China

One of the most important aspects of agricultural policy, as well as of other sector policies is the 'contract responsibility system' based on remuneration linked to output (CRSBRLO). The CRSBRLO is the guiding management

principle in all community agricultural organisations. The system is based on the assumption that the main factors of production remain public property, but that production should remain the responsibility of the individual or institution that undertakes to fulfil the contract. There is another variation of CRSBRLO that involves payment linked to output and is the contract responsibility with farmer groups. The most common contract is with the family (household contract responsibility system), which makes all major production decisions. Agricultural products are first grown to satisfy the county and the community. Excess agricultural products over and above the contract can be sold freely by the farmer.

Another important organisational aspect of economic activity that profoundly affects land use, and therefore the environment, is the village and township enterprise (VTE) system. The VTE attempts to address the problem of conflicts between excess labour in the countryside and limited capability of urban areas to absorb any further labour. The VTE system attempts to fuse the binary economic structure of countryside and city, industry and agriculture. It has contributed much to the improvement of farmers' living standards. Since 1979, the VTE initiative has developed rapidly. In 1990, total output value from the VTE accounted for 30% of national output by value. However, VTE also causes a lot of problems such as resource waste and environmental pollution due to poor technology, lack of environmental awareness, and poor management. The main problems caused by VTE are as follow.

- Development of VTE has resulted in extensive use of large areas of cropland that intensified population pressure on the remaining land.
- Lack of technology and skills mean that VTE such as excavation of coal, minerals, sand, stones and construction materials industry are often conducted in a primitive and wasteful manner, polluting air and water and degrading the environment, often seriously. After excavation, there is a failure to reclaim land, so erosion is heavy. However, these enterprises managed to obtain a lot of preferential treatment and relaxation of regulations. The comprehensive legal provision for the conservation of the environment has often been bypassed and has had no impact whatsoever.

At the same time as economic growth emphasised above all else, a contradictory policy of ecological agriculture is also promoted. The aim of ecological agriculture is to achieve optimum economic, ecological, and social benefits. It emphasises increasing efficiency in use of inputs, so that costs can be lowered and dependence on inputs become less (in western parlance, low-input agriculture). It expressly excludes chemical fertiliser. In

1984, the State Council advocated ecological agriculture and drew up a document that indicated that environmental agencies at different levels should cooperate with other government agencies to spread ecological agricultural technology and prevent environmental destruction. Agricultural development should be low input, low-energy cost, high efficiency, and sensitive to environmental protection.

The Agricultural Law stipulates that 'the state forbids anyone to burn mountain land for cultivation, land reclamation from lakes, and to cultivate steep slopes'; 'the state forbids anyone to denude protected forest'; 'special protection for basic croplands'. The Grassland Law stipulates that the 'grassland plant community must be protected strictly and forbids anyone to reclaim or destroy grassland'. There are many other stipulations similar to these. The issue here is their effectiveness on the ground. While the laws have played a positive role in protecting agricultural resources and environment, at least in principle, the pressures for fulfilment of contracts, and from poor people who are virtually obliged to break many of these laws in order to survive, have forced officials to turn a blind eye to many infringements. The breakdown of social capital to ensure livelihood security, and the removal of the political structure on accumulation of wealth, have led to the undermining of property regimes and an increase in speculative 'mining' of natural resources.

Nepal

Agriculture is by far the largest sector of the Nepalese economy contributing 40.5% to the total GDP (1995/96) (MOF 1998) and 81.2% to the employment of the 'economically active' population (CBS 1994b). About 20 years ago, these proportions were 71.6% in GDP (1974/75), 94.4% in employment (1971), and 82.5% in export earnings (1974/75).

The top priority was given to agriculture in terms of actual financial resource allocation from the Sixth Five-Year Plan. This was in recognition of the predominant role of the agricultural sector and the potentials it offers for broad-based sustainable development and poverty alleviation. Concurrently, a number of new institutions in the form of government departments, parastatals, schools, colleges, and other educational institutions were created and expanded. Many bilateral and multilateral agencies contributed to this process.

The other aspect that is rarely reflected in national accounts or the government budget, but which is an important factor affecting development, including agricultural development and land ownership and management, is the legal instruments. Several laws, rules, and regulations

have been promulgated to provide a legal framework for various institutions and entities to operate.

Persistently lagging growth in the agricultural sector has prompted the government, often with donor encouragement, to prepare a number of plans and sector strategies, apart from the routinely formulated five-year periodic plans. These are briefly described below.

- Perspective study of agricultural development for Nepal (1970-90)

The Food and Agriculture Organisation (FAO) of the United Nations initiated the first comprehensive perspective plan for the agricultural sector for the period from 1970-90 (FAO 1974). This twenty-year plan, consisting of a central policy paper and twenty-one appendices, each dealing with different subsectors, commodities, and policy issues, emphasised increasing cropping intensities and crop yields.

The plan recommended expansion of horticulture and livestock in the hills and mountains and field crops in the terai. The recommended policy package included improving north-south linkages through the development of growth axes that would better integrate the terai, hills and mountains; reducing pressure on land by transferring excess people from the hills and mountains to the terai through planned resettlement; launching land reform and institutional changes that would allow local communities to play a greater role in managing resources, discourage land fragmentation, and encourage consolidation; subsidising rural public works in order to generate employment; improving soil fertility through the introduction of fertiliser and new production technologies; emphasising the development of feeder roads; and mobilising resources through local institutions.

The 1974 study, however, was neither endorsed nor implemented by the government although it was prepared with the latter's participation.

Perhaps influenced by the FAO study, the government published a policy document called the Agricultural Development Policy 1972. Accordingly, Nepal was divided into 12 agro-ecological zones (three ecological regions mountains, hills and terai in each of the then existing four development regions East, Centre, West and Far-West). Each zone was then prioritised for specific enterprises (field crops, fruit, and livestock). The mountain belt was, in general, recommended for livestock production, the hills for horticultural crops, and the terai for cereals and cash crops. The actual programmes, that were implemented, however, were only remotely congruent with this official policy.

- Ten-year agricultural development plan

Concurrent with the FAO study, a Ten-Year Agricultural Development Plan was prepared by the government in 1973 (MFAI 1973) and put into effect with the start of the Fifth Five-Year Plan in 1975. In order to give an initial thrust to the implementation of this plan, fiscal year 1974/75 was heralded as the Year of Agriculture. As a preparatory exercise, the then Ministry of Food and Agriculture was restructured in 1972. That year, the Department of Agriculture was established by merging the existing five departments (Agricultural Research and Education, Agricultural Extension, Horticulture, Livestock Development and Veterinary, and Fisheries). The then Department of Irrigation, Hydrology and Meteorology, under the Ministry of Water Resources, was transferred to the renamed Ministry of Food, Agriculture and Irrigation. The Department of Food and Agricultural Marketing Services was newly created (and subsequently dissolved in 1992). Four (later five) Regional Agricultural Directorates were established.

Apparently, the Ten-Year Plan saw the main problem area in organisational structure, and hence these major changes were made. The plan again emphasised regional specialisation (animal husbandry in the mountains, fruit production in the mid-hills, and field crops in the terai). Policies were laid out in general terms for each major subsector, treating agricultural credit, marketing, pricing, food distribution, and soil fertility as essential ingredients. Ten-year targets were specified for the major products, inputs, and production of trained manpower. Implementation of the plan lost impetus in subsequent years and irrigation affairs were eventually transferred back to water resources.

- Nepal agricultural sector strategy study

In 1982, the Nepal Agricultural Sector Strategy Study was prepared with technical assistance from the Asian Development Bank (HMG/AsDB 1982). The study concluded that "a well-defined operational strategy for agricultural development is missing." It stated that the lack of growth in agriculture was mainly due to weaknesses and deficiencies in Nepal's organisational and institutional arrangements. The strategy study had five key objectives: to increase food production and improve nutrition; to increase income and employment by generating an additional 75,000–100,000 jobs annually; to promote import substitution and increase exports so as to improve the balance of trade; to undertake massive afforestation and development of hydroelectric power; and to begin emphasising environmental protection. Major areas of emphasis included land-use planning and environmental protection; development of irrigation and power; improved crop production technologies; development of livestock,

forestry and fisheries; strengthening and integration of agricultural support services; land-tenure reforms; pricing and trade policies; macroeconomic policies; and management capabilities. This study was not endorsed by the government, nor was it implemented although it was prepared jointly by the government and the bank.

- Perspective plans

Yet another series of perspective plans was commissioned by the government in 1985 for the period from 1985-2005 (APROSC 1986a, b, c) through the Agricultural Projects' Services' Centre for three interrelated areas: land use, agriculture, and food grains. These plans were not taken up for serious implementation.

- Basic needs' programme

Soon after the preparation of sector strategy sponsored by the Asian Development Bank and the perspective plans initiated by the government, the government launched the ambitious Basic Needs' Programme in 1986 to meet the minimum basic needs of all Nepalese by the year 2000. Six key elements of the basic needs' basket included food, clothing, shelter, primary health, basic education, and security. Separate programmes were prepared for agriculture and irrigation, envisaging double cereal production by 2000 (NPC 1986). Its hallmark was emphasis on decentralised planning and implementation and strengthening of service centres at the subdistrict level for enhancing local-level institutional capacity. Despite the inherent shortcomings of the programme, such as its overly ambitious targets, there was an unusual seriousness in its implementation since it was started on the initiative of the King of Nepal, the absolute ruler at the time. There were indications of commitment to increasing significantly the budgetary and human resources in favour of the agricultural sector. However, the programme was completely abandoned with the restoration of democracy in 1990.

- Master plans

In addition to the various plans described above, five separate master plans have been prepared: forestry, irrigation, horticulture, dairy, and livestock. Since these master plans were prepared with the support of various donors, they have received high levels of support from the donor community.

- Agricultural perspective plan

The Agricultural Perspective Plan (APP) (APROSC/Mellor 1995) is the latest in the series of long-term plans and strategy studies. Major aspects of the plan

are summarised below. The APP stipulates that a dynamic and commercially oriented agriculture has the potential to have a significant and positive impact on both increased income and the environment. This is possible mainly in three ways. Firstly, a highly productive and competitive agriculture implies intensification of cropping systems and input use in order to optimise economically the existing resource endowments at the household and community levels. Such optimisation attempts would make it economically less attractive for farmers to continue cultivating unproductive marginal lands. Once farmers start applying expensive purchased inputs to their fields, the expected returns from the poor quality land become unattractive.

Secondly, commercial and high-growth agriculture would be able to generate enough employment and income opportunities within the sector itself so as to absorb a growing number of hitherto unemployed or underemployed in the rural labour force. More intensive, both in terms of cropping intensity and application of purchased inputs, farming operations would require not only increased supply of better quality inputs and ancillary services such as extension and equipment repair, but it would also demand more labour.

Thirdly, a vibrant and growing agriculture means continuously rising rural household incomes, which are spent on goods and services provided from outside the agricultural sector. There would be more demand for manufactured products and processed agricultural goods, triggering and augmenting a multiplier effect in the rest of the economy. The APP states that, when agriculture grows at a respectable rate, the multiplier value has been empirically established to be 1.5. This means that, with each percentage point growth in agriculture, the non-agricultural sector will grow by 1.5%. Hence the strong case for agriculture to play the lead role in the overall transformation of the entire economy.

Considering the subsistence trap in which the agriculture of Nepal is currently caught, it will not be possible to set the growth process in motion if 'business is conducted as usual'. Rather, it would require a complete reorientation and redirection of the strategy combined with the identification of a small number of priorities and corresponding reallocation of resources. The APP specifically prescribes such a strategy and priorities, namely, focusing on a few inputs and outputs and policy and institutional interventions that could have a significant aggregate impact across the entire country.

The APP is a prioritised plan of action in which a small number of key priorities is carefully packaged together. Accordingly, there are four priority

inputs (irrigation, fertiliser, technology, roads, and power), four priority outputs (livestock, high-value crops, agribusiness, forestry), three targeted areas of focus for impact (poverty reduction and food security, environment, regional balance), and a number of policy interventions, institutional arrangements, and investment decisions.

The following six points summarise the APP strategy.

- A technology-based green revolution in agriculture becomes the initial engine of accelerated growth.
- Accelerated agricultural growth creates a demand-pull for the production of high-value commodities in agriculture, as well as for non-agricultural commodities, with consequent large multiplier effects on other sectors of the economy.
- Broadly-based high employment growth then becomes the mechanism for achieving societal objectives.
- Public policy and investment focus on a small number of priorities, building on past investment in human capital and physical and institutional infrastructure.
- A package approach to development is introduced, and in Nepal's case this would be differentiated for the terai, hills, and mountains, and would recognise the powerful complementarity between public and private investment and priorities and ensure their coordination.
- To achieve broad participation, the strategy is regionally balanced and explicitly ensures the participation of women.

The APP differs from past plans in that it focuses on a small number of priorities so as to produce a tangible impact and to realise economies of scale essential for commercialisation. Nepal's agricultural research has historically harboured a misconception about what constitutes agricultural research. Research has been treated in a restricted sense to include biological, physical, and mechanical sciences as these apply to plants and animals. Farmers' knowledge and awareness, resource endowment, the culture and the community lived in, the economic environment that determines farming practices and resource utilisation, and the constraints that prevent farmers from realising better returns are issues that shape and influence their behaviour. These concerns fall in the realms of social sciences that have conspicuously been excluded as relevant areas of investigation. True, some institutions within the larger agricultural bureaucracy (viz., the now dismantled Department of Food and Agricultural Marketing Services) were set up to address some of these areas (farm management, price analysis, and marketing), but they could not become effective because they were isolated from 'mainstream' research.

The APP focuses on limited inputs and envisages increasing agricultural productivity and employment and reducing poverty. However, it does not give adequate attention to issues related to land ownership, tenurial arrangements, and potential impacts on soil fertility as intensive farming expands in the hill and mountain areas. Since the APP is another in a series of sectoral plans, it is hard to tell how effectively it would succeed in achieving its objectives. Its impact on land management and land degradation is similarly uncertain. One likelihood is that, given the resource constraints and mass poverty, such a policy relying on purchased inputs and intensive agriculture could be more suitable to resource-rich farmers and the majority of the poor may still be left behind.

Nepal's agricultural extension service is the oldest of all the public services targeted at rural people. The historical reason for this is that the first external assistance (received from the United States in 1952) was in the agricultural sector and went to the establishment of the 'Tribhuvan Gram Vikas' (Village Development) Service for extension. Several village development centres were subsequently established across the country to deliver extension services (Skerry et al. 1991). Until the 1970s, emphasis was placed on extending the organisational network as far as possible so that larger sections of the rural population could be reached and 'taught' to improve their livelihood by adopting recommended modern and improved technological packages. Junior technicians and junior technical assistants (JT/JTAs), who symbolised the ultimate harbingers of progress, were deployed at the local level and had to cover several thousand households in a cluster of villages. Obviously, their ability to respond to the specific needs of farmers in different socioeconomic and agroclimatic conditions was severely limited, and hence they remained largely ineffective.

The next stage of extension, initiated in the 1980s with the assistance of the World Bank, took the form of the 'Training and Visit (T&V)' system, in which the focus was on requiring JTAs to deliver one message at a time, depending on the most important agricultural practice in a given area. This required the establishment of a subdistrict-level network of service centres, through which JTAs could be given a new message at fortnightly intervals. As expected, such a mode of technology transfer was possible only in the accessible terai districts, and hence the T&V system was applied only in those districts. A variant of this system was also tried in the hills, but it was largely ineffective. Evidence suggests that it was essentially ineffectual even in the terai. As Jha et al. (1994) state this approach was introduced through the support of many donor agencies (Swiss Development Corporation, USAID, Asian Development Bank, Japan International Cooperation Agency, World Bank). Often, this resulted in the operation of multiple approaches in the same district at the same time, confusing programme implementors

and reducing the clarity of the objectives, roles, and targets of extension. The bureaucracy regards this as a wide gap between policy and implementation, but the real problem seems to be the absence of a clear and coherent policy.

The current mode of extension relies on the so-called group approach. Accordingly, farmers' groups are constituted according to the main commodity they grow or species they keep, e.g., rice group, dairy group, goat group, and others.

The past 40 years has thus observed several experimentations and the adoption of a number of extension approaches, but concrete achievements remain as elusive as ever. 'Extension models' tried so far include the following: (a) a traditional approach based on the conventional diffusion model in which the JTA is expected to provide assistance to anybody for any problem; (b) the T&V system, applied mostly in the terai; (c) the IRDP approach, followed in areas covered by various integrated rural development projects; (d) tuki (a Nepali term for the widely used typical kerosene lamp) approach, followed in the Swiss-assisted districts of Dolakha and Sindhupalchok, in which the JTA acted both as a source of information as well as a commission agent for the purchased inputs he/she supplied; (e) block production programme, concentrating extension services in 28 selected districts; (f) farming system approach, further concentrating service delivery in selected sites of districts rated as having high potential (Jha et al. 1994); and (g) the current group approach.

All these approaches suffer from various weaknesses (Jha et al. 1994). One of the prominent problems often cited by farmers is that of 'political interference', meaning ad hoc tampering with the system by political workers from central to local levels. Various donor-supported studies have suggested alternative approaches, such as a combination of group and outreach approaches, and the involvement of NGOs, women, and the private sector. The present group approach is justified since it is regarded as being cost-effective, participatory, potentially demand-driven, broad-based in terms of taking care of all sections of the rural community, and consistent with the 'one umbrella' policy adopted by the government in the 1990s. Similarly, the outreach approach has been justified on the basis of farmer-based, clientele-oriented research, potential for immediate technology transfer through direct demonstration effect, and better interaction between the researcher, extensionist, and farmer.

There is a general admission of the past failure of extension to give attention to the real constraints and opportunities faced by farmers. A strong case has been made for a more relevant and responsive extension service with an

increased role for subject-matter specialists (SMSs), together with a more interdisciplinary approach involving extensionists, research scientists, and farmers. Women farmers have been particularly neglected by all past programmes, except by the current group approach. However, the cadre of women extensionists remains extremely meagre. The emphasis all along has been on treating all farmers (rich and poor, large and small) equally.

The low quality of the JT/JTAs makes them professionally inadequate to be of relevance in the existing realities of the country's rural areas. The World Bank recommended, in 1994, the gradual phasing out of the JT/JTA cadres through natural attrition and the requirement that all field extension workers be agricultural graduates at least (Jha et al. 1994). No initiative has been taken thus far in this regard.

Agricultural development efforts are still target oriented and based narrowly on increasing production, without much attention to market potentials. A generalist approach is followed without regard to the diverse peculiarities of different agro-ecological regions and farmer categories. Technical service and input delivery mechanisms are weak. Beginning with the Eighth Five-Year Plan, a more expanded and definitive role is emphasised for the private sector. The underlying justification seems to be that the private sector has an inherent motivation to carry out most of the production, processing, transportation and marketing functions more efficiently than the public sector.

The contemporary agriculture-related policies, elaborated on in the APP and reiterated in the Nepal Environmental Policy and Action Plan (EPC 1993), are summarised in Table 5.1.

Nepal's agricultural development strategy has historically emphasised 'the promotion of so-called improved farming practices, dominated by the promotion of high-yielding varieties of crops, crossbred livestock, chemical fertiliser, and irrigation. The seed/fertiliser technology suitable to the irrigated flatlands has also been pushed in the hills and mountains where the fragile ecological conditions and resource endowments are quite different. Crop-dominated farming systems have not proven effective in these areas, in terms of both increased food production and maintenance of soil-fertility. Crop yields have declined consistently over time, threatening the food security particularly of small landholders and marginal farmers. These trends have a direct relationship with the deteriorating fertility of soil (Shrestha and Katwal 1992, EPC 1993). Intensive cultivation and insufficient application of nutrients in the soil have led to situations where farmers are forced to abandon their land completely because of extremely low yields. Carson (1992) estimates that 10–20% of such land may have been abandoned.

Table 5.1. Agricultural land management policies and action plan		
Policies	Action Plan	Responsible Agencies
Improve soil fertility management by increasing supplies of farmyard manure and reducing the stock density of livestock on arable land	Encourage planting of trees, shrubs, and grasses on private land to provide an additional source of fodder for livestock	DOA, DLS
Promote policies to increase soil fertility directly	Where appropriate, encourage stall-feeding of livestock using fodder from trees on private land Promote low-cost, vegetative and cultural soil conservation measures to reduce soil erosion Encourage modification of farming systems to include nitrogen-fixing species to enhance nutrient cycling Remove constraints to greater private sector involvement in the purchase and distribution of chemical fertilisers to improve their availability Develop recommended fertiliser applications, including the use of agricultural lime on acidic soils, based on particular agro-ecological conditions Improve participation in agricultural extension through the use of the 'group approach' Finalise arrangements for pilot schemes for contracting out extension services to the private sector Promote the use of adaptive research techniques on farms as a method of rapidly disseminating information	DLS, NARC DSC, DOA, NARC MOA, NARC DOA, NPC DOA, NARC DOA, DLS MOA, NPC DOA, DLS, NARC
Source: EPC (1993) (Meanings of abbreviations are given in the abbreviations' section.)		

Citing evidence from a hill village in the central hill region of Dhuskun in Sindhu Palchok, Shrestha and Katwal (1992) report that "cropping intensity is already considerably high (172%). Due to the lack of soil nutrients, stones and rocks have begun to surface on cultivated land. The supply of compost materials, from both private and public land, and manure from livestock has decreased significantly over the past 20 to 30 years."

On the other hand, work carried out at the Lumle Agricultural Centre (LAC) supported by the British in the western hills demonstrates that significant progress was possible with respect to vegetable-seed production, rice production, and cattle- and buffalo-rearing on a sustainable basis when the research and extension system properly integrated five key elements: namely, a strong institutional foundation; a comprehensive understanding of farmer's conditions; the participation of farmers in all stages of research and dissemination; the interdisciplinary interaction of all sections of LAC; and, the synergistic effect of having research, extension and training under one organisation (Pound et al. 1992). Similar experience is reported from the Pakhribas Agricultural Centre in the eastern hills (Chand and Thapa 1992).

All periodic plans, strategic documents, and action plans have invariably emphasised the need to give high priority to maintenance of soil fertility, particularly in the hills and mountains. However, continually declining crop yields and ever-worsening land degradation indicate that these policies have failed. Major indicators of unsustainability and declining trends in Nepal's hill and mountain agriculture are summarised in Table 5.2.

