Community-Based Natural Resource Management

Readings and Resources for Researchers

Volume 2

Compiled By Sam Landon

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For further information about this document, please contact IDRC at the following address:

Claire Thompson, Programs Branch, IDRC, P.O. Box 8500, Ottawa, Ontario, Canada K1G 3H9

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A. The CBNRM Social Science Resource Kit

What is the CBNRM Social Science Resource Kit? This kit is a reference tool to assist researchers funded through IDRC's Community Based Natural Resource Management (CBNRM) program in Asia to apply concepts, analytical approaches and research methods from the social sciences in their research.

What is the Format of the Kit? The kit is being delivered as a set of ***resource books,*** each dealing with a different key issue area related to CBNRM research. The topics/issue areas covered include: Gender; Community-Based Natural Resource Management; Participatory Research; Indigenous Knowledge; Institutional Analysis; Conflict Management and Multi-Stakeholder Analysis; and Common Property Resources, Tenure and Property Rights. Depending on feedback received from these materials, other topics or issues may be considered for coverage in future. In addition to the resource books, limited funds are being providing for IDRC project researchers to ***purchase books*** from an assembled list covering the above CBNRM-related topics. Further information on this is being sent separately to each project.

What is in the Resource Books? The resource books contain photocopies of selected readings excerpted from books, academic journals, field reports and training manuals. Depending on the subject, the readings include conceptual and methodological issues, research tools, and illustrative case studies. Each source book also includes an annotated bibliography, a list of references, and information on electronic (internet) resources. Instructions on how to use the Centre's literature search and document delivery services (free to IDRC-funded institutions) are also provided.

Readers will find that some of the material in each resource book is contradictory. The intent of the Kit is to expose researchers to a range of academic perspectives, rather than to choose only one view. This means that readers of this material will have to think about the different arguments presented and choose for themselves an interpretation of these concepts and methods which is sensible for their own research project. Readers should also note that the views expressed in the readings are those of the author(s) and do not necessarily represent those of IDRC.

Why Has the Resource Kit Been Prepared? The impetus for developing the kit stems from specific requests from IDRC research recipients for tools and resources to assist them in doing research for community-based natural resource management. For many of these researchers CBNRM is a new concept requiring analytical tools and research methods that are quite different to those they had received through formal or

other training. Researchers wanting to learn these new concepts and methods have been constrained by a lack of access to well-stocked libraries, relevant databases and internet sites.

The kit is also part of an effort by the CBNRM Program at IDRC to promote approaches to research that are participatory, action-oriented, multidisciplinary and grounded in local experience and local knowledge.

Who Should Use the Kit? If your research deals with Community-Based Natural Resource Management and is sponsored by IDRC, you should refer to the information in each volume to help you to undertake your research. IDRC-supported researchers will find that the concepts, tools and methods covered in these reference books will be used repeatedly in research reports, workshops, meetings, correspondence, and in evaluation of your work. You will also find it helpful to understand and apply these concepts if you submit future research proposals. The Kit will also be of wider interest and we hope that it can serve as a useful reference collection for researchers who otherwise would have difficulty getting access to this material.

How Were Readings Selected for the Resource Kit? The reading were selected from existing publications based on literature searches and consultations with academics and practitioners in the respective fields. From these sources the materials have been further selected for:

- readability/clarity of the writing
- suitability for an audience with limited English language skills
- suitability to the CBNRM project contexts
- emphasis on definition of terms and detailed explanation of concepts

IDRC-supported CBNRM researchers are working in over 11 countries in Asia representing a wide range of cultural and educational backgrounds. Many researchers do not read English as a first language and a majority have not had formal training in the Social Sciences. For these reasons an effort has been made to include materials that will be instructive and accessible both for newcomers to the topic and for those with a background in the subject area.

How Might the Resource Kit be Used? These resource books are only a starting point for researchers looking for information on a specific topic. The readings are meant to stimulate research questions and further inquiry. The research tools provided are intended as catalysts for adaptation and innovation of new site-specific tools, methods and analytical frameworks. The bibliographies will assist each project and researcher to pursue more targeted information beyond what is provided here.

Some specific actions you might take within your research team and/or institution to make more effective use of this material:

- identify specific topics which are most relevant to your research and assign responsibility to specific members of the team to review these materials. Take turns briefing other team members on what you have learned from each Kit volume.

- questions? Ask external project advisors or IDRC program staff if you have questions arising from your review of this material.

- organize training sessions using these reference materials together with local resource persons, designated team members, or other experts.

- translate the best articles for broader circulation.

- request reference materials or literature searches from the IDRC library.

- read some of the books in the bibliography to deepen your knowledge and learn other cases and examples. Books and articles which you have read and which are relevant to your own research can be cited, if appropriate, in your research proposals or reports.

- order books selected from the list (provided separately).

- inform IDRC of any changes to your projects that have come about as a result of this material.

- discuss the contents of the readings within your research team and identify what adaptions you could make for the conditions of your project.

B. Readings on CBNRM

This section includes five photocopied readings on the concept of Community-Based Natural Resource Management. A brief introduction to the topic and an overview of the readings is provided below, followed by the reference information for each selection. The readings themselves are numbered and marked with corresponding tabs for convenience.

I. Introduction

The purpose of this resource book is to provide the reader with an introduction to the concept of community based natural resource management (CBNRM hereafter) and a list of references and resources to promote further research and reading on the subject.

The term CBNRM is offered here as an umbrella term under which we have placed the related terms in the natural resource management literature: "co-management", "collaborative management" and "community management". While these terms do represent different ideas and approaches to natural resource management, they all tend to emphasize a strong role for communities in the control and management of productive natural resources. This emphasis on the "community" has gained widespread attention in recent years primarily in response to the poor track record of top-down, centralized, bureaucratic management and regulation of natural resources by states and governments. Representative and accountable community-based institutions (not necessarily the norm) are seen to be potentially more dynamic and responsive to rapidly changing local realities. The CBNRM approach is also recognized as a more effective way to maintain, adapt and build upon key elements of traditional resource management systems that have evolved under unique ecological circumstances and with distinctive forms of social organization. These, it is felt, can provide useful information upon which to develop and adapt sustainable resource management systems for the future.

The rationale for a community-based approach to managing resources is rooted in a number of key premises. These premises suggest that, in relation to central government and distant corporate managers, communities and community-based institutions are ***potentially***:

- better positioned both to respond and adapt to locally specific social and ecological conditions and to represent local interests and preferences;
- more knowledgeable about the intricacies of local ecological processes and management practices;
- better able to mobilize local resources, both human and material, through locally adapted or traditional forms of access and management;
- more accountable for their natural resource management decisions and actions given the relative importance of the natural resource to their livelihoods and their proximity to the people they represent.

However, despite this potential, the community-based approach carries with it a number of risks and constraints: communities are rarely homogenous entities and are often the site of competing and often conflicting interests; community power structures may not be representative or accountable and can serve to marginalise the most needy; collective community interest may be fragmented by the broader economic (market forces) and political structures in which they are embedded; and external political interests and bureaucratic regulations may erode communal authority.

As a result, while an emphasis on community-based institutions and traditional resource management systems can be seen as fundamental to CBNRM, the approach will almost always involve a sharing of authority and responsibility for managing a resource among a variety of institutional and individual actors within and outside a community. As such, one of the major challenges for the CBNRM approach is to identify and establish the appropriate balance of responsibilities among these various actors based on the specific social, ecological, political, and economic conditions that exist.

The CBNRM approach, therefore, calls for attention to be given to the complex social realities at the local level and how these are affected by broader economic (market) and political forces that place boundaries and constraints on community interests and action. This implies a broad research agenda that addresses land and resource tenure arrangements, institutional processes and structures, and which recognizes social differentiation (based on gender, education, ethnicity, kinship and class) while at the same time investigating how the broader political and economic structures and processes interact with and affect local livelihoods and local institutions.

This is understood to be best achieved by placing an emphasis on meeting local livelihood needs by way of a dynamic partnership among communities, individuals, local level organizations and various levels of government. This in itself often means changes in attitudes and behaviours at both an institutional level and individual level. Above all, CBNRM seems to be best served by flexible, responsive and adaptive approaches that emanate from and are tailored to ever-changing locally specific conditions.

II. An Overview of the Readings

The photocopied readings that appear here have been chosen because they provide a more general overview of CBNRM that may not be provided in the subject-specific literature presented in the other resource books. For this reason, the extensive list of material dealing with the critical issues of institutions, participatory research, gender and land tenure are not explicitly included here.

While these articles do not necessarily represent IDRC's interpretation of CBNRM, they do demonstrate some of the varying interpretations of the concept in the literature and present both their advantages and their shortcomings and possible analytical approaches that can guide current and future research.

The first of the photocopied readings provided here is David Korten's introductory chapter to his edited volume entitled "Community Management: Asian Experience and Perspectives". In this chapter, Korten provides an excellent introduction to community-based resource management which includes: definitions; a section focussing on the role and meaning of power; a review of past experiences (prior to 1986); and a brief overview of a case of successful government-sponsored community management in the Philippines.

The second reading is Norman Uphoff's Plenary Presentation from the International Workshop on CBNRM held in Washington D.C. in May of 1998. In this paper, Uphoff offers up a brief historical overview of the concept of CBNRM and presents the institutional and sectoral complexities of pursuing this approach. He explores and assesses the formal institutional arrangements through which CBNRM can operate—what he calls the public, private and "middle" sectors—and explains the different administrative units that make up the "local level". He provides an overview of some of the issues that were addressed at the workshop, namely: the process of establishing enabling policy and institutional environments; organizing effective community-based groups; development of effective operational and institutional linkages; and alternative approaches to conflict management. The issues addressed in the paper are highlighted by a number of short examples from specific cases.

The third reading, authored by Brosius, Zerner and Tsing entitled "Representing Communities: Histories And Politics Of Community-Based Natural Resource Management", is a provocative scholarly article designed to raise questions about the assumptions inherent in CBNRM and the large scale adoption of the approach amongst donor agencies, academics, NGOs and researchers. In particular the authors question the utility of the often falsely-created images of community that are so prevalent and which ignore the locally specific political and historical antecedents of "communities". The authors do not go as far as to condemn the concept of CBNRM but rather they urge those engaged in researching and supporting the concept to pose some very serious questions of the approach and the assumptions inherent in it.

The reading by Leach, Mearns and Scoones is similarly critical of the false ideal of the homogenous community in a harmonious relationship with the environment. The article suggests a look within communities and the "politics of resource access and control among diverse social actors". The article introduces the 'environmental entitlements' analytical framework which is used "to explore the ways various social actors are able to command environmental goods and services that are instrumental to their livelihoods and well-being and to expose the differential influence of socio-economic status, gender, ethnicity, religion, political power and "voice" on the ability of these social actors. This framework further examines how both formal and informal institutions shape the ability of these social actors to gain environmental entitlements and endowments. This piece is an introduction to an issue of the IDS Bulletin devoted to case studies where the environmental entitlements framework has been applied. Also included here is the companion article in the bulletin describing methods for doing an environmental entitlements analysis.

The final reading provided is an article by Grimble, entitled "Stakeholder Methodologies In Natural Resource Management: A Review Of Principles, Contexts, Experiences and Opportunities". This is somewhat different than the other articles in that it does not focus directly on the concept of CBNRM per se but on a review of the underlying concepts and methods of Stakeholder Analysis (SA): what Grimble calls "an approach for understanding a system, and changes in it, by identifying key actors or stakeholders and assessing their respective interests in that system". The paper examines the particular characteristics of natural resources management (NRM) which make it particularly appropriate for the application of SA. These include multiple uses and users of the resource, unclear or open access property rights, temporal tradeoffs; the presence of externalities; and imperfect markets. It discusses a classification system which distinguishes between conflicts and trade-offs, and briefly reviews parallel methodological developments, including cost-benefit analysis (CBA), decision analysis, conflict resolution and social actor perspectives, and suggests areas of complementarity. A number of key issues are raised in the review that have implications for the future direction of SA including: its value to NRM policy-makers and others in overcoming tradeoffs and conflict; the different levels and circumstances in which it might most usefully be applied; and its potential for representing the interests of different groups, including the most disadvantaged, as the basis for interventions. The paper highlights some research and methodological needs directly relevant to natural resource managers and intended beneficiaries.

IDRC researchers should also refer back to the Proceedings of the IDRC-sponsored CBNRM workshop held in Hue, Vietnam in May 1997. In particular, the paper written by ICLARM /NSC (presented by Robert Pomeroy) provides an excellent overview of co-management (in fisheries) as well as a research framework for analysis.

References

A copy of the full-text of each of the following articles is included in this document. To find a reading, flip to the corresponding tab number. These materials have been reproduced with permission from the publishers.

1. Korten, David C. 1986. **Introduction: Community-Based Resource Management**. In David C. Korten, ed. *Community Management: Asian Experience and Perspectives*. Pp.1-15. West Hartford CT: Kumarian Press. Reprinted with permission from Kumarian Press.

2. Uphoff, Norman. 1998. **Community-Based Natural Resource Management: Connecting Micro and Macro Processes and People with Their Environments.** Paper presented at the International Workshop on Community-Based Natural Resource Management, Washington D.C. May 10-14. Reprinted with permission from author.

3. Brosius, J.P., Tsing, A.L., and Zerner, C. 1998. **Representing Communities: Histories And Politics Of Community-Based Natural Resource Management**. Society and Natural Resources 11(2):157-168. Reprinted with permission from Taylor and Francis.

4. Leach, M., Mearns, R., and Scoones, I. 1997. **Challenges To Community-Based Sustainable Development: Dynamics, Entitlements, Institutions**. IDS Bulletin 28(4):4-22. Reprinted with permission from Institute of Development Studies.

5. Grimble, R. 1997. **Stakeholder Methodologies In Natural Resource Management: A Review Of Principles, Contexts, Experiences And Opportunities**. Agricultural Systems 55(2):173-193. Reprinted with permission from Elsevier Science.

INTRODUCTION

COMMUNITY-BASED RESOURCE MANAGEMENT

David C. Korten

Public development efforts of the past few decades have seen increasing extension of state authority throughout Asia into affairs once the preserve of local custom and control. In many respects this is a natural and necessary aspect of the modernization process, drawing local communities into participation in larger national and global systems. All too often however, in its enthusiasm for modernizing and rationalizing resource management, the state has underestimated the extent and capacity of the systems by which people have learned through long and often difficult experience to manage locally available resources to meet their own self-defined needs. At the same time the state has often seriously over-estimated its own ability to manage these same resources. Without denying that the traditional systems are often inequitable and unproductive, state interventions that have chosen to ignore them have seldom fared better. Too often they have simply undermined existing local capacities, created burdens on the national treasury, and exacerbated inequities by transferring resources and power from local to national elites while doing little to increase productivity.

In the face of rapidly increasing pressures on a finite resource base generated by growing populations and rising aspirations, there is need for substantial and rapid evolution of existing resource management systems to support sustainable intensification of resource use. It is unlikely that traditional village communities can accomplish this rapid evolutionary change on their own. But neither can the state accomplish it entirely through its bureaucratic instrumentalities. There must evolve a more dynamic partnership arrangement building from the existing capacities

and evident self-interest of the local community and complemented by the ability of the state to support the development of enabling policies and institutional linkages.

There is growing recognition in Asia of the need for such a partnership, reflected in a wide range of initiatives supportive of a strong community role in resource management within the context of larger national systems. The more advanced of these efforts go well beyond appeals for participation in government-planned and financed projects and programs calling for strong community control of development resources within institutional frameworks supportive of productivity, equity, and sustainability. The better known of these initiatives have been in irrigation and social forestry but similar concepts are being applied in health, uplands agriculture, village credit programs, and others.

Most of the efforts are in an experimental stage. Those initiated by government invariably encounter a contradiction between the requirements of such programs and the bureaucratized structures of governmental agencies. All such efforts face the reality of local politics and corruption. Much is being learned about how to confront and overcome these and other difficulties. Many of the individuals who are at the forefront of this learning are contributors to this volume. It is reflective of this distinctive nature of the *social learning processes* involved that nearly all of these contributors are best described as *practitioner scholars*, whose writing is based on rich practical experience.

THE MEANING AND LOGIC OF COMMUNITY-BASED RESOURCE MANAGEMENT

What exactly do we mean by a community management approach to development resource management or—in its shortened form—community management? The term *community* popularly implies a group of people with common interests. But the meaning intended here comes from the field of ecology, referring simply to an interacting population of organisms (individuals) living in a common location. Competing interests are assumed to be a natural feature of human communities, and one of the concerns in the development of community management systems is with the strengthening of mechanisms for effective and equitable management of such conflict. Another distinctive feature of the community management perspective is a concern with community control and management of productive resources, which goes well beyond a more conventional concern with participation in the planning and implementation of externally controlled development projects. There is also explicit attention to confronting conflicts between the imperatives of bureaucratic administration and the requirements of broadly based local resource control.

Every community develops systems or mechanisms by which its members capture and use locally available resources to meet individual and collective needs irrespective of whether it has been the subject of external interventions—governmental or otherwise—to develop its community development capacities. Such resources include but are not limited to land, water, information, technology, money, and human energy and creativity. A given community management system may be comprised of any number of different social units, including: household, small firms, kinship groups, factions, and the whole range of local organizations from voluntary associations and cooperatives to local governments. It also includes nonorganizational mediating mechanisms such as markets and informal relationships.

The performance of a community-based resource management system is a function of its ability to mobilize available resources and to use them productively, equitably, and sustainably in meeting the needs of community members. This performance varies considerably from one community to another. The systems by which a community's resources are managed also vary considerably in the degree to which they are locally controlled and, if locally controlled, the extent to which control is broadly shared among the community's members. Though difficult to define with precision, the term community management normally is applied only when these management processes involve broadly distributed control within the community. The term is not appropriately applied where resources on which the well-being of the community depends are being managed *for* the community by persons and groups outside its boundaries, and/or by a small local elite. Thus, in assessing whether a given program is indeed building community management capacity, the test of productivity is necessary but not sufficient. The empowerment test must also be applied. A true community management intervention must strengthen and broaden the local base of effective resource control.

Unfortunately the natural dynamics of bureaucratic functioning create a substantial danger that programs promoted by government in the name of community management may instead contribute to processes of concentration and marginalization, which work against the broader community interest, as in some social forestry programs in India. (See Chapter seventeen. The reason is that the management systems of bureaucracy are control oriented and seek to insure that resource management decisions conform to centrally defined prescriptions. One result is to limit the broadly based participation in resource control that is central to the community management concept. Also, formal governmental structures almost necessarily work from the top down through existing power structures thus reinforcing those structures and providing opportunities for power-oriented elites to strengthen their control over both the local

and the external resources involved in such programs. Structural, policy, and value changes that reorient these dynamics are often essential if government is to be an effective partner in a community based resource management process.

Clearly the concept of community management does not offer government an easy solution to the problem of intensifying the use of critical development resources. Indeed, as will be demonstrated throughout this volume, success is likely to depend on difficult-to-achieve policy and institutional changes. Why then make the necessary commitment? Basically the arguments are three.

1. **Local Variety:** Community life is characterized by substantial variety in natural and social ecologies and in individual preferences. Optimizing productivity and sustainability in resource use in the service of the improved human well-being depends on appropriate adaptation to this variety. Centralized bureaucracies, which function according to standardized rules, have little capacity to respond to the special needs and preferences through which such adaptation might be achieved. With their broadly distributed decision processes, community management systems have nearly unlimited potential for such adaptation.

2. **Local Resources:** When people at the local level are committed to an idea, they can often mobilize an astonishing variety of resources to realize it—from underutilized land and buildings, to skills, communication channels, and money. People will volunteer their homes and their labor, vehicles, tools, and construction materials. By contrast, the bureaucracies of central government are limited to the resources they bring from outside the community subject to their direct control. To the extent that they use local resources, they can depend only on those which they buy or can commandeer through coercive means, leaving a vast range of locally available development resources untapped. Thus, central programs are likely to be costly and wasteful relative to the potentials for meeting the same needs through community initiative.
   The difference in perspective involved in planning by central government based on national resources versus community planning based on use of local resources was graphically demonstrated some years back in a national health planning workshop. World Health Organization (WHO) consultants presented a national primary health plan they had developed for a particular country. Their plan detailed requirements for construction and staffing of numbers of primary health centers and auxiliary health posts determined by applying standard ratios of facilities required per 1,000 persons. Based on the number of new facilities called for and standard staffing tables for each type of facility, tables were developed showing the exact number of each type of health professional to be recruited and trained. Construction and staffing requirements were then translated into budget requirements. Nowhere was account taken of any existing facility or staff. The projected costs were impressive. Later, workshop participants were given case scenarios of three communities and divided into groups to develop plans for addressing priority identified health needs of each community. The resulting plans called for such actions as mobilizing volunteer labor to drain a mosquito infested swamp, mobilizing religious leaders in support of health education efforts, training indigenous practitioners by a local doctor, improving an existing mission hospital, etc. The plans were at once more relevant and comprehensive than those of the national health planners. Not one of the teams called for investment in any new facility or the hiring of a single new medical staff person.

3. **Local Accountability:** A basic principle of a democratic society is that control over an action should rest with the people who will bear the major force of its consequences. Where direct control is not possible, those individuals to whom such control is delegated should be as directly accountable as possible to those most directly affected. Generally, the link between decision and consequences is closest when decisions regarding the use of local resources reside within the local community. Such a link is no assurance of high performance but it improves the odds. If a farmer chooses the wrong technology, it is his own crop that fails. If a community allows its forest resources to be depleted, its members must invest more energy and money in finding fuel and building materials. Poor conservation practices reduce the productivity of its fields. If a business fails, it is the community that loses jobs. But the personnel assigned by central government to intervene in these decision processes are accountable only to distant superiors who are seldom aware of the consequences of their actions let alone personally affected by them. When the extension agent employed by the national ministry of agriculture gives poor advice, neither he nor his superiors in a far off capital city suffer loss of income or tenure.The health ministry doctor who fails to attend to a dying child in the remote village for which she is responsible but never visits will get no reprimand from the superior who has no knowledge of that child or her needs.

These arguments regarding the benefits of local control are not new. They are well grounded in political and organizational theory. But many political leaders and development professionals, dependent on inappropriate administrative and analytical tools, have had difficulty in coming to terms with their implications. Immersed in the bureaucracy and its imperatives, they too easily come to see development only in terms of what government and its bureaucracies do to or for people. The richness, complexity, and diversity of local life and self-help action blend into highly

aggregated statistics or are reduced to the abstractions of theoretical models and, once removed from consciousness, cease to exist as a practical reality.

For these reasons efforts to improve the outcomes of development action through improving the quality of project blueprints and strengthening the control systems of central bureaucracies are themselves self-defeating, exacerbating the rigidities which are a primary cause of development failure. The need is for new organizational forms and program approaches that encourage local initiative, accountability, and self-regulation; for tools and systems that strengthen social learning processes at all systems levels in support of system adaptation; and for greater reliance on private, in contrast to exclusively public, initiative.

THE TWO DIMENSIONS OF POWER

Power represents the ability to change a future state through an act of decision. Development itself might well be defined in terms of building the power of a society, i.e., of increasing its ability to change its future as an act of choice. Thus, power may be viewed as both a resource and a product of the development process.

Many social scientists have chosen to recognize power only by its distributive dimension, which in personal terms refers to the ability of one person to force his or her will on another.[1] Looking only at its distributed dimension leads to treating power as a fixed sum resource, and defining power issues as necessarily competitive in nature. An important consequence is the denial of cooperation as a rational human behavior in areas of activity where power is at issue.

But power also has an important generative dimension, which is basic to understanding the role of empowerment in development.[2] Specifically, if one group can increase its power only at the expense of another, empowerment of the poor, by definition, can be achieved only at the expense of existing powerholders, and these powerholders must be expected to resist such efforts. But such loss is inevitable only for those who measure their own self-worth in terms of their ability to excercise arbitrary domination over others. There are other ways of looking at the potentials of the empowerment process, which are both personally and socially more liberating. The seeming conflict of interest between powerholders and the powerless is not inherent in the nature of power but only in its inappropriately narrow definition. Increasing awareness of the larger possibilities is one of the important challenges facing proponents of community management.

These possibilities are embedded in the reality that social units, whether neighborhoods, local associations, families, local governments, work groups, field offices of a bureaucracy, or corporations, vary in their

capacity for action, for making effective use of the resources at their command to create a new future, i.e., in their power.[3] This capacity is a function of the strength of their organization, the commitment of their members to shared ideas and purposes, and the skills they bring to bear in the pursuit of this purpose. And these are all subject to change.

Since the ability to change a future state is not by nature fixed, it represents a capacity that is subject both to enhancement and to deterioration. Thus, all members of a society or other social unit may benefit from an increase in its power if the increments in power are broadly shared within the group. Hence, the possibility that participation in cooperative endeavors can be a highly rational individual choice in a wide range of human activities.

The theories of nonviolent action set forth by leaders such as Mohandas K. Gandhi and Martin Luther King have implicitly recognized the generative dimensions of power, their purpose being to create conditions under which each individual has maximum opportunity to be an influential member of an active and productive community.[4] The empowerment processes they advocated were based on a concept of mutuality in which the power of one person is increased by his or her simultaneous contribution to increasing the power of others.[5] By building a strengthened base of social capacity for productive action, the social energy potential of the larger sociosystem is thereby increased as well. There is no evident limit to the power that may be generated through this process.

This is not to deny that empowerment processes also involve the distributive dimensions of power. An intervention directed toward strengthening the economic power of women through increasing their capacity to manage a broad range of economic resources will reduce their dependence on their spouses. Similarly strengthening the capacity of the community to assess and act on its own health problems will reduce the community's dependence on medical personnel for dealing with common health needs. In one sense the power of the former powerholder has declined, depending in part on how that individual chooses to view and act on the new reality. However, a position of power that is dependent on the weakness of another individual is a very limited, growth-inhibiting power.

A reduction in dependence-based power reduces the original powerholder's opportunities for the exercise of arbitrary coercive power, but it can also create new opportunities for that same individual to exercise more mature forms of power. For example, the increase in family earnings provided by a more economically active female member opens new opportunities for the household to advance its situation through investment in education and productive assets. Generative additions to household power can more than offset the distributional loss to the male head

of household and, if he exploits these new opportunities effectively, he may find his position within the larger community enhanced accordingly.

Or consider the case of health professionals working in a community health program. When a community is dependent on health professionals for treatment of even minor ailments, their time is consumed in routine treatments that require little of their medical training and have little lasting impact on the health of the community. By concentrating on building the capacity or power of the community to address its own basic health needs, these same medical personnel demonstrate their real power to change future events. At the same time they help to relieve themselves from routine curative tasks, allowing them to devote more time to treating the serious cases that require their most advanced skills and to diagnosing more difficult community health problems—consequently increasing their own stature.

Unfortunately in this very real world, not all powerholders are so enlightened. And dealing with the less enlightened to achieve more broadly based participation in resource control and decision making often requires more than education and appeals to their higher nature. Competition for resource control all too often involves life and death struggles in which success for the poor depends on their ability and willingness to stand firm in the defense of their rights. Such struggles are documented by several cases presented in this volume.

PAST EXPERIMENTS WITH GOVERNMENT-LED LOCAL DEVELOPMENT

Concern with local development initiative is by no means new to the development scene. Community development programs attempted for many years to take development activities directly to the village. Participatory projects have called for popular participation in project design, implementation, benefits, and evaluation. And decentralization schemes have provided discretionary funding to be used for locally defined development projects. Each of these experiments provides lessons relevant to contemporary public initiatives in support of community management.

Community Development

Though community development initiatives can be traced back to the 1920's, it was the Etawah pilot project in India that brought community development into prominence in the post-colonial era. Government-sponsored community development programs were introduced throughout much of the developing world during the 1950's, but were largely abandoned by the mid 1960's, due to a long list of well-documented failings.

It has been noted, for example, that the conflicts of interest inherent

in stratified village social structures were ignored by program planners while existing power structures were accepted as given. Little or no attention was given to questions of asset control or to the structural barriers to improving the lot of the poor. Programs and targets were formulated centrally and were implemented through conventional bureaucratic structures with little regard to the willingness or capability of the people to respond. Little effort was devoted to building independent, member-controlled local organizations able to solve local problems, mobilize local resources, and make demands on the broader system. The village was treated as a self-contained development unit with little attention to either the policy context, or to the broader institutional linkages that influenced the viability of village level self-help activities.[6]

Popular Participation

In the late 1960's and early 1970's, equity and participation reasserted themselves as priorities on the international development agenda—a response to the failure of "trickle down" development to benefit the masses of the world's poor. Commitments emerged to a wide range of new projects and programs intended to get the benefits of development to the poor as quickly and directly as possible, primarily by providing publicly funded and administered social and extension services.

Though project and program plans invariably stressed the importance of popular participation, in reality meaningful participation was largely precluded by the planning procedures themselves. These procedures called for blueprinted project designs in which the key decisions regarding services, facilities, inputs, schedules, and outcomes were all centrally determined by planning experts. These experts had neither the incentive nor the means to obtain meaningful inputs from unorganized, poorly educated, and widely dispersed beneficiaries to the design of multi-million dollar projects. Once such plans were completed and accepted, the only avenue left for beneficiary participation was in providing free labor and materials to implement decisions in which they had no part.

Furthermore, these plans were implemented through centralized, hierarchical, rule-bound development agencies which allowed their local functionaries little discretionary authority to make adjustments in response to local needs or preferences. And there was little or no accountability to the people who had a direct interest in actual outcomes.

Decentralization

Where decentralization of administrative functions has been attempted in Asia, the emphasis commonly has been on the implementation of the national programs through local administrative units with little more

than rhetorical commitment to development of the effective, locally accountable political structures required for responsive decision making.[7] Efforts of the latter type have consisted largely of providing central grants to local bodies to be used for small-scale, local infrastructure projects. But in both instances, central control and local dependence on central funding have been retained, often with little commitment to the more fundamental political and administrative reforms that might ultimately lead to self-managing local communities.

APPLYING THE LESSONS OF THE PAST: A CASE EXAMPLE

None of these approaches to stimulating local initiative provided a fundamental challenge to the idea that the government does development for the people, who are expected to respond with grateful acceptance of whatever guidance and assistance government chooses to offer. None challenged the nature of the government's role or the appropriateness of the structures and procedures through which government conducts its business.[8] None confronted basic issues of local social structures and resource control.

The more successful community management initiatives do seek to control these difficult issues. They define government's role in terms of enabling the self-help efforts of the people. Attention is given to reorienting the structures and procedures of public development agencies in ways consistent with this new role.[9] And community-level interventions seek broadly based empowerment in resource control and management.

One of the better known and more successful national scale, government-sponsored community management efforts is that of the National Irrigation Administration in the Philippines (NIA).[10] In the late 1970's the NIA came to realize that the major remaining opportunities for further expansion of irrigation coverage in the Philippines were found in improving the thousands of small farmer owned and operated "communal" irrigation systems which already provided approximately half of the Philippines' irrigation. Thus the NIA set about to develop its ability to provide effective assistance to these farmers in increasing the coverage and reliability of their systems. The key elements of the NIA's approach demonstrate the effective application of the lessons learned from the failures of community development, popular participation, and decentralization.

1. Major attention is devoted to building independent, member-controlled irrigator associations. Every aspect of NIA assistance in the development and improvement of system facilities is designated to provide the association with experience in problem solving, resource mobilization, and asserting itself in negotiations with NIA engineers. These associations are legally chartered by the government as autonomous, self-managing corporate bodies with the right to assess user fees, hold and dispose of property, accept loans, and hire staff. And they are granted legally enforceable rights to the water which their system is authorized to use.

2. Prior to beginning work with any community, a socio-technical profile is prepared which illuminates existing power structures and the extent to which they represent broadly based irrigator interests. These profiles are reviewed by NIA staff in project assessment workshops at both provincial and regional levels to identify potential problems, including conflicts of interest within the community, and to plan strategies for use by NIA personnel in addressing them during implementation.

3. Organizing activities begin with the strengthening of smaller turnout groups and the formation of numerous committees to perform tasks such as obtaining water rights, registering the association, obtaining rights of way, monitoring NIA's procurement process, and assisting NIA engineers with system layout. This broadens the base of participation, builds both leadership and followership skills, and provides members with an opportunity to see first hand which individuals are most likely to represent association interests if elected to formal leadership positions. Membership in associations is limited to actual land tillers, thus insuring the representation of tiller interests and broadening the power base within the community.

4. Community organizers fielded by NIA begin working with actual or prospective association members well before the initiation of design work on a specific system to prepare the prospective users to make effective inputs to the design. Once a design has been prepared, the engineering staff walks through the actual system with association members to insure agreement on the location and nature of every facility. Construction does not begin until the association has formally approved the plans and agreed to terms of loan repayments. The system is not considered completed until the association has accepted it as meeting specifications in a public ceremony. At this point the facilities become the formal property of the association, which assumes full responsibility for their operation and maintenance.

5. Future budgets of the provincial engineering office depend on loan repayments by the assisted associations, providing a strong incentive to the provincial engineer to insure continued satisfaction with NIA services by the association members and creating a considerable measure of local accountability.

6. In a process begun in 1977 and still continuing as of the time of this writing, NIA's top management has worked to reorient the

the agency's internal structures, planning and procedures, staffing patterns, training, and evaluation systems to reflect the requirements of the participatory approach.[11] As a consequence, the NIA has developed an essentially non-bureaucratic mode of operation based on well-disciplined, problem-solving teams at regional and provincial levels. These teams have considerable discretion in adapting assistance interventions to the specific needs and circumstances of individual communities.

Several generic features of this experience point to how community management is differentiated, as both concept and practice, from earlier community development and popular participation initiatives. Specifically: 1) assistance to each individual community group is designed and managed as a discrete project activity with its own specifications and time table responsive to the particular situation of that group, based on a careful study of existing practices, technical capacities, resource availabilities, and power structures; 2) the emphasis is on community control and management of the resource, and every aspect of the project intervention is geared to this outcome, including legal confirmation of resource ownership and legal recognition of the resource management group as an autonomous body with legal rights; 3) actual project design does not take place until the beneficiaries are fully prepared to make their needs and preferences known and, once completed, is not implemented until formally accepted by an association of the beneficiaries; 4) organizing takes account of and works within existing structures to the extent possible, while building member strength from the bottom up to insure broadly based participation by the actual producers and avoid domination by traditional leaders; 5) incentive systems within the agency are structured so as to strengthen the accountability of the project staff to assisted groups; 6) systematic, long-term attention is given to debureaucratizing agency systems and procedures, developing its capacity to work flexibly as a service agency in support of local resource management groups.

