

A Participatory Approach to Rangeland Research and Management: Developing An Action Plan for Rangeland Conservation in Mountain Protected Areas in Nepal

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It is generally accepted that inter-disciplinary, participatory approaches are useful for understanding and addressing the complex issues related to protected areas, including rangeland use and management. However, although participation is often talked about, it is in fact rarely put into operation. In Nepal, people's participation in conservation management is mandated by law, and the Eighth Development Plan (HMG 1992) explicitly advocates that local people be included in conservation management to reduce discord between people and protected areas. Yet, despite the rhetoric and the legislative framework, true participation in resource management is far from satisfactory (Bhatia and Karki 1999). This stems mainly from a lack of understanding of what is truly meant by the term *participation* and a lack of institutional capacity to implement participatory approaches. For the most part, the resource management training programmes offered in Nepal continue to emphasise the technical components of conservation management and ignore participatory community development approaches and techniques.¹⁹

Participation as An Operational Concept

So what do we mean by *participation*? First let us illustrate what it is *not*. It is not simply designing a project and having local people do the work (i.e., labour sharing), or hiring locals as data collectors. Neither does it mean 'motivating' local people to adopt outside interventions. In practice, it is a collaborative process that is based on a philosophy of empowerment that facilitates the active involvement of stakeholders (in this case both communities concerned, conservation managers, and/or other relevant bodies) in decision-making processes, and gives credence and value to both scientific and local knowledge²⁰ (Waters-Bayer and Bayer 1994).

In a highly participatory exercise, stakeholders collectively set priorities; design, conduct, and analyse research; and implement, monitor, evaluate, and readjust actions. This is a contrast to more conventional approaches in which 'professional' researchers and managers extract information from local people and settings but retain exclusive control over the research and management process. Under the latter conditions, locals may contribute knowledge or may

¹⁹ This fact, noted almost a decade ago (see Gilmour and Fisher 1991 and Joshi 1993), remains true to this day.

²⁰ Local knowledge, also commonly called indigenous knowledge, is that which is particular to a given culture or society. It is the basis on which societies organize how they think about and respond to the world around them, and make decisions about a multitude of activities, including agriculture and resource management (see Warren 1991).

provide their ideas and perceptions, but 'outsiders' still analyse the information and define the 'problems' and 'solutions' for the community rather than with the community. Figure 14 illustrates the two opposing ends of a participation gradient, differentiated according to the level of inclusiveness of all stakeholders, and offers examples of research approaches and/or tools that fall at either end.

