CHAPTER 4

IMPLICATIONS FOR PROJECT DESIGN AND EVALUATION

Plate 6. Where land user behaviour is conservationist, a facilitating role by projects would result in sustainable productivity on an extensive scale

As defined at the beginning of this paper, people's participation has been approached as a means for achieving the objectives of watershed management: sustainable productivity and a reduction of erosion induced by human activity. As such, it encompasses all conservation-oriented behaviour regardless of whether or not it has been directly influenced by projects or indirectly by other factors. In either case, the degree to which the upland resource users' actual land use behaviour contributes to the goals of watershed management is the most important indicator of people's participation.

The criteria by which people's participation must be evaluated are thus the same criteria applied to all development projects in the Hindu Kush-Himalaya Region: efficiency, productivity, and equity, with the proviso that the productivity be sustainable over the long term through the conservation of natural resources. The primary question facing policymakers is: how can people's conservation - oriented behaviour be most efficiently supported to achieve the sustainable and equitable productivity sought ?

Table 10. The Participation Potential of Existing Land Use Behaviour

LAND USE BEHAVIOUR	*PARTICIPATION POTENTIAL*
1. Positive land use behaviour (as defined by watershed managers) already being undertaken by uplanders (mostly on private lands or high security resource tenures)	1. Participation already exists; high potential accelerating the adaptations through judicious use of incentives and removal of existing disincentives, e.g. positive trends towards planting trees on private lands are being accelerated by projects providing seedlings
2. Negative land use behaviour for which uplanders already have visible alternatives which uplanders would change themselves if current disincentives and constraints were removed or mass action mobilised (mostly on public lands with currently low security resource tenure)	2. Depending on nature of disincentives and constraints, good potential for participation through removing disincentives and strengthening basis for mass mobilisation, e.g. reduction of tenure insecurity by establishment of communal forests and local organisations to improve resource management, and removal of bureaucratic disincentives by spontaneous movements such as the *Chipko*
3. New land use behaviour which uplanders do not yet perceive in their interest to adopt (either private or public)	3. Low potential for participation unless new technology happens to fill adaptive niche; if this behavioural change is necessary for downstreamers, projects have to provide long-term and costly incentives or resort to costly coercive measures, e.g. the substitution of high milk yielding buffaloes for cattle is readily acceptable, whereas converting all sloping fields to terraces requires a high level of subsidy

The watershed management and related resource management projects reviewed in Chapter 3 represent the most directly planned attempts by governments and development agencies to achieve these goals. This review documented and compared the variety of strategies used by projects in the Region, including the incentives provided and the support measures undertaken to encourage the desired behaviour.

At the other end of the continuum of people's participation, Chapter 2 identified some of the behavioural trends evident in the Region independent of direct resource management project influence. By calling attention to existing trends of conservation-oriented behaviour, the analysis suggested that these "unplanned" or indirectly sponsored behavioural trends could represent the lowest cost means for achieving the desired goals of watershed management.

As the participation continuum presented in the Introduction indicates, the difference between "unplanned" and "planned" participation is a matter of degree. From the point of view of the land user -- the real decision-maker -- the distinction is artificial. It is from the watershed project manager's or government policy maker's perspective that the degree of direct effort to influence the land user through incentives and disincentives is meaningful. It is from this latter perspective that programmatic decisions are required to determine which incentives to apply at what cost. By extending the concept of participation to cover all land user behaviour which contributes to the objectives of watershed management, it becomes evident that existing positive behaviour trends are more efficient to support, through indirect incentives, than the introduction of completely new behaviours requiring expensive subsidies or coercive measures.

Table 10 presents a preliminary framework for identifying the possible cost for eliciting sustainable participation.

Participation is a function of land users' current motivations and behaviour. Inducing new behaviour and motivations is possible, but often costly in time and money. The magnitude of the task in the Hindu Kush-Himalaya is enormous. Watershed management projects face a choice: either they can operate on a large scale quickly to encourage that land use behaviour in which the potential for participation is high (extensive preventive), or they can attempt comprehensive solutions over a long term in small areas (intensive curative).