It is evident that a commitment to community management is not to be undertaken lightly by a public development agency. In the absence of such commitment, programs that adopt a community management label are likely in fact to suffer all the deficiencies of past community development, participation, and decentralization initiatives.

ORGANIZATION OF THE BOOK

Commonly development texts look at problems of resource management primarily from the view of the state on the presumption that the state represents the interests of the broader society. It is a top-down view that overlooks much of local reality, as well as the bias of the state action

towards the interests of existing powerholders. A first step towards achieving a needed reorientation in development thinking and programming is to better understand the nature of the development problem as it is experienced by the people, and to appreciate more fully the nature and importance of their self-help actions, preferably from the people's own perspective. It is to this task that the present book is devoted, accepting the inherent limitation of any such effort undertaken by relatively privileged outsiders.

Part I takes a broad look at the value dimensions of development as these relate to the concept of community development. Criticizing conventional development strategies and the values that guide them, each of the three contributors to this section sees in the Asian people, their communities, and their social, religious, and philosophical traditions the basis for a more people-centered development process that nourishes the spirit as well as the body.

Contributors to Part II examine the variety of local circumstances facing both households and local governments, the essential complexity of the choices faced, and the dynamics of the local decision processes through which accommodation is made. They reveal a reality all but invisible to most bureaucratic decision makers who presume to make resource management choices for the community.

Part III illuminates the broad range of resources that local communities are able to bring to bear in addressing their needs and the complex social dynamics that both enable and constrain the effective and equitable use of their resources in the community interest. It also demonstrate the limited ability of many government agencies to get even the resources they control directly into the hands of those who are most in need.

Contributors to Part IV illustrate, through a series of case studies, the power-building processes through which external catalytic agents can contribute to the development of effective community management capacities. In so doing, they demonstrate the central role of empowerment in achieving more productive and more equitable development.

Government often assumes the lead in community management interventions with decidedly mixed results. Contributors to Part V draw on a variety of case experiences to examine the potentials and limitations of government as intervener in implementing programs intended to strengthen community resource management capacities.

While it is common for attention to focus on community-level program and project interventions, equally important are interventions directed to the creation of a favorable policy and institutional setting that motivates, protects, and mediates the conflicts of self-reliant community management efforts. Both public and private sector organizations have critical roles in the creation of such enabling settings. Part VI looks at some

of the issues involved and offers specific guidance for policy makers from both sectors.

The Conclusion presents an essay examining why conventional development strategies, inspired by the economic and administrative structures and theories of 1950's industrialism, have neglected the role of communities in resource management. Observing that contemporary industrial societies are themselves undergoing a profound developmental transformation, it concludes that the strategies dominating Third World development action are based on outmoded concepts of the nature of modernization, and of the organizational forms appropriate to a modern society. The newly emerging information era opens a range of new possibilities, including resource management systems based on broadly based local control and initiative, which are at once consistent with the best of Asian values and traditions, and the most advanced of technologies and organizational forms.

NOTES

1. Typical is the argument of David Eaton that power must be viewed, "As a relationship in which one person or group is able to determine the actions of another in the direction of the former's own ends." *The Political System* (New York: Knopf, 1953), p. 143. Similar definitions of power may be found in Richard Emerson, "Power Dependence Relations," *American Sociological Review, 27,* No. 1, Feb., 1962, p. 32; and Gene Sharp, *The Politics of Nonviolent Action* (Boston: Porter Sargent Publisher, 1973). Parenti goes to the extent of suggesting that it is only the implication "of dominance, gain, and loss which make[s] power of compelling interest to students of politics." Michael Parenti, *Power and the Powerless* (New York: St. Martin's Press, 1978), p. 6.

2. The distinction between power's distributive and generative dimensions is made by Talcott Parsons, *Structure and Process in Modern Societies* (Glencoe: The Free Press, 1960), pp. 220-1. Parsons makes specific note of the tendency of social scientists to focus only on the distributive dimension.

3. This seems to be a universal reality of social units. Previous studies have attributed this to different levels of interaction-influence, which is a form or manifestation of social energy, which Soedjatmoko discusses in Chapter 1 of this volume. See Rensis Likert, *The Human Organization* (New York: McGraw-Hill, 1967). Field studies that confirm differential patterns and levels of interaction influence across organizations and cultures are reported in Arnold S. Tannenbaum *Control in Organizations* (New York: McGraw-Hill, 1969); and Arnold S. Tannenbaum, Bogdan Kavcic, Menachem Rosner, Mino Vianello, and Georg Wieser, *Hierarchy in Organizations* (San Francisco: Jossey-Bass Publishers, 1974).

4. Severyn T. Bruyn, "Social Theory of Nonviolent Action: A Framework for Research in Creative Conflict," in Severyn T. Bruyn and Paula M. Rayman (eds.), *Nonviolent Action and Social Change* (New York: Irvington Publishers, 1979), pp. 19-20.

5. McClelland makes a distinction between *personalized* and *socialized* power. Personalized power is exercised through exploitation and expropriation of the property and self-esteem of other individuals. Socialized power is achieved through increasing the sense of capacity or power of others. He reports on research demonstrating the apparent paradox that the leader becomes truely effective only by turning his or her followers into leaders, into origins rather than pawns. David C. McClelland, "The Two Faces of Power," *Journal of International Affairs,* Vol. XXIV, No. 1, 1970, 29-47.

6. Lane C. Holdcroft, *The Rise and Fall of Community Development in Developing Countries, 1950-65: A Critical Analysis and an Annotated Bibliography,* MSU Rural Development Paper No. 2, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan 48824, 1978; Norman T. Uphoff, John M. Cohen, and Arther A. Goldsmith, *Feasibility and Application of Rural Development Participation: A State-of-the-Art Paper,* Monograph Series No. 3, Rural Development Committee, Cornell University, Ithaca, New York, January 1979; and Edgar Owens and Robert Shaw, *Development Reconsidered: Bridging the Gap Between Government and People* (Lexington: Lexington Books, 1972).

7. Harry J. Friedman, "Decentralized Development in Asia: Local Political Alternatives" in G. Shabbar Cheema and Dennis A. Rondinelli (eds.), *Decentralization and Development: Policy Implementation in Developing Countries* (Beverly Hills: Sage Publications, 1983), pp. 35-57.

8. These issues are examined in detail in David C. Korten and Felipe B. Alfonso, *Bureaucracy and the Poor: Closing the Gap* (West Hartford: Kumarian Press, 1983).

9. David C. Korten and Norman T. Uphoff, *Bureaucratic Reorientation for Participatory Rural Development,* NASPAA Working Paper No. 1, Washington, D.C.: NASPAA, November 1981; and Derick W. Brinkerhoff, "Inside Public Bureaucracy: Empowering Managers to Empower Clients," *Rural Development Participation Review,* Vol. 1, No. 1, Summer 1979, pp. 7-9.

10. The most complete account of this experience currently available is Benjamin U. Bagadion and Frances F. Korten, "Developing Irrigators' Organizations: A Learning Process Approach to a Participatory Irrigation Program," in Michael Cernea (ed.), *Putting People First* (Baltimore: Johns Hopkins University Press, 1985).

11. Explicit application was made of learning concepts and methods outlined in David C. Korten, "Community Organization and Rural Development: A Learning Process Approach," *Public Administration Review,* Vol. 40, No. 5, September/October 1980, 480-511.

COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT: CONNECTING MICRO AND MACRO PROCESSES, AND PEOPLE WITH THEIR ENVIRONMENTS

Norman Uphoff
Cornell International Institute for
Food, Agriculture and Development

Plenary paper for International Workshop on
Community-Based Natural Resource Management
Economic Development Institute, The World Bank
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I. **WHAT IS COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT?**
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VIII. **CRITERIA FOR EVALUATION**

Interest in community-based natural resource management (CBNRM) derives from a combination of frustration and optimism. The frustration comes from the shortcomings of efforts to preserve vulnerable natural resources that ignored the needs and interests of local communities and that failed to enlist their cooperation and capabilities in managing those resources. At the same time, there are a number of encouraging experiences with community involvement in natural resource management. Some of these have been documented for this workshop.

Over 400 abstracts were submitted for this workshop reporting cases where local interests and talents have been engaged in a variety of initiatives to preserve the natural resource base on which communities and nations depend for future livelihood and life itself. This workshop will assess the potentials and limitations of such approaches, the conditions under which they can be successful, and when and for what objectives of conservation they are likely to be inadequate.

This introductory paper highlights issues and offers some analytical concepts and frameworks that can assist in systematic evaluation of CBNRM as a strategy for serving both conservation and development objectives. It also presents some CBNRM experience from countries in Africa, Asia and Latin America with which I have some personal acquaintance, mostly through the Cornell International Institute for Food, Agriculture and Development (CIIFAD), my personal "data base."

I. WHAT IS COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT?

The term "community-based" distinguishes the emerging approaches from an earlier concept of **community** natural resource management, which refers to communities having full and generally autonomous responsibility for the protection and use of natural resources. This approach has derived from or been modeled after indigenous systems of natural resource management, where local knowledge, norms and institutions have co-evolved over long periods of time with the ecosystem in question. This often makes for well-attuned management regimes as shown by some of the case studies in Clay (1988) and Berkes (1989), though it does not invariably make for a commitment to the conservation of natural resources.[1]

There are situations where community NRM is more feasible, and more desirable: where human populations and ecosystems are co-adapted and not under stress, and where communities are not confronted with new conditions or new pressures, e.g, from climate change, rapid population growth (natural or due to in-migration), availability of new technologies, weakening of local institutions, new tastes and

[1] Reflecting her observations during fieldwork in Western India, Baviskar (1995: 173) comments: "While reverence for nature is evident in the myths and many ceremonies which attempt to secure nature's cooperation, that ideology does not [necessarily] translate into a conservationist ethic or a set of ecologically sustainable practices."

demands within communities, or changed legal regulations and policy directions. This listing does not suggest that community NRM is invalidated by such factors but that it is less likely to tenable where such factors are present.

It should be realized that many changes in resource status are not primarily the result of human action or intervention, as seen on the fragile hillsides in Nepal (Blaikie and Brookfield 1987: 37-49) and West African savannah and forest regions (Leach and Mearns 1996). It needs also to be appreciated that how resources are viewed and used is conditioned by political and power relationships, not just by abstract or inexorable trends in biophysical or demographic terms.

> Recent advances in ecological theory suggest...that many more environments than was previously thought are characterised by high variability in time and space. This has important implications for managing natural resources and environmental risk, and suggests that understanding environmental change involves looking beyond natural-resource depletion or degradation in the aggregate.
>
> Similarly, local communities may be shown to be dynamic and internally differentiated, and the environmental priorities and natural-resource claims of social actors positioned differently in power relations may be highly contested. These factors point to the importance of diverse institutions operating at multiple scale levels from macro to micro, which influence who has access to and control over what resources, and arbitrate contested resource claims. (Leach et al. 1997: 5-6)

The circumstances that favor purely local and autonomous resource management are becoming more restricted. Local ecosystems are usually linked significantly with larger ecosystems, so one can argue that conserving, as compared to extractive, management requires larger rather than local schemes. Moreover, if the conservation of particular resources is justified not just as a local good but as something that the whole world community has a stake in, then that larger community should be expected to contribute to the cost of maintaining that good.

This means that conserving management is likely to be less supportable or even desirable in isolated areas, even if responsibility for this could be discharged by persons living in close proximity to the resources rather than remotely from them. It is appropriate that beneficiaries who reside far from the resource nevertheless be involved in some way in covering the cost of maintaining the benefit, which is difficult to arrange with autonomous local management systems.

CBNRM as a strategy reflects in social and policy terms the parallel ***nestedness*** of organisms, species, associations and ecosystems in the natural universe. Biological systems, because they do not exist in isolation, need to be maintained within conceptions that comprehend the connectedness between micro and macro levels. Larger systems are obviously made up of smaller ones and disappear without them;

yet at the same time, smaller systems depend on larger ones for their survival. So different levels need each other.

This image coming from an understanding of nature, extrapolated to systems of social organization, justifies a strong concern for the micro. It is from such realities and dynamics, and from their attendant interactions, that ever more encompassing systems emerge which are reasonably stable and productive. For natural resource management, the community broadly conceived is where most of the decisions and actions that directly affect natural resources are made. At the same time it highlights a need to remain cognizant of higher levels of social organization and ecosystem analysis and to relate these clearly to lower levels, a strategic vision expressed by René Dubos' admonition to "think globally, act locally."

A. Some Qualifications

To endorse decision-making at local levels is not to argue that the decisions taken there are necessarily or always the most crucial ones. Certain decisions and actions taken at regional, national or international levels are going to be more determinant. Accordingly, one should not focus exclusively on local arenas for management. The converse of Dubos' advice is also true: think locally, act globally. What appear to be local problems often cannot be solved at local levels.

But local decisions and actions collectively and cumulatively shape the course of ecosystem conservation or degradation in pervasive ways. It is mostly within the purview of communities that forests are cleared, land is cultivated, wild flora and fauna are collected, and water sources are affected by resource management practices. Impetuses for these practices may come from outside communities, but communities are where "the rubber meets the road."

Not all community decisions and actions with regard to natural resources are benign. They can range from resource-degrading to resource-conserving, and sometimes resource-enhancing. This makes it all the more important that local understanding and support for conservation objectives be gained and maintained, since government abilities to enforce decisions favoring natural resource protection are so often limited.

Not all resource-degrading behavior comes from communities. Much stems from "outsiders." Focusing only on communities can overlook important threats to the environment. But such threats make enlisting local understanding and support all the more important, as communities can be vigorous defenders of natural resources that they believe they have a stake in, though it is true that they can be stymied or bought off, especially if local structures of decision-making are weak or unaccountable.

A community-based approach recognizes and reinforces the stakeholder role of people living in, on and around vulnerable natural resources, both for these people's

sake and for that of future generations, for people living in the immediate area but also in the rest of the country and the rest of the world.

Where local perceptions or interests do not favor resource conservation and where a strong case can be made for preserving particular ecosystems in terms of objectives discussed below, there may be justification for other agencies or organizations to become involved more directly with their management, providing financial and other resources as compensation or incentive to support the preservation of natural resources. But even then, the approach is more likely to succeed if negotiated and linked, with rather than in opposition to local residents.

CBNRM does not parcel out natural resources in self-contained spheres coterminous with existing community domains. Forest, soil, water and biological resources need to be understood and sustained within "nested" ecosystems, as already suggested, from local microenvironments up to landscape and watershed levels, ultimately to larger systems on regional, national and inter-national scales. These seldom correspond to or respect political and administrative boundaries.

CBNRM faces two particular problems of aggregation. First, communities are not necessarily clearly bounded social or geographic units, nor they likely to be homogeneous entities, with single or agreed interests. Part of the process of CBNRM is to identify what socio-geographic units can function and work out sufficient agreement to undertake management and conservation of the natural resources within their purview on a collective basis.

The units for management may be groups below the community level or localities above this level, aggregating a number of communities or groups within a larger landscape, as discussed below. CBNRM assumes that processes of resource inventory and appraisal, consensus building and conflict management can inform and empower communities to engage in collective action to utilize and sustain natural resource endowments. This will lead to a system of management that is superior to what could be achieved by purely outside decision-making and initiatives.

Second, natural resources themselves are quite heterogeneous. Community management of ***harvested*** resources such as timber or fish is quite different from community conservation of biodiversity. The former is management of directly utilized resources which produce immediate value to those extracting them from nature, while the latter provides only indirect, delayed or cultural value. Communities may be quite able and motivated to undertake the former in ways that ensure the continued availability of economically-valued resources, while at the same time having little interest in the preservation of "extraneous" biological

resources.[2] These two objectives of natural resource management are not necessarily or always in conflict; they can be or can be made compatible. But the first kind of management tends to be emphasized by persons interested in economic development, while conservation biologists usually have the latter kind in mind when they find fault with CBNRM (e.g., Kramer et al. 1997).

The very concept of natural resources, it should be noted, contains a bias toward evaluating the components of "nature" in economic terms, assessing their use value more readily than assigning them any intrinsic value (Herring 1998). The term "natural resources" as used here refers to soil, water, flora and fauna, commonly aggregated in the category of ***renewable*** natural resources. Use of the term natural resources should not privilege utilization over preservation, however.

In a policy environment where importance is attached to "sustainability," everyone should understand that continuing utilization depends on preservation. Exploiting certain resources to the point where they collapse or disappear is not "wise use." Sacrificing some part of ecosystems, even a small part, to produce profits for some persons (certainly not for all) puts whole ecosystems at risk, as well as their multiple benefits which accrue ultimately for everyone. Arguments that conservation and preservation are not important depend ultimately on discounting the future to zero. The earth is not a project for which we calculate and assess a finite life.

B. CBNRM Strategy

CBNRM ***starts*** with communities as a focus and foundation for assessing natural resource uses, potentials, problems, trends and opportunities, and for taking action to deal with adverse practices and dynamics (Little 1994). This is done not in isolation but with cooperation and support from other actors, both from other communities (horizontal linkages) and from higher-level or external entities (vertical linkages). These higher-level actors can be: local or district governments, regional bodies, government agencies, non-governmental organizations (NGOs), universities, or any other institutions that have an interest in resource conservation and management.

CBNRM presumes that local residents can understand and will support larger interests and principles of conservation, factoring these into their economic, social

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[2] John Schelhas in a personal communication has estimated that perhaps 80 to 90% of biodiversity conservation in the world is "incidental," a by-product of other activities that are more intrinsically rewarding, such as growing shade-grown coffee which harbors high bird and insect diversity, or maintaining riparian forests that protect watersheds but also provide habitat and migration corridors for wildlife species. Many traditional farming systems that rely on polycropping and nutrient cycling contribute to the maintenance of biodiversity, as do parks and protected areas set aside for recreational or scenic values. These objectives are enhanced by having greater biodiversity, but this benefit is more incidental than planned.

and cultural considerations about how natural resources should best be treated. It should not, however, idealize or romanticize local resource users, who for a variety of reasons -- economic, social or cultural -- may be more disposed toward resource-degrading behavior (RDB) than resource-conserving behavior (RCB) (Uphoff and Langholz 1998).

Sometimes communities may preserve the resources within their own jurisdiction by diminishing those of neighboring communities, as in the case of the Madan Pokhara panchayat in Nepal (Acharya 1984). Threats to natural resource sustainability can come from any level, from micro to macro, so decisions are not entrusted entirely or exclusively to higher levels or to lower ones. CBNRM is a ***system*** of natural resource management, especially because there may be need for higher level support for enforcement of local management efforts and restrictions.

The essential feature of CBNRM is ***starting*** with communities, taking them into confidence and having confidence in them. It engages their ideas, experience, values and capabilities on behalf of resource conservation objectives, at the same time it seeks ways for communities to become better remunerated and better served. It is prepared to accommodate local interests, needs and norms that are compatible with long-term preservation of ecosystems and their biological resources. There is a burden of proof on outsiders for proceeding contrary to these interests.

C. Reasons for CBNRM

There are two main reasons why CBNRM is of current concern to governments, NGOs and donor agencies like the World Bank. One relates to the objectives of conservation and the other to development. Different weights are attached to each by different interests, but there is usually agreement that both are important considerations.

The first reason concerns the **protection of biodiversity**, maintaining the integrity and viability of particular ecosystems with their unique combinations of species of flora and fauna. This can have development payoffs, possibly more in the long run than the short term. Where it is linked with economic activities such as ecotourism there are more short-run incentives and benefits attached to the conservation of biological resources, especially endangered or threatened species.

The second reason concerns the **maintenance of ecosystems** such as watersheds for their multiple service functions of benefit to communities, regions, nations, and the world. These include: soil conservation and fertility, sustained water accumulation and flow, favorable microclimates, forest growth for both timber and non-timber products, pollination which is critical for agricultural production, maintenance of grasses and other forage, fish and other aquatic species production, and purification of soil, air and water resources. These have definite economic

value though not always commensurate with the costs to those persons and communities whose cooperation is needed to preserve those resources.

Where ecosystems yielding timber, fish, crops, livestock and other products on an ongoing basis falter, and possibly collapse, there are adverse consequences for humans, not just for the flora and fauna extinguished. CBNRM is generally more attractive to communities for the second reason than the first, but the two are commonly connected, as noted above. This connection can be explained to and accepted by communities, as seen from examples cited below.

There can be a third reason, **preservation of global cultural diversity** where the identity and values of certain communities are linked to living in and extracting resources from particular ecosystems. Quite often, fragile ecosystems are associated with vulnerable cultures, when groups defined ethnically or linguistically have been marginalized by the dominant culture and rely on certain forest, savannah, desert, mountain, coastal or tundra environments (Clay 1988; Chenier 1998). Such groups need to maintain their own identity and homogeneity if larger societal, indeed global, heterogeneity in terms of languages, belief systems, aesthetics, and social organization is to be preserved. If the ecosystems on which such ways of life depend are lost, so are the associated cultural systems.

Consideration here will focus on situations where the first two reasons predominate, because they are more common, not because they are necessarily more valid. Where cultural preservation is the objective, community NRM is more likely to be a viable alternative because the capabilities and incentives for communities to preserve ecosystems and their attendant resources are greater under such conditions. Presently, the most frequent conflicts regarding NRM come from the first two kinds of situations. Most of the conclusions regarding CBNRM undertaken for biodiversity or ecosystem preservation purposes will apply to similar efforts made for other reasons.

Communities, it should be kept in mind, will have their own reasons for favoring, or opposing, CBNRM such as short-term or long-term effects on livelihoods, and reinforcement of community identity and sustainability. To the extent that these are compatible with external rationale, CBNRM initiatives are more likely to be successful. Part of the process of establishing community-based management should include discussion and comparison of objectives. External and internal aims need to be harmonized, with outside actors contributing to the achievement of local aspirations if community actors are expected to help fulfill external objectives.

II. WHY IS CBNRM RECEIVING ATTENTION?

Thirty years ago, CBNRM was considered likely to be ineffective or, worse, destructive of environmental resources. The arguments that Hardin (1968) made against sustainable use of resources which were held and managed collectively as

common property were regarded as conclusive. It was thought to be "rational" for individuals to overutilize any common resources and ultimately destroy them by pursuing their self-interest in ways deemed normal, or at least predictable behavior. The short-term benefits to individuals from exploiting a resource held in common would be greater than the short-term costs to those same individuals. So this would promote overuse of resources even though the sum of those costs subsequently would exceed total benefits. Excessive use would sabotage the renewability of resources, whether rangelands, forests, fishing banks, or underground water supplies, and lead to its cessation.

Most natural resources are "common" in many ways, not just when they have the status of common property, so that no individual owns them privately and can dispose of them at will. They are, first of all, a common heritage, not created by individuals, and at least in principle they belong to future generations even more than to ours. There is a Native American saying that we do not inherit the land from our ancestors; rather we hold the land in trust for those who come after us. Second, natural resources produce benefits -- and can create costs -- beyond the power of individuals to appropriate them or avoid them.

- **Forests** produce timber and other products that can be privately extracted but they also produce widely diffused benefits in terms of climate and atmospheric conditions that are shared by all. Conversely, the reduction of forests alters the composition of the atmosphere in ways that adversely affect weather and temperature patterns in the long run.

- The cycle of **rainfall** -- precipitation, runoff flow, percolation, distribution, use and evaporation, leading to subsequent rainfall and use which maintain life on earth -- is beyond the control of any person, though it is vulnerable to cumulative adverse activities by people.

- The pool of genes for **flora and fauna** is a biological treasure at least potentially available for everyone, and when it is reduced, through extinctions, everyone is poorer as a result.

- While it is true that **land**, and the **soil** thereon, can be privately owned and exploited, even this eminently ownable resource evades human control when topsoil lost through water or wind erosion aggravated by misuse gets deposited elsewhere according to the influence of gravity and weather patterns which are oblivious to titles and deeds.

The analysis which Hardin proposed suggested that protection and preservation of natural resources such as rangelands, forests, fishing stocks and groundwater required either their **privatization**, so that individuals would see and bear the costs of their extraction, or their **management by state institutions**, able to bring instruments of coercion to bear on individuals not accepting restrictions on use that sought to ensure that "carrying capacities" or sustainable offtake rates were not

exceeded. Rather than entrust responsibility for resource management to communities, Hardin advocated regimes of private property, state control, or possibly a combination of the two.

This assessment, however, interpreted "common property" regimes as "open access," when in fact, many if not all are governed by established norms and precedents, often with roles and rules that regulate access to and use of resources (Gibbs and Bromley 1989). Not all of these local mechanisms are effective in deterring abuses of soil, forest, water and biological resources, but then, neither are all market or state institutions effective. Strong arguments have been made against "the tragedy of the commons" thesis on both logical and empirical grounds (e.g., Kimber 1981; Ostrom 1986, 1990; Jodha 1995). There is now also an emerging literature on "the tragedy of the anti-commons," showing how market mechanisms expected to regulate the use of resources can contribute to their degradation (Feeney et al. 1990; Heller 1998).

It is increasingly argued that community institutions, formal or informal, can achieve as good or better results than with state or private management (Ghai and Vivian 1992; Ghai 1994; Berkes 1995; Baland and Platteau 1996). However, successful local management systems are usually not operating in isolation from other institutions and organizations, governmental or non-governmental. The record of community involvement in NRM is not uniformly good. Experience with CBNRM needs to be looked at analytically and critically. This opening presentation seeks to provide concepts and a framework for such an effort at this workshop.

III. SECTOR ALTERNATIVES

Thirty years ago, the institutional alternatives were seen as basically two: either state sector institutions, operating with the authority, expertise and other resources of the state to shape and implement decisions about resource use, or private sector institutions pursuing individual interests and benefits with economic resources being of greatest concern. The past three decades have witnessed the emergence of a third sector standing in between the private and public sectors, as discussed in this section. CBNRM operates mostly in this "middle sector," though it works best when there are complementary, supportive public and private sector activities.[3] Understanding sectoral differences and strategies helps to situate CBNRM within the institutional landscape.

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[3] Various designations have been given to the middle sector: the participatory sector, the voluntary sector, the membership sector, the collective action sector, the self-help sector (Uphoff 1993). For simplicity's sake, this sector is here referred to as "the middle sector." Along with this, there has arisen something referred to as the NGO (non-governmental organization) sector (Clark 1991; Carroll 1992; Edwards and Hulme 1992; Fisher 1993; Farrington and Bebbington 1993). I would include NGOs as a part of the private sector, as explained below.

Middle-sector organizations and institutions have been around for a long time, but they have been fragmented and for the most part have remained small. The middle sector was previously thought of as marginal, ineffective, even atavistic. Preoccupation with "modernization" made it appear old-fashioned. However, various evaluations over the past 10-15 years have showed this sector to have many advantages (e.g., Hirschman 1984; Esman and Uphoff 1984; Uphoff 1986).

There are some good reasons for not regarding NGOs as constituting or as belonging to this third sector. Rather, they are a part, albeit a very important and quite distinctive part, of the private sector (Uphoff 1996a). NGOs are sometimes called "private voluntary organizations" (PVOs), though they are often not strictly private, and neither do they rely purely on voluntary efforts. NGOs operating on a **not-for-profit** basis are distinguished from **for-profit** businesses or enterprises that have been the major portion of the private sector. This means that the private sector has two major subdivisions, one charitable and the other commercial, to characterize them in simple descriptive terms. Neither has **members** to whom they are accountable.

Similarly, within the public sector, a distinction should be made between agencies and actors of the central government, who are accountable to decision-makers at the national level who may or may not be democratically elected and controlled, and **local government** bodies and actors, who are accountable at least in principle more directly to local constituents. Agents of the central government acting at local levels represent local ***administration*** rather than local government.

CBNRM involves institutions and organizations at local levels which can be part of any of these three sectors, but particularly of the middle sector, such as user groups, community management committees, local councils, or producer cooperatives. If these have the sanction and authority of the state behind them, they are part of or at least attached to the public sector. But otherwise they operate with social more than legal authority, invoking community sanctions such as fines, penalties or ostracism. Local government management of natural resources is one form of CBNRM, and not its only form.

There are an increasing number of instances of private sector CBNRM, both for-profit and not-for-profit. Examples of the first category are the private wildlife reserves being operate in parts of Africa and Central America (Alderman 1994: Langholz 1996); an example of the second is the Loma Quita Espuela Foundation operating the Loma Quita Espuela Scientific Reserve in the Dominican Republic (Gutierrez 1996).

Middle-sector user groups are increasingly common for watershed management in countries like India and Sri Lanka (Krishna 1997; Wijayaratna 1994, 1997), while cooperatives represent a promising institutional mechanism for CBNRM as

suggested by forest management experience in Peru and in Mexico (Hartshorn 1992; Alatorre and Boege 1998).

Some analytical distinctions can make these considerations and evaluations clearer as they differentiate among the kinds of local institutions or organizations involved in NRM.[4] A continuum laying out this continuum of institutions/organizations is presented in Figure 1. The major distinction among the three sectors is the differing relationships that persons have to them ***from below***.

Figure 1: Alternative Kinds of Local Institutions for Community-Based Natural Resource Management

PUBLIC SECTOR		MIDDLE SECTOR		PRIVATE SECTOR	
Authoritative		Collective Action		Autonomous Decision-Making	
Local administration	Local government	Membership organizations	Cooperatives	Service organizations	Private businesses
Bureaucratic, looking upward	Political, looking downward	Voluntary, interest-advancing	Economic self-help	Charitable, non-profit	Commercial, for profit
People Relate to These Institutions/Organizations as:					
Citizens, taxpayers, and voters	Taxpayers, constituents, and voters	Members	Members	Clients or beneficiaries, contributors, or employees	Customers, investors, or employees

A. Options for Natural Resource Management

Natural resource management undertaken by **local administration**, i.e., by units of the central government, would not be considered community-based, though to the extent that such units are interactive with and responsive to local people, incorporating their knowledge and needs into management plans and practices, this approach is closer to CBNRM than conventional top-down management by

[4] No systematic distinction is made here between institutions and organizations, but understanding this is important for a deeper appreciation of CBNRM options. This distinction is analyzed in Uphoff (1986: 8-10; and 1994).

government. On the other hand, local government bodies that manage forest, coastal or other such resources are engaged in a form of CBNRM, possibly supplemented by user groups, management committees, or cooperatives from the middle sector.

It is possible that private, for-profit enterprises can undertake to manage natural resources with conservation as an objective rather than simply short-term profitability, either because they can get income from activities like ecotourism or in anticipation that the resource will become more valuable in the future, whether for exploitation or for further preservation. Local foundations can undertake to protect endangered natural resources, utilizing laws that give special status or incentives to non-profit operations. The Nature Conservancy is an example of a NGO service organization that plays such a role. Some traditional institutions should also be considered under this category, such as the local elders or trustees who have responsibility to protect "sacred groves" or "sacred forests" on behalf of communities in parts of Asia and Africa (Chandrakanth and Romm 1991; Lebbie and Freudenberger 1996).

A park, forest, watershed or coastal area could be managed by an agency of the central government, such as the Park Service, Forest Service, Ministry of Agriculture, or Department of Interior; by a local government body; by membership organizations such as user groups or community associations; by a cooperative; by a foundation or charitable organization, possibly a church or mosque association; by a private business; or by some combination of these. While management by a central government agency will not qualify as CBNRM, any of the other organizations or institutions, either respectively or in combination, can undertake CBNRM as this is not the province or prerogative of only one kind of institution or sector.

B. Strengths and Weaknesses

Each of these kinds offers certain advantages, and unfortunately each has certain limitations. **Local government** can exercise or invoke the authority of the state to enforce decisions; it can have personnel who are specialized and trained for such responsibilities. The power to levy taxes as well as prohibit certain behavior strengthens its hand for protecting natural resources. On the other hand, compared to agencies of the central government, local government bodies are often weak, by design or by default, with limited revenues, staff, expertise and even legal authority. Without such resources, its efforts to manage natural resources may invite abuse because there is the appearance of control but not the reality. Also, local government can be dominated by local (or outside) interests that are more concerned with extraction than conservation.

Community organizations, whether membership organizations or their special category of cooperatives, created through a pooling of resources, have greater flexibility than do government organizations. They represent and can act on local

interests quite directly. They have most access to the knowledge about natural resources that local residents have. With appropriate roles and incentives, such as fashioned in the CAMPFIRE program in Zimbabwe (Metcalfe 1997), community members can undertake very detailed management literally at the grassroots. But voluntarism, like flexibility, has a down side as well as an up side. Enthusiasm can wane; conflicts can arise that deadlock local action. The resources that are needed for effective management can fluctuate. Persons with special rather than general interests can subvert or take over the organization. So there may be less predictability and continuity of management as well as less certainty that it will preserve resources in as good or better condition than before.

Service organizations or NGOs can operate quite flexibly, and often exhibit a high degree of commitment to conservation. They are able to provide or access more expertise than other institutions and can often access financial resources that governments and communities cannot. But they too can have internal conflicts that are debilitating, and their financial resource base is seldom assured or steady, so they can default on commitments for a variety of reasons. The government may appreciate that it is spared the expense of services that these organizations undertake to provide, but it can also be jealous and even obstructive of them as competitors. There are sometimes also complaints that these organizations operate in paternalistic or arbitrary ways, not accommodating local needs and interests. Since service organizations can withdraw at their own discretion, so there is no assurance of long-term management. So this option has more limitations than often acknowledged.

Business enterprises if they operate within limits of sustainable use, so as to preserve natural resources, have the advantage of not costing governments or communities anything, at least not directly if they operate successfully. They may be quite innovative and efficient in their operations. Private reserves are gaining ground in South Africa and Costa Rica, for example (Langholz 1996). But their decisions remain profit-driven, and there are no in-built incentives for taking intra- or inter-generational welfare into account. Both the environment and the poor can lose out to considerations of increasing income and wealth in the present for a narrow set of beneficiaries.

There are no perfect institutional solutions for establishing and maintaining CBNRM. As Mao Zedong told us, each solution creates (contains) its own problems. Much depends on **how** institutions are structured, to ensure technical and organizational competence and to have incentives that favor environmental conservation while giving sufficient and appropriate incentives for the various stakeholders and actors involved. Public, private and middle-sector institutions have complementary strengths and offsetting weaknesses, so sharing of responsibility among them provides more overall capacity for managing natural resources most effectively.

For example, local governments can bring some authority to the enforcement of decisions. User groups can monitor and report on changes in resource status.

NGOs often have expertise that they can contribute in a responsive manner, and they can make independent critiques of any evident failings. Businesses often undertake certain services more efficiently than other actors.