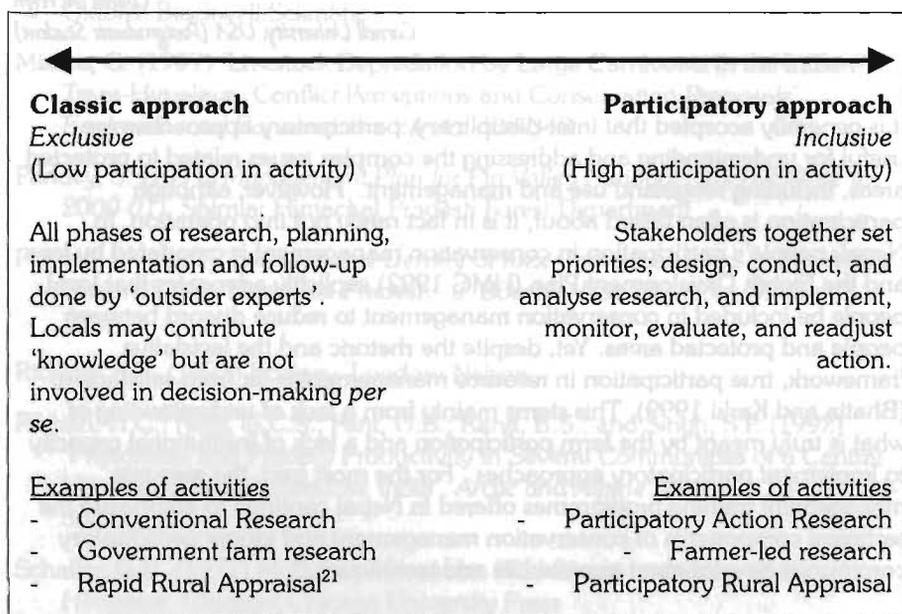


Figure 14. **A participation gradient**

The key to effective participation is that all stakeholders have a sense of ownership of the information generated and play a role in deciding what research is undertaken and what is done with the knowledge generated. The level of conflict among competing interest groups will necessarily affect the swift and effective implementation of participatory methodologies, but these obstacles are not usually insurmountable once a group of stakeholders mutually commit themselves to work through their differences. However, getting to this point can be difficult. The capacity to engage in the process itself requires crucial changes in attitude among conservation managers and a fundamental paradigm shift in prevailing resource management models. For the most part, whether rightly or wrongly, protected area staff in Nepal continue to see themselves in a policing role vis-à-vis local inhabitants, as opposed to partners in the conservation process. Local people in turn are usually suspicious of protected area initiatives, which they see as having little benefit while simultaneously bringing added hardship to their lives. If local participation is to have any meaning in the real sense of the term, then mutual trust and

²¹ We include Rapid Rural Appraisal (RRA) here because in practice this is a method that is essentially extractive.

accountability needs to be developed on both sides. If this is to happen, then the professionals engaged in conservation activities will have to take the initiative and will need to develop good communication skills—including a willingness to listen to local people and an ability to ask relevant questions—and be willing to engage with local people in a process of partnership and collaboration. Without these critical changes in mindset, any participatory approach is likely to fail.

Participatory action research: an operational methodology for participatory rangeland research and management

As the name suggests, participatory action research (PAR) is a research methodology that integrates the participation of stakeholders, social action, and academic research into one holistic process. It is research in the sense that it aims to generate useful knowledge. It is action-oriented in the sense that the research aims to inform and engender positive social change and community empowerment. It is participatory in the sense that it is a collective, community-based process whereby some community members collaborate with the professional researcher in an action research project. That is, community members act as co-researchers throughout the entire process - from the initial design through the presentation of results and discussion of future actions (Whyte *et al.* 1991; Greenwood 1991). Though the professional researcher may initiate and stimulate the process, he/she neither directs nor controls it.²² In this way, PAR “self-consciously attempts to counter researchers’ monopoly over the knowledge generation process, and thus the cultural forms, language, and policies that are derived from research” (Chesler 1991; see also Elden and Levin 1991).

Like other action research approaches, PAR seeks to link theory and practice. Conceptualised as a cyclical process encompassing a spiral of cycles of planning, action, observation, and reflection (McTaggart 1989), PAR aims to increase understanding of both the subject under study as well as the research and action processes underway (see Figure 15). It offers itself as an alternative to conventional research models²³ which stress the establishment of basic ‘facts’, hypothesis-testing, neutrality and objectivity on the part of the researcher, standardised assessment devices, and non-intervention. Instead, PAR begins by identifying the problems experienced by the community, advocates local solutions to local problems (i.e., context-bound knowledge), encourages the generation of ‘local theory’, and stresses commitment towards the goals identified by the group and personal action-taking by the researcher (Chesler 1991; Elden and Levin 1991; Whyte *et al.* 1991).

PAR is a methodology or framework, not a method or tool. Because it is process oriented, various ‘tools’ can be used to assess issues or attributes using participatory or conventional research methods (Fisher and Jackson 1999). The

²² This is not to say that professional researchers do not bring their own knowledge and needs to bear on the research process. In fact, according to Elden and Levin (1991), it is through the interaction of insider and outsider frameworks and expertise that new knowledge is generated.

²³ See Chesler (1991) for a useful table that contrasts conventional research and PAR on the basis of goals, methods, relationships with participants/groups, base of operations/funding, research issues, and products and action.