These two approaches to watershed management need not be mutually exclusive, although it should be recognised that the more resources are devoted to one, the less are available

for the other. As discussed at the International Workshop on Watershed Management held in October 1985 in Chengdu, China, the **intensive curative** approach is appropriate to small areas where large investments are justified by other productive investments such as downstream dams, while the **extensive preventive** approach is likely to be more efficient for most of the upland areas.

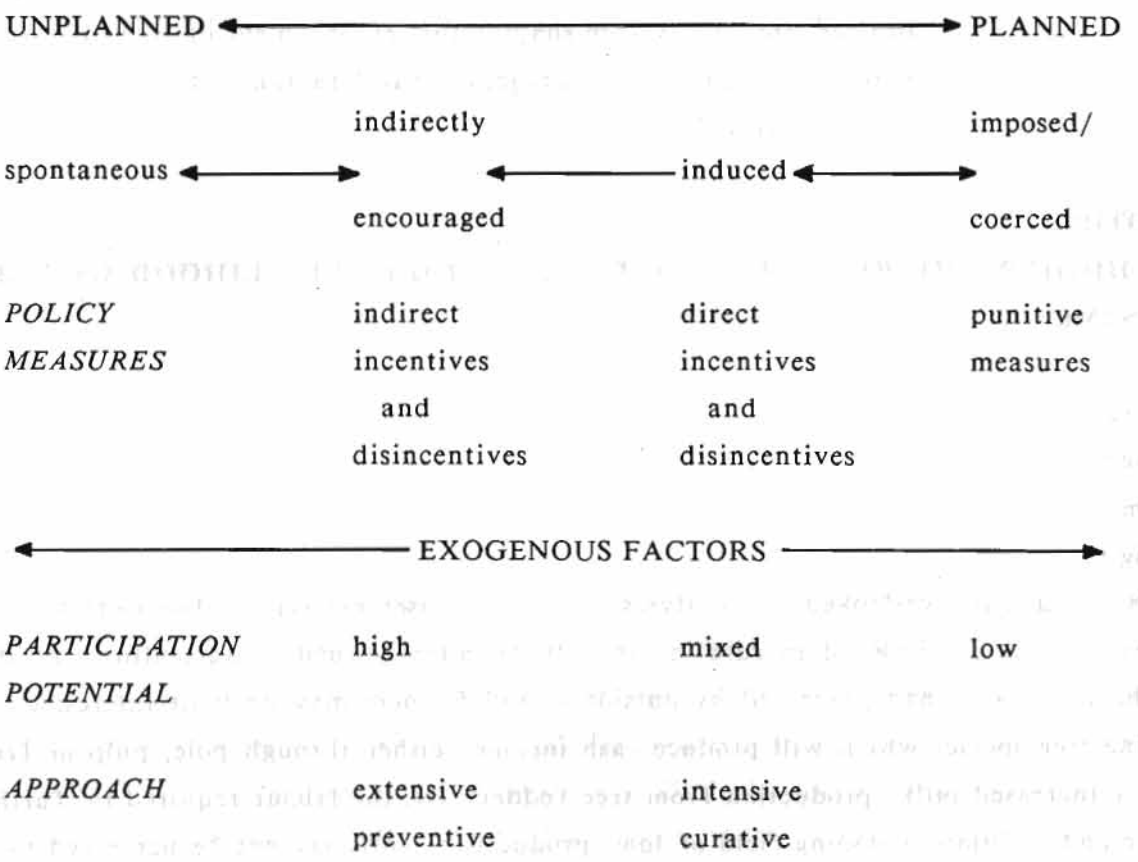
As reported in Appendix 3, the cost of watershed management projects surveyed in this study is high. Given the difficulty of extending resources of this magnitude to all of the Hindu Kush-Himalaya, it is evident that more attention needs to be paid to the extensive preventive approach with higher participation potential. Even if net reductions in siltation rates downstream are used as the indicator for watershed management success, it is our contention that encouraging land users in behaviour for which they are already motivated on a large dispersed scale will have more effect than comprehensive attempts at managing all aspects of soil and water conservation in limited watersheds. The more land users participate on their own, the more easily objectives may be met. Encouragement is more effective than coercion; facilitation is more efficient than implementation.