Along with such arrangements, there can, and probably should, be some kind of **supporting network** that cooperates with and assists the local institutions involved. These higher-level institutions can come from any of the three sectors, from the public sector (an agency of the central government such as the Park Service or Forest Service); from the private sector (either a foundation or conservation NGO, or private enterprises); or from the middle sector. Carroll (1992) gives some examples of the latter from Latin America.

Research institutions and the scientific community at large could be regarded as a fourth sector. Much of the decision-making on NRM is influenced by researchers, either academic or based in other kinds of institutions, and knowledge generation is proving to be an important element in improving or mediating decisions concerning contentious NRM and public policy issues.[5] The importance of more and better knowledge for improving natural resource management is increasingly evident. This is true not so much in terms of estimating optimum rates of extraction or delimiting vulnerable ecosystems, as in terms of knowing more about the interests, needs and capabilities of stakeholders who are interacting in natural resource management situations.

Knowledge is not unique to any one sector, and knowledge generation can be undertaken by public, private or middle sector institutions. What **kind** of institution supports the generation of knowledge can affect its quality, credibility and acceptability. CBNRM benefits from a good supply and flow of reliable information that can help parties understand the present and alternative futures. Communities themselves, of course, are an important source of knowledge. All parties can work together with more confidence if they can agree on resource statuses and trends, and for this, universities and other knowledge-generating institutions from the public, private or NGO sectors can be constructive partners with communities in CBNRM.

IV. WORKING AT LOCAL LEVELS

When thinking about CBNRM we need to put "community" in analytical context because community-based activities are not just undertaken by, or occur only within, communities. Generally speaking, decision-making and action can take place at any or all of **ten different levels** that range from the international level to the individual level:

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[5] This is suggested by Larry Fisher, based in part on his work with colleagues in Indonesia (Fisher et al. 1998).

(1) international,
(2) national,
(3) regional/provincial,
(4) district,
(5) subdistrict,
(6) locality,
(7) community/village,
(8) group (or neighborhood),
(9) household, and
(10) individual.

Three of these levels are appropriately considered to be "local" and thus locuses for CBNRM.

A. Community

The community is a **residential** unit which may be small or large, ranging from half a dozen up to several hundred or even several thousand households. Communities may be fairly homogeneous in terms of language, wealth, lineage and other characteristics. More often, as suggested above, they are quite heterogeneous, more than suggested by the stereotyped idea of "community." Communities may have tightly clustered, nucleated settlement patterns, or be quite dispersed, possibly linear along a road or a river, or scattered in small hamlets that are connected just by lineage or allegiance to community authorities. Persons join a community by being born into it or by moving into it and being accepted by other residents.

The term "village" is commonly used interchangeably with "community." Village refers to a physical area, while community refers to the people residing within it. This level can be thought of in terms of either territory or population, with limits delineated on a map or by a sociogram. Community can also be understood as a cognitive or cultural construction, analogous to what Anderson (1983) has identified at the national level, where people are joined by a common identity and by mutual perception of interest. In CBNRM, it might be best to speak in terms of a "community of interest" to avoid making "community" too geographic.

B. Groups

Groups are usually smaller than whole communities, though they can be larger in number of members and in geographic spread than a community. Groups are based on some shared characteristic of their members, if only a common desire to belong to an association or committee. Usually some trait such as age, gender, occupation or religion distinguishes members from others who are not members or are not eligible to belong to the particular group. Neighborhoods or hamlets are usually segments of larger communities or villages, so they can be considered analytically as operating at the group level, representing a smaller unit of social organization than the community or village. Groups can and often do cross

community boundaries, so this analytical category does not follow a strict hierarchical ordering.

User groups or any subset of community members grouped in an association, club, committee or union can engage in CBNRM, but when they do so, they do not normally have the same kind of territorial claim or legitimacy that a community organization would have, because they represent a "part" rather than a "whole." However, because they are usually smaller and more homogeneous than communities, therefore they are also usually more cohesive and able to decide and act, there are advantages in group management of resources. This is done with some reference to and usually approval from the community, so that this is community-based management rather than community NRM.

C. Locality

Above the community, one finds in almost all NRM situations something that can be designated as a **locality**, a set of communities that have some degree of common identity and cooperation based upon proximity, but also deriving from social interaction (e.g., inter-marriage) and economic relationships (e.g., periodic market days when villagers from a number of communities gather at some central location to buy and sell goods), as analyzed by Johnson (1970).

A limitation of community NRM is that it truncates the ecological units which are subject to local management responsibility. Communities seldom have jurisdiction over whole ecosystems, such as watersheds, hillsides, valleys, plains, coasts, rivers or lakes. Multiple communities have certain parts of these under their purview. Effective natural resource management requires some degree of coordination -- joint decision-making, implementation, monitoring and enforcement -- among communities sharing a larger biophysical unit containing a complex of soil, forest, water and biotic resources.

For CBNRM, communities with responsibilities for resources in their respective areas are encouraged to collaborate with neighboring communities that are co-dependent on a larger landscape (or waterscape), be it a watershed, hillside, valley, plain, coast, river or lake. What incentives and institutional arrangements can best support such cooperation, however, need to be identified and evaluated in specific contexts. Some examples of this should be seen in the case studies for this workshop.

Accordingly, when thinking about CBNRM, we need to consider not only a variety of institutional or organizational channels as discussed above, but a range of **local levels** of decision-making -- group, community, and locality. What happens at these levels depends on and affects the decisions and actions of individuals and of the households they belong to. The important point is that CBNRM does not occur just in and by communities; it can be undertaken also either by smaller or larger social units of decision-making and activity. But for both groups and localities, the

community remains a pivotal entity, even when decisions are taken at lower or higher levels than the village. The concept of community-**based** NRM thus bridges **three levels** as well as **three sectors**.

V. HISTORICAL PERSPECTIVE ON NATURAL RESOURCE MANAGEMENT

One can likewise delineate three **stages** in the evolution of NRM, especially that which is oriented toward protection of biodiversity, with respect to the attitude that is taken toward local residents. This periodization, though simplified, points out an important progression in thinking underlying the conceptualization of CBNRM.

When natural resources have been at risk from overuse or abuse – for example, when watershed conservation or endangered species protection has been sought – the first response has usually been governmental, i.e., legal and coercive (Peluso 1992). Certain resource uses were declared illegal, and people were excluded from certain places so that they could not damage the resources of concern. This prohibitive approach regarded local residents in and around protected areas as **adversaries**, to be kept out of designated areas which are given "protected" status.

This has proved to have limited effectiveness, however, unless the area is quite small and/or the government has considerable administrative and regulatory capacity – ample staff, good transportation facilities, sufficient information to operate with, and a tradition of general compliance with official decisions. These conditions are seldom satisfied in developing countries, especially in the more remote and inaccessible areas where protection is often most needed or still relevant.

A subsequent approach has been to design programs, policies and especially projects that can "integrate" conservation and development. Rural communities were offered certain incentives to desist from resource-degrading behaviors in return for assistance to improve their agriculture or provide schools and clinics. These were given as a kind of quid pro quo for accepting restrictions on access to natural resources. In this mode, local residents are regarded as **beneficiaries**, to be bought off by goods and services that will enhance incomes and well-being.

There is a growing literature critiquing integrated conservation and development projects (ICDPs), showing that they have not achieved the changes in behavior sought, at least not on the scale or with the speed that is desired (Wells et al. 1992; Brandon and Wells 1992; Barrett and Arcese 1995; Larson et al. 1997; Wells et al. 1997; McCoy and Razafindrainibe 1997). The ICDP approach has come under heavy attack from conservation biologists who do not think it can and will succeed (Kramer et al. 1997).

One can, however, object to this critique, suggesting that ICDPs should not have been expected to achieve rapid changes when dealing with long-standing and complex social situations, ones that have not been amenable to quick solution by

administrative or coercive means either. Moreover, ICDPs have too often been poorly conceived as well as poorly implemented so that they have not been given a fair or full test. They have been more paternalistic than participatory and have not capitalized on what has been learned about development processes and behavioral change (Buck and Uphoff 1997).

To the extent that material incentives are perceived as bribes, they create the problem that people then need to be continuously rewarded with additional benefits to ensure their cooperation with regimes of protection. The implication of such an approach is that resource conservation is something that serves the interests of outsiders rather than the interests of communities. This suggests to villagers that resource-conserving behavior is not something beneficial to them, as Leach (1998) pointed out in her critique of the UNCDF's concept of "eco-swaps."

Reflecting dissatisfactions with the first and second approaches as well as broader experience with introducing developmental change, a third approach has been emerging that is more genuinely participatory. In this, local residents are viewed as **partners** in the complex enterprise of resource conservation. They are regarded as persons with whom outside agencies should work and from whom they can learn.

This newer approach, which has led to CBNRM, integrates conservation and development goals by focusing on the needs, interests, knowledge, values and capabilities of local populations. Such factors are considered as starting points in the design and evolution of management regimes. Gaining people's confidence and cooperation is seen as the key to success. As many accommodations are made to local interests and needs, as well as local modes of organization and management, as are compatible with maintaining soil, water and climate resources in need of conservation as well as any flora and fauna in need of protection.

VI. VOICES FROM COMMUNITIES

This approach is looked upon with skepticism by persons who think that the interests of local people, especially those living in poverty, are unavoidably inimical to the needs of environmental conservation. There are instances where the poor have ravaged the environment out of ignorance of the long-term effects of tree felling, swidden burning, hunting, fishing, gathering, plowing on hillsides. But more often these people understand that there are adverse consequences, but feel, however, that there are no real alternatives when household and personal survival are at stake (Rabesahala and Gautier 1995).

I have talked with villagers in a variety of countries and situations where there is a growing realization at the grassroots that conservation practices are not luxuries, serving the interests of city folk and foreigners, but rather are essential to the survival of their communities and of opportunities for the next generation. Just as environmental consciousness is taking root and spreading in most of the

industrialized countries, it is growing in non-industrialized ones. Surely it could grow faster, and there is need for stronger appreciation and conviction around the world that we cannot continue to overtax the ecosystems which are our and others' life support systems.

At present, I sense a more rapid growth of concern about environmental degradation in poor and marginal areas of the Third World than in the U.S. and maybe Europe. This is often evoked and spurred by alterations in weather patterns and by the decline of water availability, more than by concern with the conservation of biodiversity. But villagers in my experience can see the connection between what is happening to their soil and water resources and what is happening to the rest of their natural surroundings, such that biodiversity can also be part of their concern, e.g., protecting plants that have medicinal value. Let me recount in summary form some conversations with villagers living in or near areas having protected status.

- **Dominican Republic.** In October 1994, as part of a practicum on integrated watershed analysis and management which CIIFAD held in the Nizao watershed, a major source of water for irrigation, urban supply and hydroelectricity generation, we talked with members of the La Esperanza coffee growers' cooperative. Its 800 members had been resisting government efforts to regulate land use and restrict tree cutting. It wanted to reduce siltation in the dams that utilize the flow of water coming from the watershed.[6]

  The Presidential Commission seeking to maintain the forest cover in the Nizao watershed had at first decreed "no tree felling," but there was no way this could be enforced. So a new approach was taken, perhaps learning from the example of a project in Haiti where farmers began planting trees (in large numbers, 60 million over 10 years) once they were given the right to cut these later for household benefit (Murray 1997). At the time we visited, the Commission had not worked out a credible process for farmers to register the trees they had planted so that they would be exempted from the ban on felling.

  Farmers told us that they had come to see that continuing to cut down trees in the uplands was not good for the health of the environment or for their own long-term interests. The cooperative had enacted its own rule regarding tree cutting by members: For every **five** trees that a member plants under the

[6] Research using radioisotope analysis to trace the sources of soil and silt accumulation in the Nizao reservoirs showed that erosion associated with hillside cultivation was a negligible contributing factor compared to the disturbance of soil that resulted from road building and reservoir construction (Nagle 1997). So efforts directed at changing or stopping certain farming practices to slow the loss of reservoir capacity were largely misdirected, since the government itself was responsible for more demonstrable environmental disruption than were farmers.

government program, only **two** of these can be harvested, and these must be immediately replanted in order to keep the number constant. These Dominican farmers were thus prepared to require of themselves more rigorous reforestation practices than the government expected (Uphoff 1994a: 5).

- **Indonesia.** In October 1995, I visited the village of Sesaot on the island of Lombok. LP3ES, an NGO participating in the action research program of the Nusa Tenggara Upland Development Consortium, was working with community members in a situation where conflict had arisen. The government had unilaterally upgraded the status of an adjoining forest area, putting it off limits from local use to protect its watershed functions serving irrigation systems in the plains below the mountain.

  Farmers with the facilitation of LP3ES had organized a committee, Partnership for Forest Protection. This was patrolling the forest and was reporting to authorities any illicit extraction of wood that committee members observed. Over the course of a year, through a process stimulated by LP3ES/CIIFAD action research, the Partnership reached an agreement with the Forest Department to develop a 12-hectare pilot project for community forestry within the protected forest. This area, planted with durian, rambutan, jackfruit and other trees, was judged the most successful reforestation site in the province.

  Working relations with the Forest Department had become more constructive by the time of my visit, and a district forest officer joined our discussions in a farmer's home. (Happily, good relations were not disrupted by the fact that some of the persons identified by the committee as illicitly taking wood were forest guards of the Department.) As long as their access to some of the forest area was maintained, farmers were willing to modify their practices and help preserve the forest and its watershed functions. They acknowledged that unrestricted access and unlimited use would in the long run harm them too, not just others downstream (described in Fisher 1998).

- **Sri Lanka.** In March 1996, while reviewing the Shared Control of Natural Resources (SCOR) project, funded by USAID and implemented by the International Irrigation Management Institute (IIMI), I visited several villages in Nilwela watershed, adjoining Singharaja national forest. This project is supporting establishment of resource user groups of many sorts (rice farmers, tea growers, resin tappers, flower growers, etc.). These are federated within microwatersheds to undertake land use planning and management which can both improve economic productivity and resource conservation (Wijayaratna 1997).

  In Dothalugala, villagers under the leadership of the priest at the local Buddhist temple had formed and registered an NGO to protect their

environment, Dothalugala Heritage. They observed that with the deforestation of hillsides above the village, either there was now less rainfall or runoff was more rapid. Either way, as one villager told me, after a week without rainfall, streams were drying up as quickly as they used to do after a month without rain. Villagers knew that if this deterioration was not reversed, they would have to leave the area because they could not survive without an adequate water supply.

The villagers' first response was to take vigilante action, burning down at night the huts of any persons encroaching on the forest area. But this was extra-legal action likely to cause conflict. With SCOR project facilitation, villagers worked out an arrangement to take responsibility for the forest area, which was owned by a government tea estate, now being managed on contract by a private firm. This firm was doing nothing to protect the forest from incursion because it had no financial interest in doing so. A SCOR project coordinating committee got the estate to turn the area over on long-term lease to the Forest Department, which in turn "deputized" village volunteers to patrol the area and prevent any further tree cutting or other abuses (Uphoff 1996b).

- **Madagascar.** In September 1997, with CIIFAD colleagues and Malagasy counterparts, I visited the village of Riambondrona, about a 45-minute walk from the only road going through Ranomafana National Park. The village lay just outside the designated "peripheral zone" around the Park and thus it had received no assistance or attention under the USAID-funded ICDP that CIIFAD began helping to implement in 1994. Our assignment was to introduce agricultural alternatives to slash-and-burn cultivation that presented a threat to the rich biotic resources being protected within the Park.

  The residents of Riambondrona are from the Tanala ethnic group, which has been wedded to a life in and around forest areas from time immemorial. Slash-and-burn agriculture is not only a means of livelihood but an intrinsic part of their culture. We have had considerable success introducing both lowland and upland agricultural improvements within the peripheral zone, thanks in large part to our NGO partner, Tefy Saina, so that there are some good alternatives to shifting cultivation.

  The residents of Riambondrona had heard about these practices. They formed a farmers' association with all 14 households in the village, and they set aside two hectares of their scarce productive land to experiment with and demonstrate alternatives to slash-and-burn. They invited CIIFAD and Tefy Saina to help them reduce their reliance on shifting cultivation, recognizing that the reduction in forest was affecting their water supply and the long-term viability of their agricultural practices and, for that matter, their community.

The whole village participated in land use planning and management to move away from an agriculture they no longer regarded as sustainable. They mapped the area around the village, the area between them and the Park forest, and the area between them and the road, listing changes they had observed over the past 5-10 years and problems that are now perceived, leading to solutions that they could suggest themselves to reverse the resource decline (Uphoff 1997; see Annex I for this map and listing).

- **Ghana.** In March 1998, I visited the village of Domi in the Greater Afram Plains, a large semi-arid savannah area to the west of the huge Lake Volta. Three years earlier this village had been classified as "challenging," i.e., not particularly cooperative, by the NGO with which we are working in the area. World Vision/Ghana has been installing village water supplies in the Greater Afram Plains since 1990 under its Ghana Rural Water Project, supported by the Hilton Foundation and World Vision International. Now, I was told, Domi is considered to be "promising," i.e., active and cooperative.

  The previous summer, a Ghanaian student doing graduate work at Cornell worked with the chief and villagers in Domi, as well as with two other communities in the Greater Afram Plains, to initiate a process of community-based land use planning and management. They constructed a map of the village and its resources and assessed resource uses, considering the different information and evaluations that men, women and children had about natural resources. With this base of knowledge, they began taking steps to ensure that there would not be further loss of forest, soil and water resources.

  The headwaters of six streams were identified within the Domi domain. The chief banned farming around the sources of these streams and asked villagers to join in reforestation efforts so that the water supply could be improved. Villagers believe that as forest cover has been reduced over the last 20 years, their water supplies have dwindled. They expressed agreement that reforestation will be better if they use a variety of trees, not just a single species, and not just exotic species. They said they know that some plant species are being lost in the area. Some of these plants have medicinal value, the villagers suggested, saying they would be glad to cooperate with researchers who can document and help evaluate these plants and help protect them (Uphoff 1998).

There is much more potential for CBNRM than even a few years ago. Rural people have been exposed to some of the same information about global warming and climate change that reaches us in urban areas. They are necessarily very attentive to shifts and trends in their environment, particularly to changes in rainfall and weather patterns. They also have knowledge of and some attachment to the flora and fauna, because they depend upon these for some or much of their livelihoods. They see value in sustaining biological resources. Suggestions and appeals

concerning the environment that would have gone unheeded in the past now have more resonance in conversations with rural residents.

It is very important **how** such conversations occur. Villagers in my experience, when dealing with government agents that are condescending and in their hearts and minds contemptuous, will be either uncooperative or only nominally acquiescent. Either way they continue doing whatever they can get away with. Even well-meaning approaches by outsiders as in Domi may be met at first with indifference or hostility from villagers. There is in most countries a long legacy of unsatisfactory relationships between communities and outside agencies, governmental or non-governmental.

Given problems of estrangement and distrust, often subtle and unspoken from the community side, one cannot expect new cooperative arrangements for resource conservation and utilization to spring up quickly or without some misunderstandings and difficulty. An attitude that local people are enemies or abusers of the environment, when often others richer and more educated are also taking advantage of natural resources for personal profit, sometimes even with government sanction or acquiescence, does not help establish rapport and a basis for cooperation.

CBNRM is not simply devolution of responsibility to communities. It is a result of discussions and negotiation, seeking agreement on terms and conditions that are not unilaterally determined and whose fulfillment is jointly reviewed and assessed. How well can such arrangements serve both conservation and development goals? How widely is CBNRM feasible, and with what costs and what risks of failure? These are questions to be answered empirically.

VII. WORKSHOP THEMES

The organizers of the workshop have identified four main areas in which knowledge needs to be systematically accumulated, evaluated and disseminated:

- The process of establishing an **enabling policy and institutional environment**, at macro and micro levels, fostering the emergence of community-based institutions to manage natural resources locally;

- The participatory process of organizing effective **community-based groups**, both at local levels and scaling up to the regional level (the preceding analysis has showed this to be process to be more complex than stated in the workshop documents);

- Effective **operational linkages**, both horizontal and vertical, among the public sector, the private sector, and community-based groups in the management of natural resources;

- Alternative approaches to **conflict management** with regard to the use of natural resources at all levels, local, regional and national.

For considering questions and criteria, it makes sense to start with the second focus -- community-based groups -- coming back to the first -- enabling environment -- once it is clearer what kinds of capabilities and networks should be enabled by policies and institutions.

A. Community-Based Groups

- What kinds of **groups** or organizations are involved, or could become involved, in CBNRM? Once we appreciate that there is ***not just one local level***, but rather there are **three** local levels, we should ascertain what kind of community-based groups already exist or could be usefully established:

  ⇒ What **groups** if any engage in NRM? What are the common characteristics or interests of their members? How did such groups come into existence? Are they "traditional" or recently formed? What kinds of sanctions do they have for members and for others outside of the group to enforce certain NRM decisions? What legal status if any do they have?

  ⇒ If **community** organizations take decisions and act on NRM matters on behalf of all the members of a village, what are the boundaries of the organization and its jurisdiction? Is it "traditional" or recently formed? What kinds of sanctions does it have for members of the village, and what control if any can it exercise over "outsiders"? What legal status do these have? Is there any link to local government or local administration?

  ⇒ **Locality** organizations may take decisions and act on NRM matters over a larger area, subsuming communities. What are the boundaries of such organizations and their jurisdiction? Are they "traditional" or recently formed? What kinds of sanctions do they have within the locality, and what control over "outsiders"?

- For **what resource(s)** do these groups or organizations claim responsibility? Are these resources clearly known and delimited, or are they not well known and determined? Previous analysis suggests that the effectiveness and sustainability of community-based management is affected by whether or not the resource is "bounded," as well as whether the resource users are a "bounded" set. These distinctions are laid out in Figure 2.

Figure 2: Resource Management Situations, according to Nature of the Resource and the User-Managers
(from Uphoff 1986: 26)

	NATURAL RESOURCE is:	
USER-MANAGERS are:	Known and predictable	Little known and unpredictable
Identifiable and coherent group	Irrigation water management	Coastal fishing by fisherman groups
Lacking group identity and structure	Forest management	Rangeland management

Protected area management presents a situation where the resource is delimited, at least in principle, though boundaries may indeed be changing or ambiguous, as we have found with the Los Haitises National Park in the Dominican Republic (Geisler et al. 1998). Most users, on the other hand, have little in common except for being located close to the protected area as delineated by officials who make decisions far from the resource itself, and some users, authorized or unauthorized, are indeed "outsiders" with no relationship to persons living around the protected area. There is no reason why such persons should consider themselves as belonging to "communities," and there may be little solidarity within the communities that do exist. The challenge of responding to government decisions and intrusions may give impetus to a common identity and forge some common interest that was not evident before, but this may not be a positive context in which to try to establish cooperative community interests.[7]

Watershed management confronts many different situations with greater uncertainty along both axes in Figure 2. A greater variety of resources may be involved, not just biological resources valued for biodiversity's sake, and a resource like water varies from year to year, being fairly unpredictable. The resource users can be grouped, at least analytically, into upstream and downstream areas. But many persons and diverse organizations have access to a watershed, so the "community of users" is very difficult to delimit.

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[7] Also, some protected areas depend on habitat connections to areas outside their boundaries, which is why conservation biologists so often argue for expanded areas of protection with jurisdictions that extend into private lands. So sometimes the boundaries of "protected areas" are not that evident, and even the resources within them (water, wildlife, forests, and forest products) may be somewhat ambiguous because of their variety and uncertain value (suggestion from John Schelhas).

The SCOR project in Sri Lanka, discussed above, has been able to link a wide range of resource users, but it is uncommon to have such a heterogeneous set of interests engaging in CBNRM together. It was learned that most households in the Nilwela watershed had members engaged in several different occupational activities (rice, tea, forest extraction). This meant that persons involved in one kind of user group could perceive a stake in supporting other kinds of groups to have sustainable access to certain resources to be maintained within the watershed.

The kind of competition and conflict that was envisioned as likely when the project was designed did not materialize.[8] This was partly because households perceived more common interest than we anticipated, due to the diverse interests within and hence multiple connections among households that derived from their heterogeneous survival strategies. Cooperation also emerged because of the efforts of institutional organizers, young persons recruited and trained as catalysts to evoke normative reorientation as well as to reconcile interests.

The "institutional organizer" role was modeled after a prior catalytic role that helped to improve irrigation water management in Sri Lanka (Uphoff 1996). It was possible to create more cooperative efforts to preserve and manage natural resources within whole watersheds that had been previously expected.

With the help of project staff, sub-watershed residents developed maps identifying current resources and evaluating their uses within the hydrologically-defined area. They then produced a map that projected a vision of more beneficial uses corresponding to a differently managed and sustainable natural resource base in the future. This information was put into a geographic information system (GIS) which then drew attractive computerized maps for communities, along with revised maps updated every six months to show the tree-planting, terracing, changes in farming systems, creation of no-use zones, and other actions that had been taken (see Annex II).

- An important question for community-based groups is how much support and strength can come from existing, often **"traditional"** organizations and culture. A related question is how much positive support for conservation efforts these organizations and culture can derive from "traditional" symbols and values. In Ghana, for example, we find that land tenure decisions emanate mostly from the local chief and his superior, the paramount chief for the region. But they are actually shaped by the much less visible clan heads, whose voice in all matters pertaining to land and other natural resources is effectively binding, though their authority is seen as subordinate.

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[8] In 1992, I participated in the design of this project, along with Gil Levine, also from Cornell, and a large number of Sri Lankan colleagues.

- While it is fairly easy to engage the attention and cooperation of communities when their access to sufficient and reliable water supply is at stake, groups and associations can vary considerably in terms of whether they have any similar, related, overlapping or competing interest in **biodiversity**. For some groups, this connection is easy to get accepted, and indeed there may be a positive value already attached to preserving the full range of flora and fauna existing in an area. Alternatively, there may be no interest in biodiversity and even a hostility toward certain plant or animal species, such as animals that harm crops. This makes CBNRM for protecting endangered species and ecosystems problematic. Different strategies will be appropriate if conservation of biodiversity is an urgent need and a top priority where community groups are disinterested or antagonistic toward this.

Other questions can and should be asked of the various cases, but these get at core concerns for evaluating the efficacy and sustainability of community-based groups for conserving the environment.

B. Linkages that Transcend Communities

This thematic focus highlights the need for CBNRM to look beyond the community. Important questions include:

- What kinds of **horizontal** linkage exist, or can be forged, between and among group/community/ locality organizations at the same level? This focuses on attention on linkages among actors having similar interests and capabilities. To what extent is CBNRM seen as an isolated activity, or, much better, as a method for mobilizing local leadership and efforts to manage natural resources that is understood and acceptable to similar organizations elsewhere? This speaks to the question of spread effect.

- Along the same lines, what kinds of **vertical** linkage exist, or can be forged, between organizations at the group, community and/or locality levels and higher levels? This focuses on linkages with district, regional, national and even international actors. To what extent is CBNRM limited in its outreach and upreach, not having influence beyond its local domain and not having access to "outside" resources (authority and expertise as well as funds and personnel). This speaks to the question of effectiveness. Autonomous local institutions if isolated and unlinked may be impotent rather than empowered.

- To what extent is work at group/community/locality levels associated with broad **coalitions** of actors that represent different sectors and levels, bringing multiple perspectives and capabilities to the enterprise of CBNRM? Here are some examples of such networks which I know about from Asia, Africa and Latin America:

Indonesia. The Nusa Tenggara Area Community Development Consortium was launched in 1990 with support from the Ford Foundation office in Jakarta and from World Neighbors, an international NGO. The Consortium brings together NGO, university, government and community actors in, or with an interest in, the southeastern part of the Indonesian archipelago (see Fisher et al. 1998). The consortium addresses a wide range of development and conservation problems in Eastern Indonesia. Its working group on conservation of natural resources deals with CBNRM issues at eight sites in Lombok, Sumba and Timor through action research, community organizing, coalition building, and joint fact-finding, with a variety of innovative strategies for convening stakeholders. Community-level experiments to deal with conflicts over natural resources are going on in Gunung Mutis Nature Reserve and Wanggameti Conservation Area, among other places.

Philippines. In 1993, a similar set of universities, NGOs, government agencies and international agricultural research centers formed the Conservation Farming in the Tropical Uplands (CFTU) consortium. Having started with upland farming systems evaluation and improvement, joint activities now include watershed protection (around Cebu City) and protected area management (Rajasikatuna National Park on Bohol).

Ghana. The Natural Resource Management and Sustainable Agriculture Partnership (NARMSAP) was launched in 1994 by World Vision International/Ghana and CIIFAD, joined by faculty from two universities, the Ministry of Food and Agriculture's Extension Service, and representatives from communities in the Greater Afram Plains (GAP). At a second planning conference held a year later, there was broader institutional and local government participation and more than three dozen community representatives this time. When it appeared that launching field activities would be delayed pending mobilization of donor support, the community and district representatives urged the NGO, university and government partners to start with whatever resources would be available, pledging to make some contributions from their own sources to this venture.

A program of farmer-centered research and extension to develop technologies and practices that could conserve natural resources while improving people's livelihoods was formulated with suggestions from farmer workshops held in each district. There are two protected areas within the GAP (Digyae National Park and Kogyae Strict Nature Reserve), so it is not surprising that NARMSAP has become engaged in protected area management and conflict resolution. This has brought the Department of Wildlife in as a stakeholder, and members from the media have become involved, not just in reporting events but in helping to better understand and resolve conflicts.

Honduras. Starting in 1995, a diverse group of NGO, university and other partners formed the National Association for the Promotion of Ecological Agriculture, known as ANAFAE for its Spanish acronym. This loose association of 18 independent organizations sharing the common goal of promoting sustainable agriculture has, like NARMSAP in Ghana, become quite involved with protected area management issues and with conflict resolution. Besides the members, 13 other organizations or programs participated in some way in ANAFAE activities during 1996-97. Cerro Azul-Meambar National Park and the Yeguare Valley watershed were initial focuses of research. Conflict management efforts are now centered in the Copan Valley to the west.[9]

Figure 3: Consortium of Partners in Community-Based Natural Resource Management

	Indonesia	Philippines	Ghana	Honduras
	Nusa Tenggara Area Community Development Consortium	Conservation Farming in the Tropical Uplands (CFTU)	The Natural Resource and Sustainable Agriculture Partnership (NARMSAP)	National Association for the Promotion of Ecological Agriculture (ANAFAE)
Government	Ministry of Forestry; Ministry of Agriculture; Bureau of Land Registration	Department of Environment and Natural Resources; Department of Agriculture, Soil Conservation Bureau	Ministry of Food and Agriculture (Extension Service); Council for Scientific and Industrial Research (CSIR)	
	Representatives of provincial, district, and sub-district government bodies	District VIII and IX offices of DENR and DA	District Assemblies of five districts in the Greater Afram Plains	
NGOs: International	World Wide Fund for Nature; Wildlife Conservation Society; Birdlife International; World Neighbors; Ford Foundation	International Institute for Rural Reconstruction; World Neighbors	World Vision/ International; Techno-Serve	World Neighbors; Save the Children Association of Honduras; International Cover Crop Clearing House (CIDICCO)

[9] The case study by Jackie Chenier on CBNRM efforts in Copan valley reports on activities of the Honduran Network for Collaborative Natural Resource Management, which grew out of the ANAFAE collaboration.

National	LP3ES; Yayasan Tananua; Yayasan Sanusa	Mag-Uugmad Foundation; Philippine Partnership for the Development of Human Resources in Rural Areas (PhilDDHRA); Aboitiz Development Studies Center, Cebu	World Vision/ Ghana	Committee for the Defence and Development of the Flora and Fauna of the Golf of Fonseca; National Campesino Union; Caritas; and 11 other religious and developmental NGOs
Universities and Colleges	University of Indonesia; University of Mataram; Agricutlural Polytechnic, Kupang; Cornell (CIIFAD and CPECM); East-West Center, University of Hawaii	Visayas State College (FARMI); University of the Philippines, College of Agriculture; Los Babos (Agroforestry); Bohol Agricultural College; Waikato University; New Zealand; Cornell (CIIFAD)	University of Ghana; University of Science and Technology; Cornell (CIIFAD)	Panamerican School of Agriculture at Zamorano, Dept. of Plant Protection; Cornell (CIIFAD)
Communities	Representatives from forest-margin communities throughout Nusa Tenggara	Barangays in Leyte, Cebu and Bohol	Zonal (subdistrict) and Unit (locality) Committees and farmer groups at village level carrying out experiments for sustainable agriculture and NRM	Community representatives where these partners are working at grassroots in Honduras
International Agricultural Research Centers		International Center for Agroforestry Research (ICRAF); International Rice Research Institute (IRRI)		

These are examples of the kinds of broad coalition building that is going on in support of CBNRM around the world (see partnership listings in Figure 3). They are grounded in community-level activities and initiatives but have a larger view and strategy, both in terms of geographic area and in terms of diverse partnerships. They purposefully support actions at local and national levels and beyond. An excellent analysis of such processes transcending national borders in Central America is offered by Edelman (1998). The Association of Central American Peasant Organizations for Cooperation and Development (ASCODE) formed in 1991 has pledged to "promote conservation of Central America's ecological systems" (ibid., p. 233).

With such strategies, each participating organization contributes according to its comparative advantage and organizational objectives. These coalitions represent conjunctions of public, private and middle sector activity, though the private sector

involvement is mostly from non-profit rather than the for-profit organizations. The role and involvement of state institutions is often informal, not committing or compromising public authority. Rather state institutions harmonize their exercise of authority with what "civil society" institutions and community representatives think will be most beneficial. In this way, CBNRM may be evolving interesting new forms and exercises of public authority.

- With regard to operational linkages, one should consider not just management but also **planning** which sets directions and priorities in light of problems and trends that are identified. Reference has been made above to efforts to promote "community-based land use planning and management" in a number of countries. Planning invariably requires the involvement of multiple actors at various levels, as we are seeing in our initiatives along these lines in Ghana, Madagascar, Indonesia, Philippines and the Dominican Republic. To what extent are local institutions cooperating in creating a vision of more desirable futures, compared with visions of what are likely future conditions if present forces and trends persist? This **visioning process** is important for creating impetus and incentives for management, so we should look specifically at this.

C. Conflict Management

This is emerging as a subject of much concern and importance because conflicts of interest are ubiquitous in natural resource management, but also because there is a growing body of techniques and methods available for trying to deal with disputes and differences of approach to NRM. Conflict management is relevant to the subject of planning, just discussed, as much as to management.

Terminology and concepts are still evolving in this area. For example, conflict management is probably a more realistic term than conflict resolution in many cases since conflicts are often not really resolved, only mitigated. The idea of "multi-party collaborative problem-solving" is gaining ground as a more comprehensive and inclusive approach. It recognizes that the concept of "conflict" is not always accepted or freely understood in many cultures.