Partap and Watson (1994) elaborate on the important contributing factors and issues among the range of causes and symptoms of decline. Two critical problems commonly faced by mountain farmers, in general, and Nepalese farmers in particular are degradation of land and the extent of land degradation. The area of degraded lands in Nepal is estimated to be 1.8 million ha. Similarly, estimates on the magnitude of soil erosion from the hill and mountain areas of Nepal are compiled from various sources and presented in Table 5.3.

A study conducted by Banskota (1992), cited in Partap and Watson (1994), indicates that the total amount of nitrogen lost from level terraces (365,000 ha) and sloping farmlands (816,00 ha) is about 27,000 tonnes, whereas the total amount of nitrogen fertiliser used in 1987/88 was only 24,320 tonnes. The total loss of combined nutrients exceeded the level of inputs used in 1987/88. The value of nutrient loss has been estimated at over six million rupees for paddy and over 54 million rupees for maize at 1987/88 market prices. The implications in terms of equivalent loss of food grains are even more

Table 5.2: Indicators of unsustainability/decline in hill and mountain agriculture (time frame: approximately four decades spanning the period 1954-91)

Indicators	Rates of Change	Indicators	Rates of Change
I. RESOURCE BASE		II. PRODUCTIVE FLOW	
1. Landslides	100-300%	18. Fall in average crop yields on sloping lands: (a) maize and wheat (b) millet	9-15% 0-72%
2. Gully formation on sloping lands	High-Medium	19. New land under cultivation	5-15
3. Soil erosion rates on sloping lands	20-30%	20. Human population	60-65%
4. Abandonment of agricultural land due to decline in fertility	3-11%	21. Decline in the application of compost (organic manure)	25-35%
5. Appearance of stones/rocks on cultivated land	130-200%	22. Additional labour demand due to falling land productivity	35-40%
6. Decline in the size of livestock holding per family	20-55%	23. Forestry-farming linkages	Weak
7. Decline in the area of farm land per household	30-10%	24. Food-grain purchases from shops	3-50%
8. Decline in forest area	15-85%	25. Need for external inputs for crop production	High-Medium
9. Decline in pasture/grazing area	25-90%	26. Fuelwood and fodder scarcity in terms of time spent in collection	45-200%
10. Decline in good vegetative cover on common property lands	25-30%	27. Fodder supply: (a) decline from common land, (b) increase from private land	60-85% 130-150%
11. Fragmentation of household farm land (in number of parcels)	20-30%	III. RESOURCE MANAGEMENT	
12. Decline in the size of land parcels per family	20-30%	28. Emphasis on monocropping	High
13. Distance between farm land parcel and home	25-60%	29. Cultivation expansion on steep slopes (above 30 %)	10-15%
14. Decline in food-grain production and self-sufficiency	30-60%	30. Use of weeds and herbaceous crop products as fuelwood	200-230%
15. Permanent outmigration of families	None-5%	31. Conversion of marginal lands into cultivation	15-40%
16. Seasonal migration	High	32. Decline in fallow periods	From 6 to 3 months
17. Conversion of irrigated land into dry farming due to water scarcity	7-15%		

Source: S. Shrestha (1992) cited in Partap and Watson (1994)

Table 5.3: Soil erosion from different land-use types	
Type of land use	Soil erosion (t/ha/yr)
Grazing lands (support lands)	100
Rainfed terraces (sloping terraces)	5
Irrigated terraces (level terraces)	0
Sloping farmlands under farmers' practice	38
Source: Partap and Watson (1994)	

significant. The total losses were equivalent to about 75,000 tonnes of paddy and 747,000 tonnes of maize. These large losses indicate the difficulties experienced in sustaining food production when soil fertility is being depleted at massive rates.

Declining crop yields

A large body of literature cited in Partap and Watson (1994) identifies several causes of land degradation. Farmland productivity in upland areas measured in crop yields has either remained steady or declined. For instance, average crop yields declined within the range of 5–30% during the past few decades in a number of mountain watersheds in Nepal, in the Indian Himalayas, and in the Tibet Autonomous Region of China.

Increasing food insecurity

An ICIMOD study in the mid-hills of Nepal (Panday 1992 cited in Partap and Watson 1994) highlights the increasing food insecurity situation among mountain farmers in resource-poor areas. The study revealed that 86% of households in Bhardeo village were experiencing food deficits to varying degrees. Among them, over 50% suffered food deficits for at least six months each year. It further concluded that the production of adequate amounts of food on small landholdings, with ever-declining farm productivity, is almost impossible. Bhardeo depicts the worsening trend of food insecurity in resource-poor, heavily populated mountain areas.

Gaps in the demand and supply of biomass

The decline in productivity is not limited only to farmlands. Acute shortages of biomass production are widely reported, in the form of fodder, fuelwood or other forest products on which the sustenance of mountain people depends. Keeping in view all the basic requirements of farm families, Wyatt Smith (1982) cited in Partap and Watson (1994) calculated that about 3–4 ha of support lands (forests and grazing land/pastures) are required to maintain one hectare of cultivated land for normal production in the middle mountains of Nepal. Studies indicate that in many areas, the ratio of support land to agricultural land has gone down to 0.5 ha from 4 ha (Shrestha 1992 cited in Partap and

Watson 1994). Further, assuming that an average of 2.5 ha of supported land is needed to maintain 1 ha of agricultural land, the degradation of 1.5 million ha of agricultural forests will affect more than 0.5 million ha of agricultural land. If this is further calculated in terms of food-grains, the magnitude of loss is likely to be enormous (Partap and Watson 1994).

Trends in chemical degradation are also appearing in Nepal. Among others, some of the important processes include the following.

Soil acidification

Evidence of increasing soil acidification is found in the soils of hill and mountain areas. It is mainly caused by the use of pine needles for bedding materials for livestock. The used bedding materials are subsequently used for manuring the fields. The practice of using pine needles for compost is quite common in high mountain areas where it is abundantly available (Joshy et al. 1997).

Siltation

Land degradation resulting from siltation has also been noticed in the country especially in the Pokhara Valley. This is mainly caused by irrigation water drawn from the Seti River that carries heavy loads of fine sediment. Both the water and sediments are calcareous in nature and this has brought changes in both the physical and chemical properties of the soil, thereby causing the degradation of cultivated lands in the valley (Joshy et al. 1997).

Flooding

While the heaviest incidences of flooding occur in the *terai*, low-lying areas in the hill valley bottoms are also affected. The total area affected by floods in the country is estimated roughly at 9000 sq.km (NPC 1994).

Land affected by erosion, landslides and floods

Data on lands affected by erosion, landslides and floods have become available over the last few years. They are presented in Table 5.4.

The Soil Science Division of NARC has made a soil resource inventory of the country. This inventory shows that, in general, the soils of Nepal are deficient in nitrogen, phosphorous and sulphur. Potassium is on the high side. Results from long-term fertility experiments have shown indications of response to potassium after 15 years of continuous rice-wheat cultivation. Deficiencies of micronutrients (zinc, boron and molybdenum) have been increasingly observed to be widespread in high-yielding varieties of rice, wheat and maize crops, as well as vegetables. Thus soil-fertility resources of the country are not

Table 5.4: Total land area affected by erosion, landslides and floods	
Year	Land Affected (ha)
1984	1,242
1985	1,355
1986	1,315
1987	18,858
1990	1,132
1991	283
1992	135
1993	5,584
1994	392
1995	41,867
Source: HMGN (1996) cited in Wagley (1997)	

rich enough to sustain the increased agricultural productivity if not properly managed.

Despite the rather pessimistic scenario described earlier, various researchers (Joshi 1995) report some positive impacts from livestock and tree crops. A rough estimate provides a figure of employment generated by the fodder sector (some 1.2 million persons per year). The benefit of this opportunity is derived mostly by smallholder farmers. In addition, fodder and tree crops have intangible values as well. These include soil conservation and watershed protection, protection of biodiversity, and stabilisation of slopes. Fodder and tree crops also provide tangible benefits. Marginalised and smallholder farmers plant fodder and tree crops for multipurpose usage. Recently, plantation of tree crops such as chyuri (*Bassia butyracea*), lapsi (*Choerospondias axillaris*) and amala (*Embluca officinialis*) has become common for cash income. Their fruit has market value. Producing ghee from chyuri fruit has been a traditional source of income for the people of Baitadi, Doti and Dadeldhura in the far-western mid-hill districts. A total of about 600,000 chyuri plants are estimated to be in productive phase in different parts of the country. At present, local farm families can earn Rs 6000–10,000 annually by selling chyuri products (NCS Nepal 1995 cited in Sharma 1996b).

The characteristics of high-value crops are considered important from the perspective of sustainable use and management of soils in the mountain ecosystems of the country. These characteristics include the following.

- Ability of the crops to grow in harsh conditions — In many instances, fruits, legumes, herbs, cardamom, tea, coffee, ginger, turmeric, niger and companion trees are mainly grown in wastelands and are found well developed. Partap (1995) reports a productive use of marginal lands through the use of various kinds of horticultural cash crops. Some

micro-watershed areas such as Kapurkot and Sejwal Takura (Salyan District) present success stories of productive use of degraded lands through the introduction of high-value crops (Shrestha et al. 1996 cited in Sharma 1996a).

- Ability to protect and maintain the properties of soil — The characteristics of tree crops, plantation crops, herbs and legumes are highly favourable for soil conservation and watershed management. They are deep-rooted and they normally return high amounts of biomass to the soil. Moreover, some high-value crops prefer companion plants for their growth and development. For instance, cardamom, coffee, and tee (in the initial stages) perform well with other companion trees. Utis (*Alnus nepalensis*) is found commonly grown with cardamom in the eastern hills of Nepal. It not only provides shade to the cardamom, but adds essential plant nutrients to the soil. For example, the quick decomposing leaf litter of *Alnus nepalensis* adds as much as 249 kg of nitrogen per ha per year to the soil in agro-ecological zones where cardamom is grown (Singh et al. 1989 cited in Sharma 1996). Likewise, chiraito covers bare land and conserves soil and water (Khadka et al. 1994 cited in Sharma 1996a).
- Favourable to maintaining a sound environment — The high-value crops provide an environment conducive for integrated plant-nutrient management. High-value crops with their companion trees add organic matter in situ that increases the humus content of the soil. High levels of organic matter and humus in the soil create favourable conditions for the growth of earthworms. These organisms play a valuable role in the improvement of soil texture and structure. Unlike the plantation and tree crops, legumes possess different types of ecological characteristics that support integrated nutriment management. The commonly grown leguminous cash crops in the mid-hills include soybean (*Glycine max*), lentil (*Lens culinaris*), and black gram (*Vigna umbellate*). These legume crops have a symbiotic nitrogen-fixing ability. They add atmospheric nitrogen to the soils through a symbiotic process (Sharma 1996a). Suwal et al. (1991) state that, although a new crop in the western hills, lentil has been found attractive even in the higher hills. Under the farmer's management conditions, this crop contributes a substantial amount of nitrogen to succeeding crops. Likewise, intercropping of soybean is also gaining popularity in the western hills. Such an integrated plant-nutrient management system helps to maintain the soil biological dynamics with living micro-organismic activities (Sharma 1996a).
- Integrated insect pest and disease management system — Combination of high-value crops with other tree crops maintains a protective environment by protecting crop plants from insects, pests and diseases,

and predatory birds and animals. As a result, the whole system functions as an integrated insect pest and disease management system and plays an efficient role in preserving biodiversity and maintaining a pollution-free environment (Sharma 1996a).

- Preservation of biodiversity — Combination of a large number of tree and plantation crops offers a diverse ecology that protects biodiversity by allowing many other valuable niche-products to emerge in various agro-ecological conditions. Partap (1995) inferred that the best sustainable land use is horticultural farming, which can provide better production and incomes from marginal lands.

In summary of the environmental impact of Nepal's agricultural policy, national strategies have addressed environmental matters from time to time — the dominant position of international agencies in drafting national documents has seen to that. However, they have had little effect, and many of them have not been operationalised in terms of detailed planning, nor have they been implemented. However, there is a great deal of relevant applied research going on which has been carried into the field under the auspices of some donor-driven projects. It is not that donor-driven projects have a particularly good record, but the successes in terms of environmental rehabilitation and conservation have either been entirely carried out without outside help and knowledge at all, or have been the result of donor-driven projects. In the latter case, the issue of sustainability after the withdrawal of funds and personnel remains problematic.

Pakistan

By and large, the National Agricultural Policy, which is primarily concerned with fixing support prices for major food and cash crops, is not relevant to the subsistence-based agriculture practised in the region. The Directorate of Agriculture for the Northern Areas (DANA) has not, however, issued any policy document per se that could be used to chart the development of the sector in the region. The directorate functions primarily by implementing a series of short- to medium-term projects, either funded by donor agencies or from funds allocated to it in the annual development plan. Although the officials of the directorate profess not to follow a broad-based policy, an appraisal of the projects currently being implemented, as well as those that have been implemented in the recent past, does indicate that the growth and development in the agricultural sector in the region has followed a fairly typical path with a shift in emphasis from food crop to cash crop production following the development of marketing opportunities.

The Northern Areas are deficient in cereal production and are dependent on grain transported from the plains in the summer months. In 1997, the

estimated food-grain deficiency in the region was in the order of 43,000 t (DANA 1997). The federal government, which has long followed a policy of providing cereals to the area at highly subsidised rates, provided 20,000 t of cereals to the region in 1997 to meet this deficiency, while the remaining was met through supplies arranged by private dealers (DANA 1997). The subsidies provided by the federal government to the region mainly take the form of subsidy on transportation costs. The additional cost of freight to the Northern Areas from the Rawalpindi market is not charged to local merchants in the region.

In spite of the availability of subsidised cereals in the region, traditional agricultural practices dictated that households concentrate primarily on production of cereal crops not only to partially fulfil their food needs, but also to ensure supplies of fodder for cattle. Fruit and vegetables were produced almost entirely for home consumption, as costs of transportation to markets were high, and the commodities are extremely perishable. The opening of the Karakoram Highway, however, proved to be a catalyst in the transformation of the local economic structure from a subsistence economy to one with strong linkages with the mainstream cash-based economy in the plains. The Karakoram Highway provided the means to transport crops, for which the Northern Areas had a comparative advantage in terms of production, to the markets in the plains thus earning cash that could be used to purchase cereals at subsidised rates from the local markets. The Aga Khan Rural Support Programme started a marketing programme in its first year of operations that aimed at organising village communities to transport farm surpluses, mainly fruit, to markets in Gilgit. Thus, agricultural policy in the Northern Areas and North West Frontier Province do not have land management as a priority at all. All policies, therefore, may have unintended environmental consequences.

The Case of Shifting Cultivation

Shifting cultivation has been practised for at least 9,000 years in the Hindu Kush–Himalayan region. Nomadic people cleared the forests, slashed and burned it, dibbled seeds, and raised a variety of crops. The family would return to the original cultivation site after 30–40 years; the site would have rejuvenated back into forest ready to be cut and burned once again. While many sociologists believe that this age-old practice is not harmful to ecology and the environment, most foresters and scientists hold a different opinion. With growth in population, the land:man ratio has progressively decreased, and the fallow of 30 years has been reduced in many areas to two to three years. This reduced period has led to large-scale deforestation, soil erosion, and destabilisation of the ecology.

There is a great deal of controversy concerning the environmental impacts of shifting cultivation (jhum in Bangladesh and most of northeast India, tseri in

Bhutan and khoriya in Nepal). Official attitudes have been almost universally hostile from the British period onwards, although there are a number of commentators and researchers who qualify their condemnation. Writes Mr Thangam of shifting cultivation in the northeast of India, for example:

"In the interior areas, the shifting cultivators depend solely on shifting cultivation, and follow the traditional and ritualistic integral shifting cultivation with colourful ceremonies. Such shifting cultivators care for their land and consider themselves as part and parcel of the agro-ecosystem as a whole. They have no other alternative to shifting cultivation to eke out their livelihood."

On the other hand, it is said that:

"the lowland cultivator and the landless labourer who migrate to the accessible hill areas for shifting cultivation adopt it in a manner, and consider it as one income source besides others such as road-working, quarrying, etc. These partial shifting cultivators do not care for the land and cause land degradation in the short and the long run. Though it is only the partial shifting cultivators who cause degradation to land, often the integral and the partial shifting cultivators are clubbed together and blamed for the ill effects of shifting cultivation."

There are two main points in this controversy. The first is that the term covers an enormous variety of cultivation practices. Secondly, the ground realities are usually that the fallow period has drastically shortened over the past half century. While population growth has been a factor, others are important too. These include the marginalisation of cultivators by hydroelectric schemes, forestry policy that diverts land degradation elsewhere (and also impoverishes the people involved), and a process of privatisation of lands by both the local elite, and by outsiders and immigrants. Here are some representative illustrations of official policy towards this type of agriculture.

Chittagong Hill Tracts, Bangladesh

According to the official policy pursued for at least a century, it is assumed that the great enemies of forest conservation are the practice of jhum over the greater part of the forests and the wasteful manner in which timber has been cut. The account below is based on official documents and views.

"Although the jhumias may not cut many large trees in the areas to be cultivated, they cut and burn periodically all seedlings, saplings, and young trees, consequently there is little regeneration, whereas mature trees are removed year after year. Besides the above, enormous quantities of saplings and young trees have been destroyed annually through the practice of

cutting so-called dug-outs (boats) and their sliding down from the hill tops to the nearest water course, requiring construction of a track covered with wooden rollers about three feet apart, about 1,000 to the mile (1.6 km). No species of tree is spared; they are all felled by the axe under this wasteful system. Furthermore, it has hitherto been the practice of bamboo cutters to cut saplings and young trees of all kinds and to remove them for use as house posts. In short, there can be no doubt, that the forests are on the road to ruin and, in fact, valuable timber trees are, in many areas, only found high up the valleys and in many cases in inaccessible places."

In framing proposals for a change of management, it had to be borne in mind that the hill people have to depend, for a long time to come, on jhum cultivation, and that they also seemed to rely to some extent on the money earned by the removal of timber. The Conservator of Forests offered the following suggestions.

- Two classes of forests are to be formed: reserve and district forests.
- The reserves will be entirely under the management of the Forest Department and the district forests under that of the Deputy Commissioner of the Hill Tracts.
- No jhum or cultivation of any other kind should be allowed in the reserves, no other forest produce should be cut or removed from the reserves without the permission of the Forest Department. The area should be managed for forest purposes only.
- The people of the district may supply themselves with forest material for their domestic requirements from the district forests, with such restrictions as the Deputy Commissioner may impose from time to time.
- With a view to discouraging the preparation of dug-outs and the excessive consumption of 'jarul' (wooden rollers), the tax rates for dug-outs and from jarul timber now levied should be enhanced by 50%, and the export of dug-out and jarul prohibited altogether.
- The management of the revenue stations should be under the Forest Department as hitherto.
- The Divisional Forest Officer should be under the orders of the Conservator of Forests, Bengal, instead of under these of the Commissioner of Chittagong. (Note the political significance of this suggestion.)

One of the typical policy solutions is to resettle (sedentarise) the jhumias. One of the major dangers of this policy is that, once the farmers are persuaded to leave, and the main conservation objective of the programme is achieved, the resettlement part is forgotten, funds allocated for this part of the programme somehow do not materialise, and the unfortunate cultivators are left to languish. The Integrated Jhumia Rehabilitation and

Afforestation Programme was one of the components of the Chittagong Hill Tracts Multisectoral Development Project, executed by the Forest Department. The programme encouraged planting of bamboo and agroforestry practices. The project arranged equitable distribution of income from harvesting timber from afforested areas between the government and the settlers as well as supporting cottage and rural industries. Overall, the strategy was as follows.

- Settle jhumias in villages with land allotments of 1.6 to 2.4 ha.
- Establish forest plantations where jhumias are allowed to use the taungya or agroforestry method to produce food crops.
- Develop infrastructure to facilitate transportation.
- Establish market channels for agricultural products.

The project rehabilitated 3245 jhumia families in seven forest divisions in the form of villages (at least 50 families in each village) in hilly arable lands between 1984 and 1989 (Chakma 1994). Each family was given title to five acres (2 ha) of land: 0.5 acres (0.2 ha) for homestead and agriculture, 0.5 acres (0.2 ha) for bamboo and cane cultivation, 2.7 acres (1.1 ha) for horticulture, and 1.3 acres (0.5 ha) for cultivation of miscellaneous plants. Social and community facilities such as school, prayer centre, approach road, and internal road/pathways within the villages were developed by the project.

The programme of afforestation could not achieve the desired level of success, and suffered from inadequate participation of the target group mainly due to political unrest. Lack of motivation, education, extension, infrastructure, marketing facilities, and, above all, the lack of material/financial incentives were also constraints (FMP 1993). Most of these projects were expensive, since adequate resettlement that might give the ex-jhumia some incentive to stay sedentarised requires such a high level of funding per family that they can never hope to be replicated on a scale that would make any substantial environmental difference. Other projects that have involved resettlement, following the displacement of local people from their irrigated paddy lands following the construction of the Kaptai dam, have been characterised by callous indifference, repeated evictions, and broken promises. Since a reversion to jhum has been the only alternative livelihood, the criminalisation of jhumia begs some important ethical and political questions.

Northeast India

In 1976, the National Commission on Agriculture stated that shifting cultivation could be considered as a balanced part of an ecosystem, and that both from the point of view of forest development and economic well-

being of the tribals, shifting cultivation should be regulated, contained, and replaced as expeditiously as possible. However, the biggest impediment in the path of any planned systematic programme to contain shifting cultivation in northeast India is that most of the area under shifting cultivation is unsurveyed as yet. Basic information regarding it, such as actual location, the exact extent, and population dependency, is lacking. However, the strategic decision to control and regulate remains prior and paramount. Various conflicting estimates have been made from time to time. The statistics for the two states is an estimated annual area of 703 sq.km in Arunachal Pradesh and an estimated annual area of 760 sq.km in Meghalaya.

According to the State of Forest Report (1997), Arunachal Pradesh suffered a loss of 75 sq.km of forest, while gain of forest cover due to natural regeneration was 56 sq.km. The net loss of forest cover was 19 sq.km. Similarly in the state of Meghalaya, 75 sq.km of forest was lost to shifting cultivation and 20 sq.km gained through natural regeneration. The net loss for Meghalaya was 55 sq.km.