In other words, the central hypothesis is that the most efficient way to promote participation is to reinforce existing motives and behaviours that suit the goals ; the next is to remove barriers which restrain desired behaviours; and the least efficient is to try and restructure motives and introduce new behaviour patterns through heavy subsidies for coercive measures.

This understanding of the approaches to fostering participation in watershed management can be represented through an extension of Figure 1.

The key characteristic of resource use behaviour which contributes to meeting the objectives of watershed management (that is, "participatory behaviour" in the terms of this study) is that it is **sustainable** over the long term. Sustainability of the resource implies that its productivity is renewable and no irreplaceable resources (such as soil or nutrients) are being depleted more than they can be replaced. This type of conservation-oriented behaviour is thus characterised by a longer time horizon than is assumed by most cost-benefit analyses and rests on the resource users' willingness to invest in the resource's return for future generations.

Figure 2. **Types of Participation**



Focusing on policy measures and direct/indirect incentives which are more amenable to control than exogenous variables, sets of specific hypotheses regarding key factors influencing people's participation are proposed. These resource-related hypotheses are not intended to be exhaustive, but rather to provide a framework by which the larger issues of people's participation in watershed management can be evaluated and the implications for project design more clearly identified. Although they are based on our analysis of available materials, they need to be refined, tested and investigated in the varying conditions within the Region to find out the conditions under which they are supported or refuted. Refutation will be as valuable as confirmation in helping to identify the key leverage points for encouraging more successful people's participation in the goals of watershed management.

Long-term, conservation-oriented resource behaviours are directly related to the perceived **resource value, resource renewability, resource security, resource user management,** and **resource equity** (see Romm, 1984 for a similar set of hypotheses). Each of these perceived resource characteristics are in turn related to a number of factors, some of which are

amenable to policy and project manipulation such as the incentives and supporting measures reviewed in Chapter 3. To the extent that watershed management or related resource management projects are involved in shaping the environment of resource users' decisions, it is proposed that appropriate **project facilitation** is also crucial to encouraging conservation-oriented behaviour.

HYPOTHESIS 1 :

THE HIGHER THE RESOURCE VALUE, THE MORE LIKELIHOOD OF USER INVESTMENT IN FUTURE RETURNS.

Resource value is a measure of the perceived benefits less the perceived cost: the returns received by the resource user. This hypothesis reiterates the most fundamental economic dictum: the more income expected from the resource, the more likely a user/producer is willing to invest the effort and cost required to harvest the resource. Despite its simplicity, this is frequently overlooked in analyses of resource user behaviour. For example, the perceived value of firewood in rural areas with abundant wood or agricultural residue may be far lower than perceived by outsiders, and farmers may be most interested in planting tree species which will produce cash income either through pole, pulp or fruit sales or increased milk production from tree fodder. Or, the labour required to further terrace and maintain a sloping field of low productivity soil may not be perceived to be worth the additional long-term returns which might be obtained.

A large number of factors influence resource value: subsistence needs, cash returns, appropriate technology, investment requirements,labour requirements and timing, infra-structure availability, political benefits, socio-cultural values, credit availability, and subsidies, are among them.

The review of projects in Chapter 3 demonstrates that the importance of economic incentives is widely recognised. Often, however, the perceived economic value of a resource to the user is not adequately taken into account.

To the extent that existing project strategies are an effective guide, it appears that cash incentives are most appropriate for use on state resources, in kind incentives for group resources, and appropriate technologies and strategies to ensure adequate returns for private resources.

HYPOTHESIS 2 :

THE QUICKER AND MORE EFFICIENT THE RENEWABILITY OF THE RESOURCE, THE GREATER THE LIKELIHOOD OF SUSTAINABLE USE.

There is a greater likelihood of upland users adopting sustainable strategies if the resource is more quickly and easily renewable. Though modern plains agriculture is sustained through the provision of outside inputs to replace soil nutrients, upland residents are typically blamed for failing to replace or allow natural replacement of the resources they use. To the extent that resources being used can be renewed quickly through either natural or artificial means, it is hypothesised that upland residents will be willing to invest in the means for that renewal.