An explicit focus on conflict runs the risk of reifying it, perhaps putting people into opposing camps when they could be considering themselves on the same side and working together for outcomes that are agreeable to all. The case studies prepared by Fisher et al. (1998) from Indonesia and by Chenier (1998) from Honduras give more detail on learning about conflict management that I have been following through collaborating institutions. The Ghana case discussed above has had some very instructive experience with conflict resolution.

> Just two months before my visit to Domi village, there was impending conflict between villagers there and in 17 other communities located around Kogyae Strict Nature Reserve in the middle of the Greater Afram Plains. The reserve

had recently been expanded by the government without any consultation with villagers, who were suddenly told by armed guards from the Wildlife Department that they would have to stop cultivating in the area and would have to move out. There were plans afoot, which we only learned about subsequently, to kidnap those guards and expel them from the area by force.

World Vision and CIIFAD had gotten word of the likelihood of violence and were able to organize a "workshop" bringing the various stakeholders together in mid-January. This was a very successful event, even though it got off to a shaky start with the Wildlife Guards staying away ("fearing for their lives"). A series of discussions, alternating between group work and plenary sessions, and starting with people in homogeneous groups (villagers, chiefs, Wildlife guards, local government officials, NGOs, media) and then moving to heterogeneous groups (constituted at random), defused tensions and created a sense of common interest countervailing separate and conflicting interests.

The techniques used included each group listing expectations for the workshop, a "time line" making visual everybody's relationship to the protected area, analysis of the ways that English terms like forest and reserve had been translated into Twi, the local language (creating some misunderstandings),[10] an inventory of resources, uses and trends, and visioning of the future likely with alternative suggested scenarios (remove all guards, remove all communities around the reserve, invest in conservation agriculture, etc.)

By the end of the workshop, there was agreement from the community representatives that the guards should remain in the area and that slash-and-burn agriculture should be prohibited in and around the reserve, and agreement from the government side that the area into which the reserve had been expanded should be a buffer zone rather than strict reserve, with restricted but continuing and non-degrading human uses allowed. The villagers and their chiefs agreed to help protect the ecosystem within the reserve (Deshler and Edmonds 1998). The Domi residents with whom I spoke in March expressed support for adopting practices of "conservation agriculture," for their own sake as well as for that of the environment.

As this area of conflict management is still fairly new, the search is on for various and alternative methods for resolving conflicts.

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[10] Government officials thought they were being culturally sensitive (and clever) to use the Twi word for "sacred forest" to translate the word "reserve," but this created confusion because there was no resemblance in local people's minds between the already somewhat depleted Kogyae area and a "sacred forest."

- The cases considered in this workshop should be assessed for whatever **innovations** they offer from which others involved in CBNRM could learn. We should not be tied to or constrained by the concept of "conflict" and rather should consider what it takes to forge and maintain agreements on the uses and practices which sustain soil, water, forest and other biological resources.

- **Information and knowledge** generated through research, and especially participatory action research, cannot eliminate preexisting conflicts of interest. But they can modify and realign interests, so that issues which threatened to evoke conflict, even violence, get redefined in ways which permit all parties to change behaviors and proceed in some kind of compatible manner.

- **Cultural differences** need to be considered, as we in CIIFAD have seen from involvement with conflict management efforts in a range of countries.

  Conflict resolution efforts that we have facilitated in the buffer zone around Los Haitises National Park in the Dominican Republic have found useful a procedure referred to as the "moral contract." After all parties have reached some consensus, each person tells the group what he or she intends to do to help carry out what has been agreed on. When they meet again, they begin with a discussion of what has been accomplished, and what not. Where intentions could not be realized, others help to figure out how obstacles could be removed.

  Such a procedure, however, seems more suited to a Latin American cultural setting than to situations in Madagascar and Indonesia, for example. In countries with quite different cultural sensibilities, this "moral contract" is unlikely to build commitment. Individuals in Madagascar and Indonesia avoid making public and individual commitments, preferring instead to associate themselves with a group consensus that is articulated by respected figures who speak for the group rather than for themselves. There are ways of working in both kinds of cultural settings, but techniques surely need to be different.

D. Enabling Policy and Institutional Environments

What kinds of policies and institutions are required to make community-based groups, linkages, and conflict management for CBNRM more effective? Which are most important to start with? These are questions we will seek answers to from the case studies, recognizing that all situations are different. The structure of each situation is different, with different sets of actors and different configurations of interest. Timing is an important consideration as the political climate may be more receptive or more closed in one period compared to another. The objectives also will differ, with specific aspects of conservation and development highlighted compared to others.

The constant in these situations is the need for **community capacity** to participate in CBNRM, assuming that intention or motivation will be always a variable, shaped by the way problems and opportunities are presented.

- One issue is whether **existing organizations**, formal or informal, at local levels will be able and willing to undertake CBNRM responsibilities. If the answer is no, a priority policy and institutional concern will be to support new -- or strengthen old -- capacities.

- Another question is whether CBNRM institutions should be linked with -- or can operate separately from -- institutions of **"civil society."** Some would argue that CBNRM must be connected to larger efforts to ensure democratization and accountability, whereas others see these issues as contentious and divisive, so that CBNRM is best kept at arm's length from what will invariably be seen as partisan and political activities.

- The current disposition shaping most policy making these days, emanating from "the Washington consensus" and accepted by or pressed upon governments in developing countries, emphasizes **market forces and incentives**, with their reliance on individual self-interest and material motivations. It is not clear how compatible this emphasis is with CBNRM, and indeed with natural resource conservation, over the long run. If essentially selfish motives are endorsed, even encouraged, the disposition to forego any personal advantage that could be gained from exploiting natural resources is diminished.

  The economic logic of heavily discounting future benefits compared to costs devalues the needs and interests of future generations. Quite possibly, the policy signals which support CBNRM could be undermined by other signals that stress the pursuit of individual and material advantage, downplaying social and non-material benefits. This is a complex issue which may or may not be assessed from the case studies. But it is one which everyone concerned with natural resource conservation should consider.

We are seeing interesting evolutions of the policy and institutional environment regarding CBNRM in a number of countries around the world.

Indonesia. Although the government has generally been reluctant to grant much scope for NGO activity, the Nusa Tenggara Area Community Development Consortium working in the eastern part of the country has found officials at provincial, district and lower levels amenable to more experimentation and improvisation that would have been expected from central pronouncements. Reasons for this include: (1) decentralization policies and more local autonomy in decision-making and management; (2) strong links established with local government, mitigating line-agency bias toward national policies; (3) improved relations among stakeholders through

a range of formal and informal activities; and (4) research and analysis which has provided new and accurate information on the condition of forest ecosystems and forest-margin communities.

Although the national policy environment in Indonesia has become more favorable in recent years, the activities of the consortium have helped to gain more understanding and supportive interpretations and implementation of policy at middle to lower levels of government. This has occurred even within a system regarded as quite centralized, which suggests that getting a more favorable policy and institutional environment may not depend entirely on top-down initiatives. Rather, the environment can, at least to some extent, be improved by creative actions at middle and local levels. Whether the Minister of Forestry in the newly appointed government will be as well-disposed toward community-based approaches as his predecessor remains to be seen. Possibly the consortium partners will have build up good enough working relations with provincial, district and lower-level officials that present cooperation can be mostly maintained.

Madagascar. The government has been actively involved with NGOs and donor agencies to formulate a national environmental action plan (the first in Africa) and to revise it in light of experience. The second phase of this plan (1997-2001) has made CBNRM a principal pillar of policy. The policy presented under the acronym GELOSE seeks to create security for natural resources by giving communities a large voice in their management, through indigenous institutions and roles rather than forcing communities to work through the unfamiliar and somewhat remote structure of local government. The Mahajanga declaration (November 1994) stated that community institutions, and not just government agencies, should be relied on to protect water, forest and endangered biological resources. Soil conservation and protected area management have been made the responsibility of state-sponsored NGOs (ANAE and ANGAP) that can work more flexibly with other NGOs and with communities than can existing bureaucratic agencies.

Dominican Republic. This country now has about 30% of its area under protected status. The creation of parks and reserves was done rather unilaterally, however. From time to time when human incursions on forest or marine resources became too obvious and an issue, the government would use force to evict transgressors. Sometimes this was wealthy interests, as in the case of logging or grazing large herds of cattle in forest areas. But often the brunt of exclusion fell on poor and marginal rural households. The government is quite reluctant to be giving up any authority to regulate access to and the use of natural resources. But in recent years, resulting at least in part from NGO and university activity, government decision-makers have begun accepting more consultative modes of NRM, including some experiments with community participation.

An overall institutional issue is whether the state will seek to maintain its **dominant position** within the institutional landscape with regard to NRM, perhaps permitting community involvement on a pragmatic basis but moving toward CBNRM in a limited way, or will accept the private sector, both non-profit and for-profit parts, and the middle sector as active and full partners, if not yet equal partners.

VIII. CRITERIA FOR EVALUATION

Various criteria could be proposed for assessing the cases presented for consideration in this workshop. The following are suggested as starting points for consideration:

(1) **Preservation and protection of natural resources**, especially maintaining the renewability of those which are renewable, particularly flora and fauna that are endangered within vulnerable ecosystems.

(2) **Improvement in the income, security and well-being of communities** that are associated with and to some extent dependent on those natural resources. This consideration can include the preservation of the **cultural identity and integrity** of populations which are distinct from majority cultures.

(3) **Sustainability of the management system**, including ability to evolve and adapt in response to changing conditions.

(4) **Modest cost** for operating the system, considering all costs, those borne by communities as well as by the government and other organizations.

(5) **Acceptable equity** in the distribution of benefits from the system of management. This includes consideration of benefits relative to costs distributed by **gender**.

(6) Extent and range of **participation and empowerment** of local residents. If this conflicts with any of the above objectives, there needs to be some redesign of CBNRM, itself involving local residents to reach agreement on goals and on means which can advance these goals as a set.

It should not be assumed that these goals are all naturally compatible. There needs to be considerable deliberation involving communities and their representatives in envisioning the future and seeking ways to make the preferred futures more likely. Rural residents have aspirations for the next generation that are more concrete and compelling than the abstract goals that policy-makers debate and the quantified targets that they set.

This is the main reason why I am hopeful that CBNRM can become an effective approach to natural resource conservation and management. For this to succeed,

rural populations need more information and channels for expressing their interests, hopes and ideas regarding how to give their children and their children's children a chance to enjoy life as abundant as nature's resources and human skills, knowledge, talents and cooperation can provide, and to live in environments that maintain the diversity, integrity and productivity that have permitted human societies to advance this far.

References

Acharya, Harihar. 1984. Management of forest resources in Nepal: A case study of Madan Pokhara. M.P.S. thesis, Cornell University.

Alatorre, Gerardo, and Eckart Boege. 1998. Building sustainable farmer forestry in Mexico: Campesino organizations and their advisors. In Jutta Blauert and Simon Zadek, eds., *Mediating Sustainability: Growing Policy from the Grassroots*, 195-218. West Hartford, CT: Kumarian Press, forthcoming.

Alderman, Claudia. 1994. The economics and role of privately-owned lands used for nature tourism, education and conservation. In Mohan Munasinghe and Jeffrey McNeeley, eds., *Protected Area Economics and Policy: Linking Conservation and Sustainable Development*, 273-305. Washington: International Union for the Conservation of Nature, and World Bank.

Anderson, Benedict. 1983. *Imagined Communities: The Origin and Spread of Nationalism*. London: Verso.

Baland, Jean-Michel, and Jean-Pierre Platteau. 1996. *Halting Degradation of Natural Resources: Is There a Role for Rural Communities?* Oxford: Clarendon Press, for FAO.

Barrett, Christopher B., and Peter Arcese. 1995. Are integrated conservation and development projects sustainable? On the conservation of large mammals in sub-Saharan Africa. *World Development*, 23:7, 1073-1084.

Baviskar, Amita. 1995. *In the Belly of the River: Tribal Conflicts over Development in the Narmada Valley*. Delhi: Oxford University Press.

Berkes, Fikret, ed. 1989. *Common Property Resources: Ecology and Community-Based Sustainable Development*. London: Belhaven Press.

_____. 1995. Community-based management and co-management as tools for empowerment. In N. Singh and V. Titi, eds., *Empowerment: Towards Sustainable Development*, 138-146. London: Zed Books.

Brandon, Katrina E., and Michael P. Wells. 1992. Planning for people and parks: Design dilemmas. *World Development*, 20:4, 557-570.

Buck, Louise, and Norman Uphoff. 1997. Deja vu all over again: Dissatisfaction with integrated conservation and development projects. Unpublished paper, CIIFAD.

Carroll, Thomas F. 1992. *Intermediary NGOs: The Supporting Link in Grassroots Development.* West Hartford, CT: Kumarian Press.

Chandrakanth, M. G., and Jeff Romm. 1991. Sacred forests, secular forest policies, and people's actions. *Natural Resources Journal*, 31:4, 741-756.

Chenier, Jackie. 1998. Copan: Collaboration for cultural identity and sustainable natural resource management. Paper for EDI Workshop on Community-Based Natural Resource Management, May 10-14, 1998, Washington, D.C.

Clay, Jason W. 1988. *Indigenous Peoples and Tropical Forests: Models of Land Use and Management from Latin America.* Cambridge, MA: Cultural Survival.

Clark, John. 1991. *Democratizing Development: The Role of Voluntary Organizations.* West Hartford, CT: Kumarian Press.

Deshler, David, and Kirby Edmonds. 1998. Protected area conflict management workshop, Ejura, Ghana, January 12-16. Ithaca, NY: CIIFAD, trip report.

Edelman, Marc. 1998. Organizing beyond borders: The rise of a transnational peasant movement in Central America. In Jutta Blauert and Simon Zadek, eds., *Mediating Sustainability: Growing Policy from the Grassroots*, 219-251. West Hartford, CT: Kumarian Press, forthcoming.

Edwards, Michael, and David Hulme, eds. 1992. *Making a Difference: NGOs and Development in a Changing World.* London: Earthscan.

Esman, Milton J., and Norman Uphoff. 1984. *Local Organizations: Intermediaries in Rural Development.* Ithaca, NY: Cornell University Press.

Farrington, John, and Anthony Bebbington, with Kate Wellard and David J. Lewis. 1993. *Reluctant Partners: Non-Governmental Organizations, the State, and Sustainable Agricultural Development.* London: Routledge.

Feeney, David, Fikret Berkes, Bonnie J. McCay, and James M. Acheson. 1990. The tragedy of the commons: Twenty-two years later. *Human Ecology*, 18:1, 1-19.

Fisher, Julie. 1993. *The Road from Rio: Sustainable Development and the Nongovernmental Movement in the Third World.* Westport, CT: Praeger.

Fisher, Larry. 1998. Beyond the Berugaq: Conflict, Policy, and Decision-Making in Forest and Conservation Management in Nusa Tenggara, Indonesia. Ph.D. thesis, Department of Natural Resources, Cornell University, forthcoming.

Fisher, Larry, Ilya Moeliono, and Stefan Wodicka. 1998. Cattle, cockatoos, chameleons, and Ninja turtles: Seeking sustainability in forest management and conservation in Nusa Tenggara, Indonesia. Paper for EDI Workshop on CBNRM, Washington, D.C.

Geisler, Charles, Rees Warne, and Alan Barton. 1997. The wandering commons: A conservation conundrum in the Dominican Republic. *Agriculture and Human Values*, 14:1, 13-24.

Ghai, Dharam, ed. 1994. Development and environment: Sustaining people and nature. Special issue of *Development and Change*, 25:1.

Ghai, Dharam, and Jessica Vivian, eds. 1992. *Grassroots Environmental Action: People's Participation in Sustainable Development.* London: Routledge, for UNRISD.

Gibbs, Christopher J. N., and Daniel W. Bromley. 1989. Institutional arrangements for management of rural resources: Common-property regimes. In Fikret Berkes, ed., *Common Property Resources: Ecology and Community-Based Sustainable Development*, 22-54. London: Belknap Press.

Gutierrez, Gustavo. 1996. Private participation in protected area management in the Dominican Republic: A case study of the Loma Quita Espuela Foundation. M.P.S. thesis, Cornell University, Ithaca, NY.

Hardin, Garrett. 1968. The tragedy of the commons. *Science*, 168, 1243-1248.

Hartshorn, Gary. 1992. Indigenous communities and regenerative forestry in Peru. In *Sustainable Development and Biodiversity: Conflicts and Complementarities.* Proceedings of a Symposium at Cornell University, September 19-22, 1991. Ithaca, NY: CIIFAD.

Heller, Michael A. 1998. The tragedy of the anti-commons: Property in the transition from Marx to markets. *Harvard Law Review*, 111, 622-688.

Herring, Ronald J. 1998. Celebrating the local: Scale and orthodoxy in political ecology. Working paper for Workshop on Knowledge and Authority in Nature, Cornell University, Center for International Studies, April 18.

Hirschman, Albert O. 1984. *Getting Ahead Collectively: Grassroots Experiences in Latin America.* New York: Pergamon Press.

Jodha, N. S. 1995. Population growth and the decline of common property resources. *Population and Development Review*, 11:2, 247-264.

Johnson, E. A. G. 1970. *The Organization of Space in Developing Countries.* Cambridge: Harvard University Press.

Kimber, Richard. 1981. Collective action and the fallacy of the liberal fallacy. *World Politics*, 33:2, 178-196.

Kramer, Randall, Carel van Schaik, and Julie Johnson. 1997. *Last Stand: Protected Areas and the Defense of Tropical Biodiversity.* New York: Oxford University Press.

Krishna, Anirudh. 1997. Participatory watershed development and soil conservation in Rajasthan, India. In A. Krishna, N. Uphoff, and M. J. Esman, eds., *Reasons for Hope: Instructive Experiences in Rural Development*, 255-272. West Hartford, CT: Kumarian Press.

Langholz, Jeff. 1996. Economics, objectives, and success of private nature reserves in sub-Saharan Africa and Central America. *Conservation Biology*, 10:2, 271-280.

Larson, P., Mark Freudenberger, and B. Wyckoff-Baird. 1997. Lessons from the field: A review of World Wildlife Fund's experience with integrated conservation and development projects, 1985-1996. Washington: World Wildlife Fund.

Leach, Melissa. 1997. Annex to mid-term review of UNCDF Eco-development Program. New York: U. N. Capital Development Fund, February, unpublished.

Leach, Melissa, and Robin Mearns, eds. 1996. *The Lie of the Land: Challenging Received Wisdom on the African Environment.* Oxford: James Currey.

Leach, Melissa, Robin Mearns, and Ian Scoones. 1997. Environmental entitlements: A framework for understanding the institutional dynamics of environmental change. Discussion Paper 359. Brighton: Institute of Development Studies, University of Sussex.

Lebbie, Aiah Randolf, and Mark Schoonmaker Freudenberger. 1996. Sacred groves in Africa: Forest patches in transition. In John Schelhas and Russell Greenberg, eds., *Forest Patches in Tropical Landscapes*, 300-324. Washington, DC: Island Press.

Little, Peter D. 1994. The link between local participation and improved conservation: A review of issues and experiences. In David Western and R. Michael Wright, eds., *Natural Connections: Perspectives in Community-Based Conservation*, 347-372. Washington, DC: Island Press.

McCoy, K. L., and H. Razafindrainibe. 1997. *Madagascar's Integrated Conservation and Development Projects: Lessons Learned by Participants.* Antananarivo: SAVEM Steering Committee, National Association for the Management of Protected Areas (ANGAP).

Nagle, Greg N. 1997. The use of Cesium-137 in the study of hillslope erosion in a tropical watershed. Ph.D. thesis, Department of Natural Resources, Cornell University.

Ostrom, Elinor. 1986. How inexorable is the tragedy of the commons? Institutional arrangements for changing the structure of social dilemmas. Distinguished faculty research lecture, Indiana University, April 3.

_____. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action.* Cambridge: Cambridge University Press.

Peluso, Nancy Lee. 1992. *Rich Forests, Poor People: Resource Control and Resistance in Java.* Berkeley: University of California Press.

Rabesahala, Nadia, and M. Gauthier. 1995. Conception and Development of a Contract Agreement for the Sustainable Use of Natural Resources. Gainesville, FL: Tropical Research and Development.

Uphoff, Norman. 1986. *Local Institutional Development: An Analytical Sourcebook with Cases.* West Hartford, CT: Kumarian Press.

_____. 1993. Grassroots organizations and NGOs in rural development: Opportunities with diminishing states and expanding markets. *World Development*, 21:4, 607-622.

_____. 1994. Revisiting institution building: How organizations become institutions. In N. Uphoff, ed., *Puzzles of Productivity in Public Organizations*, 199-215. San Francisco: Institute of Contemporary Studies Press.

_____. 1994a. Report on Integrated Watershed Analysis and Management workshop, Dominican Republic practicum, Nizao watershed, October 8-15. Ithaca, NY, CIIFAD.

_____. 1996. *Learning from Gal Oya: Possibilities for Participatory Development and Post-Newtonian Social Science*, paperback edition. London: Intermediate Technology Publications.

_____. 1996a. Why NGOs are not a third sector: A sectoral analysis with some thoughts on accountability, sustainability, and evaluation. In Michael Edwards and David Hulme, eds., *Beyond the Magic Bullet: NGO Performance in the Post-Cold War World*, 23-39. West Hartford, CT: Kumarian Press.

_____. 1996b. Highlights from field visits to Nilwela and Huruluwewa watersheds. Report to International Irrigation Management Institute, March.

_____. 1997. Field visit to village of Riambondrona: Community-based land use planning and management, September 18, 1997. Ithaca, NY: CIIFAD.

_____. 1998. Report on visit to Domi Village No. 1, Greater Afram Plains, Ghana, March 15, 1998. Ithaca, NY: CIIFAD.

Uphoff, Norman, and Jeff Langholz. 1998. Incentives for avoiding the tragedy of the commons. *Environmental Conservation*, 25:3, forthcoming.

Wells, Michael P., Katrina E. Brandon, with L. Hannah. 1992. *Parks and People: Linking Protected Area Management with Local Communities*. Washington: World Wildlife Fund, and the U.S. Agency for International Development.

Wells, Michael P., A. Khan, W. Wardojo, and P. Jepson. 1997. *Investing in Biodiversity: A Review of Indonesia's Integrated Conservation and Development Projects*. Washington: World Bank, Indonesia and Pacific Islands Country Department.

Wijayaratna, C. M. 1994. Shared Control of Natural Resources (SCOR): An integrated watershed management approach to optimize production and protection. *Sri Lankan Journal of Agricultural Economics*, 2:1.

_____. 1997. Shared management of watershed resources. In Janet Lawrence, ed., *Partners in the Harvest*, 37-45. Canberra: Australian Centre for International Agricultural Research.

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Representing Communities: Histories and Politics of Community-Based Natural Resource Management

J. PETER BROSIUS

Department of Anthropology
University of Georgia
Athens, Georgia, USA

ANNA LOWENHAUPT TSING

Anthropology Board of Studies
University of California, Santa Cruz
Santa Cruz, California, USA

CHARLES ZERNER

Natural Resources and Rights Program
Rainforest Alliance
New York, New York, USA

Recent years have witnessed the emergence of a loosely woven transnational movement, based particularly on advocacy by nongovernmental organizations working with local groups and communities, on the one hand, and national and transnational organizations, on the other, to build and extend new versions of environmental and social advocacy that link social justice and environmental management agendas. One of the most significant developments has been the promotion of community-based natural resource management programs and policies. However, the success of disseminating this paradigm has raised new challenges, as concepts of community, territory, conservation, and indigenous are worked into politically varied plans and programs in disparate sites. We outline a series of themes, questions, and concerns that we believe should be addressed both in the work of scholars engaged in analyzing this emergent agenda, and in the efforts of advocates and donor institutions who are engaged in designing and implementing such programs.

Keywords collective rights, community-based natural resource management, conservation, development, environmental discourses, environmental justice, legal pluralism, nongovernmental organizations (NGOs), participation

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Address correspondence to J. Peter Brosius, Department of Anthropology, University of Georgia, Athens, GA 30602-1619, USA. E-mail: PBROSIUS@uga.cc.uga.edu

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This article is a somewhat revised version of a prospectus for a conference entitled Representing Communities: Histories and Politics of Community-Based Resource Management. This conference, supported by a grant from the Ford Foundation, was held at the Unicoi Lodge in Helen, GA, 1–3 June 1997. We provide this revised prospectus to readers of *Society and Natural Resources* in the hope that those with an interest in community-based resource management—whether scholars, policymakers, activists, or others—will find the questions we have posed here of some interest as they contemplate their own particular forms of engagement (research, advocacy, project implementation) with such programs and initiatives. At present we are preparing an edited volume of papers from the conference, with the hope that the issues raised here, as well as those raised during the conference, are carried into future discussions of community-based resource management.

In recent years, the separation between advocacy for nature and advocacy for people has been criticized in attempts to demonstrate the relationship between environmental degradation and issues of social justice, rural poverty, and indigenous rights (Bonner 1993; Broad 1994; Gray 1991; Gadgil and Guha 1993; Guha 1989; Hitchcock 1995; Kemf 1993; Kothari and Parajuli 1993; Peluso 1993; Shiva 1993). A loosely woven transnational movement has emerged, based particularly on advocacy by nongovernmental organizations (NGOs) working with local groups and communities, on the one hand, and national and transnational organizations, on the other, to build and extend new versions of environmental and social advocacy which link social justice and environmental management agendas. One of the most significant developments has been the promotion of community-based natural resource management programs, policies, and projects—that is, forms of local resource management that might support and be supported by emergent transnational goals of social justice, environmental health, and sustainability (Berkes 1989; Korten 1986; Poffenberger 1990; Western and Wright 1994).

Community-based natural resource management programs are based on the premises that local populations have a greater interest in the sustainable use of resources than does the state or distant corporate managers; that local communities are more cognizant of the intricacies of local ecological processes and practices; and that they are more able to effectively manage those resources through local or "traditional" forms of access. In insisting on the link between environmental degradation and social inequity, and by providing a concrete scheme for action in the form of the community-based natural resource management model, NGOs and their allies have sought to bring about a fundamental rethinking of the issue of how the goals of conservation and effective resource management can be linked to the search for social justice for historically marginalized peoples. At the same time, the successes of disseminating and implementing this paradigm have raised new challenges and dilemmas as concepts of community, territory, locality, conservation, and customary law are worked into politically varied plans and programs in disparate sites.

Community-based natural resource management is imagined differently by different advocates. Conservationists, both indigenous and foreign, hope to involve local people in transnational conservation and resource management goals as a means of protecting biological diversity and habitat integrity (Kakabadse 1993; McNeely 1995; World Wide Fund for Nature 1993). Development organizations, driven in part by vigorous criticism of socially and economically oppressive resource development projects that they have supported, aim to promote local participation in "conservation and development" (Jodha 1992; World Bank 1996). Populist activists hope to empower local groups in their conflicts with state resource management agencies and national and transnational capital (Colchester and Lohmann 1993; Hecht and Cockburn 1989). Indigenous peoples'

spokespersons argue for a new respect for local rights, knowledge, and culture (Clay 1988; Croll and Parkin 1992; Durning 1992).

During the past decade, community-based natural resource management has become much more than an abstract idea. Community boundaries are being mapped and experiments in local or decentralized resource management are in progress in many areas of the world (Poole 1995a, 1995b; Western and Wright 1994). International financial institutions such as the World Bank, as well as the international donor community, have invested in the efforts of both local and transnational NGOs to promote community-based natural resource management regimes.

The purpose of the present essay is to encourage discussion of the challenges and dilemmas of community-based natural resource management, through the varied histories and political struggles that have developed in the process of advancing and implementing this emerging model. In particular we wish to stress the need for dialogue between those who are positioned as advocates and planners of community-based natural resource management, on the one hand, and those who are positioned as scholars of communities, conservation, and development in the Third World, on the other.

We find such an undertaking to be particularly urgent because of a growing divergence in advocate and scholarly projects for understanding the situation of marginalized communities: advocates have found concepts of *indigenous, community, custom, tradition,* and *rights* useful in promoting possibilities for local empowerment in national and transnational policy discussions, while scholars have become increasingly aware of the fragility, mutability, hybridity, and political variability of these concepts (Li 1996; Zerner 1994). While some advocates are concerned about the political consequences of deconstructionist scholarly agendas, some scholars are concerned about the potential political and legal consequences of community-based advocacy programs in which rights to territory, resources, and governance are linked to concepts of ethnicity, space, and indigenous identities.

There is hope and danger in both trajectories. The idea of community-based natural resource management offers great promise for addressing the link between concerns about social justice and environmental destruction. At the same time, there are also potentially problematic legal, political, and cultural complexities embedded in community-based programs. For the movement to flourish, both advocates and analysts must remain alert to the contested and changing variety of cultural and political agendas and contexts in which these programs are being imagined or implemented. What is particularly needed is discussion of critical case histories examining the development, applications, and consequences of community-based natural resource management projects.

In a planning workshop held at the University of Georgia in February 1996, scholars and advocates agreed that we have common interests in understanding the histories and politics of varied projects intending to promote community-based natural resource management in specific sites and historical contexts. A problem common to both scholarly and advocate agendas might be described as "genericization." Advocate model-building can too easily become embroiled in implementing management regimes in which concepts such as *community, territory, rights, resources, management, indigenous,* and *traditional* are used generically without regard to local contests and wide-ranging political stakes in these terms. To the extent that these terms carry legitimacy in international forums, they can be used coercively to create local resource management plans in ways that may or may not empower local people. For its part, scholarly analysis can too easily glorify an ironic and critical stance in and for itself, evading the problems of the positioning of this kind of knowledge within conservative political agendas. "Generic" scholarly crit-

icism may reduce the dilemmas of defining community-based natural resource management to a philosophical problem of essentialism.

To avoid both top-down management models and view-from-nowhere criticism (both in disguise as local empowerment), workshop participants agreed that we need to learn more about the specific historical projects in which community-based natural resource management has been planned and implemented. Only through the explication of specific histories and political dynamics can we begin to address the problems and prospects of community-based resource management. Thus, for example, workshop participants were worried about the dangers involved as multilateral lending agencies capture the rhetoric of community-based resource management for coercive development projects. We were excited by the possibilities of building national movements for democracy and social justice through issues of community-based natural resource management. We agreed that we needed to begin by sorting out these and other examples of the deployment of this set of terms and ideas in particular contexts and histories.

In the following, we articulate a series of what we believe to be key conceptual themes, questions, and concerns about the idea of community-based natural resource management. The first set—Building Models of Community-Based Natural Resource Management—focuses on the need to learn more about the histories of specific projects in which models of community-based natural resource management have been formed, promoted, and institutionalized by local, national, and transnational organizations. The second set—Technical Questions/Political Dilemmas—focuses on the technical apparatus of creating community-based natural resource management regimes, in an attempt to elucidate the varied ways these tools have been used politically. The third set—Unequal Contests—contrasts situations in which community-based resource management forms part of an international management initiative, on the one hand, or a populist and/or nationalist-democratic mobilization, on the other.[1] The fourth set—Other Questions—reflects a more general set of concerns that we recognize arise from our position as scholars. These themes are intended to stimulate discussion of the range and diversity of political contests in which community-based natural resource management has become an inspiration, model, tool, and catalyst.

Building Models of Community-Based Natural Resource Management

International Organizations and the Mandate for Community-Based Natural Resource Management

Part of the history of community-based natural resource management is to be found in the way it has been sponsored by international organizations: multilateral lending agencies, donor institutions, and conservation organizations. It is important to develop a deeper understanding of the histories of the projects sponsored by particular institutions, especially with regard to the ways in which concepts of community-based natural resource management were adopted, developed, circulated, and promoted within specific organizations and beyond them, in global and local circulations.

We are particularly interested in how specific organizations (or individuals within organizations) became convinced that local participation in environmental conservation or resource management was important, and how these organizations turned their concerns into projects, funding arrangements, legislative initiatives, or political negotiations. What set of problems were specific community-based natural resource management projects supposed to address? What kinds of sites (e.g., small-scale irrigation in the Philippines, land stabilization in West Africa, biologically diverse forests in Kalimantan) became

models of discussion within the organization? What debates or critiques shaped the ways community-based natural resource management did or did not become an organizational concern? What international-to-local interactions directed the timing and placement of community-based natural resource management-related organizational priorities? To what degree, or in what ways, did such initiatives become entangled with organizational or governmental administrative and regulatory apparatuses? In what ways have such institutionalizations affected the relations among implementing organizations, national governments, local communities, or social movements? In short, we are interested in how institutional histories have intertwined with particular local or national concerns in the creation of new concepts of conservation, community, equity, and development.

Proliferating Models of Community-Based Natural Resource Management

Some community-based natural resource management projects, initially developed under particular local conditions, have become models that are widely emulated. It is important to understand the local, national, and transnational dynamics of this process of proliferation, particularly by tracing specific projects. One example of this is CAMPFIRE, a community-based wildlife management program in Southern Africa (Derman 1995; Matzke and Nabane 1996; Metcalfe 1994; Murphree 1994). How did the CAMPFIRE program emerge? In what ways has it been used as a model for other programs? How, why, and for which institutions did CAMPFIRE become a community-based natural resource management model? What were the organizational and political processes that contributed to its emulation and proliferation? What elements of the CAMPFIRE model were identified as particularly worthy of emulation, by whom, and on what basis? What kinds of negotiations between different actors—community leaders, national bureaucracies, international organizations—produced certain dynamics in the process of proliferation? Why and how are CAMPFIRE programs spreading across national borders? What kinds of lessons can be learned from diverse stories of CAMPFIRE's implementations in particular sites?

In focusing on questions such as this, we are interested in the more general question of how particular community-based natural resource management projects come to be promoted as community management "icons." When a project attains the status of a model or icon, one touted as a success and worthy of study and emulation, its portrayal is informed by the rhetorics, needs, debates, and plans of project-building contexts and purposes (i.e., development, conservation, state power). Multiple stories develop as the model is fitted into new contexts and used in different ways. What is the process by which one project comes to be held up as an exemplary model of community-based natural resource management? How do such community-based natural resource management icons work their way into institutions that then seek to replicate that model? How does the idea of a "model" create or restrict opportunities for experimentation in the face of local contingencies? In addition to CAMPFIRE, what other icons have been produced by the community-based natural resource management and community-based conservation movements? What are their key points of difference? What are the dissonances, incongruities, and slippages that arise as generic community-based natural resource management models are applied in different environmental and cultural contexts?