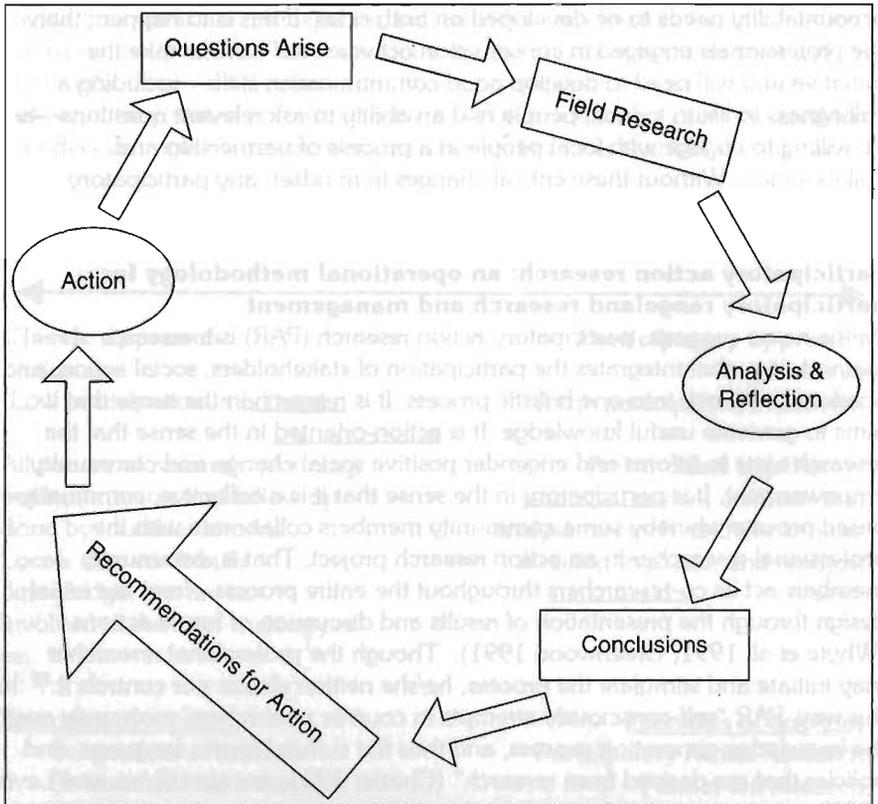


Figure 15. **The Cycle of Participatory Action Research** (Wadsworth 1984) (can be entered at any stage of the cycle)

* Analysis and Reflection include assessment not only of results but of the *assumptions* of the stakeholders involved (differing world views and how it affects the analysis of results).

latter methods, for example, are particularly useful in situations where more specific or technical data are required. Like methods themselves, the actual level of participation of group members will vary, both between and within projects. This will depend on the problems and conditions under study, the aims, capacities and interests of group members, and the skills of the professional involved (see, for example, Greenwood *et al.* 1993) (see Table 15). The key is that all members are involved in deciding which methods are chosen at any particular stage, and who will assume responsibility for them. The more

Table 15. **Examples of varying levels of stakeholder participation in specific research activities related to rangelands**

Issue	Degree of participation by stakeholders in activity	Who conducts? (decided by PAR team)
Pasture improvement	High – direct relevance to community	Line agencies and farmers
Remote sensing analysis of range resources	Low – highly technical	RS Specialist in consultation with PAR team

important an issue is to any given participant, the more likely that person is to participate in a particular activity.

The Strengths and Weaknesses of PAR

PAR offers a number of advantages over more exclusive, conventional approaches. It enhances and develops rapport between stakeholders (e.g., park managers and local communities), bridges gaps between scientific and indigenous knowledge, provides more interdisciplinary data, and facilitates integration. It also facilitates the prioritisation of strategies for future research and management activities by basing them on both the needs and limitations of those involved and helps to strengthen local capacity for planning, implementing, evaluating, and continuing activities. Furthermore, it can facilitate and accelerate the implementation process (because both communities' and outsiders' intentions are clarified and made transparent) and ensure continuity by increasing the commitment and responsibility of those involved.