In Arunachal Pradesh, shifting cultivation is not practised throughout the state as the terrain conditions and climate limit it. As altitude increases, shifting cultivation practices diminish. Generally, shifting cultivation is not practised beyond 2,000m. Of the many tribal groups in the State, the Adi tribe is the largest tribe in the state practising shifting cultivation. Once the land is allotted to a family, they enjoy usufruct rights over it. The land is cultivated for two years and then left fallow for 10–12 years for regeneration.

In Meghalaya, shifting cultivation is practised, but is not uniform throughout the state. People have taken to terrace cultivation on gentle slopes in the high rainfall areas. A varying form of shifting cultivation is the 'bun' cultivation that is practised in the Khasi Hills and parts of the Jaintia Hills. Shrubs are cut in November/December, and the slashed materials are laid in rows along the slopes in bunds, locally known as bun. The soil surrounding the bun is then hoed and placed on top of the bun during December/January. Burning of buns is done in late January, followed by planting in February and March. This method of cultivation leads to heavy soil erosion. The cultivators use manure and fertilisers on the crop on the buns. The main crops are potato, sweet potato, banana, and citrus fruits. Crops are again raised in the second year and then the land is left fallow for three years.

Various control measures have been suggested and implemented from time to time to control and contain the 'evils' of shifting cultivation. In 1960–61 the Scheduled Tribes' (Dhabar) Commission covered a whole range of tribal

problems and recommended measures of scientific management to control and limit it. In the Fourth Plan Period (1969–73), the Tribal Sub-Plan (TSP) laid emphasis on micro-level planning and integrated area development. The Task Force on Development of Tribal Areas set up by the Planning Commission of India (1973) recommended that shifting cultivation should be made more productive through better agricultural practices such as terracing and growing horticulture crops. The National Commission on Agriculture (1976) also suggested similar action.

In 1978, the FAO and the United Nations Fund for Population Activities (FAO/UNFPA) sponsored a study project on shifting cultivation in five countries — including India. The various recommendations made to tackle shifting cultivation were through integrated area development programmes and watershed management. A pilot project was taken up in Arunachal Pradesh. Note the Malthusian assumptions of this policy. Other factors causal to a reduction in fallow periods (marginalisation, flooding of prime land, forest policy, and privatisation of communal land) were ignored.

During the Fourth and the Fifth Five-Year Plans, the North-Eastern Council (NEC) for Shillong also took up programmes for control of shifting cultivation. In 1980, the Indian Council of Agricultural Research (ICAR) complex for the North-Eastern Region based in Shillong recommended development of hill slopes under shifting cultivation by planting the upper third of the slope with fuelwood and timber species, the middle third with horticultural crops, and the lower third with agricultural crops.

The National Forest Policy 1988 envisages social forestry and energy plantations to rehabilitate areas damaged by shifting cultivation and to provide alternative avenues for income generation to the cultivators with right land-use practices.

The problems that face the control of shifting cultivation in the northeast are both political and practical. State forestry departments control little forest, there is widespread shifting cultivation and many areas are characterised by insurrection. Indeed, attempts at suppressing jhumia are often seen as part of an unwarranted cultural and economic intervention by the state. Thus the environmental impact of most of these schemes tends to be slight. It is clear that, unless local communities develop or maintain institutions for collective action, the maintenance phase of many activities will fail. For example, the Forest Department in Meghalaya planted a number of single species' forests on degraded land for watershed management purposes. The village had little participatory role in designating areas to be planted or selecting tree species. The department proposes to hand over the plantation to the community after 15 years but

already the local community are threatening to cut the forest and sell the timber in its twelfth year.

In conclusion, the issue of policy towards shifting cultivation remains contested both within professional and political arenas. It has a long history and one cannot expect closure as a result of new research findings or overwhelming rational argument. This report suggests that the environmental impact of shifting cultivation is highly variable, on both watershed and commercial forestry grounds. Therefore blanket bans should be examined anew, and a more flexible and local basis for negotiation established. Also the implementation of bans on shifting cultivation is politically and administratively not feasible. There are also ethical considerations in attempting to close off environmental entitlements without successfully providing alternatives. Banning is easy — compensation is not.

Environmental Impact of a Potato-growing Project in Pakistan

One example of a clear-cut environmental impact of a change in land use in which the policy component was considerable is one in the Northern Areas of Pakistan. In the 1980s, following the construction of the Karakoram Highway, attention was focused on programmes that encouraged commercialisation of production. Initially horticulture was attempted, but the emphasis quickly shifted from fruit to potatoes with the initiation of the FAO/UNDP-assisted project on 'Production of Seed and Planting Material in the Northern Areas'. Fruit is a highly perishable commodity and transporting fresh fruit down-country is expensive and risky. Potatoes, on the other hand, can be readily transported over longer distances and are less susceptible to damage from careless handling. The production of seed potatoes was the central component of the project; its other components included orchard development and seed production for other commonly grown vegetables such as tomatoes and carrots.

The seed-potato component was established with the objective of raising farm incomes and contributing towards the development of a seed-potato industry in Pakistan, thus saving the country the foreign exchange spent on an estimated 5,000t of seed potatoes annually (FAO 1992a). The project was built on the premise that yield per hectare could be increased substantially if disease-free seed was made available to farmers. The crop cycle in the Northern Areas made the production of seed in this region particularly favourable; seed potato could be harvested by August, thus reaching markets down-country in time for autumn planting. The arid climate in the Northern Areas also makes the region most suitable for seed production as the incidence of disease and pest attacks are relatively low.

A seed-potato unit was established in the Directorate of Agriculture that aimed to produce 20t of basic seed in five years. The project identified contract growers who provided training to farmers on producing seed potatoes. The training was conducted through lectures and on-farm demonstrations. The pre-basic seed was developed into basic seed in the field in the high altitude valleys of upper Hunza, Hopper, and Yasin.

Initially, the project operated a marketing component and tried to form growers' associations that would take the responsibility of supplying the seed potato to the market. This component of the project had to be abandoned in 1989 after these associations were found to be racked with disputes and disagreements amongst members. Thereafter, the project provided for the establishment of linkages with private seed companies that would liaise with the contract growers supported by the project to obtain the pre-basic and basic seed potato for marketing down-country and in other regions of the Northern Areas.

Since 1993, private seed companies have been operating independently and have established links with seed producers who have not been associated with the project. By 1997, they had produced nearly 3,500t of certified seed potato (DANA 1997). According to some government officials, the sale of seed potato may have reversed the traditional trade deficit of the region with the rest of the country.

The project wound up in 1996 after ten years of operation. By then, it had facilitated a dramatic change in cropping practices in the Northern Areas, in general, and in the high-altitude valleys of Hunza and Gojal in particular. Potatoes had been cultivated in the Northern Areas for decades, but the land devoted to potato cultivation by an average household had rarely exceeded half a kanal (0.02 ha) (Whiteman 1985) — now the average cultivated area per household is 8–10 kanal (about 0.5 ha). By 1997, potatoes had overtaken wheat as the main crop produced. Field visits suggest that on the small landholdings (maximum 0.8 ha) of the Hunza and Gojal valleys, which are the main potato-growing areas, potatoes now occupy 75–80% of cultivable land. This is a significant change from the cropping practices that existed up to a decade ago when 55% of the farm area would be devoted to cereal crops (ACO 1990a).

The introduction of a cash crop with a significant earning potential in a traditionally subsistence-crop economy is bound to have a notable impact. The growth in area cultivated for the potato crop is not confined to the high-altitude valleys. Indeed, potatoes have become the dominant crop in the entire Northern Areas. As the demand for seed potatoes down-country

increased and seed companies became more active, the production of table potatoes also increased significantly. Commercialisation of the production process led to an influx of companies producing fake seeds and flooding the market with uncertified seed brought in from the plains.

The economics of potato production are too attractive to be ignored. The potato crop is harvested in the Northern Areas from late July through August, and reaches markets down-country at a time when potato stocks from the Punjab and Sindh are being depleted. The crop from the Northern Areas typically fetches higher prices down-country than winter and spring crops from the plains (Rs 1,000 per 40 kg compared to Rs 800 per 40 kg). Estimates suggest that the yield per kanal is about 600–800 kg. A kanal, the standard measure for measurement of agricultural land in the Northern Areas, is equivalent to about 600 square yards. There are eight kanal in an acre. Seed companies or dealers pick up this produce from the farm-gate at Rs 600–800 per 40 kg giving an income of over Rs 9,000–16,000 per kanal. The Directorate of Agriculture prepared similar estimates and concluded that, on average, the potato crop earned Rs 11,250 per kanal, fresh fruit Rs 10,680 per kanal, and wheat Rs 3,000 per kanal (DANA 1997). It is thus quite practical for a typical farm household to grow potatoes and use the funds generated to buy the cereals and fodder crops that have been displaced by potato production.

The potato crop was, until recently, relatively free of disease, and its cultivation is less labour intensive than most cereal crops. The latter characteristic is an important consideration in an evolving economy where the service sector is rapidly gaining ground and agriculture may not remain the primary source of employment. The Hunza and Gojal valleys, where the majority of the population belongs to the Ismaili community, are also enclaves of relatively high literacy rates and there is significant out-migration of educated youth from the area. All these factors have contributed towards the transformation of agricultural practices. Livestock holdings per household, for example, have reportedly decreased appreciably in the last decade as the availability of manpower for herding has decreased. Transhumance cycles have been disrupted as more people opt to look for work in the service sector or in the tourist trade. The decrease in livestock population also has important implications for the demand for fodder, particularly wheat straw. As herd sizes grow smaller, the need to grow cereal crops for fodder is also decreasing. A host of factors thus seem to have contributed to the popularity of this new cash crop.

The potato crop has obvious benefits and is well suited to the changing needs of the local economy. However, the cultivation of the crop without practising rotation has serious effects on agricultural soils.

The Pakistan Agricultural Research Council (PARC) has lately carried out two studies on the prevalence of potato diseases in the region (PARC 1994; 1995). The most significant discovery was the identification of potato cyst nematode (PCN) in the Hunza–Gojal area. PCN is generally acknowledged to be the most damaging nematode that can attack potatoes, and has been held responsible for productivity losses of up to a 100% the world over. Most diseases identified in the area are seed or soil borne.

The increase in seed-borne diseases has been concomitant with the increase in trade with the plains and with the unchecked movement of seed distribution companies who do not necessarily follow prescribed procedures of seed production. Data on seed imports are hard to obtain and are not reliable, but government officials and NGO workers acknowledge that local markets have been flooded with uncertified seed. While the production of seed is now an established activity in the Northern Areas, there is no programme for certifying seeds. The Directorate of Agriculture has prepared a feasibility report for a project on seed certification that would authorise the setting up of checkpoints on major road and air entry points to check the influx of uncertified seed. The project has been waiting approval for the last four years. However, a recent conference on seed certification held under the aegis of the federal government suggests that it may now be taken up for financing.

The incidence of soil-borne diseases is associated primarily with an absence of crop rotation with other cereals or vegetables. The typical rotation period recommended is two to three years to ensure that soil re-accumulates essential nutrients. In the first few years of the seed-potato project, government extension workers were active in ensuring that growers followed these guidelines. The Aga Khan Rural Support Programme's extension services have also been fairly active and field agriculturists have repeatedly stressed the importance of crop rotation in meetings with local farmers. In the high altitude valleys of Hunza and Gojal in particular, however, this message does not seem to have had the desired impact. Interviews with local farmers and with the Aga Khan Rural Support Programme field teams suggest that rotation is not being practised and, in some cases, the potato crop has been planted in the same soil for almost a decade. Farmers have been known to use chemical fertiliser far in excess of recommended limits to coax a crop from the damaged soil. Although awareness of the need for rotation is fairly high, and farmers have experienced the effects of loss in soil productivity, the returns accruing from the reduced potato crop are still substantially higher than traditional alternative crops. Landholdings in the high-altitude, single-cropping valleys are rarely over 10 kanal (0.5 ha); too small to warrant rotation. Soil

degradation is a slow process and farmers know that it may take over two decades for the soil to be degraded to the point where any sort of cropping becomes difficult. The time horizon is too long for this generation to adapt its behaviour. Interviews with farmers and other members of the community reveal that the next generation is not expected to work the land in any case, as farming is not viewed as a viable means of earning a living. Meanwhile, the allure of the only major cash crop to be produced in the Northern Areas continues unabated.

Study of Horticulture in Northwest India

Himachal Pradesh has become a major producer of temperate fruit. In 1950-51, the area under fruit was 792 ha and production 1,200t; by 1991-92, the area was 170,768 ha and production was 342,303t. Further gains in both production and productivity have been made since. Estimate of production for 1994-95 was 587,000 t. More than three-quarters of total fruit production is apple; the rest is nuts, citrus, pears and other pomes. Area under vegetables has gone up from 8,000 ha in 1974-75 to 24,000 ha in 1993-94, and production from 90,000 to 385,000t. Mushroom production has grown (600t) and, amongst spices, ginger is an important crop (3,200 t). Hops are also grown. Potatoes are grown on nearly 17,000 ha, production being about 160,000t. Post-harvest technology has many gaps. Packing and transport of fruit is problematic. In order to reduce pressure on hill forests, eucalyptus and other types of wood brought from the plains are also now being used in increasing quantities for making packing cases. Corrugated paper-board packaging and transportation in plastic bins is also being adopted. Value additions to horticultural produce are inadequate and the potential of off-season vegetable growing and marketing remains to be realised. Efforts are being made to introduce modern methods in orchard management such as drip irrigation, glasshouse technology, and protected cultivation systems. The possibilities of higher production and incomes (and employment) through horticulture are immense.

This brief case study is one of the more successful outcomes of agricultural policy in the region, although how much of the long process of specialisation, rising incomes, and environmental recovery was due to policy and how much to other factors, is difficult to disentangle. Certainly the other factors involved were the construction of roads and a good public distribution system that reduced the risk factor for farmers in substituting a commercial for a food crop. The extension agencies were sometimes proactive (e.g., in providing apple stock and advocating planting on degraded and sloping lands) and later reactive to ensuing environmental problems due to a shortage of packing materials.

Case Study of a Favoured Location for a Donor-funded Agricultural Project

Nahar is one of 13 villages of Sectla Rao subwatershed in Sahaspur block of Dehradun District. The total area of the village is 72 ha of which 20 ha are reserve forests, 39 ha are agricultural lands, and the rest is either uncultivable fallow or other miscellaneous types of land. About 56% of the agricultural land is irrigated. The village comprises 45 households with a total population of 249. Nearly two-thirds of the population is literate. Most of the landholdings are small and scattered. The animal population was about 235 before the village was brought under a watershed management project supported by the European Commission. At the beginning of the project in 1995-96, villagers met about four-fifths of their fuel requirements from adjoining reserve forests while the rest came from agricultural lands and other alternative sources. There was an annual fodder shortage of about 240t.

The strategy of the project was additional plantations, introduction of high-yielding varieties of agricultural crops, improvement of biomass production and promotion of alternative sources of energy such as biogas. It also included reducing the number of animals of low productivity and replacing them by high-yielding, stall-fed buffaloes. Training was an important component and village planning was attempted essentially through participatory rural appraisal. Villagers voluntarily agreed to reduce the number of goats. Once consensus of villagers had evolved through participatory rural appraisal, the project selected entry point strategies in the form of financing biogas plants, providing mini-kits and better implements for agriculture, and repairing terraces. Also, the irrigation system was improved. Eight water-harvesting tanks were built. For the animal husbandry programme, a high-quality breeding facility was provided, fodder mini-kits were distributed and chaff cutters and feed troughs were introduced. In the adjoining reserve forest, plantations were undertaken with the involvement of villagers. On more than 10 ha of land, silvi-pastoral development was carried out. On about 2 ha of land, private orchards were established. Vegetable mini-kits were distributed. While inputs were provided by the project by way of a gap-filling strategy, important achievements were in the area of community organisation and institution-building. Firstly, a Gramin Resource Management Association (GAREMA) was established with membership of all 45 households. Eleven executive members were elected and a revolving fund was begun which, at the time of the case study visit, contained about Rs 90,000. From the revolving fund, the GAREMA had made a number of productive consumer loans and loan recovery was 100%. Loanees were willing to pay interest at the rate of two

per cent per month. Loanees preferred to pay this higher rate of interest because disbursement was hassle free, and they found it convenient to repay the loan instalments locally. A women's self-help group has also been established. This group consisted of 27 women, who contributed Rs 10 a month. It had provided loans to 17 women for knitting sweaters and growing mushrooms.

The story of Nahar is one of success, although it is a most favoured village in the first place, and there was 'room for manoeuvre' since there was enough grazing land to carry the reduced stock upon the partial closure of the forest. At the time of the case study visit, the project had practically withdrawn its active phase from the village; project people were trying to encourage sustainability of institutional arrangements. The main results of community mobilisation were in the following areas.

- Village people had set up their own institutional arrangements for resource management and generated resources in the form of a substantial revolving fund. This had reduced their dependence on other sources of credit such as banks. In the maintenance of accounts, a certain degree of transparency prevailed. The revolving fund is used with consensus of all the members of the GAREMA and recovery experience was highly encouraging.
- The number of animals was brought down and low-quality cows were replaced by buffaloes that were stall-fed.
- Out of 45 families, as many as 30 families have installed biogas plants to meet domestic energy needs and obtain better quality manure for their fields.
- The area under improved varieties of agricultural crops increased, increasing productivity as well as production.

The strategic conclusions from this case study are as follow.

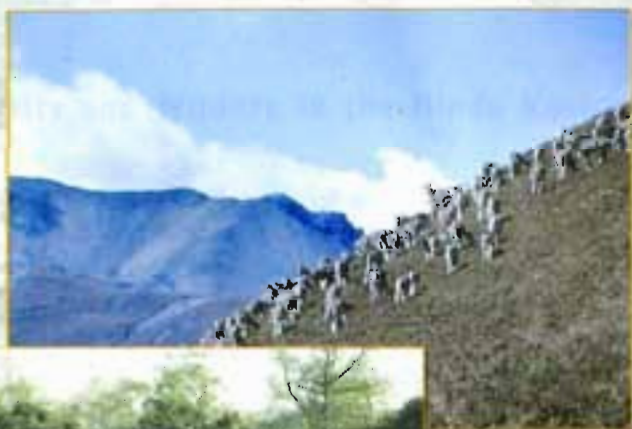
- The sustainability of the project after withdrawal of donor funds was supported by commercial viability of new activities, a simple and transparent accounting system, and an able and entrepreneurial leader.
- The project was located in a village with relatively abundant resources. While there were 'losers' in the grazing scheme, they were largely compensated by other income-earning opportunities.
- A local market for the use of common-property resources (although, at the time of the inception of the project, these had become virtually open-access resources) was established with appropriate institutions for its

operation. Undoubtedly, this is an example of a neoliberal approach to the environment of which the World Bank would be proud.

Conclusion

In conclusion, these diverse examples of agricultural policy show how few policies explicitly link environmental concerns to agriculture. While most national environmental strategies do this, the detail of agricultural policy usually does not, with the exception of China. India's agricultural policy, not included in this selection, certainly does take seriously the environmental impacts of agricultural policy in terms of formal statements, institutions, and laws. However, as with almost all agricultural policy statements in the region, there is an enduring metaphor that comes to mind. Policies are control switches in a power station. Each is carefully labelled, and they can be switched on or off by a flick of a (policy) finger. The fact that the level of lighting may not change much may encourage the observer to wonder whether the switchboard is actually connected to the power supply at all. Why is this? In all the countries studied, there are legal stipulations concerning environmental conservation, and the outlawing of practices that are considered as damaging to the environment. China is the prime example of a sophisticated and environmentally aware policy-making body enacting an almost endless stream of enactments, none of which is taken seriously at the local level. Nepal, in rather a different political setting, has plans in which agriculture and environmental concerns are sometimes linked, but they again fail to have any impact. Clearly, the problem is not one of making better policy — except where unintended consequences of policy are particularly harmful — but how policy is made, and the expectations attached to it. This topic is again taken up in the concluding chapter.

National Parks, Biodiversity and Wildlife



Six

Top	Blue sheep in Shey Phoksundo National Park, Nepal <i>D. Miller</i>
Middle	Elephant at rest, Royal Chitwan National Park, Nepal <i>C. Richard</i>
Bottom	Rhino in the Royal Chitwan National Park, Nepal <i>C. Richard</i>

Chapter Six

National Parks, Biodiversity and Wildlife

Landscape, Biodiversity and Wildlife in the Hindu Kush–Himalayan Region

The Hindu Kush–Himalayan region has landscapes of exceptional quality in terms of amenity value (for tourists and trekkers as well as local people) and the diversity of its flora and fauna. Policies have been formulated by every country in the region to conserve different aspects of these values for a wide variety of stakeholders, and each country has signed the Convention on Biodiversity. It is estimated that there are 25,000 species of plants in the Hindu Kush–Himalayan region (about 10% of the world's flora). In addition, no less than 268 of the 666 species of domesticated plants at present recognised for their economic importance in the world come from India and China, and many of these originated in the Hindu Kush–Himalayan region. For example, according to ICIMOD (1998), there are about 200 species of fruit tree, 80–120 fruit shrubs, 230 species of vegetable, and 280 of mushrooms used in the region (Partap, *ibid*: 9). While statistics such as these are bound to be highly incomplete and arbitrarily selective, they do reveal the potential importance of the region in terms of biodiversity. In addition, the region has a level of landscape quality that is of prime global importance. Usually, the amenity value of landscape (i.e., the beauty of the landscape to which people attach a value) has been identified and conserved by means of the establishment of national parks, while the conservation of floral and faunal biodiversity has usually been undertaken through the establishment of protected areas, sanctuaries, and bioreserves. Thus, there are conservation issues of global, regional, and local importance.

The term biodiversity involves a complexity of meanings and levels. Biologists usually consider it from three perspectives: genetic, species, and ecosystem diversity. Despite much biological and ecological literature, the theory behind biodiversity and the functioning of ecosystems remains nebulous, lacking in hard data, and open to varying interpretation. Even rudimentary inventories of most plants and wildlife are incomplete for most habitats of the world and, for many, there is virtually no information at all. In this chapter, some key species are listed

for each state within the Hindu Kush–Himalayan region, but these are a tiny selection that focuses on an even smaller flagship group that happen to reflect the priorities of pressure groups within scientific communities. The choice of species for conservation, therefore, is a matter of subjective choice. According to some observers, the conservation of some biodiversity is no more than a sophisticated expression of a well-established preoccupation with the conservation of a small number of extinction-prone animal species and their habitats. The point is telling, but ignores the key qualitative judgement that there is a number of contentious problems that it would be unwise to argue away or to ignore. Despite the rhetoric, faunal conservation policy in the Hindu Kush–Himalayan region is still largely aimed at key or flagship species, and floral conservation at potentially commercial ends. In addition, estimates of biodiversity loss involve large degrees of uncertainty owing to a lack of empirical data as well as some important shortcomings in constructing credible predictive extinction models. In fact, some critics argue that the assumptions about extinction often have little scientific support at all. Thus, vagueness, multiple interpretations, subjective judgements, and bureaucratic routines have all made this policy area fraught with difficulty.