Technical Questions/Political Dilemmas

Mapping Against Power

The production of maps has, historically, been dominated by the interests of governments, industry, and local elites, thereby legitimizing and emphasizing the claims of these

agents as against the needs, practices, and claims of local communities for the control of natural resources (Harley 1988; Vandergeest and Peluso 1995). In recent years, however, various countermapping procedures, generated by NGOs or local communities, have been used to redescribe social and natural communities in forests, coasts, and seas as a means of asserting local community control over natural resources (Brody 1982; Peluso 1995; Poole 1995a, 1995b; Zerner 1992).

Local and regional cases in which collective claims to land and resources are being made through mapping need to be examined, in order to explore the ways in which mappings of community and environment have been articulated in specific environmental, political, or legal contexts. How do particular maps fulfill their strategic goals, and what features of these maps fit particular legal, environmental, or political-historical contexts?

It is particularly important to address the national and international political forces, as well as the local initiatives, that shaped decisions to employ particular mapping strategies and techniques. What is the logic by which specific tactical choices were made in mapping and how did these choices fit the situations in which they were deployed? We want to draw attention to the diversity of mapping strategies that have been used and their relationship to a range of political challenges, thereby focusing on the intersection of technique, purpose, and context. Of particular interest might be relatively technical descriptions of how and why particular kinds of mapping were used, and their relation to the challenges of community organizing, land rights claims, political identity claims, and land use debates.

Attention needs to be focused both on success stories, in which local maps were used to establish local claims, and on the problematic aspects of such projects. For instance, what are the larger potential legal and social implications of linking ethnicity to territory (Malkki 1992)? How do maps function as an instrumentality leading to recognition of ethnically linked claims to territory? Community-linked maps are not always homogeneously accepted. How might they precipitate or focus disputes? How might they lead to reification of cultural identities or ethnic boundaries? What kinds of rights and forms of authority are being proposed for communities within mapped territories? What tensions are there between images of community, ethnicity, and space, on the one hand, and aspirations to citizenship, mobility, and participation in national life?

Legal Strategies for Community-Based Natural Resource Management

Discussion of community-based natural resource management has, in a number of cases, led to concrete steps being taken to recognize local communities as legal entities for the management of resources (Fox 1993; Lynch and Talbot 1995). A need exists for comparative assessments of the legal strategies through which local groups have struggled to gain recognition of their rights to resources and territories. This might entail attention to the question of how particular legal initiatives emerged, as well as the relationship between legal frameworks and national political cultures, histories, and institutionalizations of law.

It is important to learn more about the legal bases for community-based natural resource management by posing questions derived from particular contexts. One such case is the Philippines, where national legislation has provided several avenues for the recognition of community rights. How has the project of legal recognition of community management in the Philippines become linked to environmental conservation and sustainable development discourses and projects, including integrated conservation and development programs (ICDPs) (Brown and Wyckoff-Baird 1993)? What are the unexpected ironies, contradictions, and complexities of how legal recognition struggles have played themselves out in the Philippines among communities of highland migrants, indigenous peo-

ples, and in conservation areas? More broadly, how have rights recognition and territorial delineation processes been used by local groups, regional NGOs, multilateral funding and conservation institutions, and the private sector? What are the legal categories and legal institutions involved? What does this have to do with the administrative and regulatory apparatus with which these initiatives have become entangled?

Unequal Contests

Community-Based Natural Resource Management and the International Development Apparatus

Within the last decade, biodiversity conservation and land stabilization have become major priorities among multilateral lending agencies and other development institutions. As a result, as with the case of international development in the past, a large institutional apparatus is establishing itself as the primary agent for many forms of environmental intervention. For instance, in Africa, national environmental action policies (NEAPs) are driving government planning and funding, placing environmental imperatives at the forefront (Greve et al., 1995).

An issue of key importance is the way in which the rhetoric of community-based natural resource management has become part of a strategy for bringing nations into line with global natural resource management initiatives (Neumann 1995). How has the rhetoric of participatory conservation been used as a disciplinary tool for national and regional planning by the international development apparatus? The language of community and conservation has, upon occasion, served to help shift resources away from local strategies for livelihood and empowerment toward resource management that serves powerful institutional interests, whether corporate, scientific, military-administrative, or Northern consumer-oriented (Schroeder 1995). How have multilateral institutions and bilateral lending agencies influenced national governments to enforce community-based natural resource management by decree?

It is critical that we develop some understanding of how community-based natural resource management has been adopted, adapted, funded, and implemented by a variety of powerfully positioned international agencies. We are also interested in understanding the effects—both material and discursive—that these adoptions have had upon national governments, government agency priorities, funding, budget allocations, and programs. How have multilateral and bilateral environmental aid projects focusing on community-based natural resource management affected the dynamics of national governance as well as local social practices and environmental management "on the ground"? What are the strategies that large institutions use to exert pressure on countries to adopt such initiatives? What are the regional and local processes of expropriation, reallocation, and management in which political and economic inequalities are established and reinforced by programs legitimized through the language of participatory resource management? In what ways does such a top-down approach distort the possibilities for effective community-linked social and economic justice and environmental agendas?

Social Movements, Community-Based Natural Resource Management, and the Struggle for Democracy

The causes of environmental conservation and sustainable development have, in some places, been linked to movements and emancipatory discourses on minority rights and

cultural rights, on the one hand, and democracy and social justice, on the other. We need to understand more about the significance of struggles for the recognition of local territorial and resource rights, as well as resource management prerogatives, in particular environmentalist social movements. Such movements have reached out to a greater variety of rural peoples and places than earlier populist movements: tribal minorities, commercial foragers, and marine resource users are included in environmental alliances, together with the core peasant farmers that have been mobilized in earlier movements. How have concerns about the environment brought cosmopolitan national activists into alliances with rural villagers to create visions of national democracy that include political participation from the countryside as well as the city?

To pursue these questions we need to trace histories in which concerns with community resource rights and/or participatory conservation have become central to nationally based progressive social movements. How have these movements been shaped to respond to particular political cultures and cultural politics at the national center and in global political debates about conservation, environment, and indigenous peoples? How do community-based natural resourse management programs shape a new cultural and political terrain in which social justice and rights are linked to saving trees and biodiversity, on the one hand, and respecting the cultures, rights, and livelihoods of minorities and other marginal populations, on the other? How are these movements, in turn, shaped by the historical, political, and religious contexts in which they are situated? In what way have social movements/NGOs used the language of community-based natural resource management not only to secure rights for local communities, but as part of a broader effort to create a political space for grassroots efforts in broader national struggles toward democratization? How is the language of community-based natural resource management used to critique and transform national political cultures?

Other Questions

Institutional Appropriations of Community-Based Natural Resource Management

To the extent that efforts to implement community-based natural resource management regimes represent attempts to renegotiate the terms by which political agency has historically been exercised or to curtail abusive resource extraction regimes, they are subject to challenge, appropriation, or manipulation by transnational authorities, national governments, and local elites. How are powerful institutions, including multilateral financial organizations, bilateral aid agencies, national and transnational conservation organizations, and private-sector actors appropriating community-based natural resource management projects and policies to advance their own diverse, sometimes intersecting, interests? To what extent do various forms of institutionalization constitute appropriations in and of themselves, or make possible other forms of manipulation? What are the political, cultural, environmental, and economic consequences of these appropriations and manipulations?

Traveling Concepts

The discourse of community-based natural resource management has emerged in a range of regional contexts and under various guises. Its popularity has fostered the expansion of efforts at implementing management regimes in ways that might genericize how local institutions are defined by external agents. How are concepts such as *community, territory, indigenous,* and *traditional* used to confer an aura of authority on minority cultures and to

assert the authenticity of local management practices? These terms are often deployed to build images of coherent, long-standing, localized sources of authority tied to what are assumed to be intrinsically sustainable resource management regimes. They are also used to legitimize, and to render attractive, programs of decentralization of state authority over local lands, waters, and forests. How are traveling concepts such as *community* applied across (a) different regions or continents, and (b) different sectors (coastal, irrigation, forests)? What are the genealogies of these concepts, and what has been the process of their amplification and projection?

It is important to address both intraregional and interregional comparisons in the deployment of community-based natural resource management, particularly in (and between) Southeast Asia, Africa, and Latin America. How have these different contexts for the development of community-based natural resource management created specific possibilities as well as problems? In what ways have regional initiatives moved from regional contexts into a broader transnational community-based natural resource management discourse? How, in turn, has the geographically decontextualized rhetorical traffic in community-based natural resource management moved from the transnational realm into regional contexts?

Imagining Communities

While community-based natural resource management regimes are intended to empower local communities, the representations deployed in constituting those "communities" remain largely unexamined.[2] What kinds of images of community are being produced in community-based natural resource management projects, programs, and policies? To what extent do community-based natural resource management discourses produce images of cultures, communities; and resource management practices that are essentialized, timeless, and homogeneous?[3] In their role as advocates of local resource management regimes, NGOs acting on behalf of local communities may, in part, be constituting the entities whose interests they claim to represent. To what extent might such instances of the "invention of community" have positive or problematic consequences? To what extent, and how, do these representations reflect local concerns, NGO preoccupations, or the interests of transnational conservation, human rights, and environmental donors? How have descriptions of local communities, culture, law, and environmental management been creatively shaped to fit larger institutional interests? What are the disjunctures between local conceptions of community and resource use, and the ways in which those communities and resource-use regimes are described by NGOs, multilateral lending agencies, and donor institutions?

Collective Rights

Conceptual problems in the representation of local communities and practices are inevitably linked to problems and questions in the world of practice and policy. Should collective rights be elevated to a privileged status, rather than individual rights? What is the impact of granting, for example, collective titles to land (vested in village elders or "traditional community leaders") on relatively powerless or voiceless groups and members of the community—the less affluent and women?

Sovereignty and Citizenship

Community-based natural resource management movements, sometimes associated with indigenous peoples movements and programs, are often linked to various proposals for

forms of political decentralization and local autonomy. To what extent do such proposals and projects envision cultural, territorial, and legal spheres of autonomy? What relationships are implied both among distinctive "communities" and between these communities and the state? What kinds of rights and forms of authority are being proposed for these community spheres? To what degree, and along what axes, are local communities to be treated as sovereign powers? Is it possible that the conflation of the "native" with the "natural," and the reification of this realm of "natural natives" within a territorial perimeter, might lead to an accentuated sense of ethnic difference, and possibly to intensification of community or ethnic conflict? What are the consequences of recognizing community autonomy for larger visions of pluralist civil society? When "natives" become privileged, are other social groups marginalized? What space is there for mobility, migration, and the movements of both rural and urban poor? What tensions are there between images of community, ethnicity, and space, on the one hand, and aspirations to citizenship, mobility, and participation in national life, on the other?

Community Diversity and Statutory Uniformity

The establishment of effective community-based natural resource management regimes in particular national contexts requires some degree of statutory uniformity for purposes of legal recognition. As such, we must examine whether it is possible to specify uniform concepts of community, land tenure, or management in ways that still allow recognition of community diversity. A paradox of community-based natural resource management movements is that they are caught in a bind of creating relations to the state through state/elite forms of legal textualization in order to assert local claims. Is it possible to develop concepts having legal force that provide latitude for variation and diversity? What are the tensions between the aim of drafting generic statutes applicable to all communities, and the concern for community or ethnic plurality? Is recognizing the rights of "communities" necessarily the same thing as recognizing community differences? What are the consequences of legal pluralisms that include uniform national land law as well as a multiplicity of local customary regimes regulating rights to resources and territories?

Notes

1. These are not the only two alternatives: For example, community-based natural resource management can form part of the extension of a national administration, or part of struggles for indigenous "national" rights against the nation-state.
2. However, see Peters (1996).
3. See Ortner (1995).

References

Berkes, F., ed. 1989. *Common property resources: Ecology and community-based sustainable development.* London: Belhaven Press.

Bonner, R. 1993. *At the hand of man: Peril and hope for Africa's wildlife.* New York: Alfred A. Knopf.

Broad, R. 1994. The poor and the environment: Friends or foes? *World Dev.* 22(6):811–822.

Brody, H. 1982. *Maps and dreams.* New York: Pantheon Books.

Brown, M., and B. Wyckoff-Baird. 1993. *Designing integrated conservation and development projects.* Washington, DC: Biodiversity Support Program.

Clay, J. 1988. *Indigenous peoples and tropical forests: Models of land use and management from Latin America.* Cambridge, MA: Cultural Survival, Inc.

Colchester, M., and L. Lohmann, eds. 1993. *The struggle for land and the fate of the forests.* Penang: World Rainforest Movement.

Croll, E., and D. Parkin, eds. 1992. *Bush base/forest farm: Culture, environment and development.* London: Routledge.

Derman, B. 1995. Environmental NGOs, dispossession, and the state: The ideology and praxis of African nature and development. *Hum. Ecol.* 23(2):199–215.

Durning, A. 1992. *Guardians of the Land: Indigenous Peoples and the Health of the Earth.* Worldwatch Paper 112. Washington, DC: Worldwatch Institute.

Fox, J., ed. 1993. *Legal Framework for Forest Management in Asia: Case Studies of Community/State Relations.* Occasional Paper No. 16, Program on Environment, East-West Center. Honolulu, HI: East-West Center.

Gadgil, M., and R. Guha. 1993. *This fissured land: An ecological history of India.* Berkeley, CA: University of California Press.

Gray, A. 1991. The impact of biodiversity conservation on indigenous peoples. In *Biodiversity: Social and ecological perspectives,* pp. 59–76. Penang: World Rainforest Movement.

Greve, A., J. Lampietti, and F. Falloux. 1995. *National environmental action plans in Sub-Saharan Africa.* Washington, DC: World Bank.

Guha, R. 1989. Radical American environmentalism and wilderness preservation: A Third World critique. *Environ. Ethics* 11(1):71–83.

Harley, J. B. 1988. Maps, knowledge, and power. In *The iconography of landscape,* eds. D. Cosgrove and S. Daniels, pp. 277–312. Cambridge: Cambridge University Press.

Hecht, S., and A. Cockburn, 1989. *The fate of the forest: Developers, destroyers, and defenders of the Amazon.* London: Verso.

Hitchcock, R. 1995. Centralization, resource depletion, and coercive conservation among the Tyua of the Northeastern Kalahari. *Hum. Ecol.* 23(2):169–198.

Jodha, N. S. 1992. *Common Property Resources: A Missing Dimension of Development Strategies.* World Bank Discussion Paper 169. Washington, DC: World Bank.

Kakabadse, Y. 1993. Involving communities: The role of NGOs. In *The future of IUCN: The World Conservation Union,* eds., M. Holdgate and H. Synge, pp. 79–83. Gland: IUCN.

Kemf, E. 1993. *Indigenous peoples and protected areas: The law of mother earth.* London: Earthscan.

Korten, D., ed. 1986. *Community management: Asian experience and perspectives.* West Hartford, CT: Kumarian Press.

Kothari, S., and P. Parajuli. 1993. No nature without social justice: A plea for cultural and ecological pluralism in India. In *Global ecology: A new arena of political conflict,* ed. W. Sachs, pp. 224–241. London: Zed.

Li, T., 1996. Images of community: Discourse and strategy in property relations. *Dev. Change* 27(3):501–527.

Lynch, O., and K. Talbot. 1995. *Balancing acts: Community-based forest management and national law in Asia and the Pacific.* Washington, DC: World Resources Institute.

Malkki, L. 1992. National geographic: The rooting of peoples and the territorialization of national identity among scholars and refugees. *Cult. Anthropol.* 7(1):24–44.

Matzke, G., and N. Nabane. 1996. Outcomes of a community controlled wildlife utilization program in a Zambezi Valley community. *Hum. Ecol.* 24(1):65–85.

McNeely, J. 1995. IUCN and indigenous peoples: How to promote sustainable development. In *The cultural dimension of development: Indigenous knowledge systems,* eds. D. M. Warren, L. J. Slikkerveer, and D. Brokensha, pp. 445–450. London: Intermediate Technology Publications.

Metcalfe, S. 1994. The Zimbabwe Communal Areas Management Programme for Indigenous Resources (CAMPFIRE). In *Natural connections: Perspectives in community-based conservation,* eds. D. Western and M. Wright, pp. 161–192. Washington, DC: Island Press.

Murphree, M. 1994. The role of institutions in community-based conservation. In *Natural connections: Perspectives in community-based conservation,* eds. D. Western and M. Wright, pp. 403–427. Washington, DC: Island Press.

Neumann, R. 1995. Local challenges to global agendas: Conservation, economic liberalization and the pastoralists' rights movement in Tanzania. *Antipode* 27(4):363–382.

Ortner, S. 1995. Resistance and the problem of ethnographic refusal. *Comp. Studies Society Hist.* 37(1):173–193.

Peluso, N. 1993. Coercing conservation: The politics of state resource control. In *The state and social power in global environmental politics,* eds. R. Lipschutz and K. Conca, pp. 46–70. New York: Columbia University Press.

Peluso, N. 1995. Whose woods are these?: Counter-mapping forest territories in Kalimantan, Indonesia. *Antipode* 27(4):383–406.

Peters, P., ed. 1996. Who's local here? Special issue. *Cultural Survival Q.* 20(3).

Poffenberger, M., ed. 1990. *Keepers of the forest: Land management alternatives in Southeast Asia.* West Hartford, CT: Kumarian Press.

Poole, P., ed. 1995a. Geomatics: Who needs it? Special issue. *Cultural Survival Q.* 18(4).

Poole, P. 1995b. *Indigenous Peoples, Mapping and Biodiversity Conservation: An Analysis of Current Activities and Opportunities for Applying Geomatics Technologies.* Peoples and Forests Program Discussion Paper. Washington, DC: Biodiversity Support Program.

Schroeder, R. 1995. Contradictions along the commodity road to environmental stabilization: Foresting Gambian gardens. *Antipode* 27(4):325–342.

Shiva, V. 1993. The greening of the global reach. In *Global ecology: A new arena of political conflict,* ed. W. Sachs, pp. 149–156. London: Zed.

Vandergeest, P., and N. Peluso. 1995. Territorialization and state power in Thailand. *Theory Soc.* 24(3):385–426.

Western, D., and M. Wright, eds. 1994. *Natural connections: Perspectives in community-based conservation.* Washington, DC: Island Press.

World Bank, 1996. *The World Bank participation sourcebook.* Washington, DC: World Bank.

World Wide Fund for Nature. 1993. *Conservation with people.* Gland: WWF International.

Zerner, C. 1992. *Indigenous Forest-Dwelling Communities in Indonesia's Outer Islands: Livelihood, Rights, and Environmental Management Institutions in the Era of Industrial Forest Exploitation.* Report commissioned by the World Bank in preparation for the Forestry Sector Review. Washington, DC: World Bank.

Zerner, C. 1994. Through a green lens: The construction of customary environmental law and community in Indonesia's Maluku Islands. *Law Soc. Rev.* 28(5):1079–1122.

Challenges to Community-Based Sustainable Development

Dynamics, Entitlements, Institutions

Melissa Leach, Robin Mearns, Ian Scoones

For all the emphasis given to community-based approaches within recent environment and development policy debates, results in practice have often been disappointing both from the perspectives of implementing agencies, and of certain sections of the 'communities' concerned. This article suggests that among many possible reasons, key problems relate to shortcomings in the underlying assumptions about 'community', 'environment', and the relationships between them which inform current approaches. An alternative perspective, forwarded here, starts from the politics of resource access and control among diverse social actors, and sees patterns of environmental change as the outcomes of negotiation, or contestation, between social actors who may have very different priorities. As we go on to show, the notion of 'environmental entitlements' encapsulates this shift in perspective. Specifying people's entitlements and the ways they are shaped by diverse institutions offers, we suggest, a useful approach to the analysis of situations with which community-based sustainable development attempts to engage.

1 Community-Environment Linkages in Current Policy Approaches

At least superficially, recent approaches to community-based sustainable development appear as diverse as their varied implementing agencies and natural-resource settings. Yet they rest, we suggest, on a set of common assumptions about community, environment and the relationship between them.

One fundamental assumption is that a distinct community exists. While definitions vary, approaches commonly focus on 'the people of a local administrative unit...of a cultural or ethnic group...or of a local urban or rural area, such as the people of a neighbourhood or valley' (IUCN/WWF/UNEP 1991:57). Such communities are seen as relatively homogeneous, with members' shared characterisics distinguishing them from 'outsiders'. Equally fundamental is the assumption of a distinct, and relatively stable, local environment which may have succumbed to degradation or deterioration, but has the potential to be restored and managed sustainably. The community is seen as the appropriate unit to carry out such restoration and care, and is envisaged as being

capable of acting collectively towards common environmental interests. For instance 'Primary Environmental Care', a term coined to encapsulate a range of operational experiences in the field of community-based sustainable development, has been defined as 'a process by which local groups or communities organise themselves with varying degrees of outside support so as to apply their skills and knowledge to the care of natural resources and environment while satisfying livelihood needs' (Pretty and Guijt 1992: 22).

A common image underlying these approaches is of harmony, equilibrium or balance between community livelihoods and natural resources, at least as a goal. Indeed, frequently, the assumption is made – either implicitly or explicitly – that such harmony existed in former times until 'disrupted' by other factors. Assumptions, in this way, are linked together within what Roe (1991) has termed development narratives; stories about the world which frame problems in particular ways and in turn suggest particular solutions.

Frequently, the narrative focuses on population growth as the key force disrupting sustainable resource management. Indeed, many of the analyses of people-environment relations which inform community-based sustainable development conceive of the relationship as a simple, linear one between population and resource availability, affected only by such factors as level of technology (cf. Ehrlich and Ehrlich 1991). Population growth is seen as triggering generalised resource overexploitation, leading to generalised poverty and further environmental degradation, which feed each other in inexorable downward spirals (e.g. Durning 1989, etc.). Other versions of the narrative modify this Malthusian model, seeing a functional community as having once regulated resource use and technology so that society and environment remained in equilibrium. But various factors – whether the breakdown of traditional authority, commercialisation, modernity, social change and new urban aspirations, the immigration of stranger populations, or the intrusion of inappropriate state policies – may have weakened or broken down the effectiveness of such regulation. In either case, what is required is to bring community and environment back into harmony: 'policies that bring human numbers and lifestyles into balance with nature's capacity' (IUCN/WWF/UNEP 1991). This requires either the recovery and rebuilding of traditional, collective resource management institutions, or their replacement with new ones; for instance by the community management plans and village environmental committees so often associated with community-based sustainable development strategies.

There are undoubtedly important elements to this type of community-based sustainable development analysis (and in the more sophisticated and nuanced versions linked to particular cases). However, as we show below, the assumptions about community and environment which they rest on are basically flawed, as is the resulting image of functional, harmonious equilibrium between them. This is not to suggest that such images have no value from a policy perspective. As Li (1996) argues, they can serve a strategic purpose for agencies and practitioners concerned to counter other narratives which are both more dominant and more harmful to poor people's livelihoods. In this respect, images of consensual communities should be judged more in relation to the policy discourses which produce them and which they serve, than against empirical reality. We pursue this point further in the concluding article to this **Bulletin.** But whatever the broad strategic value of such narratives, their generality and the flaws in their assumptions mean they serve as poor and misleading guides for actual translation into operational strategies and programmes.

2 Difference, Distribution and Dynamics

An alternative starting point begins from the recognition that 'communities' are not, of course, bounded, homogeneous entities, but socially differentiated and diverse. Gender, caste, wealth, age, origins, and other aspects of social identity divide and cross-cut so-called 'community' boundaries. Rather than shared beliefs and interests, diverse and often conflicting values and resource priorities pervade social life and may be struggled and 'bargained' over (e.g. Carney and Watts 1991; Leach 1994; Moore 1993). Now commonplace in social science literature, and long integral to the critique of 'community development' approaches in development studies more generally (e.g. Holdcroft 1984), serious attention to social difference and its implications has been remarkably absent from the recent wave of

'community' concern in environmental policy debates.

Absent, too, has been attention to power as a pervasive feature of social relations, and to the ways that institutions, which might appear to be acting for a collective good, actually serve to shape and reproduce relations of unequal power and authority, marginalising the concerns, for instance, of particular groups of women or poorer people (e.g. Kabeer and Subrahmanian 1996; Goetz 1996). And the assumption that resource use is, or could be, regulated unproblematically by 'community structures' reflects outdated social theory, contradicted by more recent perspectives and empirical evidence of people's action and agency in monitoring and shaping the world around them (cf. Long and Long 1992; Giddens 1984).

Equally, recent work in the natural sciences has challenged many of the static, linear and equilibrium perspectives on ecological systems which underlie so much community-based sustainable development, altering the assumptions that can be made about patterns and determinants of environmental change. Whether we are talking of theories of vegetation succession, ecosystem functioning or species-area relationships, each have equilibrium assumptions at the core of their models and, not surprisingly, their findings and applied management recommendations (cf. Botkin 1990; Worster 1990; Zimmerer 1994). Thus, for example, succession theory has emphasised linear vegetation change and the idea of a stable and natural climax. Since Frederick Clements' early work in the United States (Clements 1916), this has become the guide for managing rangelands and forests, the benchmark against which environmental change is assessed. In the Ghana case study, for instance, semi-deciduous forest has been seen as the natural climax vegetation, and its restoration as a key management aim.

While there have always been disputes within each of these areas of theory, the period since the 1970s has seen a sustained challenge from the emergence of key concepts making up non-equilibrium theory and, more broadly, what has been termed the 'new ecology'. Three themes stand out. First, an understanding of variability in space and time, including an interest in the relationships between disturbance regimes and spatial patterning from patches to landscapes. Second, non-equilibrium perspectives suggest an exploration of the implications of scaling on dynamic processes, leading to work on hierarchies and scale relationships in ecosystems analysis. Third, a recognition of the importance of history on current dynamics has lead to work on environmental change at a variety of time-scales.

These ecological themes have prompted increased interest in understanding dynamics and their implications for management. For example, recent thinking in ecology helps our understanding of the key relationship between savanna grassland and forest areas. In both the Ghana and South Africa sites this is an important issue, as different products and different environmental values are associated with forests and grasslands. Conventional equilibrial interpretations of succession theory sees forests as later successional forms, closer to natural climax vegetation, and the presence of grasslands as evidence of degradation from a once forested state. This linear interpretation of vegetation dynamics has a major influence on the way such landscapes are viewed by policy makers and others (Fairhead and Leach 1996). But in some areas, forest and savanna may be better seen as alternative vegetation states influenced by multiple factors. As the articles by Afikorah-Danquah and Kepe suggest, despite powerful environmental narratives to the contrary, there is strong evidence, in both the forest transition zone of Ghana and the coastal grasslands of the former Transkei in South Africa, that certain forest or woodland areas have been enlarging over the century timescale as a result of a combination of disturbance events. Changes in soils, shifts in fallowing systems, manipulation of fire regimes, alterations in grazing patterns and climatic rehumidification have combined to change the relationship between forests and grasslands. This dynamic interaction is thus less the outcome of a predictable pattern of linear succession, but more due to combinations of contingent factors, conditioned by human intervention, sometimes the active outcome of management, often the result of unintended consequences.

With people viewed as differentiated social actors, and with the environment viewed as disaggregated and dynamic, a very different set of questions about people-environment relations arises from those

which normally frame community-based sustainable development policies. We need to ask, for instance, which social actors see what components of variable and dynamic ecologies as resources at different times? In particular, those with different modes of livelihood, or who carry different responsibilities within divisions of labour, may need to draw on very different environmental resources and services, and hold different views of what constitutes environmental degradation or improvement in that context. We need to ask, too, how different people gain access to and control over such resources, so as to use them in sustaining their livelihoods. And we need to ask how different people transform different components of the environment through their resource management or use.

Indeed, a view of ecology which stresses spatial and temporal variability, dynamic, non-equilibrial processes and histories of disturbance events suggests a very different view of environmental transformation from those underlying community-based sustainable development approaches.Environments come to be seen as landscapes under constant change, emerging as the outcome of dynamic and variable ecological processes and disturbance events, in interaction with human use.

Seen in this way, the environment both provides a setting for social action and is clearly also a product of such action. People's actions and practices may serve to conserve or reproduce existing ecological features or processes (e.g. maintain a regular cycle of fallow growth or protect the existing state of a watershed and its hydrological functions). But people may also act as agents who transform environments (e.g. shorten the fallow, alter soils and vegetation, or plant trees in a watershed). Such transformations may involve precipitating shifts of ecological state which push ecological processes in new directions or along new pathways. While some actions may be intentional, constituting directed management aimed at particular goals or transformations, others may be unintentional, yet still have significant ecological consequences.

Over time, the course of environmental change may be strongly influenced by particular conjunctures, or the coming together of contingent events and actions. Practices and actions carried out at one time may leave a legacy which influences the resources available for subsequent actors. For instance, the farming practices of one group of people may enduringly alter soil conditions, and subsequent inhabitants may make use of these in their farming of different crops, whether or not acknowledging them as the legacy of past farmers. Equally, past actions influence the possibilities for agency open to subsequent actors. As present practices build on the legacies of past ones, so the causality of environmental change may need to be seen as cumulative, sequential or path-dependent.

3 Environmental Entitlements

The discussion in the previous section has important implications for the lenses through which environmental problems are viewed. Whereas Malthusian perspectives, and conventional approaches to community-based sustainable development, tend to frame problems in terms of an imbalance between overall society/community needs and overall resource availability, an emphasis on social and environmental differentiation suggests that there may be many different, possible problems for different people. In mediating these differentiated relationships, questions of access to and control over resources are key. Hence, the perspective shifts to focus on the command which particular people have over the environmental resources and services which they value, and the problems they may experience should such command fail.

The notion of entitlements is helpful in clarifying this shift of emphasis. The entitlements approach was first developed by Amartya Sen to explain how it is that people can starve in the midst of food plenty owing to a collapse in their means of command over food (Sen 1981). Undue emphasis on aggregate food availability, Sen argued, diverts attention from the more fundamental issue of how particular individuals and groups of people gain access to and control over food. Thus: '..scarcity is the characteristic of people not ***having*** enough... , it is not the characteristic of there not ***being*** enough.. While the latter can be the cause of the former, it is one of many causes' (Sen 1981:1). Just as with the food and famine debate, the environmental debate has, as we have seen, been dominated by a supply-side focus, often giving rise to Malthusian interpretations of resource issues. But as noted by Sen, absolute lack of resources may be only one of a

number of reasons for people not gaining access to the resources they need for sustaining livelihoods. It is important not to polarise this distinction too far, however, since resource availability and access are often interconnected. Conflicts over access often intensify when the resources in question become scarce in absolute terms.

The entitlements approach can also be mobilised in a more specific sense into a set of analytical tools which can assist the tracking of particular actors' access to, use of and transformation of environmental goods and services. Some of the implications for practical research methodologies are explored in the next article in this Bulletin, while the articles by Ahluwalia, Afikorah-Danquah and Kepe all apply such a specific 'environmental entitlements' approach to their case studies. As we have described in detail elsewhere (Leach, Mearns and Scoones 1997), the central elements of such an approach can be derived from Sen's work, although certain significant adaptations are needed to address environmental questions.

In explaining how command over food, rather than overall availability, is key in explaining famine, Sen emphasised entitlements in the descriptive sense. The term entitlements therefore does not refer to people's rights in a normative sense – what people *should* have – but the range of possibilities that people *can* have. In Sen's words: 'the set of alternative commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she faces' (Sen 1984: 497). Entitlements arise through a process of mapping, whereby endowments, defined as a person's 'initial ownership', for instance of land or labour power, are transformed into a set of entitlements. According to Sen, entitlement mapping is 'the relation that specifies the set of exchange entitlements for each ownership bundle' (Sen, 1981:3). In Sen's work, these entitlement relations may be based on such processes as production, own-labour, trade, inheritance or transfer (Sen 1981:2). Sen's concern was therefore to examine how different people gain entitlements from their endowments and so improve their well-being or capabilities, a descriptive approach to understanding how, under a given legal setting, people do or do not survive.[1]

Some elements of Sen's otherwise useful framework are too restrictive in the environmental context, however (cf. also Gasper 1993; Gore 1993; Devereux 1996). First, at least in his early work, he focuses almost exclusively on entitlement mapping – how endowments are transformed into entitlements – and pays limited attention to endowment mapping – how people gain endowments. Instead of assuming that endowments are simply given, an extended framework would focus on how both people's endowments and entitlements arise, a possibility recognised by Sen in later work (Dreze and Sen 1989: 23). Second, Sen is principally concerned with command over resources through market channels, backed up by formal legal property rights. Although in later work (eg. Sen 1984, 1985, Dreze and Sen 1989: 11), the idea of 'extended entitlements' is introduced, it is unclear whether the concept is restricted only to mechanisms governing the intra-household distribution of resources or whether it also includes other institutional mechanisms. In our view, Sen's version of 'extended entitlements' does not go far enough. Since there are many ways of gaining access to and control over resources beyond the market, such as kin networks, and many ways of legitimating such access and control outside the formal legal system, such as customary law, social conventions and norms, it seems appropriate to extend the entitlements framework to the whole range of socially sanctioned, as well as formal legal institutional mechansims for resource access and control (cf. Gore 1993).

Given these concerns, we adopt the following definitions of key terms[2]. First, **endowments** refer to the ***rights and resources that people have***. For

[1] But within this descriptive framework, Sen had a broader agenda, deriving from particular moral philosophical concerns, which point to the injustice in a legal system which can legally permit people to starve (Sen 1981). In order to highlight this moral point, Sen did at times refer to 'entitlements' in a normative sense, and initially restricted the notion of entitlements to command over resources through formal legal arrangements, thus downplaying other extra-legal, informal means of gaining access to resources (Gore 1993).

[2] These differ in certain respects from earlier work on environmental entitlements (Leach and Mearns 1991; Mearns 1995, 1996), which did not effectively establish the distinction between environmental endowments and entitlements (Gasper 1993).

example, land, labour, skills and so on. Second, **entitlements**, following Gasper (1993), refer to *legitimate effective command over alternative commodity bundles*. More specifically, **environmental entitlements** refer to *alternative sets of benefits derived from environmental goods and services over which people have legitimate effective command and which are instrumental in achieving well-being*. The alternative set of benefits that comprise environmental entitlements may include any or all of the following: direct uses in the form of commodities, such as food, water or fuel; the market value of such resources, or of rights to them; and the benefits derived from environmental services, such as pollution sinks or the properties of the hydrological cycle. Entitlements in turn enhance people's **capabilities**, which are *what people can do or be with their entitlements*. For example, command over fuel resources – derived from rights over trees – gives warmth or the ability to cook, and so contributes to well-being.