Having said that, doing PAR is by no means easy and involves a number of trade-offs. For example, it is usually more time consuming than conventional research and requires extensive planning. As a collective process, PAR requires a higher level of coordination (both of people and agendas) than in standard research where the researcher acts alone or directs research assistants. It also takes a longer time to reach decisions, particularly if the stakeholder group is large, heterogeneous, and/or unstable over time (i.e., members come and go). Considerable time must be devoted to negotiation and conflict management. Combining research with an action agenda further complicates and lengthens the process, simply because there is more to do. The amount of time invested, however, is usually offset by increased efficiency in the long-term, as inappropriate and/or undesired interventions are more likely to be discarded before they are put into motion, and useful and acceptable interventions are more likely to be adopted.

PAR is also risky in that individual members lack exclusive control over the research process and are required to place a high level of trust and confidence in other members of the group. Because problems are defined collaboratively in the field, the research is necessarily vague at the outset and members have no way of knowing where the process will lead. Because of this, PAR critics maintain that research generated using this approach lacks the rigour of more conventional scientific methods. Responding to this, Whyte *et al.* (1991) argue that information provided by community members who have a stake in the outcome of the research is generally more useful and accurate. They also point out that, because the research group includes members of the community being studied, the PAR approach ensures that information is subjected to rigorous cross-checking with people who have first-hand knowledge. Drawing on their own experience in PAR projects, they conclude, "... this cross-checking process has assured a far higher standard of factual accuracy than could have been achieved by standard social research methods" (Whyte *et al.* 1991:41-42). Finally, PAR is not a low-cost replacement for conventional investigation, but the long-term costs associated with conducting irrelevant research are usually avoided and/or reduced (Waters-Bayer and Bayer 1994).

Table 16. Assessment matrix as a model for initiating a rangeland diagnostic study (not all boxes need to be filled in)

Agro-ecosystem components	Cross-cutting themes				
	General description of component – temporal and spatial	Tenure patterns/ institutions – who regulates access to resources?	Social diversity (gender, relative wealth, ethnicity, etc) – is access to resources equitable?	Indigenous knowledge regarding components – who are the local 'experts'?	Other?
Households (livelihoods, labour, skill, etc)					
Rangeland and forest pastures (winter and summer)					
Livestock (health, breeding, management, etc)					
Forests (pastures, other uses, etc)					
Croplands (crops, use of residues for livestock, manure application, etc)					
Social organisations/institutions affecting village life					
Markets for livestock products					
Past development interventions/policies					
Other?					

Initiating PAR in Rangeland Research and Management²⁴

Developing action plans for rangeland conservation and management requires adopting a particular systematic framework (and attitude) for inquiry, planning, implementation, analysis and critical reflection. An **agro-ecological perspective** is needed, that takes into consideration the different ecosystems (elevation, climatic variability, and associated farming systems) in the region. This entails an interdisciplinary analysis of pastoral systems and the linkages among communities, the environment, the market arena, government policies, and development plans. PAR can then be used as a framework for assessment, planning, and implementation.

Figure 16 illustrates the logical flow of information necessary to implement effective interventions in agro-pastoral ecosystems (but could be applied to other farming systems as well). Phase I and II are essentially 'diagnostic' phases that are the foundation for future action and are conducted to identify who uses resources, how they are used, the temporal and spatial patterns of use, the key decision-makers regarding use, and the impacts of use. Resource professionals cannot manage rangelands collaboratively with stakeholders if they do not know with whom they are working and what they are managing. Although the phases, as outlined in Figure 16 at first glance appear to be a linear process, in reality they represent a cycle of logical steps such as presented in Figure 15. In many instances, interventions have taken place before the local conditions were understood or appreciated. Therefore, phases I and II are also meant to investigate the impacts of any past interventions and, if necessary, initiate steps to correct unintended consequences.

The diagnostic phase is designed to shed light on the complexities and indigenous rationale of land-use systems in protected areas. Table 16 shows an Assessment Matrix that can be used as a framework for a diagnostic study in rangeland systems (to be modified depending on site conditions). Agro-ecosystem components are listed in the left hand column, including past interventions in the community. Cross-cutting themes, such as tenure and local institutions, social equity, and indigenous knowledge, run across the top.