Biodiversity of Nature

The origins of the claim to conserve biodiversity tend to derive from the international scientific community, western environmental pressure groups, and from big international non-governmental organisations. The implementation of such claims, however, involves a wide range of other stakeholders at the national and, especially, the local level, some of whom may have a different notion of biodiversity altogether. Five general reasons have been given to explain the importance of maintaining biodiversity (summarised by Inskipp 1992).

- Ethical reasons: the belief that every form of life warrants respect independent of its worth to people and human welfare.
- Maintaining ecosystems: a myriad of life forms are essential for keeping air clean, stabilising weather, disposing of wastes, recycling nutrients, creating soils, controlling diseases, and pollination.
- Material and economic benefits to people: biodiversity contributes to agriculture, fisheries, medicines, industry, and so on.
- Maintaining evolutionary processes: biodiversity is the raw material of further evolution. If the genetic resource base is drastically reduced, the result is likely to be a depletion of evolution's capacities for specialisation and adaptation persisting far into the future.

The major policy issues are the means by which the values for each of these benefits of biodiversity conservation are derived, and who realises these values.

Different stakeholders assign different values. For example, the preservation of the forest may lead to an increase in the population of wild boar, monkeys, and elephants that may cause serious loss of standing crops. For example, Choden et al. (1996) report that wild boar in Bhutan (benefiting from enhanced forest growth in some protected areas) accounted for a third of the total crop loss from wild animals. The value of the preservation of a rare butterfly probably cannot be arrived at by anyone — scientist or local farmer. However, it is likely that the latter will not be nearly so interested in its preservation as some biologists. Farmers in Kullu and Mandi Districts of Himachal Pradesh are reported to have put the value of biodiversity in terms of use values, and this include 'dense forest with grasses, quality broadleaved forests, availability of leaf litter, mushrooms and medicinal plants' (Pelink 1998). While there may be a rational and scientific attempt to arrive at such values, the choice of what values and whose values is a matter of subjective choice and this usually takes place at the project planning stage in the offices of foreign or international institutions.

The ways in which different stakeholders may have an interest in an area due for protection can be summarised in a table (Table 6.1) in which the major stakeholders have interests in various aspects of the park, means by

Table 6.1: Interest groups and stakeholders in protected areas		
Group	Interests/Aims	Means
Local people	Livelihood maintenance: use protected areas for subsistence needs; minor trading of products; thatch, fodder, building materials, fuel, wild foods, plant medicines; hunting and fishing	Subsistence farming, minor marketing; legal and illegal extraction of resources from protected areas
Migrant farmers	Livelihood maintenance: use protected areas for subsistence needs; thatch, fodder, fuel, building materials	Cash farming plus subsistence; legal and illegal extraction of products from protected areas
Local entrepreneurs	Profit: commercial; range of small enterprises tourist and non-tourist based	Small business enterprises, buying and selling to tourists
Tourist concessions	Profit: commercial; expansion; some revenue may be earned overseas; control tourists staying in protected areas overnight	Tourism revenues; concessions from government
Government conservation agencies	Conserving wildlife and facilitating tourist development	Enforcing park boundaries; imposing fines
Conservation pressure groups	Conserving biodiversity but with consideration for livelihoods	Lobbying, publicity
International conservation groups	Conserving biodiversity; limited interests in human welfare	International legislation, lobbying
Source: Adapted from Brown (1998)		

which to represent and promote them and different sources of power. The final column shows the outcomes for each stakeholder group. In the Hindu Kush–Himalayan region, the stakeholders are usually drawn from the following groups: farmers and pastoralists as an undifferentiated category; under-represented and marginalised groups within this category (women, landless, the lower castes, artisan groups with special access requirements, and so on); government departments; political leaders at the national and local level; donor agencies; and international scientists and institutions.

It is important in the planning and evaluation of such projects to be able to provide both a stakeholder and political economy analysis. The original method of identifying stakeholders, their interests and aims, their position in political economy, their sources of power, and the means by which they reach their aims was developed for a national park and a wildlife policy in Zambia (Abel and Blaikie 1986). It has since been adapted to the analysis of the management and implementation of the Chitwan National Park, Nepal, by Brown (1998).

The major implications of a political analysis of the social relations between stakeholders in any national park or biodiversity conservation project are as follow.

- There are different actors who relate in different ways to the resources in question.
- They therefore define biodiversity or amenity in different ways and at different levels or geographical scales.
- They bring to bear on these definitions their culture, their material circumstances, and their experiences of biodiversity.
- They engage in the issue often in contradictory ways, expressed in struggles over the meaning and control of biodiversity between themselves and with outside parties. Diverse activities such as poaching, evictions, commercial negotiations, and academic arguments at international workshops are examples of these struggles.

In this policy area then, multiple meanings of 'degradation' assume central importance in the policy debate.

Management of Parks and Reserves

It will be clear that national parks and biodiversity conservation are perhaps the most controversial environmental policy issue of all and the claim-making approach to policy, as described in Chapter 2, is particularly useful here. Firstly, the high degree of contradictory perceptions and interests of

different stakeholders suggests that a negotiated policy process is absolutely essential. This process is, therefore, highly demanding of technical, political, and social skills on the part of project staff and local people. Secondly, the value of conservation of landscape or biodiversity should, whenever possible, be identified and realised locally. This is often difficult, and, in this sense, community forestry programmes usually have much less of a problem because there are tangible benefits for subsistence or sale (although, even here, these values accrue to certain groups and less to others, such as women and more marginalised people in the local political economy). In circumstances where the project cannot raise revenue from conservation directly (e.g., from eco-tourism, trekking, hunting permits, and so on), the global value to humankind in the future of preserving a particular species cannot be realised in a way to benefit local people either. Therefore, any costs borne by local people as a result of conservation should be compensated for by international stakeholders. The word 'should' appears here, as it does in virtually all policy documents. The actualisation of the principle of compensation, however, is the most challenging of all. Thirdly, the distributional aspects of this type of conservation are particularly complex and difficult to realise in an equitable and transparent way. With these particular characteristics of policy in mind, we now turn to the trends of biodiversity loss and to the policy instruments that have been used by different countries in the region.

Trends in Biodiversity and in Landscape Amenity of the Hindu Kush–Himalayan Region

The Hindu Kush–Himalayan region is particularly rich in diversity of fauna and flora, most of which exists in forests. However, there are important biodiverse resources in agriculture too; there are several landraces in the region in which important genetic material occurs. Most of the habitats that have high species diversity and endemism have been degrading throughout the region for a long time. There are several reasons for this. Firstly, there is conversion of forest land to other uses that have a lower biodiversity, usually agriculture (see also the 'environmental crisis' debate in Chapter 2). Secondly, there is the reduction of forest through shifting agriculture, with a concomitant reduction of plant species' diversity. Thirdly, there is harvesting or hunting of specific biota often within the forest that threaten many species with extinction through non-sustainable rates of use. Fourthly, there has been widespread replacements of natural forest with mono-species plantations (for example, teak (*Tectona grandis*), in northeast India, and rubber plantations in the Chittagong Hill Tracts, Bangladesh) over quite a long period. Fifthly, the commercialisation of natural resources in the region has been slow, locally uneven, but inexorable. The general direction of trend is almost universally downwards.

Below are listed some summary statements of bioresources and their changes through time for a selection of the study sites of this project.

Arunachal Pradesh, India

Northeast India falls in biogeographic Zone 4, which is the transition zone between the Indian, Indo-Malayan, Indo-Chinese biogeographic zones. It also is the meeting point of the greater Indian peninsula with the Himalayan mountains. This region, therefore, acts as a gateway for plant migration. The diversity is highest at the community level, species' level, and in endemism. Mention may be made of diversity of bamboo, orchids, marshy vegetation, savannah, sub-alpine vegetation, rhododendrons, medicinal plants, primitive flowering and non-flowering plants, botanical curios such as hot-house plants for international markets, 'snow-ball' plants, 'cushion-forming' plants, saprophytes, and insectivores such as the pitcher plant, *Drosera*, and root parasites of the family of *Rafflesiaceae*. The faunal diversity of the region as a whole in terms of moths and butterflies, insects, molluscs, avifauna, and microflora is also immense.

Arunachal Pradesh is particularly rich in faunal diversity. About 20% of the wild animals of India are found in the state. Notable among them are Asian elephant, royal Bengal tiger, leopard, clouded leopard, snow leopard, leopard cat, 'sambar', barking deer, musk deer, Hoolock gibbon, slow 'loris', stump-tailed macaque, 'goral', 'takin', 'serow', hispid hare, red panda, civets, and the Himalayan black bear. Some of the animals mentioned above, and several others are endemic and are endangered animals at various stages of criticality. The pigmy hog now appears to be extinct in the state, and the snow leopard is confined to a small patch of habitat in the higher reaches of the mountain ranges. Among the birds, the giant heron, Tibetan blood pheasant and crimson horned tragopan are some of the species that are endangered and vulnerable. There are also the ghariyal, Indian tent turtle, Indian flap-shelled turtle among the amphibia that are endangered. While the state has the best preserved forest in the northeast, and, therefore, provides the best environment for biodiverse flora and fauna, many of the species are hunted unsustainably.

Chittagong Hill Tracts, Bangladesh

The Chittagong Hill Tracts was in the past rich in wildlife, but indiscriminate shooting and poaching, large-scale trapping, and, above all, the invasion and destruction of their natural habitats by humans in the recent past mean that most wildlife have either been destroyed or driven away from the area. However, from local information and existing records, the elephant, the most common and most valued wildlife in this region, still lives in the area. However, after submersion of the southernmost part of the Kassalong

reserve, they have taken refuge in the north. Sambar barking deer, wild pigs, wild dog, jackal, goat, antelopes, monkeys of different species, hares, squirrels, mongoose, wild cat, porcupines, civet cat, leopard, tiger and so on, are few of the long list of wild animals in the Chittagong Hill Tracts. In addition to these a large variety of snakes, lizards and other reptiles are also very common although many species are endangered since the local tribal people hunt them for food. The list of wild birds includes pigeons, doves, jungle fowl, partridge, chat robin, swallow, bee-eater, hoopoe, teals, quails, wild ducks, and so on.

In the past, there were considerable numbers of wild elephants in this region and in order to keep down the population regular 'khedda' operations were conducted almost every year. Since the formation of Kaptai Lake, large numbers of elephants has either migrated to the adjoining Lushai Hills in Assam or Myanmar or have taken refuge in the deep forests. The population has been reduced to a considerable extent. The condition became so alarming that, by the early 1960s, certain areas in the remaining part of the south Kassalong reserves were set aside for wildlife conservation. Adoption of such preservation measures was considered necessary not only for the sake of the present generations, but also for the appreciation of future generation. Nonetheless, these judgements, however well founded on global criteria, obviously have local repercussions on local livelihoods — particularly in view of the marginalised condition of the local human populations.

Yunnan, China

Yunnan has a particularly high degree of diversity and endemism (Editorial Committee of The New Survey of Yunnan Province 1996). There are 105 forest categories and more than 4,000 species of xylophyta, 800 species of tree of which 59 species belong to protected tree species at the national level. In addition, there are 200 species of bamboo. Also, Yunnan is famous for the title of the 'Plants Realm' that includes 274 families and 2,076 genus, 63% of China's total. Most noteworthy are Chinese herbal medicines, which amount to 2,000 species of which 1,250 are currently used. Spice plants include 69 families, about 400 species. Ornamental plants amount to more than 2,100 species. In addition, Yunnan has 1,737 categories of vertebrate, fifty-nine per cent of China's total. There are 793 species of birds, 143 species of reptile, 120 species of amphibian, and 366 species of freshwater fish. Among them are there 46 species that belong to national-level protected wildlife, and 154 species to second level.

Northwest India

India has 7,000 endemic floral species of which about 3,000 are found in the Himalayan regions and Khasi Hills. The Himalayas has contributed species

of the genera of *Pyrus*, *Prunus*, *Sorbus*, *Rukus*, *Ribes*, *Hordeum*, *Elymus*, *Eremopyrum*, *Avena*, *Allium*, *Lepidium*, *Corum*, *Linum*, *Cicer*, and *Cucumis*. Khoshoo (1993) also says that the 'Himalayan region has been the source of several species of cereals, pulses, fruits, oil-yielding plants, spices, tuberous vegetables and sugar-yielding plants, and their wild relatives'. Added to this is a whole range of medicinal and aromatic plants. Faulty policies in the past concerning land, agriculture, and forestry, grazing, animal husbandry, fishing, wildlife and tourism have all resulted in habitat loss leading in turn to a loss of biodiversity. In plant life in northwest India, many adverse changes can be noticed. Firstly, the range of diversity has narrowed. Sixty-five species of ferns alone are threatened and common species have become rarer and some have been extirpated from specific areas (Bir 1993). Gaur et al. (1993), in recent years, carried out an extensive survey in the Garhwal Himalayas and listed 32 plant species of vulnerable nature that had not been noticed to be so earlier. Some of the threatened species include *Aconitum deinorrhizum*, *Artemesia amygdalina*, *Atropa acumina*, *Colchium leuteum*, *Dianthus coschemricum*, *Dioscorea deltoida*, *Gentiana kurroo*, *Nardostachys grandiflora*, *Saussuria* spp., and so on. Around 98 such Himalayan endangered species have been listed (Trivedi and Sudarshan 1994). Many plants have suffered over-extraction, e.g., *Rauvolfia*, *Dioscorca*, *Podophylum*, *Saussurea*, *Nardostachys*, and so on. Secondly, the recession process had brought forth substantial floristic modifications sometimes changing the whole composition of the forest type. A classical example that readily comes to mind here is the conversion of banj (*Quercus incana*) forest into Chir pine (*Pinus roxiburghii*) forest in which a multi-use species (used as fuel, fodder, fertiliser, and for water retention) was, over time, supplanted by a coloniser (Chir pine).

This area has rich floral endemism. In the region, 125 plant species have wild relatives of crops, such as cereals, and might have uses in future. The floristic variation is enormous. The region is a storehouse of a large array of diversity in fodder, vegetables, fruit and medicinal plants growing in valleys, on hill terraces, and on mountain tops, mostly under rainfed conditions (Arora 1993)

Bhutan

'Located in the eastern Himalayas, Bhutan is one of the ecological wonders of the world' claims the Eighth Five-Year Plan (GoB:56). The country straddles two biogeographical realms: the Palearctic realm of the temperate Euro-Asia and the Indo-Malayan realm of the Indian subcontinent. The result is a country rich in biodiversity, with its natural forests still largely intact. The biomes of Bhutan stretch from the subtropical in the south (100 m) through temperate in the central interior to an alpine zone in the north (7,550m).

Animals, such as tiger, elephant, one-horned rhinoceros, Asiatic water buffalo, pygmy hog, and the rare golden langur exist in the lush tropical forests of the south, while the snow leopard, blue sheep and taking are found in the cool forests and alpine meadows of the north. There are over 165 species of mammals and more than 770 species of birds identified so far.

Policy Instruments Laws, Rules and Conventions

Bhutan

The Forestry Services' Division of the Ministry of Agriculture is the lead agency for biodiversity conservation and sustainable management of protected areas and protection of wildlife. In particular, the Nature Conservation Section of this division is entrusted with the responsibility of formulating, implementing, and monitoring biodiversity programmes. The Planning and Policy Division of the Ministry of Agriculture assists the division to identify, review, and recommend policy revisions. At the national level, the National Environment Commission is the overall coordinating agency for national environmental issues. The National Environmental Strategy is the basis for future planning and management of wildlife.

Bhutan Trust Fund for Environment Conservation was one of the major sources of funding for implementing conservation programmes during the Seventh Five-Year Plan. It contributed to the development of human resources, increased park infrastructure, and supported a pilot project on integrated conservation and development programme. It will continue to fund conservation programmes not covered by other donors.

The Royal Society for Protection of Nature is the only non-governmental organisation in the country that deals with conservation of nature. The organisation focuses its effort on creating conservation awareness. This is achieved mainly through schools and training institutes. Its programmes are developed in close cooperation with the Forestry Services' Division and other organisations.

Bhutan is party to the Convention on Biological Diversity. Policy and act revision is an obligation of being a signatory to the convention.

In the past, the protected area system was fully controlled by the government and managed purely on the principle of conserving biodiversity. Local people were not involved in the decision-making process. This was because human activities, particularly agricultural activities, were limited in protected areas. Change in the role of forests and the need to involve affected communities mean that the participation of local people

and the concept of integrated development are key to current protected area management. The first step in involving the people in policy and legislation was initiated with adoption of the Forest and Nature Conservation Act in 1995. Its central focus is that the needs and rights of communities living inside or adjacent to protected areas are now considered as important as the conservation of the biodiversity itself.

Shortage of skilled staff has always been a constraint. This shortage is mainly because of the low intake of graduates as a result of a general shortage of qualified graduates in the country; the large number of projects; the limited staff of the Nature Conservation Section; and the need to send existing staff for further training. There are 12 professional and support staff at the Nature Conservation Section headquarters against a total requirement of 37. This staff has a large number of projects and other assignments to implement. For example, the Black Mountain National Park Project has only 11 staff against a long-term requirement of 50.

Other institutional aspects affecting nature conservation are lack of information and databases, inadequate mechanism for enforcing protected area policy, rules and regulations, and lack of infrastructure and equipment to implement management plans.

The forest policy of 1991 gives priority to conservation of biodiversity and the environment; and it places revenue generation in a secondary position. While this is the overall policy, the main objectives are

- biodiversity issues should be integrated into economic development plans and programmes
- provision of support to parks and protected areas, and
- development of information on biological diversity for conservation and sustainable utilisation of biodiversity resources.

The government develops management plans through a participatory process. Development activities are introduced in the wildlife area in accordance with these management plans and implemented with the participation of local communities. While preparing these plans, sustainable alternatives to compensate inhabitants deprived of economic opportunities resulting from limited access to protected sections of the wildlife area are identified for implementation.

The government is continuously considering its policy on wildlife. Areas of concern for policy analysis are identified and debated. Some current areas of concern are highlighted here. The protected areas or national parks' policy

needs to be reassessed because agricultural land is limited, and because of crop damage by wildlife. In view of the need for increased food production, the government has to make the best use of the limited land resources. Some land most suitable for agriculture is in protected areas. The problem of crop damage as a result of the increased wildlife population has been consistently reported throughout the country.

According to the National Environment Strategy, hydropower is one of the main avenues for sustainable development. In the light of this, the protection of wildlife through better planning and management of protected areas is a continuous concern.

Biophysical problems in biodiversity conservation are overgrazing, fire, collection of medicinal plants, and poisoning of predators in alpine areas; shifting cultivation, forest fire, clearing of forests for orchard development, and logging in the temperate zone; and poaching, mining, and encroachment in the subtropical zone. The extent and intensity of these problems are increasing because of increased pressure on limited land resources. With rapid population growth, these problems will become significant in the future. Therefore, they are concerns that permanently demand the attention of the government.

The Forest and Nature Conservation Act 1995 is the main document that provides the legal framework for the conservation and management of protected areas and wildlife. Its salient features as follow.

- Any area may be declared a protected area for the preservation of natural beauty, protection of biological diversity, and management of wildlife.
- Each protected area should be managed by a plan approved by the head of the Forestry Services' Division.
- The head of the Forestry Services' Division is empowered to issue rules to regulate or prohibit any activity within a protected area.
- All wild animals listed in Schedule 1 are totally protected: they are not to be killed, injured, destroyed, captured or collected.
- The Ministry of Agriculture is allowed to issue special permits for taking or exporting of any animal or plant listed in Schedule 1 for purposes approved by the Ministry of Agriculture.
- The Ministry of Agriculture can allow a person to keep any animal or plant that is listed in Schedule 1.
- Appropriate punishment will be awarded to offenders.

The Biodiversity Action Plan for Bhutan (MoA 1998) is the other legal document for the protection and conservation of wildlife. The government

developed the Biodiversity Action Plan since Bhutan is a signatory to the Convention on Biological Diversity.

The Ministry of Agriculture instituted a core working group to coordinate the preparation, formulation, and finalisation of Biodiversity Action Plan. The group was assisted by members from the Ministry of Planning, the National Environment Commission, National Institute of Traditional Medicines, WWF, the Royal Society for Protection of Nature, the Ministry of Trade and Industry, Bhutan Tourism Authority, Bhutan Chamber of Commerce and Industries, Ministry of Health and Education, Ministry of Finance, UNDP, and senior staff of the Ministry of Agriculture. Representatives of the people were also members. Thus the Biodiversity Action Plan is a product of a multidisciplinary team. Several national workshops, regional workshops, and other brainstorming sessions to consult, discuss, review, and analyse and coordinate its development were conducted. An extensive field visit was made to collect information. Relevant organisations were given the opportunity to comment on the draft. The draft was finalised with comments from a final workshop and submitted to the Ministry of Agriculture for approval. The government considers this document as part of an ongoing process. There will be revisions as conditions change since ecosystems are dynamic.

The Biodiversity Action Plan proposes a number of objectives and recommendations leading to the conservation and sustainable use of biodiversity. Its focus is mainly on the following.

- Improvement of the information base on biodiversity
- Use of this information to strengthen the protected areas system
- Involvement of local communities in managing protected areas
- Continuous monitoring of development in protected areas
- Support for development of the national capability to ensure the productivity, diversity, and integrity of biodiversity and natural systems.

The government implements various conservation programmes. The number and nature of these programmes are increasing with improved management functions. The following are some of the major programmes; some are at an advanced stage of implementation while others are in the pipeline.

- The Royal Manas National Park management plan

This WWF-assisted plan started in 1996 and is for three years. It aims to improve management of the park through the following five components.