There is nothing inherent in a particular environmental good or service that makes it *a priori* either an endowment or an entitlement. Instead, the distinction between them depends on empirical context and on time, within a cyclical process. What are entitlements at one time may, in turn, represent endowments at another time period, from which a new set of entitlements may be derived.

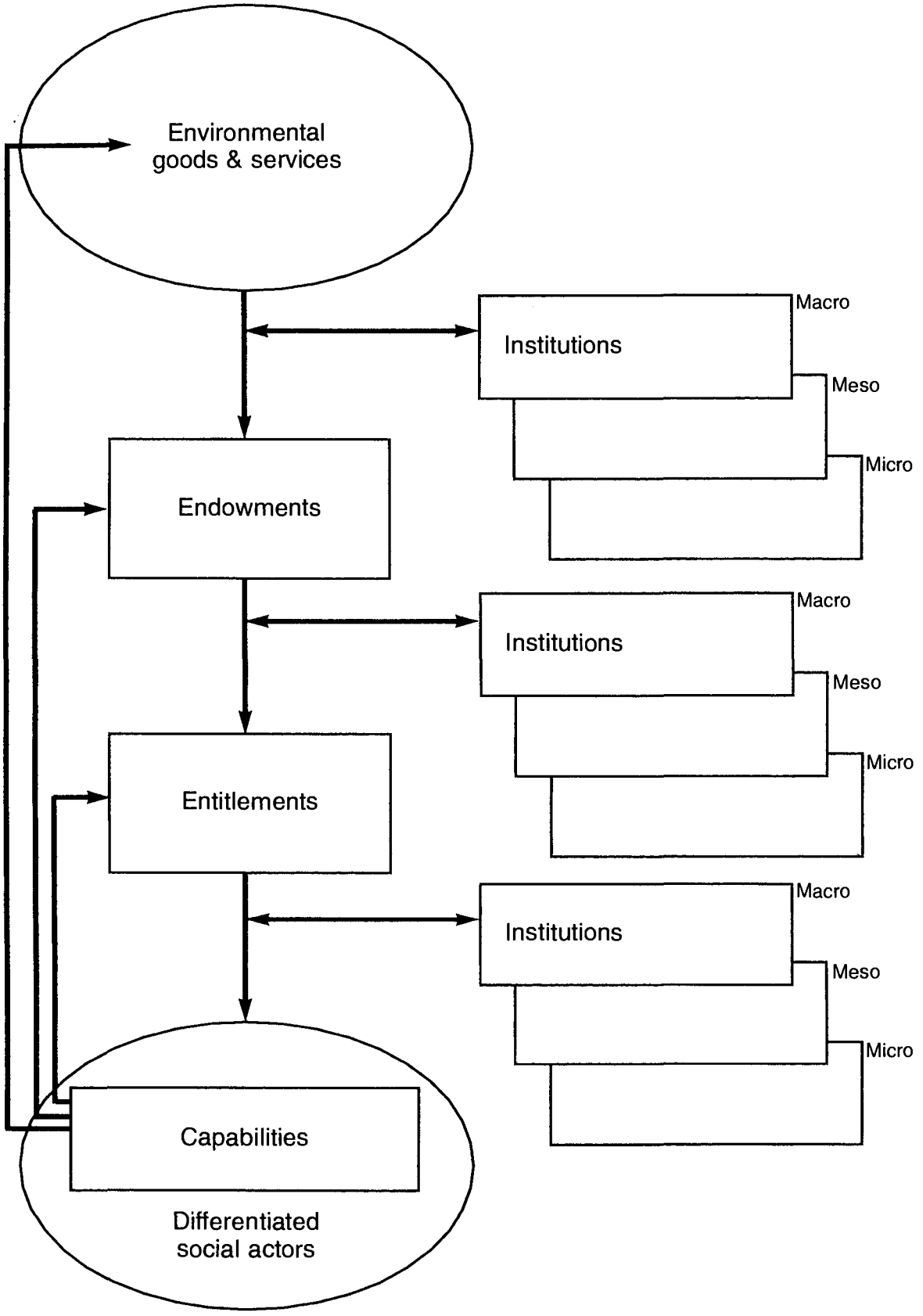
The phrase 'legitimate effective command' refers to a number of dimensions of entitlement mapping which often prove to be crucial in the situations which community-based sustainable development addresses. An emphasis on the 'effectiveness', or otherwise, of command over resources highlights first, that resource claims are often contested; within existing power relations some actors' claims are likely to prevail over those of others. Second, certain people may not be able to mobilise some endowments (e.g. capital, labour) to make effective use of others (e.g. land).

The notion of 'legitimacy' refers not only to command sanctioned by a statutory system such as state land tenure frameworks, but also to command sanctioned by customary rights of access, use and control, or by social norms. In some cases, these sources of legitimacy might conflict, and different actors may espouse different views of the legitimacy of a given activity. As Kepe shows, for instance, hunters living in the vicinity of Mkambati Nature Reserve on South Africa's Wild Coast are prevented by State law from hunting within the reserve. Yet groups of men do so regularly, justifying their actions by calling on customary rights, termed ***ukujola***, based on historical claims predating the gazetting of the protected area.

Figure 1 presents a diagram showing how these analytical tools of environmental entitlements analysis might be linked together, and connected with the concepts of differentiation and dynamic environments discussed earlier. The upper ellipse represents an 'environment' disaggregated into particular environmental goods and services. Their distribution, quality and quantity are influenced by ecological dynamics which are in part shaped by human action. Through processes of 'mapping', environmental goods and services become endowments for particular social actors; ie. they acquire rights over them. Endowments may, in turn, be transformed into environmental entitlements, or legitimate effective command over resources. In making use of their entitlements, people may acquire capabilities, or a sense of well-being.

As we shall see, several of the articles in this **Bulletin** structure their arguments around this type of diagram. It provides, in this sense, not a rigid analytical framework, but a guide for the external analyst in linking up the elements derived from a diverse set of methods. As will also become clear from the case study articles, the main value of such an analytical approach in particular situations is not its focus on the particular endowments, entitlements and capabilities of a given social actor at a given moment. These represent only a snapshot in time. Instead, analysis focuses mainly on the dynamic 'mapping' processes which link each set; in other words, on the multi-staged processes which structure resource access and control, and by which particular people derive benefit from particular components of the environment. As indicated in the boxes to the right of Figure 1, it can be useful to consider these processes in relation to the instutions which structure them.

Figure 1: The Environmental Entitlements Framework



4 Institutions

A focus on institutional arrangements, then, provides a further, useful analytical tool for understanding the links between differentiated environments and differentiated communities. Such a focus contrasts with conventional approaches to community-based sustainable development, where institutions generally either do not figure (for instance, in Malthusian analyses which link people directly with resource availability), or are equated with the type of 'community organisation' with which such approaches have typically found it convenient to work: the village management committee, the watershed development committee, and so on. The articles in this **Bulletin** take rather a different approach to institutions, grounded both in their empirical evidence and in certain discussions in recent social science debates.

First, institutions are distinguished from organisations. If institutions are thought of as 'the rules of the game in society', then organisations may be thought of as the players, or 'groups of individuals bound together by some common purpose to achieve objectives' (North 1990: 5). Organisations, such as schools, NGOs and banks, exist only because there is a set of 'working rules' or underlying institutions that define and give those organisations meaning. Many other institutions have no single or direct organisational manifestation, including money, markets, marriage, and the law, yet may be critical in endowment and entitlement mapping processes.

The perspectives emerging from the case studies do, however, render it problematic to define institutions as 'rules' themselves. The distinction between rules and people's practices is rarely so clear. Institutions are better seen as regularised patterns of behaviour that emerge, in effect, from underlying structures or sets of 'rules in use' (cf. Giddens 1984), and are maintained by people's practices, or indeed their active 'investment' in those institutions (Berry 1989, 1993). It is such regularised practices, performed over time, which come to constitute institutions. Yet as they consciously monitor the consequences of past behaviour and the actions of others, different social actors may choose – or be forced – to act in irregular ways. Over time, perhaps as others similarly alter their behaviour, institutional change may occur. But owing to the embeddedness of informal institutions, institutional change in society may be a slow, 'path-dependent' process, even if formal institutions such as legal frameworks or macroeconomic policies change quickly.

There are also many situations in which behaviour appears to contravene the rules. In an insightful critique of Sen's narrow view of the rules of entitlement, Gore (1993) draws on Fraser to refer to such behaviour as 'unruly' social practices, emphasising the ways that different forms of protest and resistance challenge legal rules governing people's ability to gain command over commodities. But such unruly practices may well be bound by different sets of moral/informal rules (Gore 1993: 446); such situations thus exemplify instances of competing notions of legitimacy, in which actual entitlements are influenced by the interplay of these competing rule sets in the context of prevailing power relations. Such an approach recognises that the law necessarily operates within a particular social context, whereby, for example, the judiciary is able to bend the rule of law to favour selective class, gender or ethnic interests, particularly in weak states.

Second, several articles also draw on the particular insights of new institutional economics concerning transaction costs in reflecting on institutional change, and the interactions between institutions at different scale levels in relation to the environment. For example, the high costs to the Rajasthan State Forest Department of overseeing and enforcing regulated access to state forest land in the Aravalli hills in India has, it is argued, led to high levels of commercial exploitation and subsequent deforestation, suggesting that other types of institutional mechanism with lower transaction costs would be more appropriate if maintaining forest cover was a major objective. Similarly, in the former Transkei, South Africa, the type of tenure regime associated with different types of grazing can be related to the relative costs and benefits of managing exclusion. In high value grazing sites, institutional forms with relatively high transaction costs may persist, whilst for low value, highly variable grazing resources the opposite is most likely.

Third, rather than the single, local institution focus which characterises so many programmes and projects, it is clear that people's resource access and

control, or the 'mapping' processes by which endowments and entitlements are gained, are shaped by many, interacting institutions. Some are formal, such as the rule of state law, requiring exogenous enforcement by a third party organisation. Others are informal, upheld by mutual agreement among the social actors involved, or by relations of power and authority between them. Multiple involvement may – as argued in the burgeoning literature on 'social capital', trust and networks of civic engagement (Gambetta 1988, Putnam *et al.*1993) – promote mutual assurance among different social actors, promoting co-operation and collective action. Yet it is also clear that different institutions may carry very different meanings for different social actors, not least because of the power relations inherent in them (cf. Bates 1995). Many institutions, for example, patently do not serve a collective purpose, even if they may once have done and as we suggested earlier, different actors' perception of the 'collective good' depends very much on their social position. Equally, rather than benign complementarity, involvement in some groups may be a response to inequities in others. Women's investment in resource-sharing networks with neighbours, for instance, may relate to their lack of power within intra-household resource allocation arrangements. To understand how different actors' practices are embedded in – and help to shape – such a range of formal and informal institutions necessitates an actor-oriented approach to understanding institutions (cf. Long and van der Ploeg 1994; Nuitjen 1992), one which takes an analysis of difference and an appreciation of power relations seriously.

Fourth, it is clear that institutions at various scale levels interact to shape the resource claims and management practices of different social actors. At the international level, for example, the policies of donor agencies play an important role not only in directly shaping local approaches to community-based natural resource management, but also in influencing domestic macroeconomic policy and governance in ways that cascade down to affect local natural resource management. At national or state level, government policies and legislation are of key importance, including land tenure reform policies, or approaches to forestry and wildlife conservation and tourism. And institutional dynamics at these levels intersect with the local institutions which influence rural livelihood systems, intra-household dynamics and so on. As the case studies will illustrate, it is frequently the interactions between institutions which lead to conflicts over natural resources, or to competing bases for claims. Yet it is also in the potential to shape or alter such interactions, our concluding article will suggest, that some of the most fruitful ways forward for policy lie.

5 Conclusion

In place of the attempts to link static, undifferentiated 'communities' with 'the environment', which have characterised so many past analyses informing community-based sustainable development, this article has presented a different perspective. As Jenkins has put it, this situates 'a disaggregated (or "micro") analysis of the distinctive positions and vulnerabilities of particular [social actors] in relation to the "macro" structural conditions of the prevalent political economy' (Jenkins 1997: 2). The relationships among institutions, and between scale levels, is of central importance in influencing which social actors – both those within the community and those at some remove from it – gain access to and control over local resources. And this perspective uses the insights of landscape history, and of historical approaches to ecology, to see how different peoples' uses of the environment in this context act, and interact with others' uses, to shape landscapes progressively over time.

References

Bates, R.H., 1995, 'Social dilemmas and rational individuals: an assessment of the new institutionalism', in J. Harris, J. Hunter and C.M. Lewis (eds), **The New Institutional Economics and Third World Development**, London: Routledge: 27–48

Berry, S., 1989 'Social institutions and access to resources', **Africa** Vol 59 No 1: 41–55

Berry, S., 1993, **No Condition is Permanent: The Social Dynamics of Agrarian Change in Sub-Saharan Africa**, Madison: University of Wisconsin Press

Botkin, D., 1990, **Discordant Harmonies: A New Ecology for the Twenty-First Century**, Oxford: Oxford University Press

Carney, J., and Watts, M., 1991, 'Manufacturing dissent: work, gender and the politics of meaning in a peasant society', **Africa** Vol 60 No 2: 207–41

Clements, F., 1916, 'Plant succession: an analysis of the development of vegetation', **Carnegie Institute Publications** No 242: 1–512

Devereux, S., 1996 'Fuzzy entitlements and common property resources: struggles over rights to communal land in Namibia', **IDS Working Paper** No 44, Brighton: IDS

Drèze, J., and A. Sen. 1989, **Hunger and Public Action**, WIDER Studies in Development Economics Series. Oxford: Clarendon Press

Durning, A.B., 1989, 'Poverty and the environment: reversing the downward spiral', **Worldwatch Paper** 92, Washington DC: Worldwatch Institute

Ehrlich, P., and Ehrlich, A., 1991, **The Population Explosion**, London: Hutchinson

Fairhead, J., and M. Leach, 1996, **Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic**, Cambridge and New York: Cambridge University Press

Fraser, N., 1989, **Unruly Practices: Power, Discourse and Gender in Contemporary Social Theory**, Oxford: Polity Press

Gambetta, D., 1988, 'Can we trust trust?' in D. Gambetta (ed), **Trust: Making and Breaking Cooperative Relations**, Oxford: Basil Blackwell

Gasper, D., 1993, 'Entitlements analysis: relating concepts and contexts', **Development and Change** 24: 679–718

Giddens, A., 1984, **The Constitution of Society: Outline of the Theory of Structuration**, Oxford: Polity Press

Goetz, A. M., 1996, 'Understanding gendered institutional structures and practices at the macro, meso and micro levels', mimeo, Institute of Development Studies: Brighton

Gore, C., 1993, 'Entitlement relations and "unruly" social practices: a comment on the work of Amartya Sen', **Journal of Development Studies** Vol 29 No 3: 429–60

Holdcroft, L.E., 1984, 'The rise and fall of community development, 1950-65: a critical assessment' in C.K. Eicher and J.M. Staatz, (eds), **Agricultural Development in the Third World**, Baltimore and London: John Hopkins University Press

IUCN/WWF/UNEP, 1991, **Caring for the Earth: a Strategy for Sustainable Living**, Gland, Switzerland: IUCN, WWF and UNEP

Jenkins, H., 1997, 'Social response to environmental injustice: legal and moral gateways to entitlement', mimeo. Department of Law, School of Oriental and African Studies, University of London

Kabeer, N., and Subrahmanian, R., 1996, 'Institutions, relations and outcomes: frameworks and tools for gender-aware planning', **IDS Discussion Paper** No 357: Brighton: IDS

Leach, M., 1994, **Rainforest Relations: Gender and Resource Use among the Mende of Gola, Sierra Leone**, Edinburgh: Edinburgh University Press

Leach, M., and Mearns, R., 1991, **Poverty and Environment in Developing Countries: an Overview Study**. Report to ESRC, Global Environmental Change Programme; and Overseas Development Administration. Swindon: ESRC

Leach, M., Mearns, R. and Scoones, I., 1997, 'Environmental Entitlements: a framework for understanding the institutional dynamics of environmental change', **IDS Discussion Paper**, No 359, Brighton: IDS

Li, T. M., 1996, 'Images of community: discourse and strategy in property relations', **Development and Change**, 27: 501-527

Long, N., and Long, A., (eds), 1992, **Battlefields of Knowledge: The Interlocking of Theory and Practice in Social Research and Development**, London: Routledge

Long, N. and van der Ploeg, J.D., 1994, 'Heterogeneity,

actor and structure: towards a reconstitution of the concept of structure', in D. Booth, (ed.), **Rethinking Social Development: Theory, Research and Practice**, Harlow: Longman

Mearns, R., 1995, 'Environmental entitlements: towards empowerment for sustainable development', in N. Singh and V. Titi (eds), **Empowerment: Towards Sustainable Development**, London: Zed Books: 37–53

----, 1996, 'Environmental entitlements: pastoral natural resource management in Mongolia' **Cahiers des Sciences Humaines** Vol 32 No 1: 105–131

Moore, D.S., 1993, 'Contested terrain in Zimbabwe's Eastern Highlands: political ecology, ethnography and peasant resource struggles', **Economic Geography** Vol 69 No 4: 380–401

North, D.C., 1990, **Institutions, Institutional Change and Economic Performance**, Cambridge: Cambridge University Press

Nuitjen, M., 1992, 'Local organisation as organising practices: rethinking rural institutions', in N. Long, and A. Long (eds), **Battlefields of Knowledge: The Interlocking of Theory and Practice in Social Research and Development**, London: Routledge

Pretty, J., and Guijt, I., 1992, 'Primary environmental care: an alternative paradigm for development assistance', **Environment and Urbanisation** Vol 4 No 1: 22–36

Putnam, R.D., R. Leonardi and Nanetti, R.Y., 1993, **Making Democracy Work: Civic Traditions in Modern Italy**, Princeton: Princeton University Press

Roe, E., 1991, '"Development narratives" or making the best of development blueprints', **World Development** Vol 19 No 4: 287–300

Sen, A., 1981, **Poverty and Famines: an Essay on Entitlement and Deprivation**, Oxford: Oxford University Press

Sen, A.,1984, 'Rights and capabilities', in A. Sen, **Resources, Values and Development**, Oxford: Basil Blackwell: 307–24

Sen, A., 1985, **Commodities and Capabilities**, Amsterdam: Elsevier Science Publishers

Worster, D., 1990, 'The ecology of order and chaos', **Environmental History Review** 14: 1–18

Zimmerer, K., 1994, 'Human geography and the "new ecology": the prospect and prospect of integration, **Annals of the Association of American Geographers** Vol 84 No 1: 108–25

Methods for Environmental Entitlements Analysis

Environmental Entitlements Research Team[1]

1 Introduction

Understanding local natural resource management issues requires a range of methods which helps uncover complexity, difference and the dynamics of change. Advocates of community-based sustainable development approaches have often adopted the suite of methods associated with participatory rural appraisal and other related approaches to assist with local-level problem diagnosis and planning. Such methods are now commonplace in a wide range of local level natural resource and rural development planning frameworks. These come in various guises, including district or village environmental action plans, community natural resource management plans or *gestion de terroirs* approaches and participatory forest or watershed planning approaches. Many of these have undoubtedly encouraged local level reflection on natural resource issues, often involving local participants in the process.

While such approaches are unquestionably a step in the right direction, away from the top-down, externally imposed planning regimes of earlier development interventions, they do have some potential shortcomings. Most of these lie in the conceptualisation of the key issues of 'community', 'environment' and 'institutions' embedded in these approaches. While often not explicit about such concepts, such approaches tend to adopt implicitly a set of assumptions about each: assumptions carried to the field by the implementors of such local-level diagnosis and planning approaches. It is for this reason that the environmental entitlements approach attempts to provide a clearer and more rigorous conceptual framework for looking at people-environment relations, one that allows for the exploration of diversity, difference and dynamic complexity in resource management situations. This article examines some of the practical methods which can assist the application of the environmental entitlements approach to field-based situations, and which were used during the

[1] This paper is derived from discussions among the field researchers (Meenakshi Ahluwalia, Thembela Kepe and Seth Afikorah-Danquah), the country supervisors (Ben Cousins, Edwin Gyasi and MS Rathore) and the IDS-based team (Melissa Leach, Robin Mearns and Ian Scoones), and from debates generated by the participants at the Environmental Entitlements workshop held at IDS in April 1997.

Table 1: The Methods Tool Box

Livelihood analysis	Social mapping; well-being ranking; seasonal calendars; time use and activity charts; livelihood diagrams; biographies and life histories; endowment and entitlement ranking; individual and household surveys/censuses
Environmental analysis	Environmental histories and time lines; site histories; archival information; travellers' records; time series air photographs and satellite imagery; seasonal calendars; resource assessment transects; soil/vegetation surveys and inventories; state-transition modelling
Institutional analysis	Network diagrams; venn diagrams; decision trees and flow charts; actor-network analysis; organisational analysis; biographies of institutions or organisations

research for three of the articles in this Bulletin.

2 Methods and Sequences

A number of sequences of methods are suggested by the environmental entitlements approach. These are focused on three areas (see also Table 1):

i) Livelihood analyis, involving investigating community differentiation and the various endowments, entitlements and capabilities of different social actors.
ii) Environmental analysis, involving the analysis of ecological difference, the dynamics of environmental transformation and the creation of landscapes through human action.
iii) Institutional analysis, involving an assessment of the role of formal and informal institutions in creating livelihoods through endowment and entitlement mapping processes.

The following sections offer some examples of sequences of methods used to explore these themes in the different case studies. Many of these methods draw extensively on the now well-established PRA tradition (Chambers 1994), but also incorporate techniques of resource survey, environmental history, ethnography, and conventional survey approaches. In other words, methodological complementarity (cf. Abbot and Guijt 1997) or hybridity (Batterbury *et al.* 1997) is sought which involves an eclectic use of methods derived from disciplinary traditions as diverse as ecology, economics, history, anthropology, sociology and management studies, among others. It is this interdisciplinary fusion with a critical, yet realist perspective (cf. Sayer 1992; Gandy 1996) which provides important insights when addressing the complex questions raised by an analysis of people-environment interactions. A summary of the range of methods used during the case study research in Ghana, India and South Africa is given in Table 1.

It is beyond the scope of this paper to provide a summary of each of these methods[2]; instead we want to illustrate how they can be combined in

[2] Many good sources exist which offer more detailed discussion of particular methods. For example, see the contributions to Denzin and Lincoln (1994) and for good summaries of issues raised by qualitative methods, Moris and Copestake (1993). The Notes on Participatory Learning and Action (formerly RRA Notes) offer a wide range of experiences of the use of P/RRA methods (IIED 1988–1997). More quantitative survey approaches are covered in a wide range of texts, with useful summaries being offered by Nichols (1991) on survey and sampling techniques and Casely and Lury (1987) more generally on household survey approaches. Ecological and environmental assessment methods, including remote sensing techniques, are covered in many textbooks although most do not provide pointers to linking these to more anthropological field approaches. Case studies which integrate the use of environmental history (e.g. Cronon 1992; Worster 1984) or historical geography (Williams 1994) approaches are now increasingly common (see, for example, Tiffen *et al.* 1994; Fairhead and Leach 1996; Lindblade 1997; Scoones 1997 among others).

sequence in the pursuit of a particular theme, issue or question. Thus for each case study a selection of methods was combined, with a sequence chosen appropriate to different themes of investigation. No prescription can be given as to the ideal sequence or the most appropriate methods, as a major lesson learned from field testing was that each new circumstance required a different combination of methods to be drawn from the 'tool box'. The following sections offer three examples of how different methods were combined in particular cases in the pursuit of information about a particular theme.

Case 1: Understanding community difference in Rajasthan, India (see Ahluwalia, this Bulletin)

One of the major challenges of the Rajasthan case study was to explore the dimensions of community difference in the area covered by the Nayakheda watershed development project. While many presented an image of community harmony and coherence, it was necessary to investigate in greater depth what divisions and differences existed. In order to pursue this line of investigation, a detailed social map was constructed with each of the houses in the six-seven hamlets covered by the project individually marked. A census exercise followed whereby details of each homestead were derived through discussion with a number of key informants. This information was added to the social map to give a spatial picture of difference. A well-being ranking then followed to explore how local perceptions of different people's capabilities were framed. This was carried out at the household level with the full list being drawn from the social map and census. Well-being or capability was differentiated by a number of key characteristics, including material wealth, but also generosity and ability to give to others. These village-wide analyses revealed a number of different livelihood strategies, including farming, livestock raising and wage labour. These were subsequently pursued in more detail with a small, yet representative sample drawn in relation to the four well-being categories derived from the earlier ranking exercise.

Detailed interviews with sample households allowed for more in-depth analysis, particularly of intra-household issues, including age and gender differences in livelihood strategies. A number of methods were used during these discussions. The sequence often started with a discussion of a person's life history and the development of a biographical time-line of different occupations and livelihood strategies over the person's life. This was usually followed by the construction of a livelihood diagram, where the current range of sources of livelihood and their connections were mapped out by the informant on a large sheet of paper or on the ground. This allowed for the listing of the full range of endowments and entitlements which the particular person or household had access to. These, in turn, could be ranked in terms of their importance in contributing to individual well-being or capability using a simple matrix ranking exercise. Discussion around such a ranking exercise often revealed important information about the range of interacting institutions which mediated access to endowments and entitlements; a subject which could be pursued with a more detailed institutional analysis (see Case 3).

Case 2: Investigating histories of environmental change and land use in South Africa (see Kepe, this Bulletin).

Understanding the complexities of environmental change in the different parts of the study area was an essential part of the South African case study. In particular, investigating the history of environmental and land use change in the village sites, state farm land and nature reserve allowed for a more detailed understanding of the diverse trajectories of change and the social, economic and political factors mediating it. Much basic information on environmental issues was available in secondary literature on the area or as part of government records. This included some detailed resource surveys, archeological studies, inventories of flora and fauna, climatic data, livestock and wildlife censuses and so on. This was complemented by some interesting insights from archival information, ranging from the diaries of shipwreck survivors from 1554 through travellers' accounts from the eighteenth and nineteenth centuries to colonial and more recent district administrative records. A thorough trawl of available sources therefore provided some essential background to the area.

However, what was needed was to move beyond the static pictures presented by particular surveys or studies towards a more dynamic understanding of the relationships between social and environmental

issues over time. This was acheived through combining ecological and social research techniques in the field. For example, transect walks or resource mapping with local informants were important routes to a more locally nuanced understanding of environmental change. Joint analysis of time series air photos (for the village study area photos were available from 1937 to 1996) served a similar purpose, with considerable insight being derived from discussing with people who had lived in the area over the period.

Transect walks, resource maps and air photos helped in the identification of key sites for more detailed study. Sites chosen included those on different soil types in different parts of the area; those which had previously been settlement areas and now exhibited different ecological features; those that had been subject to major disturbance or dramatic changes in use, such as new agricultural lands or areas which had been protected by the nature reserve; and those which had particular features, such as the presence of rare or endemic plants. Ecological site histories with selected informants who were deeply knowledgable about the particular site proved immensely helpful in gaining a greater level of specificity about the changes that had occurred and the various causal factors which combined to precipitate such change. For some issues, such as the transitions between different grass species associations, a simple state and transition model was developed with informants to analyse in more depth the key factors (ecological, social, economic and so on) which result in the maintenance of a particular state (ie. the presence of a certain grass species) or resulted in a transition to a new state.

Case 3: Exploring institutional arrangements in forest management in Ghana (see Afikorah-Danquah, this Bulletin).

An institutional analysis is at the core of the environmental entitlements approach. Once an understanding of social and environmental difference and dynamics has been acheived (see Cases 1 and 2), many institutional questions inevitably arise. In the Ghana case study, for instance, it was important to get a better understanding of the institutions which mediated indigenous inhabitants' and immigrants' access to and control over forest and agricultural resources, for it was the combination and interaction of these institutions which was at the heart of the conflict over visions of appropriate environmental management.

Matrix ranking or scoring exercises with different indigenous and migrant farmers, as part of individual interview or group discussions, allowed the range of endowments and entitlements to be compared in terms of their significance for well-being. For each endowment or entitlement 'mapping' process a range of institutions were identified. These were, in turn, examined both individually and in relation to each other. The analysis of individual institutions (for example, matrilineal inheritance or labour-exchange groups) was pursued through detailed case studies, often developed during focus group discussions (for example with non-timber forest product collectors, hunters or charcoal makers) when the basic parameters of institutional rules and norms could be discerned. Institutional biographies traced the origins and evolution of institutions, highlighting the social embeddedness of local institutions. Some institutions have more of an organisational form (for example, descent groups) and consequently organisational analysis was possible. This included discussions on such issues as membership, leadership, power relations and so on. Very often it is the relational issues which are key to understanding the overlapping – sometimes complementary, sometimes conflictual – nature of formal and informal institutions and organisations. Venn diagrams proved a useful route to understanding perceptions of local organisational linkages and relative importance from different informants' perspectives, while network diagramming with the relationships between different actors involved mapped out was helpful in understanding the underlying social relationships of different institutions.

With a more complete understanding of institutions and organisations, some of the issues surrounding conflicts over resource use can be more easily uncovered. In the Ghana case a range of resource conflicts between immigrants and indigenous people evidently had an institutional origin. For example, while indigenous inhabitants usually gained secure land tenure as members of landholding descent groups, immigrants, excluded from these groups, relied on institutions such as tenancy, encouraging short-term land degrading practices.

3 Lessons Arising

The fieldwork carried out in three contrasting settings in Ghana, India and South Africa also highlighted a range of important general lessons for methodological design. These included:

- Perspectives on complexity and diversity are best derived from the use of multiple methods, combined in a flexible fashion through innovative sequencing. This allows the best to be gained from both qualitative and quantitative methods.

- Understanding diversity and complexity, whether of 'community' or of 'environment', requires that careful attention be paid to sampling. This may not entail elaborate statistical procedures, but it is equally relevant to both qualitative and quantitative information. Systematic procedures of iteration and triangulation with multiple methods and informants are key in improving reliability and trustworthiness of data.

- Assessment of the appropriate scale of analysis is essential. In most cases, field analysis started at the local, village level. But through exploring connections, linkages and networks, wider impacts can be detected. The linking of the details of micro-realities at the village level with broader macro-influences of economy and politics through a multi-layered institutional analysis allows allows locality specific analysis to be set in context.

- The setting in which information is collected has a big impact. For instance, some information may be appropriate to gather in group settings where open discussion is possible and where feedback, discussion and debate assists with analysis. However, in other instances, for example, where information is sensitive, it may be appropriate to collect information from individual informants or simply through participant observation. Whether as individual interactions or in group settings, visualisation, diagramming and joint analysis often proved useful, generating more reflection and discussions than simple question-answer sessions.

These are, of course, not new insights; they reflect the on-going debate about research approach and method among a wide range of interdisciplinary researchers working in a range of fields (e.g. Long and Long 1992; Scoones and Thompson 1994; Mosse 1994; De Koning and Martin 1996; Cornwall and Fleming 1995; Nelson and Wright 1995 among many others). However, the need to take such lessons seriously is particularly pertinent in the context of analysis of people-environment interactions, where complexity, diversity and difference are always central and a complementary, integrative and hybrid research approach is essential.

4 Who Might Use the Environmental Entitlements Approach?

In almost all of the examples of community-based sustainable development initiatives mentioned at the beginning of this article, external facilitators, development workers or extension agents are involved as active – and by virtue of their power and position – influential actors in any analysis and project design process. Our aim has not been to criticise the very real attempts at community-led development by such people, but to highlight some of the pitfalls of taking too simplistic a view of the issues. Our concern, instead, has been to focus on developing a set of conceptual and methodological tools which might be potentially useful for such professionals involved in the complex process of community-based sustainable development; tools which both encourage critical reflection on difficult issues and also suggest practical ways forward.

So who might use an environmental entitlements approach? In what settings might it help improve current practice? Taking the three case studies carried out for this project, some examples can be offered. In South Africa, for instance, researchers and field staff from government ministries associated with land reform or the new Spatial Development Intitiative are continuously faced with the difficulties of investigating competing claims to land, resources and development benefits. In India, workers in Seva Mandir or other NGO-led watershed development schemes, as well as government workers in state watershed management programmes must frequently work with deeply divided communities, and face the practical challenges of understanding the implications of this diverstiy for environmental activities. Similarly in Ghana field workers of the Collaborative Forest Management Unit of the Planning Branch of the Department of Forestry are initiating joint forest management

projects in a number of areas which require a detailed institutional analysis of past and current conditions.

Methods are, of course, not neutral; they are very much informed by the assumptions of the users. The recognition of the presence of such external actors and the need for informed, critical and reflective analytical frameworks is important. In the processes of purposive intervention through the development process, such actors will inevitably remain. If a more participatory process of local planning is to emerge, their role certainly must change from being the planner, designer and implementor to being a facilitator, catalyst and co-analyst (cf. Chambers 1997). But in such a joint role and given their powerful position in the process, external actors must be particularly reflective on the assumptions they bring with them.

Our hope is that the environmental entitlements approach will allow those involved in community-based development initiatives to pose new questions, bringing new insights for practical ways forward. The environmental entitlements approach is little more than a set of tools for bringing new ideas to the fore. It does not provide answers, but simply provides the basis for compiling checklists of issues and questions to be used in field investigations, and, through suggesting some key conceptual themes, offers a framework for analysing the resulting information in a critical, informed and reflective way, and, in so doing, highlighting the challenges and identifying the opportunities for any initiatives in a particular setting. Making use of such a framework may, of course, be a tall order given the constraints faced by most development practitioners. But in bringing together disparate conceptual strands, we do not pretend to offer a new theory, simply new and perhaps interesting combinations of ideas which shed new light on old problems. Such new combinations of ideas, in turn, suggest innovative combinations of methods, as highlighted above. Again, the methods themselves are not new, but the approach suggests appropriate sequences of methods, applied to particular themes or issues.

5 Research, Participation and Action

Experiences during the fieldwork for the Environmental Entitlements project raised many dilemmas over the difficult relationship between research, participation and action. These experiences have raised the question of how 'participatory' an environmental entitlements analysis can be. The term 'participation' is now very widely used in contemporary debates about development-related research and planning. But often it is used rather loosely. In order to assess the potential linkages between research, participation and action it is important to disaggregate. Four possible, obviously stylised, approaches are highlighted below, each with very different roles for the external analyst (identified as researcher, facilitator, development agent or whoever) and so very different implications for the style of investigation.

- The 'extractive researcher': where the researcher retains objectivity and neutrality. Unbiased participant observation or survey work is made possible because the researcher is fully accepted by local people, has excellent language command and is locally resident, yet remains impartial and is able to extract ethnographic accounts or survey data in an independent, unbiased and critically analytical manner.