Some examples from rangeland areas of Nepal

Pastoral production systems in mountain areas are generally characterised by diversity and mobility. Mountain rangelands are, by definition, a marginal resource, naturally low in productivity and influenced by erratic precipitation patterns in the form of either snow or rain. In response to this variable environment, mountain communities often engage in multi-resource activities, including trade, single season cropping, and livestock husbandry to meet their livelihood needs and to minimise risk.

It is an ecological reality that livestock must be mobile to maintain rangeland health, and this is the basis of extensive grazing systems. This is true whether one is talking about large arid rangelands or small intensively managed pastures. Mobility has been shown to be a good indicator of sustainable

²⁴ Parts of this section have been adapted from training materials prepared for the Regional Training Course 'Participatory Approaches to Rangeland Research and Development' conducted by ICIMOD and RECOFTC, in Jomsom, Mustang, June 7-20, 1999.

Phase I. Develop a better understanding of the agro-pastoral management system, including historical patterns, socioeconomic factors, and indigenous knowledge of rangelands and livestock, and their linkages to agriculture and forests (diagnostic phase).

- Have problems/constraints faced by the community been identified?
- Are the spatial and temporal patterns of livestock mobility and other land uses identified?
- Are the local conditions mutually understood to a degree that all stakeholders are comfortable with proceeding to the next phase?

Yes?



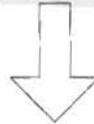
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Phase II. Assess the ecological state of rangelands (determine the significant trends in relation to rangeland condition, livestock production, and biodiversity). This cannot be done effectively without completing Phase I.

- Are indigenous and scientific world views regarding the landscape mutually understood?
- Is there a general understanding (among all 'stakeholders') of ecological conditions?
- Is there a negative impact of land use on the environment (mutually perceived)?

Yes?



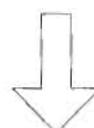
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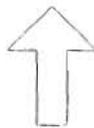
Phase III. Intervention

- Were interventions mutually identified as a need? Mutually planned?
- Remember that the 'intervention' may not be technical!

Yes?



No?



Phase IV. Proceed with intervention and evaluate sociological and ecological impacts (repeat Phases I and II).

Figure 16. **A Logical Flow Chart for Participatory Action Research in Rangelands**

rangeland health, and as such is compatible with biodiversity conservation (Sneath 1996; Miller 1997; Steinfeld *et al.* 1997; Wu 1997). Conversely, restriction of livestock movement is often associated with over-grazing. Thus if one can identify the factors that lead to changes in livestock mobility, one can often address the causes of rangeland degradation. Restriction of mobility is often associated with reduction in the grazing area caused by: 1) increased population densities (human and/or animal); 2) forest conservation or protected area initiatives that prohibit grazing and/or burning, which in turn affect local management systems; 3) expansion of agriculture into grazing areas, such as along valley bottoms or marginal upper-slopes; and/or 4) changing socioeconomic factors leading to shortage of labour (Chakravarty-Kaul 1996, Jodha 1998, Wu and Richard 1999).

A number of factors in agro-pastoral systems determine livestock movement, which is tightly linked to agricultural patterns. These affect movement both among pastures and within pastures (rotational grazing). The following are typical examples of the rationale for livestock movements, in this case from the subsistence agro-pastoral community of Ringmo village in Shey Phoksundo National Park, Dolpo, Nepal (Richard and MacLeod 1994).

Reasons for Macro-Movement (among pastures)

- Timing of cropping, ploughing, harvesting
- Timing of milking /breeding/ manure collection
- Transportation (trade)
- Availability of labour (including division of labour between women and men)
- Types of animals (species, milking, breeding, or unproductive animals) and their use (e.g., for ploughing or for trading transport)
- Availability of pastures (tenure)

Micro-mobility (within pastures)

- Rotations between pastures determined by plant-animal indicators
- Sites for camps/watering holes
- Types of livestock - in terms of plant utilisation and ability to range from central camps. For example, in summer pastures, non-milking female yak and breeding male yak are not brought into camp at night and can range further than small ruminants and milking animals that are corralled every evening. This differential grazing creates gradients of impact with the highest impact closest to camps.