- Demarcation of boundaries for effective patrolling and enforcement of park regulations
- Conservation research on species such as golden langur, hornbill, and tiger
- Extension and publicity services for developing a visitor information centre, organising students and teachers' excursions, developing extension materials, and conducting conservation awareness meetings
- Strengthening of park management facilities
- Enhancement of capacity-building by providing training in park management
- Institutional support and species' conservation programme

This three-year WWF-assisted programme started in 1996 and aims to assist the Ministry of Agriculture in developing a capacity for park management. It includes the following main components.

- Construction and operationalisation of the Nature Study Centre at Kebithang
- Preparation of a plan for Phibsso Wildlife Reserve
- Preparation of a tiger distribution map and a tiger monitoring system
- Assistance to anti-poaching programme
- Support for database management using GIS technology
- Integrated management of Jigme Dorji national park

This co-financed project by the Global Environment Facility, UNDP and the government will strengthen the integrated management of Jigme Dorji National Park. The project will focus on the implementation of selected activities through the promotion of sustainable livelihoods and development of alternative approaches that help to conserve and sustainably use the park's biodiversity.

- Management of Bomdiling wildlife sanctuary

This Danida-supported five-year project is to support the management of Bomdiling Wildlife Sanctuary. An operational plan has been prepared and will be implemented over the next four years. The park office has been opened, and the park manager and other staff posted.

Conservation activities under other programmes. Besides these programmes, many conservation activities are built into other forestry-

related programmes that are supported by other organisations such as the Bhutan Trust Fund for Environment Conservation and bilateral donors. These conservation activities include protection of endangered species of flora and fauna outside protected areas; reforestation and afforestation; and preparation of environmental conservation guidelines.

The protected area management system is at an initial stage. It is, therefore, too early for the policy to have any tangible impacts. However, there are three obvious general points associated with the current programme. Firstly, the declaration and demarcation of nine protected areas is an achievement. For a small and mountainous country, like Bhutan, maintaining 26.5% of the total area of the country under protected area indicates an undisputed commitment to conservation of the environment. Secondly, this protected area system is the habitat of endangered flora and fauna. In fact, this protected area has been called a 'biodiversity supermarket'; this has national prestige and global significance. Thirdly, crop damage by wildlife is a recurring problem in the farming community. Beyond a certain level of damage, agriculture will not be sustainable. This problem contradicts the food self-sufficiency policy. No compensation programme or any other remedial measures have been instituted as yet.

In future, impacts of the wildlife programme should be considered along with the following central concerns of the government.

- The local community should not fall prey to adverse impacts of policy. Wildlife should not pose any serious problem to the community living inside or adjacent to protected areas.
- There should not be conflicting land uses. The overall national land allocation should consider the growth rate of human population and the need for additional agricultural land.
- Protected area management should be a commercial venture; the aim is that protected areas should be self-financing from revenue generated from their activities and products. Currently, external donors finance protected area management plans.

India

Management of biodiversity is based on international, national, and state policies, statutes, regulations, executive orders, treaties, conventions, and other international agreements. In India, the history of such laws goes back to the nineteenth century. The 'Wild Birds and Animals Protection Act' was brought into effect in 1887 but repealed in 1912. The 'Forest Act 1927' provided for game protection. The Indian Board of Wildlife was established

in 1952. In 1972, a specific 'Wild Life Protection Act' was promulgated that regulated and controlled possession, trapping, or shooting of wild animals and their transport for export. Threatened species are absolutely protected and the rest offered graded protection. The 1972 law was amended in 1991 to improve conservation practices. A total ban on the hunting of all wild animals was imposed. Search and arrest powers were given to wildlife officials and punishments for infractions of law enhanced. Wild plants were brought within the definitional purview of wildlife. The Central Government has made it obligatory for state governments to give representation to tribals on the State Wildlife Advisory Boards to ensure that their interests are taken into account. Even a private individual can now file a complaint in a court of law in case of any infraction of the amended wildlife law. Honorary wildlife wardens are required to be appointed in all districts. The message of the law is that effective wildlife protection needs public involvement, public acceptance, and public participation.

Wildlife protection has concerned the international community since the late 1940s. In 1979, India began preliminary work. After the Minsk Conference on Biospheres in 1983, an action plan was drawn up and 13 potential biosphere reserves were identified. Three biosphere reserves were set up in the Himalayan region, of which one, at Nanda Devi, is located in the northwest Himalayan region of India. In 1973, India became a signatory to the Convention of International Trade in Endangered Species of Wild Fauna and Flora. In the course of time, the Botanical Survey of India set up Germ Plasm and Gene Sanctuaries. A National Bureau of Plant Genetic Resources was established under the Indian Council of Agricultural Research with a network of 10 centres, three of which are located in the northwest Himalayan region of India. There is also the National Facility of Plant Tissue Culture Repository. At both these facilities, the number of seed and tissue samples exceeds 150,000.

India, therefore, has well-developed policies in the area. The problem arises in assessing the real impact of these policies upon the environment and local people's livelihoods. The policies are extensive and many formal organisations are in place, but at present it is not possible to explore the impact of these policies on the ground.

Nepal

Nepal's wildlife policy aims to conserve forest ecosystems, wildlife habitats, and genetic resources through the establishment of national parks, wildlife reserves, gene banks, zoos, and botanical gardens (MPFS 1988). Policy claims that the country has taken up her share in preserving representative Himalayan ecosystems, but it also recognises that, in the process of

establishment of protected areas, the local people have lost their traditional sources of forest produce. This loss is supposed to be compensated by developing alternative sources.

There are many programme components mentioned in the Master Plan for the Forestry Sector 1988. These are as follow.

- Development of infrastructure that blends with the nature and character of the protected area
- Building good relationships with people living adjacent to protected areas through conservation education; developing alternative sources of forest products; better habitat management; paying greater attention to population dynamics; better management of visitor use and tourism; and ensuring the protection of natural and cultural values

To support these thrusts, policy documents state that legislation concerning protected areas and genetic resources will be improved; the Department of National Parks and Wildlife Conservation's management capacity will be strengthened; training and logistical support to field staff will be increased; resource surveys and studies will be conducted; and management plans will be formulated to account for the needs of people in adjacent areas, the proper handling of visitor use, and the preservation of natural and cultural values. The intention, in principle, is clear. There is growing evidence of the erosion of biodiversity in Nepal. Currently, 26 mammals, nine birds, and three reptiles have been legally classified as endangered. It is estimated that 10 species of highly valuable timber, six species of fibre, six species of edible fruit trees, four species of traditional medicinal herbs, and some 50 species of little known trees and shrubs might be lost for ever. In addition, the habitat for 200 species of birds, 40 species of mammals, and 20 species of reptiles and amphibians might be severely affected (MPFS 1988).

The government's main efforts in biodiversity conservation have involved an extensive network of national parks and protected areas developed over the past two decades, covering 2,105,100 ha, almost 14% of Nepal's total land area. The protected area network includes eight National Parks, four Wildlife Reserves, three Conservation Areas, one Strict Nature Reserve and one Hunting Reserve.

The government's policies on biodiversity conservation include improvement in the relationship between the local communities and park management, demarcation of the core areas inside parks for strict conservation and buffer areas for sustainable resource management, promotion of tourism in conformity with resource conservation and environmental protection, and involvement of the local bodies and private organisations in the preservation and maintenance of natural and cultural heritage resources.

In order to implement the policy, the government has developed a legal framework and the following are the legislations related to protected areas.

- The National Parks and Wildlife Conservation Act 2029 (1973), amendment in 1983
- National Parks and Wildlife Conservation Regulations, 2030 (1974), amendment in 2035 (1979), in 2042 (1986), in 1995 (Buffer Zone Management Rules 1995)
- The Wildlife Reserve Regulations 2034 (1978), amendment in 2042 (1986)
- Forest Rules 2051 (1995)

At least in theory, the government has realised that long-term management of protected areas depends on the cooperation and support of local people and ensuring the economic development of the local communities. The habitation areas surrounding the national parks have been classified as buffer zones and a necessary amendment in the National Parks and Wildlife Conservation Act 1973 has been made in National Parks and Wildlife Regulations 1995 for sharing the revenues of a national park with the local communities living within the buffer zone.

Apart from the national policies related to protected areas, Nepal as a state is a signatory and member of a number of international conventions and organisations related to wildlife and environmental conservation (Box 1).

BOX 1 **International Conventions to which Nepal is a Party**

- Plant Protection Agreement for the Asia and Pacific Region, State Party in 1965
- UNESCO Man and Biosphere Programme (MAB), State Member in 1974
- IUCN - The World Conservation Union, State Member in 1974
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), State Party in 1975
- World Heritage Convention, State Party in 1978
- World Conservation Strategy, Contributor, 1981
- International Centre for Integrated Mountain Development (ICIMOD), State Member in 1983
- International Tropical Timber Agreement, State Party in 1983
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention), State Party in 1987
- Convention on Biological Diversity, (ratified in 1993) Signatory in 1992
- WWF Nepal Programme, Signatory in 1993
- South Asian Cooperative Environmental Programme, State Member in 1994
- Framework Convention on Climate Change, Signatory in 1994

Source: DNPWC (1998)

The National Park and Wildlife Conservation Act 1973 provides for five categories of protected area to help achieve the conservation of ecosystems and genetic resources. As defined in the act, these are as follow.

- National Park: an area set aside for conservation, management, and utilisation of flora and fauna together with the natural environment
There are eight national parks in the country.
- Wildlife Reserve: an area set aside for the conservation of animal and bird resources and their habitat
There are four wildlife reserves.
- Conservation Area: an area managed for the sustainable development of human and natural resources
There are three conservation areas.
- Strict Nature Reserve: an area of ecological significance set aside for scientific study
Makalu Barun is the only protected area in Nepal in this category.
- Hunting Reserve: an area set aside for the management of animal and bird resources for hunting purpose.
There is one hunting reserve.

The Northern Areas and North West Frontier Province, Pakistan

Wildlife conservation is still a relatively neglected feature in the North West Frontier Province although the mountainous region is home to rare species such as the western tragopan, the 'markhor' and the Himalayan musk deer. The province has two national parks, five wildlife sanctuaries, and twenty-seven game reserves, but its wildlife population is believed to be under grave threat from deforestation and overgrazing.

The Himalayan moist temperate forest is considered one of the four most seriously threatened ecosystems in Pakistan. Much of this forest is found in Kohistan district. Here, the stretch in the Palas Valley is considered among the most pristine in the country and houses the tragopan, one of the most endangered species of pheasant in the world. The pheasant species was first discovered in 1989 by a team from the International Council for Bird Preservation. Subsequently, NGOs, such as the Himalayan Jungle Project, have been active in the area and consolidated their activities by providing much needed assistance to local populations during widespread floods in 1992. The Palas Valley forest was scheduled for harvesting in 1993, but the combined efforts of national and international NGOs, who effectively lobbied the Forest Department, succeeded in preventing it.

The main policy-making body for wildlife is the National Council for Conservation of Wildlife, a federal government agency that also has primary responsibility for reviewing wildlife legislation. The National Council for Conservation of Wildlife has no executive authority, however, and cannot implement projects. In the Northern Areas, wildlife issues are handled by the Forest Department and consequently end up being secondary to the forestry sector. The recent reorganisation of the Forest Department, and its redesignation as the Department of Forests, Parks and Wildlife was intended to highlight the department's role in the conservation of biodiversity and wildlife protection in addition to forestry. Wildlife issues are now handled by a Divisional Forest Officer and a Director of Wildlife. However, the management of the Khunjerab National Park is handled by a separate wing within the department which is headed by a Conservator.

Case Study of Khunjerab National Park, Pakistan

The conflict over Khunjerab National Park is an example of how wildlife legislation, policy, and management can go seriously wrong when the approach adopted for implementation is arbitrary and autocratic. The Khunjerab National Park, which was created in 1975, covers an area of 2,270 sq.km and extends over three valleys — including Khunjerab, Ghujerab, and Shimshal. The region formed the northern reaches of the state of Hunza, and since the early nineteenth century it has been the prime grazing grounds and summer pastures used by the people of Hunza and Gojal and the 'Mir' of Hunza.

The Mir of Hunza devised an elaborate system of grazing rights and regulations. Grazing was divided amongst various villages which were allowed to use the lands after payment of a tax. When the state of Hunza was abolished, people responded by establishing claims over wastelands and pasturelands that had previously belonged to the Mir, thus seizing the opportunity to continue grazing livestock without payment of taxes. The government failed to hold a dialogue with the people, depending instead upon the arbitrary proclamation that all wastelands and rangelands that had belonged to the Mir now belonged to the State of Pakistan. In the ensuing confusion, the government made the further announcement regarding the establishment of the Khunjerab National Park.

The park was created primarily to provide protection to the Marco Polo sheep, which was abundant in the area (a census conducted in the early 1970s put the population at 500 head). However, the boundaries of the park were delineated in an arbitrary fashion, and detailed surveys of wildlife habitats were lacking. To this day, there is evidence that important habitats of the Marco Polo sheep remain outside the park, whereas areas with

relatively low wildlife populations are considered integral components (Ahmed 1993). While most of the park remained without a management plan and inhabitants of surrounding villages remained ignorant of the boundaries, a core zone of 30 sq.km was defined and was closed for grazing with immediate effect. No alternative grazing lands were identified nor was compensation made.

The effects of this declaration were instantaneous; the people of Shimshal launched an agitation against the park authorities and refused to let wildlife authorities enter the area. By 1989-90, communities had organised themselves to the extent that the people of Khunjerab challenged the establishment of the park in court and demanded compensation for the loss of their grazing rights. In August 1990, graziers leading herds of up to 10,000 animals invaded the core zone as a protest. The incident served to highlight the necessity of formulating a management plan that would take into account the needs of communities. Wildlife authorities invited WWF to send in consultants to do so. The plan was completed in 1993 but has yet to be accorded final approval. It includes proposals specifying organisational set up and laying out modalities of a proposed plan to phase out grazing gradually after providing people with alternative means of livelihood.

The management of the Khunjerab National Park is a glaring example of a policy failure that was precipitated by government's inability to recognise traditional resource-use systems prevalent in an area. The old, more personalised system of government was replaced with one in which authority came from distant institutions that did not fully understand the society that they were meant to administer. The management plan acknowledges that the population of endangered species, particularly the Marco Polo sheep, has actually declined since the park was designated. Although reasons cited for this decline range from the construction of the Karakoram Highway to hunting on the Chinese side of the border, it is generally acknowledged that hunting and poaching may actually have increased after creation of the park as communities tried to render endangered species extinct in the hope that they would be left to continue with their old way of life (Ahmed 1993). The Khunjerab experience is now widely cited as an example of how an exclusionary conservation programme can actually serve to make protection of wildlife more difficult.

Case Study of the Annapurna Conservation Area Project (ACAP), Nepal

ACAP is an integrated conservation development project that attempts to link biodiversity conservation in protected areas with social and economic development in surrounding communities (over 40,000 mostly poor rural

farmers). The aim of the project is to protect and conserve nature and natural resources through integrated community and tourism management. It is being implemented by the King Mahendra Trust for Nature Conservation (KMTNC), a Nepali NGO established by act of parliament. It was finally set up after many years of internal disputes. International funding followed, and implementation soon after. Thorough consultation with local people was carried out, and it became clear that the original intention of the establishment of a national park would meet widespread local opposition. Thus the notion of a conservation area with multiple activities and income-earning opportunities was developed instead.

Over 30 thousand foreign trekkers visit this area each year, which has led to the development of hundreds of lodges and tea shops along the trails. Where tourism has become important to the local economy, it has also led to serious environmental problems. The forests have been cleared to provide fuelwood for cooking and heating for the visitors. Expanding agriculture, growing water pollution, poor sanitation, and increased litter on trekking routes are major environmental impacts resulting from the establishment of the conservation area.

The project claims to have made significant progress in motivating local populations to participate in natural resource management decisions in order to mitigate the adverse environmental impacts mentioned above (KMTNC 1997). A system of land-use zoning was established. Conservation and development committees (elected from local village development committees) were set up. These have considerable local powers, and it is significant that there is no overall master management plan. Locally made decisions are often initially unpopular with certain interests, but these are usually overcome because they are locally made and locally enforced. For example, it was decided that no fuel should be cut in the Chomrung area; this was opposed by the dozen or so lodges in the area that relied on fuelwood to cook meals for tourists. In the end, they complied and passed on the higher costs of importing kerosene to tourists and trekkers by charging higher costs for meals.

As Brandon and Wells (1992) report the project has been able to generate significant amounts of revenue from tourism. However, it has not been distributed evenly among the local communities. The principal beneficiaries have been the lodgers and tourism-related business entrepreneurs. There are also continuing environmental problems connected with increased volumes of trekkers. Nonetheless, in spite of formidable problems, the project must be judged a substantial success, as judged by many stakeholders, both locals, national, and international. The key factors here are adequate initial funding; political support at the highest level within Nepal; lengthy involvement of skilled local (at least, Nepalese, rather than

foreign) negotiators; listening to local views; being flexible in the design of the project; the ability to raise considerable revenues that accrue to the area; and trusting local people to shape the project to local needs and politics.

Costs and Benefits: National Parks, Wildlife and Biodiversity Projects

One of the fundamental policy problems is the realisation in practice of the value of conservation. The value of landscape amenity in terms of attraction to tourists and trekkers can usually be more easily realised than that of biodiversity. Therefore, it is easier to enlist the support of a number of stakeholders who would gain from the establishment of a conservation area, than in a national park or in a sanctuary or bioreserve. In the latter case too, most of any revenue will accrue to the state. In the case of multiple-use projects, a share of the revenue gained from entry fees and trekking permits, revenue accruing to transport contractors, hotel owners, and to a wide range of paid employment (porters, hotel staffs, guides, and so on) offers a number of opportunities for realising the benefits of the conservation or enhancement of landscape amenity. These opportunities are clearly attractive to the more entrepreneurial members in the project area. The Annapurna Conservation Area in Nepal is a case in point, and the project was a political success from a local point of view. The Khunjerab National Park in Pakistan illustrates the opposite, and the project was a political failure locally, and the conservation objectives were frustrated.

The problems of effectively realising the value of biodiversity or preserving a single endangered species are more serious. Eco-tourism is often invoked, but is not a feasible option for the vast majority of conservation projects in the Hindu Kush-Himalayan region. The reasons include inaccessibility, lack of infrastructure, underdeveloped marketing strategy, and intense competition from more accessible and better known eco-tourist destinations. Under certain circumstances it may be possible to raise income from the sale of endangered species, provided that they do not appear on the listings of international or national treaties.

However, it is much more difficult to realise the value of conservation of entire habitats or of animal species that have no consumptive and productive value for the local population. In these cases, the value is to humankind, in general, and the cost of conservation should be entirely borne by the international community and specifically donor-driven projects. The cost of national parks and other protected areas usually falls upon local farmers and pastoralists. There are usually exclusionary regulations that negatively affect livelihood opportunities. These comprise the closing of grazing areas to pastoralists at higher altitudes, and of the forest for the diverse range of forest products used

in subsistence (wood fuel, construction timber, fodder, thatching grass, and wild foods). In addition, there may be costs from incursions of wild animals into standing crops as already mentioned.

There are a number of general conclusions to be drawn from conservation projects in the region.

- There should be a clear definition of the groups who will benefit and/or bear the costs of the project. This can be a difficult and politically sensitive task. In cases in which a migratory bird or widely ranging animal is the object of conservation, there arises the issue of 'whose animal is it?'. In the case of the falcon conservation project in the Northern Areas of Pakistan, for example, the bird migrates over some thousands of miles, and it is only a temporary inhabitant of the project area. While most of the captures of the birds occurred in the project area, the cost and benefits of conservation are not wholly confined to the inhabitants of that area. In the case of the conservation of forest, the same issue arises in community forestry, whereby a number of different, spatially separated groups may claim customary rights to the same forest. The allocation of any cost or benefits as a result of closing the forest is therefore usually a contentious issue.
- There should be the prospect of clear benefits or compensation for costs incurred. The latter usually requires a more trusting attitude between local people and impersonal and distant institutions that may promise compensation at some future date. The history of compensation in such cases, especially from the state involved, is full of corruption, broken promises, incompetence, and delay — an experience bitterly learned by many local groups.
- The unusually wide range of stakeholders, complex issues of the identification of cost and benefits, who loses and who gains in the community, and difficult technical management issues all suggest that intensive negotiation with clearly defined stakeholder groups is necessary. In essence, the necessary formation of local groups involves the same principles as common-property, resource-management institutions. The object of conservation becomes the bioresources themselves. It becomes common because the costs and benefits are linked to a group. It becomes a property regime because there have to be sets of rules and day-to-day management practices, all of which are agreed upon by the group.
- The distributional aspect of benefits and costs within the group are also important — at least for (some of) the ideological agendas of international founders. The issue of gender and wealth/power is often a neglected aspect of project design that has led to resentment and conflict within both target groups (Eyazaguirre and Raymond 1995) and outside project personnel.

Nonetheless, political realism suggests that it will be the dominant political leaders at the local level, who have to be persuaded in the initial stages. These are usually, though not always, the more wealthy men of the area, and it takes skilful tactics to ensure that gender and general equity issues are addressed. These are sometimes done so formally (by including a mandatory number of women and other marginalised groups in local management committees), but are quietly flouted in practice.

- Unfortunately, there are many instances of partial or complete failure of projects of this kind. The creation of institutions that are both technically efficient in terms of conservation objectives, and that has successfully negotiated the interests and aims of the major stakeholders involves high transaction costs on the part of project staff and the local people, are unfortunately few. Success requires charismatic, committed, and skilled personnel from both outside and at the local level over a considerable period of time. These human resources are difficult to find and retain for sufficiently long periods. Usually the resources come from foreign aid donors, the policy instrument is the project and the agenda is driven by an international 'epistemic community' that has the commitment and can put a highly skilled team on the ground for a sufficiently long period. Therefore, doubts arise over the sustainability of the projects after the withdrawal of funds and personnel. Hopes of automatic renewal of funding often are not fulfilled, since the priorities of donors in this sector are volatile.
- Economic valuations of biodiversity and nature conservation are useful. However it is often difficult to realise these values and to pass (most of) them to local people who will then, being economically rational, have incentives to protect them. Eco-tourism and charges for scientists for study are often invoked, but seldom come to the rescue.