- The 'virtual participant' (cf. Drinkwater 1992): where the researcher makes her/his identity, biases and interpretive voice explicit and recognises that such biases are inevitably inherent in concepts used and frameworks of analysis employed. However a critical and reflective stance does not prevent the researcher from reflecting, analysing and interpreting. On occasions, the research and reflection initiated by the researcher may lead to action. This is seen as another opportunity for learning, rather than something which biases results.

- The 'participation populist': where the researcher encourages local analysis by people themselves, as a facilitator and catalyst of people's own research. Concepts, methods and analyses are not imposed and the researcher simply encourages local reflection and analysis.

- The 'activist action researcher' (cf. Fals-Borda and Rahman 1991): where the researcher makes explicit her/his own position and supports a research process towards a specified end, with no pretence of impartiality. Activist research may mean making an

alliance with one particular interest group against another, with critical and thorough research employed to make a particular case on behalf of, or together with, an a certain group.

How did the experience of the field research teams match up with these stylised researcher types? The field research for this project started out as essentially extractive, aimed at testing and adapting the environmental entitlements approach in different settings. In other words, perhaps most in line with the 'extractive researcher' mode, with local language skills combined with long term village residence and a framework developed prior to the research available for testing. But, as each of the field researchers found, extended field engagement has many consequences: the researcher inevitably becomes involved, a participant in the research process itself, entangled in local networks, and subject to and part of local debates. Research 'subjects' become hosts, friends and colleagues, and, with the trust necessary for carrying out such research, mutual obligations inevitably arise. In other words, the 'ideal type' distanced, fully objective, extractive researcher disappears (if, of course, s/he ever existed) and a more realistic description would see the researcher as a 'virtual participant', maintaining a critical, reflective and analytical stance, but also becoming part of on-going action at the local level.

What about the other types of researcher described above? Our experiences would argue for the rejection of the 'participation populist' position on the grounds of it being unrealistic and naive. All convenors of research activities carry with them some baggage, explicitly or implicitly. While there are certainly some important insights to be gained from exploring local analytical frameworks for interpretation, we should not deny the role or potential input of an outside analyst. The environmental entitlements approach, as employed in this project, is patently not a locally derived framework for analysis, but it may offer some useful guidance for an external facilitator of a participatory process. In this case, it might be deployed in a more activist mode. For example, an NGO worker whose explicit aim is to improve the livelihoods or resource management capacities of a particular group of people might usefully employ the framework in a more directive manner to assist with the institutional design of development interventions.

We would not want to argue that the approach we adopted (essentially extractive research moving towards a 'virtual participant' mode) is necessarily the right approach and others wrong. The methodological stance taken inevitably depends on the use to which the resulting information will be put. It is clear that, depending on circumstance, a variety of researcher modes are possible and, in the future, may be further explored[3]. The concluding article in this Bulletin offers further discussion of the possible applications of the environmental entitlments approach in policy analysis and development planning.

6 Conclusions

The environmental entitlements approach was derived from a detailed examination of multiple strands of literature in the social and natural sciences, in order to ground it in a rigorous treatment of different conceptual issues. Its testing in the field has subjected it to adaptation and modification, but the core themes – the focus on community differentiation and multiple social actors; emphasis on endowment and entitlement mapping processes; the highlighting of complex interaction of multiple formal and informal institutions in environment-livelihood interactions; and the historical transformation of environments and landscapes through human action – have been shown to be useful analytical themes. But if such ideas are to become useful to field practitioners, a subsequent process of translation must be undertaken, whereby the core concepts and the associated framework becomes increasingly clear and useable. It is our hope is that, equipped with a more enriched conceptual and methodological toolbox, those involved in community-based sustainable development initiatives may become more effective and reflective practitioners (cf. Schon, 1983).

[3] Follow-up work in the different case study sites is taking a more 'activist' stance. For example, in South Africa the approach is proving useful in seeking information for negotiations around land claims and tenure reform in the area in the context of a large regional economic development project (Kepe pers. comm.).

References

Abbot, J. and Guijt, I., 1997, 'Methodological complementarity: creativity and compromise', **PLA Notes**, 28: 27–32, London: IIED

Batterbury, S., Forsyth, T. and Thomson, K., 1997, 'Environmental transformations in developing countries: hybrid research and democratic policy', **Geographical Journal**, 163: 126–132

Casley, D. and Lury, D., 1987, **Data Collection in Developing Countries**, Oxford: Clarendon Press

Chambers, R., 1994, 'The origins and practice of Participatory Rural Appraisal', **World Development**, 22: 953–969

Chambers, R., 1997, **Whose Reality Counts? Putting the First Last**, London: IT Publications

Cornwall, A. and Fleming, S., 1995, 'Context and complexity: anthropological reflections on PRA', **PLA Notes**, 24: 8–12, London: IIED

Cronon, W., 1992, 'A place of stories: nature, history and narrative', **Journal of American History**, 78: 1347–1376

De Koning, K. and Martin, M. (eds), 1996, **Participatory Research in Health: Issues and Experiences**, London: Zed Books

Denzin, N. and Lincoln, Y., 1994, **Handbook of Qualitative Research**, London: Sage

Drinkwater, M., 1992, 'Visible actors and visible researchers: critical hermeneutics in an actor-oriented perspective', **Sociologia Ruralis**, XXXII, 4: 367–388

Fairhead, J. and Leach, M., 1996, **Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic**, Cambridge: Cambridge University Press

Fals-Borda, O. and Rahman, A. (eds), 1991, **Action and Knowledge: Breaking the Monopoly with Participatory Action Research**, New York: Apex

Gandy, M., 1996, 'Crumbling land: the postmodernity debate and the analysis of environmental problems', **Progress in Human Geography**, 20: 23–40

Lindblade, K., 1997, 'Discrepancies in understanding historical land use changes in Uganda', **PLA Notes**, 28: 59–6, London: IIED

Long, N. and Long, A. (eds), 1992, **Battlefields of Knowledge**, London: Routledge

Moris, J. and Copestake, J., 1993, **Qualitative Enquiry for Rural Development: A Review**, London: IT Publications

Mosse, D., 1994, 'Authority, gender and knowledge: theoretical reflections on the practice of Participatory Rural Appraisal', **Development and Change**, 25: 497–526

Nelson, N. And Wright, S., 1995, **Power and Participatory Development: Theory and Practice**, London: IT Publications

Nichols, P., 1991, 'Social survey methods', **Development Guidelines**, 6, Oxford: Oxfam

Sayer, A., 1992, **Method in Social Science: A Realist Approach**, London: Routledge

Schon, D., 1983, **The Reflective Practitioner: How Professionals Think in Action**, New York: Basic Books

Scoones, I., 1997, 'The dynamics of soil fertility change: historical perspectives on environmental transformation from Zimbabwe', **Geographical Journal**, 163: 161–169

Scoones, I. and Thompson, J., (eds), 1994, **Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice**, London: IT Publications

Tiffen, M., Mortimore, M. and Gichuki, F., 1994, **More People, Less Erosion: Environmental Recovery in Kenya**, Chichester: Wiley

Williams, M., 1994, 'The relations of environmental history and historical geography', **Journal of Historical Geography**, 20: 3–21

Worster, D., 1984, 'History as natural history: an essay on theory and method', **Pacific Historical Review**, 53: 16

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Stakeholder Methodologies in Natural Resource Management: a Review of Principles, Contexts, Experiences and Opportunities

Robin Grimble & Kate Wellard

Natural Resources Institute, The University of Greenwich, Central Avenue, Chatham Maritime, Chatham, Kent, ME4 4TB, UK

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ABSTRACT

Stakeholder analysis (SA) is a powerful tool for policy analysis and formulation, and has considerable potential in natural resource policy and programme development. It is an approach for understanding a system, and changes in it, by identifying key actors or stakeholders and assessing their respective interests in that system. It has been developed in response to the challenge of multiple interests and objectives, and particularly the search for efficient, equitable and environmentally sustainable development strategies. This paper reviews the underlying concepts and methods of SA and the underlying links between economic efficiency, equity and environmental concerns. It examines the particular characteristics of natural resources management (NRM) which make it particularly appropriate for the application of SA: these include multiple uses and users of the resource; unclear or open access property rights; temporal trade-offs; the presence of externalities; and imperfect markets. It discusses a classificational system which distinguishes between conflicts and trade-offs, and briefly reviews parallel methodological developments, including cost-benefit analysis (CBA), decision analysis, conflict resolution and social actor perspectives, and suggests areas of complementarity. A number of key issues are raised in the review that have implications for the future direction of SA. These include: the areas in which SA has particular relevance; its value to NRM policy-makers and others in overcoming trade-offs and conflict; the different levels and circumstances in which it might most usefully be applied; and its potential for representing the interests of different groups, including the most disadvantaged, as the basis for interventions. The paper highlights some research and methodological needs

directly relevant to natural resource managers and intended beneficiaries, namely: (a) acquiring empirical knowledge and understanding of the key stakeholders involved in the process and the factors governing their resource allocation procedures; (b) developing improved systems, frameworks and methodologies for analysing situations and incorporating stakeholder and institutional concerns; (c) developing knowledge of the opportunities and scope for action by policy-makers and facilitators in the design of interventions and the resolution of conflicts. © *1997 Published by Elsevier Science Ltd*

INTRODUCTION

In the last two decades, development interests have widened from largely economic efficiency concerns to encompass equity and environmental objectives (the three E's). However, our knowledge of the compatibility between these *desiderata* is limited and sometimes confused. For example, on the one hand it has been said that "many of the supposed trade-offs between development and environmental goals either evaporate or are seen to be negligible on closer inspection" (Sandbrook, 1992). On the other hand, a review of 29 Danida projects revealed difficulty in reconciling the three E's, and showed many projects to have added to, rather than reduced, problems in areas not prioritised (Danida, 1994). The consultancy experience of one of the authors in India, Cameroon, Thailand and elsewhere reinforces the conclusion of the Danida study and suggests there is sometimes serious incompatibility of views between different government departments, sets of local people and even professional advisers.

Clearly there is a link between the three E's and various social or economic groups or stakeholders with differing spheres of interest, concerns and priorities. Stakeholder analysis (SA) has been developed in response to the challenge of multiple interests and objectives and added to the basket of approaches available for the analysis and formulation of development policy and practice. This paper sets out to review the principles and methods of SA and to critically evaluate its present and potential contribution in the area of natural resource management (NRM) and the environment. It begins by discussing what we see as the particular relevance of SA to natural resource and environmental concerns and the essential notions of conflict and trade-off in this context. It then reviews parallel developments in social science theory and practice and considers differing approaches in applying SA in NRM. Finally, it discusses the need for new analytical tools in NR policy and management and assesses the role SA can play in this process.

THE ESSENTIALS OF STAKEHOLDER ANALYSIS

Stakeholder classifications

SA can be defined as a holistic approach or procedure for gaining an understanding of a system, and assessing the impact of changes to that system, by means of identifying the key actors or stakeholders and assessing their respective interests in the system. We use the term 'interests' in an economic sense to represent the level of utility or welfare perceived by stakeholders, and change to be measured by any gain or loss in this utility. We recognise that the valuation of utility has a strong cultural and class component which influences the objective functions of different stakeholders and their perceptions of how they may be affected by policies. We use the term 'stakeholders' to mean any group of people, organised or unorganised, who share a common interest or stake in a particular issue or system; they can be at any level or position in society, from global, national and regional concerns down to the level of household or intra-household,

TABLE 1
A Typology of Tree Resource Stakeholders on a Macro-Micro Continuum

Institutional level	*Examples of stakeholders*	*Issues of environmental interest*
Global and international	International agencies Foreign governments Environmental lobbies Future generations	Biodiversity conservation Climatic regulation Global resource base
National	National governments Macro planners Urban pressure groups NGOs	Timber extraction Tourism development Resource and catchment protection
Regional	Forest departments Regional authorities Downstream communities	Forest productivity Water supply protection Soil loss and degradation
Local off-site	Downstream communities Logging companies and sawmills Local officials	Protected water supply Access to timber supply Conflict avoidance
Local on-site	Forest dwellers Forest-fringe farmers Livestock keepers Cottage industry Women fuel collectors	Land for cultivation Timber and non-timber forest products Grazing and fodder Cultural sites

Source: Grimble *et al.* (1994).

and be groups of any size or aggregation. The key and often neglected, stakeholders in NRM are subsistence farmers and other small-scale resource users, but stakeholders may equally include policy-makers, planners and administrators in government or other organisations, commercial bodies, and more nebulous categories such as 'future generations', the 'national interest' and 'wider society'. The exact identification and degree of breakdown of such categories cannot be pre-determined and depends on the needs of the individual case. An example of stakeholder typologies in tree resources is given in Table 1.

The most fundamental division between stakeholders is likely to be between those who *affect* (determine) a decision or action, and those *affected* by this decision or action (whether positively or negatively); these groups may be termed *active* and *passive* stakeholders. The distinction may not be absolute, however, as some groups (e.g. certain local people) may be involved in natural resource management in both active and passive ways. In aid projects it is local and resource-poor people who are usually the heart of interest and the intended beneficiaries of a project; for this reason they may be called *primary* stakeholders with others being known as *secondary* stakeholders (ODA, 1995). Stakeholders are also categorised according to their relative influence and importance: *importance* refers to those whose needs and interests are the priorities of aid while *influence* refers to the power certain stakeholders have over the success of a project. ODA advise the use of a matrix for assessing the influence and importance of stakeholders which can be transposed into a graph (see Fig. 1). Stakeholders in box A are of central importance to the project but have low local influence or power (such as women and the poor); those in box C have high influence but are not the main target (ODA, 1995).

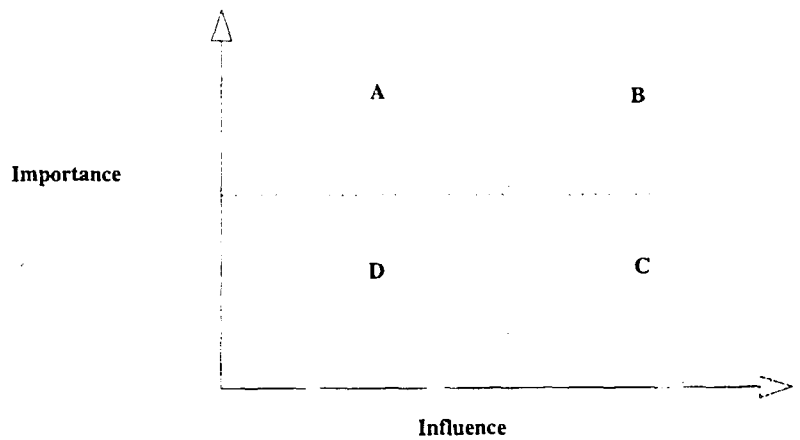

Fig. 1. A system for classifying stakeholders according to importance and influence.

The purpose of stakeholder analysis

The general purpose of SA may be seen as providing a methodology for better understanding environmental and development problems and interactions through comparative analysis of the different perspectives and sets of interest of stakeholders at various levels. Any policy or intervention is likely to have consequences that bear differentially on different groups and individuals, and on 'society' as a whole; unless we know what these differential effects are likely to be, it is impossible to assess the value or worth of that intervention or policy. SA attempts to go down this difficult road and develop a methodology that assists in this process by identifying the differential consequences for stakeholders arising from a particular course of action (or non-action), and indicating winners, losers and 'payoffs'. The process is intended to help lead to the development of 'socially-best' policies and interventions.

Specifically, SA is likely to be of use to governments and donor organisations in two practical ways:

- *improving the selection, efficiency, effectiveness and evaluation of policies and projects.* The explicit consideration of potential trade-offs between different policy objectives and conflicts between stakeholders' interests helps avoid the unexpected, facilitates good design, improves the likelihood of successful implementation, and assists the assessment of outcomes;
- *improving assessment of the distributional, social and political impacts of policies and projects.* Explicit analysis of the interests of, and impacts of intervention on, different stakeholders (including the poor and less powerful) can help ensure that costs are borne and benefits realised for those intended.

Stakeholder analysis in natural resource management

Although SA can be usefully applied to a wide range of policy and management contexts, it is more relevant (and critical) in complex situations where there are compatibility problems between objectives and stakeholders. Many NRM situations are "characterised by a complex web of interests and trade-offs between interacting sets of local people, government departments, national and international planners, and professional advisers", and thus particularly suited to SA (Grimble & Quan, 1993). However, there are more likely to be difficulties in achieving compatibility between objectives in some NRM situations than in others (Grimble, 1995; Grimble & Chan, 1995). It is suggested that SA is particularly relevant to natural resource issues where they are characterised by:

- *Cross-cutting systems and stakeholder interests.* Natural or physical systems, such as aquifers and watersheds, are frequently central to natural resource or environmental problems but cut across social, economic, administrative and political units. Such problems are likely to bear on a large number of different stakeholders — individuals, communities, commercial bodies and government departments at local, regional and national levels — with different agendas and sets of interest.
- *Multiple uses and users of the resource.* Natural resources often have a variety of uses which may not be compatible. Forests and tree resources, for example, may have both productive and environmental values which are utilised by different stakeholders; the timber of certain species may be required by a logging company, different species and non-timber products by groups of local people, and the land on which the forest is found by potential settlers. Moreover, the costs and benefits of environmental protection may be variously distributed between passive and active stakeholders.
- *Market failure.* Environmental problems are frequently associated with market imperfections of three types. (i) *Negative externalities* occur where individual decision-makers do not bear the full costs of their actions: this leads to inadequate weight being given to the future flow of benefits (e.g. to future generations) or to off-site costs (e.g. downstream impacts). Note, however, that not all externalities are negative; soil eroded from upland slopes may replenish the fertility of fields below in addition to silting up dams and irrigation systems. (ii) Where traditional management systems are breaking down as a result of demographic, economic and political stress, *property rights are often unclear and access to resources is unrestricted*: in these situations the rational actions of individual users may not be compatible with community interests leading to degradation of the "tragedy of the commons" (Hardin, 1968). (iii) Natural resources may produce multiple products and perform a variety of natural functions and services which *may not be traded competitively and have no monetary value.* The resources most threatened are often those with the least developed or most imperfect markets. Where they are traded, prices reflect only the cost of extraction rather than the resource value itself or the cost of its depletion. This applies to most water, forest and grazing resources, and the greater part of the world's biological diversity.
- *Subtractability and temporal trade-offs.* Natural resources such as soils and water may be non-renewable or 'gifts of nature' which can be depleted and contaminated but cannot be created. Some, such as aquifers, may be subtractible and appropriation of the resource by exploiters may adversely affect future availability or production. NRM is often

conducted in a context of a degrading resource base in quantitative and qualitative terms which will adversely affect future welfare. This gives rise to difficult policy and management trade-offs between subtractive and sustainable use, and to questions such as at what rate should the resource be used and what investment should be made in conservation.

- *Multiple objectives and concerns.* There are potentially crucial differences in perspective regarding use of the resource, for example between economic, social and environmental viewpoints and between the competing interests of different stakeholders. These problems relate to what in Britain may be called the 'not in my back yard' (NIMBY) syndrome but in LDCs may concern the fundamental means of livelihood of poor people.
- *Poverty and under-representation.* Land, water, rangelands and forests are essential to the livelihood systems of the majority of the world's poorest people, and those most directly dependent upon them are often the poorest. SA analysis can highlight the needs and interests of people who are under-represented both politically and, in terms of limited buying power, economically .

We suggest that these characteristics can be used as the basis for early screening of projects, policies and situations, to be followed by a full SA where necessary.

Conflicts and trade-offs

SA requires the identification of stakeholders, assessment and comparison of their sets of interest, and examination of inherent conflicts, compatibilities and trade-offs. Conflicts and trade-offs are interlinked concepts in SA that require distinction. *Conflicts* are situations of competition and potential disagreement between two or more stakeholder groups over the use of one or more scarce resource. A *trade-off* is the process of *balancing conflicting objectives* by a particular stakeholder group and arises when the stakeholder faces more than one objective towards a resource that cannot simultaneously be achieved. Trade-offs thus imply a sacrifice or opportunity cost in terms of benefits foregone.

Conflicts and trade-offs often occur together and the likelihood and intensity of both tend to increase when, with development and population growth, the resource becomes scarcer and more highly valued. However, there is an important conceptual distinction between the terms in that conflicts are situations between two or more stakeholder groups, while trade-offs relate to a single decision-maker or decision-making group.

Table 2 classifies conflicts and trade-offs into four types according to the level at which the stakeholders and their objectives are placed on a

TABLE 2
A Classification of Trade-offs and Conflicts at Different Levels in NRM

Level[a]	*Trade-off*	*Conflicts of interest*
Macro-Macro	Between policy objectives (e.g. the three 'E's)	Between national institutions or line departments (e.g. a forestry vs agriculture department)
Macro-Micro	Between national and local interest (e.g. ban on forest clearance affects local cassava production)	Between national institutions and local people (e.g. a forestry department vs shifting cultivators)
Micro-Macro	Between internalities and externalities (e.g. a farmer uses pesticides which affects biodiversity)	Between local people and 'society at large', or farmers and environmental lobby groups
Micro-Micro	On-farm resource allocation (e.g. short-term vs long term, or forest products vs cash crops)	Between different sets of local people (e.g. farmers vs pastoralists over use of forest land)

Source: (Grimble *et al.*, 1994).
[a]In each macro–micro 'pairing', the first half of the 'pair' is the active decision-maker, the second half the passive. For example, in both the macro-macro and macro-micro cases, the decision-maker could be a planner or adviser at national level. In the micro-macro and micro-micro cases, the decision-maker could be a local farmer or forest dweller.

macro-micro continuum. The discussion is supported by case studies from the dipterocarp forest in north-east Thailand and the tropical forest of southern Cameroon (see Appendices 1 and 2).

As indicated in Table 2, conflict situations can occur at both micro and macro levels, and between levels. Local level conflicts may arise between different on-site stakeholders, such as settled farmers and migrant livestock herders, or between on-site and off-site stakeholders. Micro or local level conflicts frequently originate from breakdowns in systems of common property management, under pressure from population growth, economic activity and sometimes incursion by outside interests. An example of micro-micro conflict of interest is given in Appendix 1 where shifting cultivators activities are perceived to conflict with those of water consumers in Phu Wiang municipality, north-east Thailand.

Macro-macro conflicts may occur between different stakeholders at national level and between stakeholders at national and international levels. In the first case, there may be policy differences between two government ministries (e.g. Environment and Trade and Industry) over the scale and extent of permitted forest exploitation. In the second case, international and national concerns may conflict when the interests of developed nations in

preserving biodiversity, climatic regulation and global forest resources differ from the interests of developing countries who have to bear the costs of conservation. An example of this can be seen from the 1992 Earth Summit at Rio where developing country interest in timber exploitation to earn foreign exchange was a major factor in preventing the agreement of a global forest convention. Although *global society*, including the developing world, may stand to gain in the long run, the gains are uncertain and uncosted, and the opportunity costs of agreement are unequally distributed across the world.

Micro-macro conflicts arise where the actions of local stakeholders conflict with those of macro-level stakeholders who may or may not represent the interests of wider society. This may occur, for example, when local wholesale logging or forest conversion occurs, activities which conflict with the interests of national or global environmental lobbies seeking to conserve forest. Conversely, macro-micro conflicts arise when stakeholders responsible for, or impacting on, higher level environmental management take decisions which have an adverse impact on the livelihoods of micro-level stakeholders. All too often evidence regarding the environmental harm of an activity is not measured or costed and the costs of enforced conservation are borne by local people.

A central concern of SA in NRM is to highlight the trade-offs that have to be made by stakeholders between different objectives. Trade-offs at micro level often reflect questions of local resource allocation between different activities which, to a greater or lesser degree, are mutually exclusive. For instance, a farmer makes trade-offs between different cropping patterns and planting times, according to rainfall, labour availability and other factors. Village heads or councils make trade-offs between the net benefits of different land use options in deciding whether or not to allocate portions of common land for cultivation or to maintain them as grazing or forest land. Individuals and families make trade-offs amongst a range of livelihood objectives including meeting basic needs, such as food and shelter, and capital accumulation, for example the payment of school fees, brideprice or the purchase of a land lease. Policy-makers implicitly make trade-offs when giving priority between environmental, equity or economic efficiency objectives.

The fact that trade-offs are made implies a cost which is often not recognised and is typically difficult to measure. For example, the celebrated cedar forests of Himachal Pradesh in the Indian Himalayas are increasingly eaten into by the establishment of apple orchards. In commercial and developmental terms, such land-use change may be fully justified but the long-term and wider environmental implications including visual and aesthetic concerns, are uncertain and the cost-benefit balance is not clear-cut. Implicit in such trade-offs is the idea of time preference: to opt for activities which bring

immediate benefits or to invest in activities which will ensure a continued flow of income or some other measure of future utility.

Of particular interest to SA are the trade-offs made between conflicting macro objectives when policy and planning decisions are made pertaining to the environment. Policy-making requires consideration of efficiency and equity as well as environmental objectives and goals. Politicians and senior figures in government are frequently called upon to make important trade-offs amongst these objectives, though the fact they do so may not be recognised or the cost of trade-offs not assessed.

At national level, an ongoing debate concerns the use of forests for conservation or their exploitation and conversion to other forms of land use. Both conservation and exploitation have associated costs and benefits and compromises have to be made between them (or compensation paid). Theoretically, these compromises may be arrived at according to considered opinion about the balance required, though in practice they often depend on the political or bargaining power of certain stakeholders.

ORIGINS OF SA AND PARALLEL DEVELOPMENTS

SA has evolved as an eclectic and pragmatic approach to analysis and policy-making in NRM over the last five or so years. The roots of SA lie in political economy and its areas of concern overlap with cost-benefit analysis and environmental economics. The term Stakeholder Analysis, however, was first used in the area of management science as a method for identifying and addressing the interests of different stakeholders in business. SA also has inks with independent developments in decision theory, multi-criteria analysis, environmental impact assessment, outcome measurement, participatory appraisal, social actor approaches, and conflict resolution. In some of these there are likely to be important of mutual benefit but these have not yet been fully explored. These linked developments are reviewed briefly below.

Origins

Welfare economics has long been concerned with the problem of how to combine innumerable individual preferences and select a socially preferred option from a set of feasible alternatives. It is the economists' job in policy analysis to measure the costs and benefits which arise from policy change, or the changes in consumer and producer welfare. However, socially optimal outcomes are exceedingly difficult to compare, partly because of the trade-

offs between *desiderata* and between different social groups; no one policy will be superior in all respects (see Hicks, 1939; Suzumura, 1983).

Cost-benefit analysis (CBA) is one technique derived from welfare economics for determining appropriate policy actions (such as project formulation) by aggregating costs and benefits into a single numerical measure. Techniques for environmental valuation based on CBA have been developed by environmental economists in recent years, such as the measurement of total economic value (TEV) of a resource (e.g. Pearce *et al.*, 1989; Winpenny, 1991). However, none of these neo-classical techniques adequately considers the distribution of costs and benefits between different stakeholders. Equally importantly, they ignore the fact that different stakeholders are unlikely to perceive the same environmental problems, so they will seek different solutions and use differing criteria for assessing the desirability or worth of a given intervention (for an example see Appendix 1). As a consequence, CBA and similar economic methods overlook the fact that projects and policies often fail despite a favourable IRR, due to the opposition or non-cooperation of certain stakeholders who perceive that their interests have not been served.

A second origin of SA lies in the field of business management science where stakeholder methodologies had already been established by the beginning of the 1980s (Mitroff, 1983; Freeman, 1984). Here, the stakeholder approach emerged in response to the felt need for management to deal with the increasingly complex social systems in which modern corporations operate. The essence of the stakeholder approach in business management is therefore the expansion of the traditional, narrow view of the firm where only those individuals or groups who supplied resources or bought products were viewed as important stakeholders, into a much broader view where a whole range of indirect as well as direct stakeholders are recognised as affecting and being affected by the actions and policies of the firm (Carroll, 1989). A fundamental rationale of SA — the need to recognise and take better account of all relevant stakeholders — is therefore shared by business and NRM concerns alike.

SA approaches also owe much to the development of participatory methods for project design and planning (e.g. Khon Kaen University, 1987; Farrington & Martin, 1988; Chambers, 1989, 1992; IIED, 1988–1994). These include rapid and participatory rural appraisal and related techniques, social forestry, and certain land-use planning approaches. In the 1990s, the form of participation has changed as efforts have been made to involve and empower local people to help themselves, rather than provide information or insights for use by others. However, while participatory approaches have made strides in developing procedures for community or joint resource action, less consideration has been given to understanding and dealing with inherent structural problems and the factors giving rise to conflicts of interest.

SA is related to participatory methods in many ways, in particular sharing important goals such as ensuring that the interests of disadvantaged and less powerful groups are better articulated and addressed, and many of the techniques for data collection developed and used in RRA/PRA have been usefully applied to stakeholder analysis. However, the recent development of SA is based on the premise that increasing the participation of *beneficiaries* or target groups alone cannot guarantee that projects will work, and a much greater appreciation of natural forces and the wider environment is required. For projects to work, the interests of the whole range of stakeholders who can influence or be influenced by the project or policy need to be taken into account, and compromises need to be actively sought between *public* objectives and potentially conflicting *private* stakeholder interests and objectives. While encouraging the participation of the range of stakeholders in co-operative decision-making and management may be one way of doing this, participatory methods *in themselves* cannot guarantee success (Grimble *et al.*, 1994).

Parallel developments

Parallel developments to SA largely come from management and business fields and, to an extent, the economic and sociological literature. Decision analysis is a systematic procedure used in management to assist decision-makers in making wise choices in the presence of uncertainty and multiple objectives. In complex decision-making situations with different conflicting interests, the problem may be addressed from the perspective of different stakeholders using a multiple-stakeholder approach. The goal of this variation is not to find a single best solution (as, say, in linear programming), nor to find an equilibrium (as in game theory), but to clarify the values and opinions of the stakeholders, to pinpoint the sources of disagreement, and to develop compromise solutions (von Winterfeldt, 1992).

Multi-criteria analysis (MCA) is a technique developed by economists to help decision-making where there are non-commensurable and conflicting objectives. The major accomplishment of the MCA model is that it allows more accurate representation of decision-problems in the sense that several objectives can be accounted for simultaneously. However the model only aids a single decision-maker such as a government department. Varoius stakeholders may assign different priorities to objectives and it may not be possible to determine a single best solution via a multi-objective model (Munasinghe & Lutz, 1993).

Another set of techniques for addressing policy disputes is conflict resolution or alternative dispute resolution, which is intended to facilitate consensus decision-making among disputing parties. Conflict resolution techniques

have been applied to policy disputes such as national forest planning and regulation of pesticides (Maguire & Boiney, 1994). Decision analysis and conflict analysis appear to have much to offer SA in the design of practical solutions: they provide an approach for stakeholders and analysts to use, and a model structured to tackle the issues (Kravatzky, pers. comm.). Although their use to date has largely been limited to developed countries, there may be scope for application to situations of complex resource management in developing countries (Bacow & Wheeler, 1984).

Experts and expert knowledge have traditionally played an important role in decision-making procedures by outlining problems and risks, evaluating alternatives and frequently taking major decisions. However, in many cases there are strong disagreements between 'experts' from different fields, as experts have different backgrounds, disciplines and agendas (von Winterfeldt, 1992). A social actor perspective (Long & Long, 1992) enables the perceptions and intentions of researchers, scientists and analysts to be studied explicitly. By its emphasis on examining instead of assuming objectives, the social actor perspective pays up-front attention to the diversity of conflicting goals, attitudes, values, aspirations and standards (Röling, 1994). To date, the social actor approach has been adopted largely as a sociological tool for understanding why things happen as they do, but strategies for applying this approach to NRM are being developed (Röling, in press).

TWO APPROACHES TO SA IN NRM

SA has been independently developed in the field of NRM out of practical consultancy experience and dissatisfaction with existing methodologies which do not fully address some fundamental problems (Grimble & Quan, 1993). Its development is based on the contention that many well-intended interventions have failed because inadequate attention has been given to the various stakeholders and their respective economic (in its widest sense) interests and objectives. Policies and projects have not met their stated objectives because the consequences of the policy are perceived to be adverse by one or more stakeholder groups, and have therefore led to non-cooperation or even open opposition by these stakeholders. Moreover, many policies and projects that have been perceived to be successful have achieved their success only at the expense of certain stakeholder groups, in particular local people. Ways of better anticipating and dealing with stakeholder opposition and conflict, and ways of better incorporating various stakeholder interests, are therefore seen to be crucial for improving project and policy design and implementation.

There are two main branches to recent work on stakeholder analysis used for NRM in developing countries. The first is that developed in the Natural

Resource Institute (NRI) by natural resource economists with a farming systems and development background; this deals with SA as a heuristic or analytical tool for better understanding complex situations and predicting future situations and scenarios, and addresses both conflicts of interest between stakeholders and trade-offs between objectives (Grimble & Quan, 1993, 1994, 1995). A second branch, developed by ODA in conjunction with the Centre for Development Studies at Swansea University (1995*a*,*b*), and similar work in the World Bank (1994), focuses on the social aspects of SA and its use as a tool in project design, particularly for the avoidance and management of conflict. The characteristics of the two branches are compared in Tables 3 and 4.

While there is a good deal in common between the two approaches, the ODA approach is concerned with the practicalities of consensus building and developing a workable project, while the NRI approach uses SA as a tool for unpacking the economic interests and inherent conflicts of NRM. Thus the ODA approach may bring people together on the assumption that solutions can be jointly worked out, while the NRI approach works from the assumption that understanding the underlying problem is of primary importance, and only from this will prospects and ideas evolve for its sustainable management. By implication, the NRI approach might indicate that the underlying problems of NRM may be so fundamental that round table discussion and compromise are unlikely to succeed.

ISSUES AND FINDINGS

In the last five years, SA has made great strides in developing a methodology for analysing, and developing understanding of, natural resource problems. In this review, we have shown how the features of NRM, including cross-cutting systems, multiple and conflicting uses, imperfect markets and inter-temporal complexities, make SA highly relevant and analytically useful to conditions of increasing natural resource scarcity and competition. We highlight below a few of the key issues and findings which merit special attention.