The implications of this hypothesis are that efforts should be concentrated on resource technologies which allow for earlier renewal through efficient means, as long as they also meet the criterion of the first hypothesis -- economic return. For example, this hypothesis implies that short rotation coppice tree species are more likely to be used on a sustained basis than long rotation species requiring artificial propagation. Similarly, it suggests that efforts could be more profitably devoted to finding means for replacing nutrients such as nitrogen in short rotation shifting cultivation (perhaps through agroforestry) than in attempting to introduce longer rotation tree crops. Where longer term benefit cycles are unavoidable, it suggests that mechanisms should be sought to make the economic returns from the resource available earlier such as through credit against future harvest or the availability of high value intermediate products such as fodder grass.

HYPOTHESIS 3 :

THE HIGHER THE TENURIAL SECURITY OF THE RESOURCE TO THE USER, THE LONGER THE TIME HORIZON OF LOCAL RESOURCE MANAGEMENT.

Local users' resource tenure rights, though frequently ambiguous and contradictory on public lands, pervade all land categories. Where tree trunks may be owned by governments, their leaves and branches are generally used by the people; where the right to cultivate is prohibited, the grass growing on the ground is used by the people. Except for replanted areas sealed off by fencing, wildlife and domestic livestock have equal privilege to feed on all but private lands currently under agriculture.

According to this understanding, the negative trends evident on public lands (deforestation, overgrazing, encroachment) are crucially related to the fact that they are a public resource with low resource tenure security. While a number of issues are involved in the problem of common and state property resource management, the lack of clearly defined ownership rights is central. On these lands, watershed management has the biggest responsibility and the biggest opportunity to achieve reduced soil loss alongside increased productivity in the Hindu Kush-Himalaya.

A number of factors are hypothesised to influence resource security, of which many are amenable to policy and project support. In addition to legislated resource tenure rights, there are traditional usage patterns which may be at variance with official legislation. The degree of risk associated with obtaining final returns can also be affected by exogenous factors such as weather, pests, and international markets. The credibility and explicitness of any contractual agreements with government are also likely to be important factors in determining perceived security of the resource.

The overall implication of this hypothesis is that the security of people's resource tenures may be one of the most important prerequisites to encouraging people's motivations for upland conservation, particularly on public lands. Not only must the resource have high value and be efficiently renewable, there must also be security of long-term ownership or rights to reap the benefits, including inheritability across generations. Perhaps most importantly, this security must be credible. In most countries of the Region, it is likely that a package of policy measures, including legislative support for group ownership of common resources, and mechanisms for increasing people's confidence in the eventual receipt of benefits are required. Examples include the *Panchayat Forestry* legislation in Nepal, permitting allocation of forest land for agroforestry in Bangladesh, and the introduction of the Responsibility System in China, all of which transferred resource rights from the State to the people.

HYPOTHESIS 4 :

THE MORE ACTUAL USERS HAVE RESPONSIBILITY FOR MANAGEMENT DECISIONS OVER RESOURCES, THE MORE LIKELY THE RESOURCE IS TO BE MANAGED FOR LONG-TERM PRODUCTIVITY AT LESS COST TO SUPPORTING AGENCIES.

This hypothesis is concerned with the institutional mechanisms for resource control, particularly for group resources. The more decision making control is exercised by the

actual users, the more likely the resource will be managed for long-term benefits at less external cost so long as the resource is of sufficiently high value, is renewable, and has secure tenure rights. Where these conditions are not met, project authorities (or the State) will have to assume greater costs and continuing management responsibility over the resource.

The key elements in this hypothesis are "actual users" and "management decisions". Actual resource users include all people presently using the resource, regardless of the legality of their claim and exclude most others regardless of their membership in organisations being used by the project or their residence in the localities where the resource is found. This is likely to differ significantly according to the nature of the resource (irrigation water, forests, grazing land, etc.) as well as between the differing social and political conditions found within the Hindu Kush-Himalaya. Management decisions include choice of technology, control of inputs for establishment and maintenance, harvesting system, and distribution of benefits. The hypothesis states that the degree of control exercised by users over each of these management decisions is related to the long-term productivity and efficiency of the resource.