Finally, the gaps between intention and practice remain clouded in promotional write-ups of projects, optimistic projections, and formal, bureaucratic target chasing. It is simply difficult to provide an account based on evidence on the impact of policy in this area. Also, the contested nature of the objectives of conservation make it even more difficult to identify indicators of success that go beyond narrowly defined technical ones. This report has been able to include a few case studies and to rely on secondary material for others. The most tentative conclusion — and it is hardly a novel one — is that many projects do not live up to their expectations, while a few exceed them. Locally agreed criteria for monitoring and evaluation, locally negotiated baseline studies, and periodic participatory reviews would greatly assist both the success of projects and enable much more detailed lessons to be learned by future projects.

Land Tenure, Titling, and Property Rights



Sri Durga Sahaya

(salutation, under the protection of Durga, Goddess of destruction of evil)

Epithets and salutations to His Majesty Rana Bahadur Shah

Heretofore, the one rangan of paddy land of itanga was sold by Hindalai Boda of Tokhapu Ahu tol of Dhatnam village (old name for Bhaktapur). The said paddy land with the following boundaries — south of Dev Giri's paddy land, government paddy land in the west, paddy land of Thumchelal in the north, was bought at 24 sikha by Krishna Newar of Lasko tol. A registration fee of four annas of the said paddy land had been entered into government revenue. The paddy land right has become permanent. The seller's price has become permanent. You have for yourselves rights to this land, knowing it is a Sona Birta, paying annual rent at a par with twelve thousand. (continued) Sambat 1845 year, Chaitra [last week of March], date 15, day 6 [Friday]. Approximately 1788 AD.

A land sale document (Bhaktapur, Kathmandu valley, 1788 AD)

*We wish to thank Mrs Brigid Brown and the family of the late Raphael H. Brown
for allowing us to continue using this plate from his collection*

Chapter Seven

Land Tenure, Titling, and Property Rights

Introduction

Land tenure and property rights are central to any policy affecting land use. This is also a sector of historical and political significance in addition to the usual socioeconomic implications. Tenure and property rights are products of the interests of ruling classes and governance structure. Their nature is also often determined and influenced by political considerations of favouring certain groups of loyalists against the rest of the masses. Thus, historical continuity is an important element in defining and reinforcing the structure of property rights. The countries of the Hindu Kush–Himalayan region have gone through different forms of colonial encounter in modern times. India, Pakistan, and Bangladesh were part of the British colonial empire. Nepal and Bhutan were never brought under a colonial administration, and China had intermittent colonial influence (although limited to the eastern seaboard). The former set of countries and China were part of large, well-organised empires from the early and middle ages, resulting in established forms of tenure and land revenue administration. However, the mountain and hill areas of the region, despite their being part of nation states of the present and past, were often outside the direct influence of central authorities. This has meant tenurial and property rights of differing types compared to other areas of southern Asia. The relatively small fragmented fiefdoms and limited suzerainty of local chiefs and kingdoms meant fewer layers of sub-infeudation and somewhat decentralised land management after the share of the ruler had been ensured.

Land tenure, revenue policies, and property rights are intricately linked with land use and, thus, land management. This continuum obviously determines sustainability of resources (land) and future potentials of the resources. Additionally, the historical continuity and political considerations are equally important in understanding the impact of

property-related policies upon land resources over time to the present day. Land, as the most basic and primary resource, has always been the source of sustenance for people and income for military and other grandiose expenditures of the rulers. Since the Middle Ages, the mainstream south Asian society has developed elaborate sub-infeudation systems for management of land resources, along with land revenue collection rates and systems. Mountain areas of the region, historically, largely remained outside of these empires (primarily Indian and Chinese). However, local kings, chieftains, and warlords collected revenue from cultivated lands. The Nepali kings, prior to consolidation of the present-day nation, collected exorbitant amounts of revenue to pay for military conquests. The Mirs of Hunza and other Northern Areas in Pakistan not only controlled the best land but also levied heavy tax on irrigated land on the lower slopes. In the Uttar Pradesh hills of India, land titles and tenancy were once again a matter of princely wishes. The sovereign could give away the rights of a piece of land to anyone in return for services (primarily military), at the expense of an existing right. Indeed, throughout the Hindu Kush-Himalayan region, kings and chieftains used their existing land resources for currying political favour historically.

Changing Context of Tenure Regimes and Policies

Like any other issues and policy areas, policies related to tenurial and property-rights are not static and changes are often motivated by political considerations. Such changes influence land management and hold tremendous potential for impact upon land management that may subsequently lead to degradation. Thus, the change brought about the Chinese revolution in 1949 nationalised all land from political as well as religious authorities at one stroke and placed them at the disposal of communes in rural areas. Communes in turn allocated land among peasant households to cultivate crops according to plans and to meet state obligations. Peasants were never allowed ownership of the plots they cultivated nor were they provided with security of tenure. At the same time, tenure of other resources, such as water, forest, and grazing land, remained under the control and authority of the state. Subsequently, land tenure policies changed many times in China, particularly in the late 1970s, as communes gave way to collectives and private plots began to emerge as a new responsibility system was brought into place. Thus, in China, land tenure broke from past sub-infeudations doing away with layers of revenue collectors and ownership by households.

In Northern Pakistan and Indian Kashmir, previously the land of princely rulers, areas were brought under state control and redistributed among the people by the newly established sovereign countries of Pakistan and India

along the lines of individual holdings practised elsewhere in these countries. The Chittagong Hill Tracts became part of colonial British India by special arrangement of the British India Act of 1900 which allowed retention of special rights by the local kings and traditional authorities such as the Headman and 'Karbari'. The northeastern Himalayan states of India had a somewhat similar political history, and each maintained a degree of autonomy in land administration until the independence of India in 1947. Bhutan and Nepal, mainly remaining outside the colonial encounter, evolved their own land tenure and revenue administration systems. Smaller kingdoms and local chiefs retained control over cultivable land in these two, mostly mountainous, nations until their national unification. Land in Nepal was heavily taxed to provide for the militaristic campaigns of Nepali (Gorkha) kings. However, in both these countries, large tracts of land remained outside the control of central authorities as a result of difficult terrain and poor productivity of mountain land. With increasing population, much of this land is now being used for agro-pastoral activities.

In line with historical experience, rights over land resources evolved according to several patterns. Although, over the years, particularly in recent times, private rights over agricultural land have become the norm rather than the exception, non-agricultural land has largely remained under the control of the state with various classifications such as forest land, degraded or wasteland, rangeland/pastures, and so on. Historical differences in the evolution of land rights have contributed to land use and eventually to the land degradation process. The policies of the Chinese government during the Great Leap Forward, such as land collectivisation and state monopolistic control, contributed to unabated resource extraction. A phenomenon that is still evident in the Himalayan areas of southern China (Yunnan and Sichuan provinces).

Although it is not easy to attribute the differing evolution of tenurial conditions in the six study countries directly to land degradation processes, some indicative impacts are noticeable. Differing land tenure arrangements have contributed to different land management principles and practices. The guzara forests of northern Pakistan and community-managed forests and pastures in Nepal and India are usually in better condition than state-owned lands in the same countries. This is also true for family/group-managed land in China compared to state land that is indistinguishable in terms of its original land-use intent. State-controlled forests (reserve or unclassified) in the Chittagong Hill Tracts of Bangladesh and northeastern India have either been turned into plantations or degraded open access areas. Another interesting feature of land management in the eastern Himalayas has been the conflict arising out of traditional land-use practices based on customary rights over land. The tropical rain forest of the eastern

Himalayas has always been the home of shifting cultivators. In northeast India and the Chittagong Hill Tracts of Bangladesh, land surveys were never completed and the British land revenue system, based on private rights to settled land, was not in practice in this region. Furthermore, due to the special conditions of their annexation to British India and subsequently to independent India and Pakistan, customary rights of clan and kin group's control over a given parcel of land were recognised. Traditional land-use practices (predominantly jhum or slash-and-burn shifting cultivation) continued unregulated until the 1970s. Only recently has jhum been discouraged, regulated, and/or proscribed. This opens up a serious question about the rights of indigenous people who have never had land titles in the modern sense as recognised by the state but nonetheless have always enjoyed the use of land that remained under their control.

Landownership and Reform Measures

The Hindu Kush-Himalayan region, in general, presents a mosaic of systems of land tenure and property rights. The complexity is exacerbated by the designation of tribal lands (Bangladesh, northeast India, and the Northern Areas and North West Frontier Province of Pakistan) in areas where communal ownership is recognised and left alone, and other variants where private property is the norm for agricultural land and state property for forests and rangeland. The role of the state is considerably limited in areas where communal rights and revenue collection by local authorities are recognised. It is also limited where land laws and acts are relatively recent and less well defined. For instance, in Bhutan, the system of land tenure is governed by the Land Act and Forest and Natural Resources Conservation Act of 1995. This was the first attempt by the state to formalise property-related issues of land and other natural resources through a legal mechanism. Thus, in Bhutan, private rights are recognised on settled land and public rights on unsettled (forested, grazing) land, and a combination whereby private tseri land (slash-and-burn agricultural land) may pass to the public domain to be treated as protected reserve forest if left fallow for 12 years. Owner-farms dominate in Bhutan, although roughly one-third of the cultivated land is under some form of sharing arrangement. This is also true of Nepal, although the bulk of the share-cropping in terms of land (not households) is practised in the southern plains. In the hills and mountains, small parcels of private land are the norm for agriculture, although share cropping is also prevalent but in small parcels; community-managed forest, state-owned and managed forest, state-owned degraded land; and grazing land also exist.

State ownership of all unsettled and unsurveyed land is almost universally recognised. This is particularly relevant for mountain areas as considerable

portions of the Hindu Kush–Himalayan region are untitled, unsettled and unsurveyed. The Sixth Schedule of the Indian Constitution provides extraordinary powers to manage untitled land resources, and local governance is notable in northeast India. The Garos and Khasis of Meghalaya (the dominant ethnic groups) practise a matrilineal inheritance system. However, this system, not based on primogeniture, does not encourage land fragmentation, which is observed in most other parts of the Hindu Kush–Himalayan region, excepting China. The Pakistan government, based on the Land Revenue Act of 1967, recognises government control of forests and wastelands and private rights of settled land. In the Northern Areas, land settlement has been recorded only in Gilgit, Astor, and Baltistan subdivisions. The Chittagong Hill Tracts Regulation of 1900, promulgated by the British, provides power to local people and their representatives. Therefore, land has remained largely within the customary traditions in these parts of the eastern Himalayas.

At the other end of the spectrum, absolute control of the state over all land is the case in China. Immediately after the Chinese Revolution, land was nationalised in 1950, its transfer forbidden, and land tax, a vestige of the imperial rulers, was abolished. Subsequently beginning in 1979, property use-rights were changed through the establishment of contracting responsibility. However, as ownership is still vested with the state, incentives for long-term land improvement efforts were seriously affected. The state provided support services for land management, but nonetheless, with growing market reform, increased productivity, and property rights still remaining within the jurisdiction of the state, land degradation became an issue of nobody's concern. A series of laws with strict punitive measures were enacted at the central, provincial, and county level encouraging conservation and sustainable management of land. However, the scars left by overexploitation in the 1950s and 1960s during the Great Leap Forward and Cultural Revolution remain noticeably visible even today.

There is considerable debate over management of communal land (particularly in northeast India and *guzara* forest in Pakistan), centering around management authority, and type. Such debates also arise over the use of unclassified state forest in the Chittagong Hill Tracts in Bangladesh. The privately/communally owned (both classifications are valid as family/clan ownership makes them communal as well private) *guzara* forest also comes under the logging moratorium enforced in Pakistan, much to the chagrin of owners of such forest. The argument by the state needs little elaboration in a country of less than five per cent forest cover. However, private interests cannot be easily compromised as people holding *guzara* forest had always derived a considerable portion of their income from such forest. In recent times, the debate has reached a serious level at which conflicts between forest

officials and forest owners are becoming increasingly evident. Such a situation is creating opportunities for corruption and leading to mass felling of trees to pre-empt logging bans and for maximising short-term profits. Traditional jhum or slash and burn cultivators of northeast India, Chittagong Hill Tracts and Bhutan argue that jhum is the only sustainable farming practice in such agro-ecological zones provided that they can maintain long fallow cycles, which is possible only if they can access all lands that have traditionally been used for such purposes. Difficulties arise as more land is being brought under reserve or protected classification, which bars people even from entering such areas. This is seriously jeopardising the prospect of sustainable shifting cultivation as the area available is shrinking and people have to shorten their rotation; this does not allow the land to regenerate: it increases soil erosion and decreases soil fertility.

Most countries in the region underwent a series of land reform measures in the 1950s that coincided with their gaining independence (India, Pakistan, Bangladesh) or establishing a new government (China, Nepal). Reform measures mainly addressed taxing authority, ceilings on holdings, and tenurial arrangements. However, the vacuum created by dispossession of princely rulers (in northern Pakistan and Kashmir in western India) and expansion of state authority over princely states has created new configurations of property ownership patterns. This is highly significant in terms of land management options, particularly as they relate to long-term sustainability of land resources. Research on land size and productivity is relatively conclusive in support of owner-peasant holdings, although land size and soil conservation have received far less attention. However, ownership, as opposed to insecure tenancy, can provide incentives for soil conservation as can be seen from the arduously crafted terraces in the mountain areas of the region. Despite formulation and enactment of land reform measures in all the study areas, no serious attention was placed on the vexing issue of land fragmentation, security of tenure, and institutional issues of land conservation. Fragmentation is a serious problem in the hills of Nepal where arable land is limited, alternative employment opportunities are small and population growth is rapid. In Nepal, the average number of parcels of land in the hills are 5.1 per ha and in the mountains 6.8 per ha, well above the plains at 3.1 per ha and the national average of 4.2 per ha according to the National Sample Census of Agriculture 1991. This figure has increased in recent times, compounding the fragmentation problem. In Bhutan, where it is estimated that a third of the cultivated land is under some form of sharing arrangement, increasing land productivity and maintaining land quality are already problems. This is despite Bhutan's small population and slow population growth rate. In the Chittagong Hill

Tracts of Bangladesh, scarcity of arable land, largely due to the inundation of valley areas by the Kaptai hydroelectric project, is contributing to clearing of unsuitable sloping land for jhum cultivation, tension among indigenous people and new Bengali migrants from the plains, and other problems of grave consequences. In none of these countries (Nepal, Bhutan and Bangladesh) does existing land policy focus on these land scarcity and fragmentation issues that largely result in a vicious cycle of low productivity and land degradation.

Reform measures in the region have not taken into consideration the peculiarities of the mountain tenure system. Based on the notion of settled land and tenures associated with it, state authorities have tried to impose fixed tenure concepts — linked to ownership and not necessarily use rights and customary rights. Mountain areas differ from the plains in terms of the availability of open access resources and multiple use of such resources. This reality, although understood, is not reflected in the tenure-related policies of governments in the region.

Common-property and Open-access Land Resources

One of the most important areas to be considered is the range of non-private ownership of land resources. In the hills and mountains, where settlement is sparse and survey of any kind is far from frequent and accurate, large tracts of unclassified land resources exist. Some of the important issues that stand out are discussed in the following passages.

- Common-property resources are threatened with conversion to state property.

The dominant development paradigm of the 1950s onwards that necessitated the increasing role of the state in all facets of national economic life precipitated this change. Degraded forest areas were brought under community forestry, joint forest management, and similar schemes. Such measures increased tree cover and thus received kudos from environmentalists world wide. The equity and social-exclusion implications of such programmes only became known later. Much of the area brought under such schemes was degraded but, nonetheless, was maintained as open-access or common resources for communities living nearby. For generations, people have accessed these resources for basic needs such as fuelwood, fodder, organic manure, non-timber forest products, and timber. With the introduction of such schemes, especially for plantations, access to such resources have been severely restricted for at least a few years. Besides, many of these schemes planted species favoured by foresters rather than local people. Thus, people's access was denied, and needs were not

taken into consideration. Equity and social-exclusion aspects come into picture because of the caste-based societies of the Himalayas and the numerous indigenous, ethnic groups. Already marginalised groups, if they are not equally represented in management committees, can suffer further reversal and may become socially excluded from development initiatives on the ground. The Nepal country study makes this point clearly. 'Recent evidence from Sindhu Palchok district shows that there are problems related to equity in community forestry. The forest user group's committee members, who make most of the decisions, are predominantly from economically advantaged groups, and economically disadvantaged groups lose access to vital resources (Graner 1995). In many cases, community forestry has offered village elites legitimacy of their power and an opportunity to expand their political influence (Pokharel 1998).'

In addition to the encroachment of the state through development schemes, there are other instances of declassifying common resources by the state. In the Chittagong Hill Tracts, there is a move by the government to bring a huge tract of land under reserve forest. This land is unclassified state forest, a degraded open-access resource. Local residents have traditionally used this forest to meet their needs. The submersion of fertile valley land by the Kaptai hydroelectric dam further legitimises their claim for the use of such land. Moreover, several small ethnic groups exclusively inhabit some pockets of unclassified state forest. Converting this into reserve forest would evict these micro-groups as well as restrict others' access to it. Such a measure of penetration of state into open-access and common-pool resources could be highly unpopular in the Chittagong Hill Tracts given the background and competing claims of state and communities.

- The authority of community organisations in maintaining common property resources is being weakened by the gradual conversion of such resources into open-access areas; this is impacting on land management.

Many recent studies show the gradual weakening of community organisations in maintaining their common resources in a sustainable way (Jodha 1992). The major question that needs to be asked is what maintains the order and authority promoting community management of resources? Obviously, the main vehicle of such practice is the local institutions. What is needed is strengthening of such institutions and not substituting them with newer structures, for whatever rationale and justification. The northeast India study identifies another interesting aspect of weakening of community authority. The substitution of informal community organisations with formalised local government is inhibiting the authority and efficacy of such local organisations in many places. Although the purpose of formalised local government

structures was to decentralise administration, it is now running contrary to original intent. Overlapping jurisdiction is making the informal community organisations redundant, while local government bodies are becoming increasingly bureaucratic and thus excluding ordinary people who were used to living under the authority of community organisations and their leaders. Penetration of governmental or quasi-governmental authority, demographic growth, market forces, and even education are often observed as alienating forces reducing the viability and authority of community groups. Thus, customary rights facilitating community management of resources, which are in most counts a more sustainable way of resource management, are giving way to centralised and formalised resource-management practices. Such change may be not only counterproductive in terms of maintaining sustainability but also against the currently preferred developmental ethos of empowerment and decentralised resource management.

- Common resources are being converted into private resources.

The Hindu Kush–Himalayan region is characterised by its high dependence on land-based production systems although productive land is scarce. It also has a hierarchical and stratified society by more than one measure of social structure. Therefore, there is always a temptation for anyone, particularly powerful households or clans, to convert accessible common resources into private resources, through either *de facto* or *de jure* methods available to them. The Nepal country study points out the conflict between the agricultural and forestry sectors over control of land; forest land is usually being converted to agricultural use. This conflict has its historical roots in government sanction and clear political support.

"There has been ongoing argument between the Department of Agriculture and the Department of Forestry regarding what constitutes forest and agricultural areas. Encroachment of forests for crop production was in fact encouraged in the past with a view to raising land revenue. [Squatters] are encouraged by the politicians of that particular area to break the law and stay in forest areas. They are also promised landownership rights" (SEEP/ICIMOD 2000).

Such moves may have cascading effects in encroaching more and more forest areas and bringing them under private ownership.

In the Chittagong Hill Districts of Bangladesh, similar tendencies are observed. Although records of such conversion is non-existent owing to the political situation and lack of cadastral surveys, knowledgeable sources informed us about changes in the use rights of vast tracts of communal or state property by individuals, particularly after the flooding of fertile valley lands by the Kaptai hydroelectric dam in the late 1950s.

The private-public domain is also critically important in the success of the policy directives of the state. In the Northern Areas and North West Frontier Province of Pakistan, where most of the country's forest is located, such factors determine the success of forest policy. The majority of forest in these two areas is under *guzara* or other privately owned and managed categories. People are unwilling to accept the role of the state in their management. Thus, private and public interests are at odds in such a situation. The enormous amount of piled-up cut timber in the Babushar area of the Northern Areas and, perhaps, in other areas of the region, testifies to the conflict of national policies with private land rights. National policies, in the people's opinion, are not likely to succeed if they do not take into account the divisibility of public and private interests. It is precisely here, in the management of the commons and the defining of the lines of control between private and public domain that the roles of institutions and the state come into serious question. As a contrasting example, in Bhutan, even after the Land Act, behaviour by individual farmers, such as keeping their own land fallow for no reason, cannot be tackled. Possible explanations are hard to conceive. Either the land-related institutions are too weak or the state is retreating from management of such national resources as land.

Another facet of institutional despondency is noted in the failure to deal with communal land rights. In Nepal, during and prior to the Rana regimes, *birta* and *jagir* types of tenures over agricultural land were offered in return for civil or military services to the state. Such land was both tax free and heritable with no set time limits. Similarly the *talukdari* system was also heritable, conferred as a tax-collecting system. Such systems gave rise to their own tenure system, whereby the beneficiaries set their own terms and conditions for the use of the land. *Jagir* and *talukdari* systems and several other forms were prevalent in northern India and the plains of the rest of south Asia as well. British colonial forces did away with most of these systems, and subsequently the Indian and Pakistani states also dismantled the other vestiges of such sub-infeudation. The democratisation of Nepal also saw similar dismantling of tenure systems. However, communal land rights, such as the *kipat* system in Nepal, and various family and clan-based rights on forest land in northeast India where land rights of communities were recognised by the state, were largely done away with in modern times. The state authority symbolised by the king in earlier times recognised the rights of communities in view of traditional communal tenure. Under these systems, the headmen gave individuals rights to collect forest produce in certain parcels of forest area. Such rights were inalienable and, therefore, users treated them with care, just as they would their own land. Nonetheless, with the evolving modern state such systems were done away with. Thus, we find the sacred groves of priests and monasteries in nature-

worshipping northeast India are virtually non-existent today. The fate of systems such as 'law lyndoh', 'law kyntang', and protected forest tenures such as 'law adong' and 'law shong' policies in Meghalaya are under increasing threat of jurisdictional anarchy and legitimacy of institutional support. These are examples of institutional failures and incompatibilities in dealing with traditional land rights under the modern, democratic state. While traditional institutions are breaking down and are incapable of protecting their territories, newer institutions, created by the state in the form of local governments, are not authorised to deal with the ideas of the dying institutions and traditions.

What is interesting to note is that, despite the institutional failures to recognise the traditional land rights, be they agricultural or forest land, a new wave of developmental thinking is reverting back to some old principles. Thus, we find new trust and belief in traditional and communal rights on forest land in the reincarnated version of community forestry, joint forest management, social and participatory forestry, devolution of water rights to the communities and similar efforts by the modern state. While many of these are palliatives and an urge to rediscover the traditions and roots of land management, they are working to a great extent in the interests of people.