The conditions that dictate livestock movement in the above example are primarily set by natural environmental factors; the agro-pastoral production system reflects adaptation to these conditions. However, the larger socio-political arena can and usually does influence herding patterns. In contrast to Dolpo, the agro-pastoral system in Upper Mustang, Nepal, provides an example of the consequences of restricted livestock mobility. Previously reliant on yak husbandry, this region and its inhabitants have undergone significant changes in recent years.

In the past, Tibetan herders used summer pastures in Upper Mustang and Mustang herders used winter pasture in Tibet through mutually cooperative

arrangements. With the closing of the Tibetan border in the 1980s by the Chinese government, Mustang herds no longer had access to winter pasture in Tibet (Blumont 1997). As a result, yak herds have almost completely disappeared from Upper Mustang due to a lack of winter forage, as they cannot travel to lower elevation pastures like other livestock such as hill cattle, sheep, goats, and horses. Livelihood options, other than livestock husbandry and agriculture, are limited in this region. Consequently, many residents migrate out in search of income, thus reducing the labour available to manage the remaining livestock herds. There has also been an increase in the use of *Caragana* shrub for fuelwood because of the lack of yak dung (Blumont 1997) which has negatively affected the rangelands in and around villages. Thus, there is not only a continuing degradation of the environment surrounding village areas, but also a gradual cultural decline.

Using the diagnostic tools shown in Table 16, key socioeconomic and ecological factors can begin to be identified. Using Mustang as a simplified example, these would be: importance of yak in meeting basic household needs such as for food, fibre, and fuel; the sociological and ecological consequences of losing that source (declining livelihood options and increased pressure on *Caragana* shrubland and subsequent erosion); declining interest to remain in Upper Mustang and out-migration due to the limited livelihood options; and thus limited labour available to work with remaining livestock. Given this situation, key avenues for intervention would initially exclude activities that increase labour demands without immediate benefits (e.g., pasture improvements). Instead, options should be identified that would help diversify the local economy, based upon an assessment of local needs, environmental constraints, unique niche-based resources, and existing human strengths and capacities. In the case of Mustang, this would most likely involve improving the infrastructure for market access and improving processing and business skills, which would involve other key stakeholders in the development process (such as regional traders, district officials, and government agencies). Protected area managers will only be able to garner local support for conservation in such cases when all players are identified and brought to the negotiation table to devise realistic prescriptions for diversifying livelihoods in these remote mountain regions.

Designing the action plan

These initial steps (which will vary depending on local situations) should be considered when designing a participatory action plan for a particular protected area.

- Consider your resources in terms of available funds and capacity. Do protected area staff have the capacity to conduct participatory action research? If not, where can the skills be found? In other departments? Using consultants?
- Find personnel that work well with local communities and form an initial PAR team.
- Collect and collate the existing information on the PA.
- Identify knowledge gaps (from your information synthesis).
- Present the gap analysis to various stakeholder groups (like local communities, NGOs, traders, local government officials) for feedback.
- During group meetings, set initial priorities and objectives for research based

- on mutually shared issues and concerns.
- Select the initial Core Stakeholder Team to conduct diagnostic phases based on group interest (membership can change throughout the PAR process depending on need).
- Conduct a diagnostic rapid assessment using an agro-ecosystem framework (Table 16) with methods such as PRA or RRA and rapid ecological assessment.
- Present this information in stakeholder group meetings for feedback.
- Mutually define the next phase based on the outcome of studies and group consensus.
- Implement the next phase.
- Evaluate and continue the process.

Conclusion

The main goal of any participatory approach in protected area conservation management is to link institutions, such as extension/line agencies, NGOs (where they exist), and local communities together in order to pursue a common goal—to improve rangeland and livestock conditions—and, in so doing, rural livelihoods. To build the necessary linkages requires two-way channels of communication, which in turn requires a fundamental shift in the way we think about development research and a more inclusive process than allowed by conventional methods and models. We suggest that participatory action research, a collaborative, reflective process that links both action and research, is a helpful framework for achieving that goal. With a dynamic flow of information and decision-making, we can better reach our ultimate target audience — the local farmer and pastoralist — and jointly conserve Nepal's rich biodiversity.

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