The conditions under which the hypothesis holds, and its implications, are likely to differ considerably by resource and within the Region. Some of the projects reviewed are currently making use of user group institutions for substantial management decisions. More often, control is retained (or assumed) by State authorities or is partially delegated to local organisations composed of non-users as well as users.

The hypothesis suggests that, in the thickly populated, heavy resource-use conditions of the Region, social viability may lead to greater biophysical viability in the long run with less need for outside subsidy. This argues for project technicians to carefully consider local opinions even when they differ from their technical assessments of optimal methods for resource management.

HYPOTHESIS 5 :

INCREASED EQUITY IN DISTRIBUTION OF RESOURCE BENEFITS, WITHIN THE LIMITS OF SOCIAL ACCEPTABILITY, ENCOURAGES GREATER PARTICIPATION BY USER GROUPS.

Sound resource management is related to control by actual users. Effective participation in resource management is unlikely under highly inequitable conditions; increased equity within the user groups is desirable to enhance resource manageability.

In addition to the question of equity within the user groups residing in the watersheds, equity between those communities and others residing downstream needs to be considered. Development practitioners tend to express concern about prevailing inequalities within the upland communities, which may be substantial, but sometimes overlook those between watershed and lowland residents. Often the latter are more significant in absolute terms.

Watershed managers need to recognise which considerations are socially relevant to the users themselves. While some modification in traditional benefit distribution may be acceptable to upland resource users -- particularly if they have participated in the decision making -- this hypothesis implies that the imposition of socially unacceptable benefit distribution systems will be more costly and less self-sustaining. These limits need to be recognised before attempting any form of social engineering.

The extent of equity sought by user groups may or may not coincide with that of project designers (Cernea, 1985) who could be attempting to use resource management to redistribute benefits. In these situations, policy makers may face a choice of objectives: should the project seek greatest efficiency in achieving its sustainable productivity goals or should it compromise these goals in order to introduce greater equality of benefit distribution than may be currently acceptable?

On the other hand, the form of equity which project designers are addressing may not be the one considered critical by watershed residents. In seeking to determine their priorities, policy makers should remember the simple fact that the more acceptable the distribution of benefits from a resource, particularly from group or state resources, the more likely people are to make the investments necessary to maintain the system over time.

The implications of this hypothesis are that policy makers and watershed managers should seek to enhance participation of actual users by increasing the benefits accruing to them. Where inequality among the resource users acts as a disincentive to participation, modifying the allocation of benefits may be desirable. Where inequality between resource users and others is the issue, a re-examination of the share of on-site benefits in relation to those accruing off-site may produce greater results.

From the point of view of watershed management, equity in resource benefit distribution is desirable and possible only after the first four conditions, advanced here as the first four hypotheses, have been met. All of the above hypotheses point to the resource users within the watershed as the major actors whose perceptions have to be taken into accout if

their participation in watershed management is to encouraged. Clearly, equity in benefit distribution will have meaning as a participatory tool encouraging conservation-oriented behaviour only when the resource has value for the users, is easily renewable, has relatively secure tenure, and is amenable to user group management.

IMPLICATIONS

The overall implication of these hypotheses is that watershed management projects must build on upland residents' existing motivations for sustaining their upland environments through increasing the value, renewability, security, manageability, and equity of resources. As additional understanding is gained through ongoing projects and future studies, the most effective leverage points, incentives, and policy measures can be identified. And as the conditions within which upland residents make their resource use decisions continue to change, the need to refine and adjust project support strategies will also continue.

The need for this ability to be responsive to the motivations and behaviours of the upland resource users thus emerges as the central lesson from this study. Watershed management projects need to learn from each other and from related resource management projects how best to **facilitate** people's own long-term, land use decision making. A variety of strategies are currently being employed to deal with a variety of socio-environmental conditions. The extent to which these are unique to particular conditions or are applicable in other areas of the Hindu Kush-Himalaya Region can only be ascertained by engaging in the most important learning process of all: learning with the people.

This need for engaging in a mutual learning process, for making watershed management a **people-based** endeavor, is what distinguishes watershed management in the Hindu Kush-Himalaya from the west. People's participation in watershed management cannot work unless projects also participate in people's management. With both sides participating, there is hope that productive, sustainable resource management systems can be effectively established throughout the Region.