Titling and Surveys

In the so-called tribal-administered areas (within the purview of administrative nomenclature), land titling is rather uncommon, and a considerable portion of the Hindu Kush-Himalayan region for administrative purposes is tribally administered in one form or the other. For northeast India, Schedule 6 of the Indian Constitution and, for the Chittagong Hill Tracts, the Regulation of 1900 ensured that tribals not only enjoyed local control over land resources and governance, but also negated land-right titling through land surveys. For part of Bhutan, which lacks a survey tradition, and for the Northern Areas and many tribally administered areas in Pakistan, land rights are still not backed by titling and surveys. In the Northern Areas of Pakistan only the three subdivisions of Gilgit, Astor, and Baltistan have come under the Land Revenue Act following titling based on settlements. This leaves a large portion of the five districts out of the purview of land-titling and land-survey activities. This precipitates the problem of establishing individual rights on land. When individual rights on property are not recognised legally, accessing credit resources and other government-provided services becomes difficult through modern management practices of banks, credit institutions, and, even, government extension services. In China, however, the situation is different. After the revolution of 1949, all land was nationalised; hence, the question of land

having or not having some form of title became redundant. Except for remote mountain patches where the ethnic minorities or nationalities live, every piece of land, even in Himalayan, China came under state control. Communes were developed based on existing land, so that every farming family had to work under political authority. Subsequently, the land-management policy changed several times. However, land-titling policies remained essentially the same, with state ownership being the only option.

Historically, in northeast India, the Chittagong Hill Tracts of Bangladesh and the Northern Areas of Pakistan, most areas did not come under cadastral and other land surveys, resulting in non-recording of land in individual or family names. Participatory rural appraisals in northeast India revealed some interesting opinions. Many people did not want cadastral surveys for recording land rights for fear of being dispossessed from existing use rights. Interestingly, the money-lending class, who have indebted many households and now have effective control over such resources, also do not want surveys as these could establish rights of mortgaged land in the name of the rightful owners and not in theirs. However, small sections of educated and well-off people in northeast India as well as the Chittagong Hill Tracts in Bangladesh would like land surveys to take place. This would greatly enhance their chances of establishing legal rights over land. Such measures will provide them with the opportunity to access state-supported services and may even increase their landholdings owing to their superior position in society. Such a state of affairs goes to show that the mountain areas are still lagging behind the plains in terms of establishing individual rights to land. Difficult terrain, isolated and scattered settlements, and historical isolation from major empires has resulted in such an undefined state of land surveys. After the abolition of the land-taxing authority of local nobles and feudal lords, such a fluid state of land titling can be dangerous for local people. The state has the authority to evict original settlers from land if found without legal documents to establish their rights. The fears of the northeast Indian and Chittagong Hill Tracts' people, as referred to earlier, is, therefore, well founded. In Nepal, this is becoming a serious problem in parts of the mid-hills. Increasing population pressure on the already dwindling land resource is contributing to claims and counter claims to untitled land. There have been reported cases of eviction of squatters in several areas. While the government claims such settlements are on untitled land and hence belong to the state, settlers have argued the opposite, claiming settlement for generations on disputed land.

Lack of land surveys and titling puts the mountain areas at a certain disadvantage and in an unclear situation within their respective countries. In addition to the lack of institutional support like credit and extension

services referred to earlier, it also creates tenurial insecurity and absence of opportunities for improved land management and productivity increasing measures through technological advances and investment options. Hill and mountain areas are eminently suitable for niche based farming systems. Without legal land rights, occupants and users of the land cannot access outside support for diversifying their production base. CHT holds great agronomic and marketing advantages in producing tropical fruits in a country perennially short of horticultural products. To date, largely due to tenurial insecurity, no concerted effort could be made to establish the horticultural production base with scientific management and a commercial orientation.

Another major issue related to tenure and land rights is the problem of displacement and resettlement of people. This is particularly significant in all the countries of the Hindu Kush-Himalayan region as large infrastructures are being built in these areas, causing massive displacement of people. The Kaptai hydroelectric project in the Chittagong Hill Tracts displaced over 100,000 people in the late 1950s and early 1960s, as the reservoir expanded to cover the entire Kaptai Valley. This was a major cause behind alienating the ethnic minorities of the Chittagong Hill Tracts. Subsequent failure to rehabilitate the affected people properly and other ancillary factors led to the disenchantment of locals and two decades of insurgency in the Chittagong Hill Tracts. The proposed Tehri dam in the Garhwal hills of Uttar Pradesh in India is also likely to displace people of several villages along the reservoir. The controversy arising out of the Tehri dam is largely attributed to this massive displacement of local people and the inundation of cultural and religious heritage sites. The Mahakali project in western Nepal, if implemented, would result in large-scale displacement of already impoverished people. The Karakoram Highway in northern Pakistan was built largely for strategic and defence needs. While it has facilitated communication with the otherwise cut-off Northern Areas, the construction has displaced many people. As a national priority, the Karakoram Highway may not have gone through the rigorous project screening processes that other large projects are subject to; nonetheless, it has affected people and settlement living along the route. Although government and project planners of today have access to improved impact assessment tools and so probable and possible impacts can be foreseen in the planning stage, rarely do the affected people receive due compensation. Sometimes appropriate rehabilitation of people and restoration of important sites are almost impossible. For mountain areas, the resettlement process is further compounded by the fact that often proper documentary land rights are not available to the people as land is not always as meticulously titled as in the plains. The indigenous people of the Hindu

Kush-Himalayan region, therefore, despite having customary rights and traditional holdings, are likely to lose out when such displacements occur. Furthermore, the marginalised people of the mountains, having little education and marketable skills, pose special problem for project implementers when their relocation and resettlement are planned. Distant bureaucrats, with little understanding about the mountains and their people, are not best qualified to resettle these people properly.

From Land Tenure to Resource Tenure

The hegemony of the state in controlling all untitled land opens up the vexed question of land versus resource tenure. The mountain areas of the Hindu Kush-Himalayan region, as noted earlier, were never part of large empires that necessitated the need for land survey and titling for the purpose of revenue determination. Hence, communal ownership, customary rights, and open-access resources have always been part of the landownership and use-rights arena. After the establishment of modern states (in colonial and post-colonial times), this question has come to the fore for adjudication by the state. Secure private property in land, as freehold or long-term tenancy, are part of the accepted norms in land management in a modern state. While such a precondition is, perhaps, useful in raising and maintaining land productivity, the situation in mountain areas has always been, and still is, considerably different and has not allowed the acceptance and establishment of such a norm in land management. These unclear land-use rights affect grassland and forests much more than small settled agricultural plots. This paradox in reconciling the existing norm of land-use rights in the context of untitled land is holding back long-term sustainable development of grassland and inaccessible forestland. Other than herders and poor households dependent on forest resources, farmers of all types are also dependent upon resources that are available outside their farmland. Seasonal water runoffs, river or glacial melt-flow, forests, and grasslands constitute such resources for all mountain dwellers. Water held in reservoirs as freehold for irrigation and other basic needs, control over the upper areas of water catchments, and temporary or permanent use rights for pastures and forests (grazing, collection of non-timber forest products, and so on) constitute part of such tenurial arrangements. In the Hindu Kush-Himalayan areas, nearly 60% of land only supports a pastoralist population that has to move its herds from place to place to be able to provide for the animals. Seasonality is also important in the movement of pastoral people. While the pastoral production system covers most of the high mountains in the region, over generations institutional mechanisms have evolved to manage the herds in a sustainable manner consistent with the carrying capacity of the land. Such institutional mechanisms enforce regulations of herding in a rather complex and sophisticated manner (Miller

and Craig 1997). Numerous examples of principles of water use in the mountain areas also point out the essential nature of resource tenure that is as important as land but much broader in scope than land alone (Banskota et al. forthcoming).

Therefore, the focus of tenure is much broader than being merely confined within the limits of survey-based titling of resources, mostly of land in this instance. Here, the concept of resource tenure, encompassing the broad characteristics of tenure, is far more useful than fixed tenure based on ownership and backed by survey and revenue collection systems. For instance, a natural commodity, such as soil, which provides grazing, crop growing, and other functions, cannot carry one homogenous property right under these circumstances. Property rights, in many instances, are a bundle of rights that allows users to apply a particular right at a particular instance. A farmer may own plots of land, but may have use rights to the water of adjacent streams/rivers. Similarly a farmer may have access and use rights of adjoining grassland and forests that do not come under any specific property rights of either the state or individuals. Policies related to tenure therefore have to be analysed for these multifarious use patterns, ownership, and use rights. Policy guidelines need to be developed taking into consideration all resources that are in use or have the potential to be used and are contributing economic value in a production system, mixed or otherwise. As mixed farming and production systems dominate mountain areas, it is critical that use and access rights to various natural resources that are complementary to each other are ensured. Such a condition can only be arrived at by consistency and adherence to ground reality in the policy-making exercise. Inter-ministry coordination, a rare commodity in many instances, is crucial if success in consistent and pragmatic policy is to be achieved.

Once the focus is shifted to resources rather than only land in formulating tenure policies, a much broader and comprehensive view can be taken to enact policies and regulations that go beyond one component of the resource system. Such a reorientation would deal with all other equally, if not more, important resources in the mountain production system that have a significant bearing upon not only livelihood issues but also, and above all, sustainability issues. As water, grassland, and forests are the key areas of mountain ecosystems, tenure policies, to be of any use, must address their use patterns as well.

Tenure and Gender

Tenure and property rights have different connotations for men and women in much of the Hindu Kush-Himalayan region. The question of whether

women use and manage natural resources becomes a moot point unless we know the broader rules that govern ownership issues by gender.

It is by now a well-known fact that women are an integral part of the mountain production system that is largely natural resource based (Gurung 1999). However, it is not sufficiently clear whether women enjoy independent rights to land or whether they receive rights only through their husbands or fathers. Despite increasing forays into this area, it is not yet conclusive whether women can inherit, buy, sell, or mortgage land under the existing social and legal framework in the regional countries. Many communities allow inheritance of land by women while many do not. Such practices and rules are often at odds with the legal system prevalent in the country itself. Throughout the Hindu Kush–Himalayan region, as well as most of the world, rights to land, water, livestock, and trees are determined by gender. Thus, their disposal or acquisition is different for men and women. This is not necessarily because there are no clear legal injunctions on it, far from it; it is often the sociocultural and religious orientations that govern the whole question of whether men and women are equally bestowed with property rights in their entirety. Here, the law is merely a framework for negotiation, and theoretically it opens up opportunities, but is not a guarantee in itself. Rights are more often in the realm of the social and economic order, and the practice of what a woman may actually receive or own is influenced by cultural practices, religious sanctions, and the institutional framework within the society. Then, again, the prevalence of different sets of laws, such as 'shariah' law in Muslim societies or the customary laws in many parts of the eastern Himalayas, interprets the issue according to its own precepts that may not conform to the civil law of the land.

In the Hindu Kush–Himalayan region and in our study area, land, still being the most important resource, is the prime property, and rights to land, in many instances, determine the status and condition of women. There is a common misconception regarding the status of women and gender relations in the region, often thought to be egalitarian among Tibeto-Burman Buddhist groups and much more hierarchical and structured among Muslim and caste Hindu populations. While family and household resources are managed with greater female participation among the former than the latter, there are still no significant property rights for women among the so-called egalitarian communities. Our studies in northeast India, Bhutan, and Nepal (the areas predominantly inhabited by Tibeto-Burman groups) confirm such a fact. Except in the Tibetan Autonomous Region of China and a few small communities in the Chittagong Hill Tracts and northeast India, women still do not have rights over land. In the northeast Myanmar hills, women bring property with them from their

fathers but transfer it immediately to their husbands after marriage. Even in China, thought to practice more egalitarian gender relations, in both Sichuan and Yunnan men control money and land. Among the caste Hindus of the Indian and Nepali hills, women do not have control over land although they take part in farm decision-making and labour. In Bhutan, daughters inherit land but it is not clear whether they control the right to dispose of it and make choices regarding use. In Pakistan, the conservative communities of the northwestern areas do not allow women to have control over land resources although inheritance according to Islamic laws is recognised but not always practised. This is the uniform practice across the Shiah, Sunni and Ismaili divide. Women do participate in farm activities but are confined mostly to post-harvest processing within homestead areas.

An interesting aspect of the gender issue in tenure is the presence of various types of lineage and location of residence in the eastern Himalayas. Both patrilineage and matrilineage are prevalent here. Choice of residence after marriage can be either way with patrilocal and matrilocal residence in practice. Despite this recognition, many matrilineal communities still practice pre-eminence of males in controlling land resources. Even when a husband goes to live with his wife and cultivate his wife's land, control over that land may not be with the wife. Such examples dilute the notion of patriarchy among many ethnic groups in the region that practise matrilineage and matrilocal families. While division of labour between men and women is not necessarily rigid and well defined in the Hindu Kush–Himalayan region and women participate in productive and decision-making activities far more than their counterparts in the plains, they still cannot be formal owners and managers of land-based resources. Therefore, their rights vis-à-vis land use are rather limited. Similarly, women as share-croppers or lease-holders of land or rights (water, pasture) are still unheard of in the region.

Conclusion

Tenure and property rights are critical in influencing land management practices. Therefore, they are also inextricably linked with potentials for degradation as well as sustainable management of land resources.

Several themes emerge from the comparative discussion of tenure and property rights issues in Hindu Kush–Himalayan region. Firstly, a large part of the region is still not surveyed in the conventional sense of authorising and recognising individual land rights. Despite this, competing claims over land resources abound, not only within the intra-household domain but also within the broad public and private divide. Such competing claims and

conflicts have enormous implications for land management, and, ostensibly, its potential for sustainable land use. Therefore, their resolution in the interest of both the state and the community is imperative for halting further degradation of fragile land resources.

Secondly, scarcity of land resources, demographic changes, and the increasing aspirations of the people are putting increased pressure on land resources. Property rights have a direct link with such phenomena. Land fragmentation, as seen in Nepal, northwest India, and other places, is becoming a critical damper on increasing productivity and sustainability of land resources. Careful policy changes are needed to look into this critical issue in the interests of environmental stability and improving the livelihood options of the Himalayan people. As mentioned earlier, all the study countries went through a series of land reform measures; however, the overriding considerations in the enacted reform measures were with land ceilings and, in some cases (notably China and northern Pakistan), dealing with the abolition of feudal land rights. By themselves such measures are beneficial but not sufficient for land conservation and productivity gains because land fragmentation, insecure tenancy, and lack of private and public investments in land take their toll on land productivity. Tenure reforms in the region are not a totally new concept. In West Bengal, India, the now famous Operation Barga, initiated in the late 1970s, helped to secure rights of tenure. In politically sensitive and overwhelmingly rural West Bengal, such reforms do have their political motivations. Nonetheless, having clear policy directives on tenure rights is essential in any place where cultivation is practised on rented land. In much of the Hindu Kush–Himalayan region, sharecropping is prevalent to varying degrees. Already, in Nepal and Bhutan, we notice that absence of tenurial rights is affecting agricultural productivity and land conservation. However, for marginalised farm households of the Hindu Kush–Himalayan region, policy planners have to bring in forward-thinking approaches to deal with such complex problems as land fragmentation. In medieval Europe, similar problems were solved by changes in inheritance laws. While no one argues for instituting draconian and undemocratic laws, people associated with land policy in the Hindu Kush–Himalayan region must start thinking about the increasing land fragmentation and what it means for land productivity, degradation, and equity. Similarly, tenurial reforms and instituting land surveys for titling need to be initiated immediately. Our country studies suggest that lack of survey and titling are causing manifold problems related to improved land management and land conservation initiatives. Therefore, despite political and logistical problems that beset much of the Hindu Kush–Himalayan region, concerted efforts should be undertaken by respective national governments to establish land rights for inhabitants of

the mountain areas. The sooner this is done the better it is for the indigenous people of the region who are already in a relatively disadvantaged position compared to the people in the plains. Similarly, the discussion on tenure and gender makes it amply clear that women, although they may be de facto operators of land and other land-based activities, still do not have clear and unequivocal property rights anywhere in the region, barring small notable exceptions. While the policy process on land and land-based activities is still evolving in the study countries, attention should be focussed on this inequity. In lieu of tenurial authority, women cannot be effective farmers or herders when their male partners migrate in search of earnings in the off-season or for years together. Female-headed households are much more prevalent in the mountains, and women are regular participants in productive activities. However, they still lack control of landed property; this is not in the best interests of mountain people and resources.

Thirdly, overlapping jurisdiction and overlaying structures of local, regional, and state authorities often provide confusing and mixed signals for land management. The unrelenting extraction of natural resources in the sparsely populated mountain areas of China, particularly in Yunnan province, was due to such mixed signals under a new state-controlled property regime after the revolution. Even after the abrogation of communes and establishment of contract responsibilities, land-use patterns in China still contradict the ethos of the Chinese national environmental policy and provincial policies of restoration of degraded land. It is interesting to note here that the contradictions of collectivisation and the new market economy philosophy of China are glaringly evident in the Himalayan areas of the country. The Great Leap Forward demanded extraction of all natural resources for industrialisation. The mountain areas, with basic raw materials such as iron ore and timber as fuel, paid the price, as in the case of Yunnan. To counteract the environmental imbalance, artificial water courses, in the form of irrigation channels, were built to be managed by communes to meet their own agricultural production quotas. After the abrogation of communes and a move towards the contract responsibility system, no one manages or looks after the country's infrastructure. The indiscriminate felling of trees and strip mining have not yet healed to restore the water balance of the region. The result is ecologically traumatic. The irrigation courses run dry and remain abandoned, while farmers have to put in extra effort and chemical fertilisers to meet their contract responsibilities.

The newly-formed local government structures in northeast India, the Chittagong Hill Tracts (after the peace accord of 1997) and the decentralised

structure in Nepal run parallel to traditional community organisations. Such countervailing forces are not likely to achieve the goals of decentralised governance and empowerment of people — ideas that are found throughout government policies and planning goals. Governance is becoming a critical, but unattended to, issue in the region. While there has been progress in devolution of authority in natural resource management, most notably through community and participatory forestry programmes, appropriate institutional structures accompanying such devolution are still not considered a major requirement for the intended changes. Policy planners need to think through this issue carefully. Existing local governance structures should not be sacrificed in order to accommodate a newer structure. Destroying older, traditional institutions to support the creation of new ones is neither conceptually nor operationally justified. It is also ironic that, when the development community is witnessing growing and persistent global poverty, and is pointing its finger at bad governance as a root cause of such malaise and has redirected its attention to institutional issues, the countries of the region are replacing traditional and largely trusted local institutions with newer, formal ones.

Fourthly, we are witnessing an era of new institutions as new government agencies, and their field presence, are becoming more and more common. Nonetheless, we observe a general trend of institutional change and decay. Corruption, politicisation, and lack of transparency continue to erode the credibility and authority of institutions related to land management. The transaction costs of mountain people in mitigating conflicts are ever increasing. In an age of proliferating policies and interventions, institutional decay, as evidenced in lack of policy application and enforcement of regulations, is affecting land management tremendously. The creation of appropriate development knowledge, the transplanting of best practices, the encouragement of community ownership, and the like are in vain if land-related institutions are not strengthened qualitatively. The institutional decay and retreat are evident, particularly when we focus on the management of the commons and forest resources in the region. Conflicts, arising out of the management of privately owned and community-owned forest areas in much of the Hindu Kush–Himalayan region, reflect the inability of the state to facilitate self-sustaining autonomous development based on participatory principles. Guzara forests in Pakistan, religious and sacred groves in northeast India, and unclassed state forests in the Chittagong Hill Tracts all attest to a pervasive lack of coherent policy and transparency of action on the part of state authorities.

Fifthly, mountain production, though largely land based, requires multifarious use of resources. The dependence of mountain farmers on

forest resources and their need for pastures and natural water sources are equally as important as their tenure of land. The complexity of the mountain production system, therefore, requires multi-bundle tenure rights and not single homogenous property rights as is the case in most places. Conflicts among communities, arising out of this unclear use of and access rights to forests, grazing areas, and water sources, have the potential for spreading far and wide and even for affecting government ministries and agencies. Legal and institutional preparedness for such multifarious rights are, therefore, important for both inter-agency coordination and uniform policy direction for the government and the general well-being of mountain people in the region who are so overwhelmingly dependent upon land-based resources.

In the absence of rational policies for land use in its most comprehensive form, the Hindu Kush–Himalayan people are confronted with limited options for improving their living standards. However, notwithstanding the dismal effect of policy failures and decay of institutions, small doors are opening in the form of new and progressive land-management options. Such entry points are critical, whether through community forestry or participatory watershed management, both for the state and the communities. The state can learn more about the workings and value of policy negotiation, local institutional regulations over land use, and stakeholder consultation, while communities can find new ways of maximising their potential through a variety of options and of empowering themselves by taking control of their destinies.

Strategic Conclusions

Chapter Eight

Strategic Conclusions



Eight



Top	Preparing sloping land for cultivation in Godawari Demonstration Centre <i>File Photo</i>
Middle	Water reservoir for irrigation at Godawari Demonstration Centre <i>File Photo</i>
Bottom	Sloping Agricultural Land Technology (SALT) at Godawari Demonstration Centre <i>File Photo</i>

Chapter Eight

Strategic Conclusions

Sources of Social and Environmental Change

This chapter summarises the strategic conclusions of this report. The more country-specific and sector-related conclusions are to be found at the end of Chapters 3–7. The context of land policy and its environmental impact in the Hindu Kush–Himalayan region is one of profound social and environmental change. Any strategic policy analysis must understand this context and be able not only to cope with but also to manage change. There are three interrelated aspects of change in the region that have important strategic policy implications. They are the prospects for economic growth in the region, the changing role of the state in environmental management, and the changing global environmental agendas.

- The region as a whole has, with a few notable exceptions, not registered a consistent and discernable improvement in the quality of life of the approximately 140 million inhabitants. Thus, poverty-related causes of environmental degradation seem set to dominate the agenda for the foreseeable future in most areas. The exceptions are, perhaps, some parts of the Chinese Himalayan provinces and autonomous regions and some pockets in the states of northwest India (e.g., Himachal Pradesh). There is a general consensus of continuing, and even increasing, levels of poverty in rural areas where reliable long-term studies have been undertaken. Other indicators of economic growth, in both agriculture and other sectors, usually make gloomy reading (except in some cases in China). The prospects of an increase of receipts for development budgets from national sources or from foreign aid also are not encouraging. In addition, considerable areas, mostly in the eastern Himalayas, are embroiled in insurgencies that are always a severe constraint for investment and growth. At the present time, major sources of revenue for the region are hydroelectric power, hydro-carbons, tourism, and forest resources. However, there are formidable technical

and political problems, as well as environmental ones, that have inhibited progress in the energy sector. In any case, there is no guarantee in the reality of politics that revenues from the sale of electricity and other energy resources would find their way back to the Hindu Kush–Himalayan region. Even tourism revenues are mostly appropriated by the state and private sectors based in urban areas. Thus, the region is poor and will conceivably remain so. In some ways, the lack of dynamic economic growth has put less pressure upon natural resource use, and the main problem area for environmental conservation is poverty with population growth that leads to non-sustainable adaptations of existing agricultural practices and wasteful technologies. However, where economic growth is taking place (e.g., Yunnan Province, China), a combination of unrestrained entrepreneurial expansion without clear property rights and the removal of state-ensured entitlements for the poor have led to severe land degradation in the recent past. It is not a matter of either sustainable livelihoods or development, as a number of publications about the region imply. So-called ‘development’ merely brings new opportunities and new threats to both people and environment. It redistributes these between people differentiated by gender, wealth, ethnic group and skills, and between areas. The case of commercial apple production in Himachal Pradesh is a case in point; a series of linked environmental challenges were thrown up and dealt with partly . The more extreme case of Yunnan Province illustrates the falseness of this dilemma. The town and village enterprises and the responsibility system have provided enormous opportunities for enrichment for those with the necessary social and financial capital, but for others it has increased their vulnerability and deprivation. Both the new rich and the new poor use the environment in non-sustainable ways. Thus, Yunnan Province, as many other provinces of China, has achieved high rates of economic growth and activity but with undoubted environmental costs. However, stagnant economic growth and poverty have also brought about environmental degradation (Blaikie 1985; World Bank 1992), in which the poor are forced to commit ‘desperate ecocide’. The conclusion that may be drawn is that the maintenance of natural capital (including the narrower notion of environmental conservation) can be maintained or degraded at all levels of development. As more development occurs, the environmental challenges change, but do not necessarily diminish.

- In general, at the global level, there has been a decline in the role of the state, specifically regarding environmental management. This is in part due to economic liberalisation and the policies of the World Bank and International Monetary Fund, and in part due to a number of other factors that must lie outside the scope of this report. The Hindu Kush–

Himalayan region is also affected by this trend. The authority of central government (and with it the ability to impose its political will and implement its policies) has tended to wane, and expenditure on the public-sector wage bill has suffered severe reduction in most countries. Also, special interest groups have, through various means, been able to press their claims above others, and the state is less able to adjudicate between them in a rational manner. In many policy areas with important environmental implications, the ability of the state to implement laws and regulations has receded in almost every country of the region with some notable exceptions. Policing of forests, reserves, and parks, and clarifying the ambiguities in land ownership and use, have also become problematic. In the case of forestry and national parks particularly, colonial styles and sets of assumptions live on in new guises, but without the authority to police and coerce. Conditions of service in many government jobs connected to land policy have deteriorated, morale has suffered, and, in some sectors, corruption has increased substantially. Of course, these changes vary greatly across countries and sectors, but the generalisation holds for the region as a whole. This is not to advocate this trend, but to come to terms with it. It provides a powerful explanation for the failure to implement policies that rely on centralised public sector bureaucracies, charts out the limits of what can be expected of policy, and points to some alternative strategies in which the state takes a less commanding role in policy-making and implementation. Therefore, any recommendations about decentralised, participatory, and local management of natural resources not only arise from political and ethical arguments alone but from the economic realities that make the costs of control, policing, and implementation increasingly difficult to meet from public-sector funds.

- The third change is not so much about changes in civil society, the state and policy-making themselves, but the way in which these changes are viewed by global opinion. In Chapter 3, this report discussed three paradigms of environmental policy, each of which inform the policy process. New concerns about the environment, equity issues, gender, and governance have been finding their way on to international development agendas, often backed by informal leverage or formal conditions in loan agreements. Of course, conditions of inequality and social exclusion have always been there, but it is only now that they are international issues that national policy is being forced to address them. Many of them run counter to the professional and cultural norms of the policy elites and administrative cadres of the region. Gender issues, for example, are seldom addressed in most of the almost exclusively male professions, and few see the point in taking this and other issues seriously. This is again one of the major reasons why

particular aspects of these new priorities are honoured on paper but not in practice. Examples, discussed in this study, include handing the management of forests back to communities, initiating effective participatory agricultural research, ensuring women have an effective day-to-day say in the management of forests, and ensuring that the registration of the land in titling exercises effectively incorporates the claims of the poor and of women. Thus, different bureaucratic cultures and national politics, already under pressure from cutbacks and loss of legitimacy, face new and challenging social and environmental agendas from the international community

The Theory of Himalayan Environmental Crisis

Any report that deals with environmental policy in the Hindu Kush–Himalayan region cannot avoid taking a view in the theory of Himalayan crisis. Nor is this study in a position to add anything substantive to an area of research that has attracted a prodigious amount of attention. It is an issue that arouses deep-seated passions in conservationists, mountaineers, forest intellectuals, professional foresters, natural scientists, and academics. It is certainly difficult to judge whether there is, indeed, a general trend of environmental degradation in the Hindu Kush–Himalayan region. The scientific evidence grows in volume but fails to provide clear and simple answers. One of the problems seems to be that many have asked too simple a question and expected an answer that there is, or is not, an environmental crisis. Some authors such as Thompson and Warburton (1986) have taken the view that scientific study can never give unequivocal answers because ‘the institutions are the facts’, and that an inappropriate type of science is being applied — a one-way, rational and objective process that can uncover ‘the truth’. There are, particularly in the Hindu Kush–Himalayan region, so many practical and institutional challenges to the cumulative uncovering of the truth about environmental change that some claims about reality are patently ridiculous (e.g., the much-quoted case of the lowest and highest estimates of fuelwood consumption in the region differs by a factor of 57). Our own view is much more optimistic about the contribution of natural science to knowledge in the region (though, as we say below, we are not convinced that natural science has a major role in environmental policy-making). There has been an increasing number of authoritative studies of changes in forest cover, soil fertility, erosion, landslides, geomorphology, and orogenics, to mention a few, that do not make unsubstantiated claims, and which have added to our appreciation of the complexity and diversity of natural processes in the region. Social science studies in great numbers have also shown the diversity of resource-management practices, adaptations, and strategies of farmers and

pastoralists. Many too, frame problems, choose participatory methodologies, and interpret results in ways that are socially relevant to stakeholders in the environments being studied. We, therefore, reject the more extreme views of writers such as Guthman (1997) who reduce the production of knowledge of the Himalayan region to what the powerful (the policy elites, international agencies, and leading experts) want to say and deny that it is possible to say anything 'real' about nature at all.

However, a summary view has to be taken on this issue since it directly affects our view on the importance of land degradation in policy-making. It may be summarised in five brief points as follow.

- Substantial agreement among stakeholders about the meaning of environmental degradation and whether it is occurring in a particular locality is possible in many cases — however, it needs a favourable political environment for that agreement to be negotiated.
- There are environmental problems in some areas for some people some of the time, and some of these are probably serious — there are no grounds for universal complacency, just as there are none for a universal 'crisis' mentality.
- The description of the environmental situation in the Hindu Kush-Himalayan region as a 'crisis', at least in its early forms (e.g., Eckholm 1975), is probably overstated.
- It is difficult to take sides on the relative contribution of anthropogenic versus natural causes of degradation for lack of reliable, concrete time series' data and major disagreements about extent and quantities of parameters.
- One must be aware that the reproduction of the 'crisis' in policy and international circles benefits almost everyone in terms of professional affirmation of one's role, for attracting funding, justifying intervention, and so on, and this is why the crisis narrative survives.

Impact of Land Policy and Land Degradation

What difference has land policy made? The problems of providing an analysis based on evidence has been discussed in Chapter 2, but it is still possible to identify the environmental impact of some land policies. It would be premature to condemn land policy as ineffective in the region, as its complete absence might have led to an even worse environmental outcome. The Indian forest service is a case in point, although many of the detrimental environmental consequences of the official management of forests were diverted elsewhere. Nonetheless, the history of conservation on the part of the service is full of examples of both periods of wasteful and

destructive use of the forest under imperial rule and of responsible conservation (Grove et al. 1998). It is undoubtedly true that the service today protects forests against the people who would use it — and eventually cut it down. In spite of the curtailment of local environmental entitlements, much of the forest still standing today in the western hills of India is due to 100 years of forest policy. The see-saw changes of policy and political change in China have also had profound environmental impacts. Owing to the high degree of mobilisation on the part of the local people and the real productivity gains that current reforms have made possible, economic growth has been favoured at the expense of environmental protection. Extensive legislation is largely ignored. The point is that, in China, economic policy has made a difference in achieving increased growth rates. As the current direction towards individual production contracts on medium-term leases (but not titling) and social differentiation takes place, it is possible that future potential mobilisation and enthusiasm for public works will decrease. China will then face even worse environmental degradation for reasons similar to those in the other countries in the region. The unprecedented floods of last year stimulated much internal debate, and the admission by usually complacent Chinese authorities indicates that the process has already begun.

There are also cases in which there was unintentional land degradation as a result of land policy. These include the nationalisation of forests in Nepal, a coercive conservation areas' policy in Khunjerab, and pest problems resulting from the monoculture of potatoes in the Northern Areas of Pakistan. Some of these, such as the potato monoculture, are coincidental and unintentional, as, in the absence of other options, farmers in the resource-poor Northern Areas took to cultivating a niche product for markets in the plains.

Another issue that we have observed throughout the region concerns the linkage and synergy between the public and private domain within the arena of land resources. Land-based activities, irrespective of ownership and title of the parcel of land in question, are largely influenced by public decisions, policies at work, and even wider private domain responses from communities, local government units, and so on. Degradation, either as a natural process or because of anthropogenic causes, is happening throughout the region, notwithstanding the merit or otherwise of the 'Himalayan environmental crisis' thesis discussed earlier. However, for an individual farmer or for a settled farming community as a whole, the response to this degradation process — e.g., a minor landslip or consistent erosion and debris flow from upper reaches, siltation of irrigation channels and the like — is costly and causes hardship to most people. The divide

between private and public responsibility and management of surrounding natural resources in the Himalayan region echoes too often the tragedy of the commons' syndrome. In the areas where the country studies chose to conduct field research, we observed too many such instances. In Yunnan Province, we noticed silted irrigation channels and precarious hills along highways scarred by past strip-mining and clear-felling. Instead of reclaiming the channel, people have resorted to constructing newer and smaller channels and reservoirs. Obviously, the commune, with large human resources at its disposal, is no longer there to mobilise and command people to undertake earthworks. In Syangja District in Nepal, we noticed a perennial landslip threatening cropland (homesteads have already been moved because of the continuous instability). However, no collective action to remedy the situation has been forthcoming. The root cause is the replacement of traditional social organisations by formal local institutions that have not performed their tasks. The push for decentralisation and politicisation of local institutions are perhaps second generation problems of local governance that simply do not live up to expectations. Such policy directives and administrative changes have already destroyed the existing traditional organisations with their inherent social capital and mobilisation potentials. In the eastern Himalayas, traditional local governance structures that have existed for centuries are also facing decay and maybe eventual extinction. In northeast India and the Chittagong Hill Tracts of Bangladesh, this is clearly visible where traditional authorities, such as the headman and karbari, are fading in the face of formal institutions such as the district council and union 'parishad' endorsed by the government.

There are also many examples of initiatives that are socially sustainable and have reduced or even reversed degradation. The neo-liberal model of pricing of 'free goods' from open-access resources has taken root as our country study in Kaski District in Nepal shows. The village itself is well endowed with natural resources, and alternative livelihood sources could be found by most. Also, the institution that oversees the operation of the market is dominated by the already wealthy — this is more or less inevitable. Other local institutions, which were formed under the community forestry programme, have proved viable, and have undoubtedly improved the forest condition. However, there too, in some cases, livelihood entitlements have been abrogated, especially for the already landless and poor (Graner 1997). The forerunner of this policy (the Nepal-Australia Forestry Project) was eventually adopted as national policy, and is an example of where local initiatives, their successes, and (some) failures found their way on to international and national policy agendas.

New Directions, Old Problems

Most policy documents that have international authorship and financial backing are coherent, well thought out, and theorised, and are the product of skilled and experienced planners. Yet they often remain ineffective policies — paper exercises that are difficult to implement. Why?

- Some policies have a long history of ground experience in the field. They have stood the test of time but are overtaken by new pressures and changes from civil society and the state. The majority of forest services in the subcontinent are feeling these contradictions at this time. Some policies, driven by new styles of development and new social agendas, require such fundamental changes to established bureaucratic and cultural practices for their implementation that they create various strategies of resistance within the civil service and other stakeholders. National environmental strategies and community forestry are two examples. Other policies may be new and have a fresh scientific justification, but their implementation, on paper at least, can be grafted on to existing policies and supported by existing professional attitudes. These new policies then face new and inherited problems from their 'host' institutions. Wildlife projects, national parks, sanctuaries and bioreserves are such examples. In a few cases, environmental policies break new ground altogether in the administrative experience of a country. Here, new relationships within chains of command in the bureaucracy and with the people must be developed. The Kingdom of Bhutan, which is developing new government structures, is such a case, where there is evidence of learning from the mistakes of others and of being able to avoid creating a centralised and coercive style of land policy.
- These pervasive problems facing land policy are shared across the policy spectrum. They are currently termed in policy debates as issues of governance. A policy analysis of even the most technical and applied nature implies the more general and structural problem of governance. Social justice, transparency, accountability, and professional standards are the main characteristics of good governance. Some aspects of existing organisational cultures, values, and processes of civil services in the region may also be obstacles to good governance. Also, the socioeconomic changes described above have tended to undermine good governance further. Those land policies that rely most upon state departments are clearly most affected. Rent-seeking behaviour, foot-dragging and a basic lack of technical and management skills on the part of politicians and forestry officials are symptoms. There are a number of case studies in this report that illustrate the environmental

impacts of the absence of good governance and failures of implementation. However, a downward spiral is not inevitable, as shown by the case of the management of community forestry in Nepal. In spite of resistance from many professionals at all levels, corruption and other policy perverse behaviours have probably decreased through time.

- There is a 'more paper, less practice' tendency. All policies have to become made into a routine before they can be implemented. New demands, which may be implicit in a policy (e.g., personal initiative and benign discretion), remain unacknowledged and are either not done or are subsumed under old labels and categories. For example, a policy of greater participation in agricultural research and extension, biodiversity conservation, and forestry can be subverted to a number of targets. These targets do not represent the intention of the new policy at all, which is much more of a process than a meeting of quantitative targets. For example, monthly reports of many departments list the number of women's groups, number of women in community forestry, number of participatory rural appraisal meetings, number of nurseries established, number of saplings planted — all these hide the radical intention of new land and environmental policies and remain merely number/target oriented and devoid of process. Indeed, such strategies, of reduction of intention to previous bureaucratic routine, are types of resistance. There is good evidence that this is the case in the forestry service of many countries, and of male-dominated professions faced with implementing policies in a gender-sensitive way.
- A challenge for any organisation is to manage change. This change is impacting upon the environment, the people who manage it and live through it, and the policy-makers who seek to change or conserve it. Policies can provide no more than an enabling environment and be an expression of intent to meet broad goals. To proceed, organisations have to become learning organisations in which new behaviours and practices become necessary. New knowledge is becoming available all the time, e.g., understanding about the environmental outcome of certain actions and about the politics of local institutions that favour or disfavour effective social and environmental outcomes. However, there is too little evidence that they reach the public domain and are picked up for critical discussion by policy elites. Many and diverse initiatives are being taken all the time, often by NGOs and community-based organisations. They may be successful or disastrous, but they are not effectively evaluated, collated, and entered into leading policy discourses. As Chambers (1993) says failures can have valuable lessons but they are all too often swept under the carpet. A critical policy discourse, which the major official stakeholders (national administrations) approach with open minds, is often lacking. Initiatives

as undertaken by multilateral institutions — ICIMOD and others — frequently receive short shrift. Junior delegates are sent to training courses or to internationally hosted policy debates, or they are unrepresented altogether. Transfer of postings and responsibilities of those professionals in whom investment has been made is another problem.

Specific Policy Recommendations

Given the current poor economic growth in much of the region, and due to limited resource availability and economic opportunities, emphasis should be put on diversifying livelihoods for mountain people. Projects that assist this diversification, which is already well under way in the region, and, at the same time, do not deplete the natural resources, should be accorded highest priority.

Natural resource research networks linking research station and farmers need to be strengthened and efforts should be made to test and adapt, where necessary, conservation packages introduced from outside (i.e., SALT).

High-value crops, such as off-season vegetables, temperate and exotic vegetables and fruits, seed potato, and seeds for other vegetables have greater prospects in the mountains because of their value and low volume. Increasing income, gained from such products, can enhance the food security of mountain people and raise the value of land, making it more worthwhile for farmers to invest in its sustainability.

Location-specific issues such as micro-watershed management, soil fertility maintenance, and soil management at a micro-level should be addressed by governments, big international NGOs, NGOs, and local organisations, but, unlike the conventional research approach, more attention should be accorded to adapting to local conditions.

The forestry sector in the region still carries its classic orientation of command and control. Changes need to come in curricula and training methods to incorporate more on human natural resource interactions. Without this happening, efforts to increase social/community forestry programmes will suffer from lack of substance and direction. Trainees in social and community forestry are still discriminated against in postings and promotions in many countries.

Tourism has brought some real opportunities for mountain people to increase and diversify their income and employment opportunities. However, attention needs to be focused on the distribution and retention of

benefits in the areas that tourists visit. There are efforts in the region (ICIMOD-sponsored research and training is a good example) to increase awareness and find ways of sharing benefits with local communities from tourism income. Regional governments may work according to these guidelines to increase benefits from tourism receipts to local communities.

Bioreserves and wildlife sanctuaries in the region are still dominated by academic and scientific interests. Benefits from such places still seem esoteric and remote to local people. Promotion of eco-tourism in the highly attractive and resourceful wildlife sanctuaries of the region can go a long way towards realising benefits for the local people. This is critical for the success of the reserves as, often, people living within or in their vicinity have to forego income and resource extraction due to their establishment. However the actual realisation of the values of biodiversity may remain difficult in practice.

Due to the unique history and settlement pattern of mountain areas, land is often untitled creating legal and administrative problems for their users. Recognition of customary rights to land is a basic right for the original inhabitants of these areas. Failure to recognise such rights may lead to intensified short-rotation, shifting cultivation and other short-sighted uses of sloping land. This will certainly not be in the best interests of the environmental policies of the countries in the region.

Governments may consider examining multiple-resource tenure concepts instead of the prevalent single property rights and ownership focus. Mountain people have traditionally used surface water, pasture, and forest in addition to land for their livelihoods. Recognition and clear policy pronouncements of use rights for various resources will benefit mountain people.

Local institutions in the region are facing new challenges from the imposition of new formal structures (which are often failing). A thorough review of such substitution of local institutions is needed before a conclusive judgement can be made. However, it is sufficiently clear at this point that devolution of power and decision-making at the local level can remain a far cry if local institutions and traditional governance structures are completely pushed aside. The renewed interest of the global development community in institutions and rediscovery of the old social network concept (somewhat substituted now by the newer term social capital) for valid reasons suggests that policy planners concerned with poverty and good governance at least seek not to do harm to local institutions.

New Strategic Inputs

- It is becoming a practical necessity that state institutions devolve much of the management of natural resources to local institutions. There is a populist rhetoric in development styles at the present time (discussed in Chapter 3). It has attracted considerable criticism (naïve, ideologically driven, consensus-seeking, conflict-avoiding, and ignorant of local politics). Also, aspects of populist environmental management are promoted by a more market-oriented approach. The previous classic approach of managing natural resources, well tested and historically long lived, is slowly breaking down. Increasing pressures on resources for both subsistence and commercial use, the waning of the legitimacy of the state, dwindling resources for policing, and a degree of demoralisation of many forestry and agricultural support services are the main reasons for this. Decentralisation and local participation, of course, are no panaceas, but to continue with centralised state-driven policies is not appropriate for the hills and is slowly becoming less and less practicable.
- The skills necessary for this transformation require continuous policy debate, new syllabuses, retraining, and new terms of reference for all government personnel. The role of environmental referee and monitor for the ministries involved with agriculture and environment will become increasingly important.
- The notion of an environmental contract with local organisations should be further explored. Already, the best community projects, with state or donor funds and expertise, involve different types of contract between a local institution and an outside agency. Current agreements between forestry services and local communities are also a form of contract but are negotiated under conditions of extreme inequality, and the latter are virtually presented with a 'take it or leave it' fait accompli. It may be possible to extend this notion of a more diverse and locally appropriate form of contract to include an economic, social, and environmental plan with rolling targets and intermediate goals. This would be discussed and negotiated with the new emerging local institutions, and simple indicators of contract fulfillment agreed upon between all parties.

The principle of environmental entitlements or rights to natural capital, as an essential part of a livelihood, should be recognised officially. Perhaps, in the same way as an environmental impact statement should precede any policy decision regarding an infrastructural project, a social audit that forces policy-makers to confront the implications of their actions for livelihoods should likewise be introduced. At present, the rights are struggled for

unofficially and ex post, in terms of poaching, lawlessness or more organised and violent action. Entitlements are wider and more fundamental than, for example, forest-user rights. The word entitlement refers to a fundamental right. When it is deemed necessary to abrogate these in the higher national interest, compensation must be paid. This principle is sometimes conceded but seldom honoured. There are many cases in which governments have reneged on promises of compensations — to the same unfortunate set of displaced people at different times. This process continues; nullifying the intent and spirit of all policies and governance goals, and bewildering local people with a policy that makes promises but does not fulfill them. It is tempting to make connections between land policies that increase central control and deny livelihood rights and the large number of separatist political movements and conflicts.

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Participating Countries of the Hindu Kush-Himalayan Region



Afghanistan



Bangladesh



Bhutan



China



India



Myanmar



Nepal



Pakistan

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