The need for SA in NRM

A common assumption in natural resource planning is that environmental conservation is good for society and what is in the common good must at heart be good for the resource-poor people who are directly involved in using these resources. This assumption needs to be questioned and the position of those most directly affected needs closer analysis. Many efforts at environmental management fail because they pay inadequate attention to the inter-

TABLE 3
A Comparison of ODA and NRI Stakeholder Approaches

ODA approach	*NRI approach*
Primarily a management and mediating tool	Primarily a heuristic tool for analysing situations and predicting consequences
Concerned with the design, management and implementation of aid projects	Not concerned solely with project cycle activities but also with improved understanding of NR problems, structural change and policy issues
Very closely associated with participatory approaches, particularly of ultimate (passive) beneficiaries (e.g. small farmers and women)	Not essentially about participation though uses participatory techniques for diagnosis and data collection
Concerns the representation of stakeholders rather than the ideas represented. Thus concerns conflicts between stakeholders but not trade-offs between objectives	Equally concerned with trade-offs between objectives as with conflicts between stakeholders
Identifies methods, risks and assumptions for stakeholder co-operation	Identifies patterns and contexts of interaction between stakeholders
Is a social development tool with little economic content	Is an interdisciplinary tool with strong economic content

Source: Based on ODA (April 1995), and Grimble *et al.* (1993, 1994).

TABLE 4
A Comparison of ODA and NRI Working Procedures for SA

ODA/World Bank methods	*NRI methods*
Draw up a list of stakeholders	Identify the main purpose of the analysis
Draw out stakeholder interests in relation to problem addressed	Develop an understanding of the system and its decision-makers in relation to problem addressed
Assess the influence or power of the stakeholder	Identify principal stakeholders
Assess the importance or need to satisfy the stakeholder	Investigate stakeholder interests, characteristics and circumstances
Combine influence and importance in matrix diagram	Determine views of stakeholders on relevant questions
Identify risks and assumptions for stakeholder co-operation	Identify patterns and contexts of interaction between stakeholders
Determine how and which stakeholders should participate in project cycle activities	Assess options for management at all levels, from round-table negotiation to expert group analysis and resolution

Source: Based on ODA (July 1995) and Grimble *et al.* (1995).

ests of the various stakeholders involved and the costs of conservation and sustainability.

The value of SA

SA is seen to have considerable value in assisting policy-makers to take cognisance of potentially conflicting objectives of efficiency, equity and environment. These conflicts are fundamental in the field of NRM and particularly so under increasing scarcity and where common pool resources are concerned. By unpacking the different interests and objectives of stakeholders, including policy-makers and funding agencies, in environmental issues, SA can assist in getting to the heart of problems, identifying incompatibilities and prioritising objectives.

The application of SA

SA may be applied at different levels and in different degrees of detail, depending on the needs of those initiating the analysis, and on the resources available, likelihood of conflict, and the severity of trade-offs. Our experience in project formulation is that it is always worth conducting an outline SA at a very early stage, before commitments are made. This outline would identify the major stakeholders and their interests together with potential areas of conflict and trade-off. The analyst may then assess the need for further in-depth SA, or even decide that incompatibilities are so deep-seated that direct intervention is best avoided.

Social actor and decision analysis approaches

A pertinent question is the role of the agency directing or acting as a catalyst in SA. Their interests and agenda are potentially highly important, and should be incorporated into SA using a social actor perspective. This will indicate their intentions regarding involvement in, or commitment to, the particular NRM issue and also help prevent raising unrealistic expectations amongst primary stakeholders. However, our understanding of the potential contribution of social actor and decision analysis approaches, and how they could be linked with SA, is as yet limited and further research is required.

The limitations of SA

SA, like other NRM approaches, should not be seen as a panacea for environmental or development problems, or replacing other methods and techniques. Whilst SA is a powerful tool for problem analysis and for illuminating the

interests of the under-represented, it cannot in itself provide answers to problems or guarantee representation. In fact, SA mirrors the groupings and interests of society and in itself does not try to make changes; if strong participation of these groups is to be achieved, it is likely to be through the fostering of empowerment and democratisation processes outside the direct realm of SA. However, SA may assist these processes by highlighting the particular interests of different groups and the promotion of a more transparent negotiating process.

RESEARCH NEEDS AND OPPORTUNITIES

Our practical experience in various parts of the world continues to demonstrate the need for better understanding of how to deal with the widespread problem of environmental degradation where this is caused by the actions of local people acting as rational economic people. There would often appear to be a dichotomy of interest between these people and wider society, a fact which has especially serious implications in marginal and environmentally sensitive areas. Lack of knowledge of environment-development inter-relationships, and methodologies for dealing with the problems they engender, are still serious constraints to good policy design and, thus, to the progress and productivity of the NR sector and its people. SA is potentially well able to throw light on these issues, but to date has been little applied, and its most appropriate and effective contribution is as yet uncertain.

We have suggested in this paper that natural resource degradation is most likely to occur where NR markets do not function well and signals are transmitted that undervalue resources, for reasons relating to institutions and property rights, tradability of goods and services, the presence of externalities, and risk and uncertainty. However, information is scanty and we lack carefully-analysed case studies for understanding and dealing with the problem in different situations. We lack full understanding of the linkages, complementarities and trade-offs between developmental and environmental objectives. We also lack integrated research methodologies that take advantage of recent developments for understanding these problems and for facilitating the systematic comparison of policy scenarios.

To address these concerns, we suggest that empirical research is required in three main areas; analytical, methodological and practical:

(a) acquiring empirical knowledge and understanding of the key stakeholders involved in the process and the factors governing their resource allocation and investment procedures and decisions. This would

include developing our understanding of the costs and benefits (both quantitative and qualitative) as perceived by different stakeholders in natural resource conservation and change. It also includes developing understanding of the wider policy context, constraints and incentives which govern the behaviour of local stakeholders;

(b) developing improved systems, frameworks and methodologies for analysing situations and incorporating stakeholder and institutional concerns into research, programme and policy design. This would include the exploration of opportunities for incorporating political economic theory and applying techniques from cost-benefit analysis, multi-criteria analysis, social actor approaches, and multi-goal linear programming into SA;

(c) developing knowledge of the opportunities and scope for action by policy-makers, planners and facilitators in the design and implementation of interventions, and the resolution of conflicts. This would include research on appropriate SA approaches under particular circumstances, including the extent to which local stakeholders can and should be involved, and the use of SA at different stages in the project cycle. It would also include the preparation of guidelines on the screening of projects to identify where an in-depth (as opposed to outline) SA would bring significant additional benefits.

Policy-makers, planners and development workers need practical methodologies and frameworks for the analysis and design of solutions to linked environmental and development problems that will improve the compatibility between local people and wider society. Building on the experiences of SA and related methodologies through analytical, methodological and practical research in the areas indicated, and closer monitoring of current NRM initiatives, could contribute significantly to this goal.

REFERENCES

Bacow, L. and Wheeler, M. (1984) *Environmental Dispute Resolution*. Plenum Press, New York.

Bardhan, P. (1989) *The Economics of Institutions*. Cambridge University Press, Cambridge.

Biot, Y., Blaikie, P., Jackson, C. and Palmer-Jones, R. (1993) *Rethinking research on Land Degradation in Developing Countries*. Overseas Development Group, Norwich.

Bonnicksen, T. (1985) Initial decision analysis: a participatory approach for developing resource policies. *Environmental Management* **9**, 379–392.

Chan, M.-K. (1995) *Tree Resources in Northern Thailand: Local Stakeholders and National Policy*. NRI, Chatham.

Danida (1994) *Danish assistance to the agricultural sector, 1981–1992*. Evaluation Report no. 8. Ministry of Foreign Affairs, Copenhagen.

Farrington, J. and Martin, A. (1988) *Participatory methods: a review of concepts and practices*. ODI Working Paper 9. ODI, London.

Freeman, R. E. (1984) *Strategic Management: A Stakeholder Approach*. Pitman, Boston, MA.

Grimble, R. J. (1995) The analytical role of agricultural development economics in natural resource management: a personal view. Paper presented at annual conference of Agricultural Economics Society, Cambridge, April.

Grimble, R. J. and Quan, J. (1993) Tree resources and the environment: stakeholders and trade-offs: phase I an analytical review. NRI, Chatham (unpublished).

Grimble, R. J., Aglionby, J. and Quan, J. (1994) *Tree resources and environmental policy: a stakeholder approach*. NRI Socioeconomics Series 7. NRI, Chatham.

Grimble, R. J. and Chan, M.-K. (1995) Stakeholder analysis for natural resource management in developing countries. *Natural Resources Forum* **10**, 2.

Grimble, R. J., Chan, M.-K., Aglionby, J. and Quan, J. (1995) *Trees and trade-offs: a stakeholder approach to natural resource management*. Gatekeeper Series no. 52. IIED, London.

Grindle, M. and Thomas, J. (1991) *Public Choices and Policy Change: The Political Economy of Reform in Developing Countries*. John Hopkins Press, Baltimore.

Hardin, G. (1968) The tragedy of the commons. *Science* **162**, 1243–1248.

Hicks, J. R. (1939) *Value and Capital: An Enquiry into some Fundamental Principles of Economic Theory*. Oxford University Press, Oxford.

IIED (International Institute for Environment and Development). 1988–1994. RRA notes 1–20. Sustainable agriculture programme. IIED, London.

Khon Kaen University (1987) *Rapid rural appraisal*. Proceedings of an International Conference, Khon Kaen, Thailand, 1985.

Long, N. and Long, A. (eds) (1992) *Battlefields of Knowledge: The Interlocking of Theory and Practice in Social Research and Development*. Routledge, London.

Maguire, L. and Boiney, L. (1994) Resolving environmental disputes: a framework incorporating decision analysis and dispute resolution techniques. *Journal of Environmental Management* **42**, 31–48.

Mitroff, I. (1983) *Stakeholders of the Organisational Mind*. Jossey-Bass, CA.

Munasinghe, M. and Lutz, E. (1993) Environmental economics and valuation in development decision-making. In *Environmental economics and natural resource management in developing countries*. CIDIE, World Bank, Washington, D.C.

ODA (July 1995) *Social development department guidance note on indicators for assessing primary stakeholder participation*.

ODA (July 1995) *Social development department guidance note on how to do stakeholder analysis of aid projects and programmes*.

Pearce, D., Markandya, A. and Barbier, E.B. (1989) *Blueprint for a Green Economy*. Earthscan Publications Ltd, London.

Röling, N. (1994) Communication support for sustainable natural resource management. *IDS Bulletin* **25**(2), 125–132.

Sandbrook, R. (1992) *Reflections on a memorable circus (Rio summit)*. Development Research Insights, Summer, ODI/IDS.

Suzumura, K. (1983) *Rational Choice, Collective Decisions and Social Welfare*.

von Winterfeldt, D. (1992) Expert knowledge and public values. In *Risk Management: The Role of Decision Analysis*, eds S. Krimsky and D. Golding. Social Theories of Risk

Walters, C. (1986) *Adaptive Management of Renewable Resources*. MacMillan, New York.

Winpenny, J. T. (1991) *Values for the environment: A Guide to Economic Appraisal*. HMSO, London.

World Bank (1994) *The World Bank and Participation: Report of the Learning Group on Participatory Development*. Fourth draft (revised) Washington DC.

APPENDIX 1

Phu Wiang Watershed, north-east Thailand: Conflicts and Trade-offs in Park Management

Phu Wiang is a small watershed which has been the subject of much focus as it is one of the last remaining well-preserved forested areas in central parts of north-east Thailand. The relationships between different stakeholders and the impact of environmental policy on them was investigated during a

Government Departments	⊠◆				
NGOs	⊠◆				
Wood-based industry	⊠◆	⊠			
Non-resident land owners		⊠			
Local people	⊠◆	⊠◆	✓	⊠	⊠
	Government Departments	NGOs	Wood-based industry	Non-resident land owners	Local people

Conflicts of interest are represented by ⊠, complementarities by ✓, and co-operative action by ◆. The size of the symbol can be varied to represent the extent of conflict, compatibility, or co-operative action (Chan, 1995).

workshop on stakeholder analysis held in the area in conjunction with Khon Kaen University (January 1994). A matrix was developed to identify the stakeholders and the conflicts and complementarities that exist between them, allowing potential trade-offs to be identified.

APPENDIX 2

Land Use Change in Cameroon: Different Views of Forest Degradation

A form of shifting agriculture incorporating forest fallows, has long been practised in the tropical forests of Cameroon, and local authorities are concerned about its effect on deforestation. In the late 1980s, a project was instigated with overseas aid to establish timber plantations on land that had been cut and burnt, cultivated for up to two years, and left to recuperate.

There were, however, markedly different interpretations of the situation. Project authorities held that shifting agricultural practices were degrading and depleting the forest, and it was highly desirable to establish plantations of valuable timber pecies on what was seen as abandoned land. Local people, however, suggested that their agricultural system was sustainable and did not cause deforestation. What degradation there was, they said, was caused by the project. The project was replacing forest fallows left to regenerate naturally by a few introduced species of no value to them. They said the new habitat was much less biotically diverse than the secondary forest it replaced, and did not provide the non-timber forest products and game habitats long used by them. They also argued that recently fallowed secondary forest was more valuable than the dense forest it replaced because less labour was required to convert it to agricultural land. Indeed, they deliberately selected shorter fallows for growing certain crops, trading-off the fertility losses against the higher economic returns to labour input (labour was the major limiting factor).

A rider should be added. In this locality, forests were not under great pressure and, at least for the time being, the shifting agricultural system was sustainable. In other circumstances, however, increasing population may impose severe pressure on resources, and forests will degrade and diminish. Whether or not it is acceptable to convert forests to agricultural land can only be judged from local circumstances.

Source: Author's observations.

C. Bibliography

This section provides a list of annotated/abstracted references divided into two parts. The first section lists a combination of annotated and non-annotated references covering CBNRM-related issues (sorted alphabetically by author). The second section (separated by a horizontal double line) provides a list of edited volumes relevant to CBNRM (sorted by date-ascending). The source of the annotation is in most cases the author or the publisher; however, some have been written or adapted for the CBNRM researcher audience.

1. Agrawal, A. 1998. **The Community vs. the Market and the State: Forest Use in Uttarakhand in The Indian Himalayas.**
Journal of Agricultural and Environmental Ethics 9(1):1-15.

Abstract: Most writers on resource management presume that local populations, if they act in their self-interest, seldom conserve natural resources without external intervention or privatization. Using the example of forest management by villagers in the Indian Himalayas, this paper argues that rural populations can often use resources sustainably and successfully, even under assumptions of self-interested rationality. Under a set of specified social and environmental conditions, conditions that prevail in large areas of the Himalayas and may also exist in. other mountain regions, community institutions are more efficient in managing resources than either private individuals or the central government. In advancing this argument, the paper undermines the often dogmatic belief in the universal superiority of private forms of ownership and management.

2. Agrawal, A. 1997. **Community in Conservation: Beyond Enchantment and Disenchantment.** [Unpublished] Conservation & Development Forum, P.O. Box 11553, Gainesville FL. 326115531 USA. E-mail:cdf@tcd.ufl.edu.

3. Angelsen, A. 1995. **Shifting Cultivation and Deforestation: a Study from Indonesia.** World Development 23(10):1713-1729.

Notes: About half of tropical deforestation is commonly explained by the expansion of traditional agriculture (shifting cultivation). This article first questions the share of responsibility assigned to traditional agriculture—it may well be overestimated because of unclear definitions, uncertain estimates, and potential political biases. Second, a simple framework based on a theory of land rent capture is developed to explain agricultural expansion. The framework is applied in the study of recent changes in

shifting cultivators' adaptations in a lowland rainforest area in Sumatra, Indonesia. Increased rubber planting and expansion into primary forest are seen as a response to increased rubber profitability and (expected) land scarcity, and as a race for property rights. Government land claims have had significant multiplier effects on forest clearing through changes in farmers' expectations and in initiating a self-reinforcing land race.

4. Archer, D., Cottingham, S. 1996. **Reflect Mother Manual: Regenerated Freirian Literacy Through Empowering Community Techniques.** London: ACTIONAID. 277pp.

Abstract: REFLECT is a new approach to adult literacy which fuses the theory of Paulo Freire and the practice of PRA. In a REFLECT programme there is no textbook and no pre-printed materials except a manual for the literacy facilitators. Each literacy circle develops its own learning materials through the construction of maps, matrices, calendars and diagrams that represent local reality, systematize the existing knowledge of participants and promote the detailed analysis of local issues. The purpose of this Mother Manual is to help the production of a facilitator's manual adapted to the social, economic, political and cultural conditions of a specific site. The facilitators manual becomes the core material for a REFLECT Programme. It has a sequence of units, each of which outlines how the participants in a literacy circle can collectively construct a graphic of a particular issue which the group can reflect upon, discuss and analyze. The core of this Mother Manual is a set of sample REFLECT Units (some developed in detail, some only outlined) from which the user can adapt.

5. Arnold, J.E.M., W.C.Stewart. 1991. **Common Property Resource Management in India.** Oxford, U.K.

6. Ashby, J.A. 1996. **Improving the Acceptability to Farmers of Soil Conservation Practices.** Journal of Soil and Water Conservation 51(4):309-312.

Abstract: Non-adoption of soil conservation practices by farmers in low-income countries is a major obstacle to reversing soil degradation. Farmer involvement in designing these practices is required to improve adoption. This study tested participatory research methods which dramatically increased adoption among 115 farmers over the first year, and stimulated farmer-to-farmer recommendations leading to adoption by an even larger number of farmers. Farmers' evaluations were shown to predict future acceptability of optional practices. When participatory research methods are wed to elicit farmers' input into the design of recommendations, these can help to realize the potential of many hitherto unadopted conservation practices.

7. Ashby, J.A., Sperling, L. 1995. **Institutionalizing participatory, client-driven research and technology development in agriculture.** Development & Change 26(4):753-770.

Notes: This article identifies key characteristics of participatory research and development (R&D) in the agricultural sector: it is client-driven, requires decentralized technology development, devolves to farmers the major responsibility for adaptive testing, and requires institutions and individuals to become accountable for the relevance and quality of technology on offer. Through case study material drawn from Latin America, Asia and Africa, the article then reviews ways by which institutions have responded to these characteristics and raises issues for further elaboration. Steps need to be taken, in particular, to safeguard equity, both between the more and less vocal groups of farmers, and between the requirements of present and future generations (the latter referring particularly to environmental concerns). It is argued that participatory R&D alone is insufficient to deliver innovations relevant to diverse client groups: policy mechanisms are required to define which clients are to participate, whose agendas are to drive the process, and what organizational innovations are needed to move agricultural R&D in these directions.

8. Bailey, C., Pomeroy, R. 1996. **Resource Dependency and Development Options in Coastal Southeast-Asia.** Society and Natural Resources 9(2):191-199.

Abstract: The concept of resource dependency has been used to describe the relationship between community stability and a variety of natural resource systems. Resource-dependent communities frequently are described as being vulnerable to externally induced changes because of their reliance on a single resource system. Most of the literature on this topic has focused on North America. In this article, the concept of resource dependency is applied to the coastal zone of Southeast Asia. Resource dependency in this context takes on a very different form due to the complexity and high natural productivity of tropical coastal ecosystems. These conditions create multiple economic niches for coastal residents, thus providing an important measure of community stability within the coastal resource system. This stability is being challenged by development policies that promote economic specialization—the classic pitfall of resource-dependent communities. An alternative ecosystem approach to coastal community development is proposed.

9. Baland, J., Platteau, J. 1996. **Halting Degradation of Natural Resources: Is there a Role for Rural Communities?** New York: Oxford University Press.

Abstract: This book discusses natural resource management and focuses on local-level resources while avoiding broader environmental concerns such as protection of wilderness areas and air or water pollution. The authors ask how local or village-level

natural resources can be most efficiently and equitably managed. The book is divided into two parts. The first part applies economic theory to local-level natural resources. The second part takes the lessons drawn from part I and considers the evidence from field settings of village societies in developing countries. A number of questions are addressed: What mechanisms (if any) have the effect of regulating use of common property resources in these societies? How can the effectiveness of state intervention in village resources be assessed and explained? Has the ability of traditional village societies in designing and enforcing effective regulatory schemes been affected by recent changes (e.g., technology or demography for example)? What are the main factors leading to the success of collective action? Do intermediary regimes exist that go beyond the conventional distinction between private, state, and community management?

Contents: Part I - Rationale and scope of local-level resource management: lessons from economic theory (1) Natural resources and economic growth: towards a definition of sustainability; (2) The tragedy of the commons; (3) The property rights school solution -the privatization programme; (4) The unregulated common property: the prisoners dilemma revisited; (5) Coordination and leadership in the unregulated common property: some lessons from game theory; (6) Moral norms and co-operation; (7) The possibility of co-operation: lessons from experimental social psychology; (8) The regulated common property; (9) Some concluding reflections on the privatization of common property resources; Part II - Introduction; The feasibility of local-level resource management: an empirical assessment; (10) Were people traditionally conservationists? (11) Recent changes affecting collective action at village level; (12) Conditions for successful collective action - insights from field experiences; (13) Co-management as a new approach to regulation of common property resources; General conclusion.

10. Berkes, F. 1994. **Co-management : Bridging the Two Solitudes.** Northern Perspectives (22):18-20.

11. Berkes, F. 1997. **New and not-so-new directions in the use of the Commons: Co-management.** Common Property Resource Digest (42):5-7.

Abstract: Many co-management (joint management, collaborative management) initiatives are in progress in the areas of fisheries, wildlife, protected areas, forests and other resources. These initiatives have a common reason for their existence. Topdown resource management by centralized government agencies has not been working well, and purely local level management is often ineffective in the complex world of multiple stakeholders. As a rapidly developing field of study, there is a substantial accumulation of empirical material on co-management, yet the field is weak in terms of theory development. Many authors agree that the theoretical basis of co-management may be found in common property research. It is not clear, however, how the theory developed

in the broader area of commons may be applicable to co-management. This paper discusses a number of issues related to the subject, including reasons for development of co-management; basic assumptions of co-management; definition of the concept of 'co-management'; when co-management is feasible; keys of successful co-management; and challenges ahead in developing theory for co-management. (adapted from website: http://www.indiana.edu/~iascp/webdoc.html).

12. Berkes, F., George, P., Preston, R.J. 1991. **Co-management: The Evolution in Theory and Practice of the Joint Administration of Living Resources.** Alternatives 18(2):12-17.

Abstract: This article explores the idea that co-management and self-management are not merely matters of wildlife use. Indeed, self-management is at the core of the social and economic health of many native communities, and is tied to larger questions of self-government. Thus, the co-operative management of resources becomes a key issue (since wildlife has been so important in the traditional economy) in the implementation of principles of environmentally sustainable, culturally appropriate economic development.

Notes: Discusses co-management in the North as a general trend toward the devolution of resource management authority due to land claims and policies responding to the advantages of more "user group" involvement (cost, local knowledge). The author affirms that there is no widely accepted definition of co-management, but offers a general description of the concept as the sharing of power and responsibility over resource management between government and local resource users. Further, it is suggested that in practice there is a continuum of co-management arrangements, corresponding to the extent to which local and government management systems are combined, paralleling Arnstein's "ladder of citizen participation." The bottom rung would be token consultation and the upper rungs would indicate "increasing degrees of real power sharing, in which joint decision making is institutionalized as a partnership of equals;" the top rung is characterized by "as much local-level management as possible, only so much government regulation as necessary." A fundamental challenge of co-management is mutual respect for both scientific and local knowledge. Co-management is seen not merely as a matter of resource management, but is also strongly linked to questions of sustainability in terms of socio-cultural and economic well-being in Canadian aboriginal communities. These issues are addressed in comparative reference to the contrasting experience of the Western and Eastern James Bay Cree. Customary indigenous management is described to exhibit collective stewardship of common resources through consensus-based decisions backed by strong social sanctions and to be based on principles of respect and reciprocity in social and human-nature relations. For the Western Cree, indigenous management has been supplanted by top-down state management, and lack of resource stewardship on a local and collective level. For the Eastern Cree, by contrast, customary management

has been accommodated in the official resource management regime, and is legally backed by the James Bay and Northern Quebec Agreement, such that land allocation occurs at the local level. Evidence suggests that local-level management and tenure security has enabled responsible stewardship decisions. It is argued that co-management has enabled cultural continuity, local capacity building and a firmer condition of social and economic development in aboriginal communities. Several barriers to co-management are identified: learned dependency, distrust, paternalistic attitudes of government and scientists, and the incompatibility of aboriginal rights with interests by other non-native groups. Scepticism is raised about attempts at resolving this incompatibility if aboriginal peoples are considered as just one of a number of "user groups."

13. Berkes, F., Henley, T. 1997. **Co-management and traditional knowledge: Threat or opportunity?** Policy Options :29-31.

14. Berkes, F., Pomeroy, R.S. 1997. **Two to Tango: The Role of Government in Fisheries Co-management.** Marine Policy 21(5):465-480.

Abstract: The purpose of this paper is discuss the role of government, primarily national government, in fisheries co-management. This paper investigates the critical role of decentralization in a strategy of co-management using a number of international cases. The experiences of co-management and decentralization provide for a number of policy implications to be drawn concerning the role of government. (ES).

15. Bird, C. and Simon Metcalfe. 1995. **Two Views from CAMPFIRE in Zimbabwe's Hurungwe District -Training and Motivation: Who Benefits and Who Doesn't?** No.5. London: IIED.

16. Borrini-Feyerabend, G. 1996. **Collaborative Management of Protected Areas: Tailoring the Approach to the Context.** Gland, Switzerland: IUCN. 67pp.

Abstract: The term 'collaborative management' of protected areas refers to a partnership by which various stakeholders agree on sharing among themselves the management functions, rights and responsibilities for a territory or set of resources under protected status. The stakeholders primarily include the agency in charge and various associations of local residents and resource users, but can also involve non-governmental organizations, local administrations, traditional authorities, research institutions, businesses, and others. This document addresses conservation professionals—in particular governmental agency staff—interested in pursuing the collaborative management option. It offers a broad definition of the approach and provides a number of examples of how it has been specifically tailored to different contexts. General assumptions, consequences, benefits, costs and potential

draw-backs of collaborative management are reviewed. A process by which an agency in charge of a protected area can pursue the approach is illustrated. The paper ends by posing a number of questions on the future of collaborative management as a viable and effective option in protected areas.

17. Campbell, J.Y. 1992. **Joint Forest Management in India.** Social Change 22(1)

18. Chapeskie, A. 1995. **Land, Landscape, Culturescape: Aboriginal Relationships to Land and the Co-management of Natural Resources.** Kenora, Ontario, Canada: Prepared for the Royal Commission on Aboriginal Peoples.

19. Charles, A.T., Brainerd, T.R., Bermudez, M.A., et al. 1994. **Fisheries Socioeconomics in the Developing World : Regional Assessments and an Annotated Bibliography.** Ottawa: IDRC. 163pp.

20. Child, B. 1996. **The Practice and Principles of Community-based Wildlife Management In Zimbabwe: The Campfire Program.** Biodiversity and Conservation 5(3):369-398.

Abstract: This paper describes Zimbabwe's wildlife-based CAMPFIRE programme. It suggests that community-based natural resource management is a potential solution to the inter-linked problems of poverty and conservation if it is based on sound management principles that also incorporate transparency, accountability and democracy because the unit of management is a community. This first section suggests that many of the causes of these natural resource problems in communal lands are a result of the failure of mechanisms to price and allocate resources efficiently. The second section describes the evolution of CAMPFIRE, while the third section summarizes the principles that underpin the programme. The fourth section discusses the governance of natural resources and describes the process by which rights to wildlife have been devolved. This emphasizes how important political and administrative systems are to wildlife conservation. CAMPFIRE can be viewed as a five-step process: getting an enabling political, legal, administrative and economic environment; creating awareness and a demand for the programme; generating revenues; using these revenues effectively; and, finally, setting in place the institutions and capacity for locally-based natural resource management. The first four sections of the paper deal with step one—the enabling environment, what it is and how it came about. The final section describes the actual implementation of the programme.

21. Christie, P., White, A.T. 1997. **Trends in Development of Coastal Area Management in Tropical Countries: From Central to Community Orientation.** Coastal Management 25(2):155-181.

Abstract: The development phases of coastal management in tropical countries are described. Precolonial, centralized, community based, and collaborative coastal management are identified as forms of management which have evolved to what today is called integrated coastal management. Centralized management began during colonial times when any attempt at management was orchestrated from the top of government. Community-based Coastal Management, in response to the failures of more centralized approaches, began in the Philippines through several projects, the experience of which spread to other countries in Southeast Asia and to Ecuador in the 1980s. The concept of collaborative management is now accepted as a description of variations in joint management arrangements between government and community or with the private sector stakeholders. It is suggested that collaborative management and integrated coastal management are more or less synonymous. The trends identified within tropical coastal management include interdisciplinary research and management integration, valuing traditional knowledge and management systems, increasing reliance on local participation, and using participation-oriented research approaches. It is seen that the capacity for improved coastal management is increasing dramatically with a strong emphasis on training through academe and field learning trials. The authors are positive about current developments in coastal management, while cautioning practitioners that global economics will increasingly impact the use and conservation of coastal resources. A theme is that local government and community accountability in coastal management will help make efforts effective and more sustainable.

22. Colchester M. 1994. **Sustaining the Forests: The Community-Based Approach in South and South-East Asia.** In Development and environment : sustaining people and nature. Ghai D. ed. Oxford, U.K: Blackwell. p. 69-100.

23. Corbridge, S., Jewitt, S. 1997. **From Forest Struggles to Forest Citizens - Joint Forest Management in The Unquiet Woods Of India Jharkhand.** Environment and Planning A 29(12):2145-2164.

Abstract: The government of India has embraced joint forest management as a key strategy for dealing with forest degradation and forest employment issues in the 1990s. This represents a significant movement away from the forest reservation policies that held sway from 1947 to 1988 and which criminalized many local forest users. In this paper we consider the role played by forest struggles and forest intellectuals (notably Guha and Gadgil) in the rewriting of India's forest policies. We also evaluate the utility of a moral economy framework in guiding joint forest management policies in India's

Jharkhand. We draw on village-level fieldwork in Ranchi District, Bihar, to highlight the value of an approach to the management of Degraded Protected Forests that offers a key role to active and informed forest citizens (as per the moral economy framework). We also highlight five areas of present concern: the extent of local environmental knowledge, not least among women; questions of territoriality and excludeability in respect of forest protection activities; trust, imagined communities, and forest citizenship; the role of charismatic leaders; and the importance of complementary 'nonforest' policies.

24. Davos, C.A. 1998. **Sustaining co-operation for coastal sustainability.** Journal of Environmental Management 52(4)

25. Dove, M. 1995. **The Theory of Social Forestry Intervention: The State-of-the-art in Asia.** Agroforestry Systems 30(3):315-340.

Abstract: This study focuses on the major issues in current thinking about the theory of social forestry development in Asia. The first of these issues concerns the cause of deforestation. The governmental view is that deforestation is a gradual process driven by community-based factors, whereas the community view is that deforestation is a stochastic process driven by external, political-economic factors. The two explanations have different implications for where the 'problematique' of social forestry is located - in the forest community or in the forest agency—and how, therefore, it is to be addressed. A second issue concerns how and when social forestry interventions are carried out. The concept of a 'window-of-opportunity' for intervention reflects a widespread belief that it is important when interventions are carried out - with both the costs and benefits of intervention increasing as it is timed earlier and decreasing as it is timed later. A key determinant of the best time for intervention is the receptivity of the forest agency and the broader society. The purpose of intervention is to strengthen receptivity and other factors conducive to change, to hasten extant processes of change, and to minimize the possibility of a reversal of direction. A third issue is whether the focus of social forestry intervention should be on state lands or on community lands. While there are logical reasons for either foci, the continuing vacillation between them suggests the lack of a theoretical perspective with sufficient breadth to encompass them both. Whatever the focus, attitudinal change within the forest agency is usually mandated in social forestry interventions, but it is rarely accompanied with intervention in the underlying power relations, reflecting a continuing difficulty in viewing the forest agency sociologically. This lack of sociological perspective also is seen in the tendency to focus on adding resources perceived to be in short supply, instead of removing institutional obstacles.

26. Dove, M. 1997. **The Epistemology of Sustainable Resource Use: Managing Forest Products, Swiddens, and High-yielding Variety Crops.** Human Organization 56(1):91-101.

Abstract: This study examines the moral ecology of resource use through a comparison of the ideological bases of three systems of resource use in Southeast Asia: gathering forest products (viz., forest fruit), swidden agriculture, and the cultivation of high-yielding variety, green revolution crops. A trade-off between the magnitude of return and the frequency of return is accepted in the first two systems, but this is denied in the third system in which there is, instead, insistence on continuous, high-magnitude returns. In the fruit- gathering and swidden cultivation systems there is recognition of linkages to the wider temporal and spatial processes in which they are embedded, but in the green revolution system there is only a very narrow view of these linkages. Whereas the necessity of reciprocal exchange with their wider social and natural environments is accepted in the first two systems, such exchanges are minimized in the green revolution system. This study contributes to current debates about sustainable resource use, the conception of nature and culture, and the epistemology of science and the contemporary role of anthropology.

27. Dubbink, W., Vanvliet, M. 1996. **Market Regulation versus Co-management: Two Perspectives on Regulating Fisheries Compared.** Marine Policy 20(6):499-516.

Abstract: The crisis of fisheries management is also a crisis of governability; somehow governments almost everywhere seem to run into trouble while managing fisheries. This article compares two alternative styles of regulation that are put forward as solutions to this crisis: market-based regulation and co-management. In particular the contradiction is analyzed between an apparently strong theoretical basis for market-based regulation and actual practice which often opts for co-management. The theoretical basis of the market-based perspective is challenged and on the basis of an analysis of flatfishery management in the Netherlands, it is concluded that there are often sound arguments for restructuring the management responsibilities between public authorities and civil society.

28. Farrington, J. 1996. **Socio-economic methods in natural resources research.** Natural Resource Perspectives No.9. London: Overseas Development Institute.

Abstract: This paper synthesizes eleven review papers presented at an Overseas Development Administration workshop on Socio-Economics Methods for Natural Resources Research.

29. Feeny, D., Berkes, F., McCay, B., J., et al. 1990. **The Tragedy of the Commons: Twenty-two Years Later.** Human Ecology (1)19.

Abstract: Hardin's Tragedy of the Commons model predicts the eventual overexploitation or degradation of all resources used in common. Given this unambiguous prediction, a surprising number of cases exist in which users have been able to restrict access to the resource and establish rules among themselves for its sustainable use. To assess the evidence, we first define common-property resources and present a taxonomy of property-rights regimes in which such resources may be held. Evidence accumulated over the last 22 years indicates that private, state, and communal property are all potentially viable resource management options. A more complete theory than Hardin's should incorporate institutional arrangements and cultural factors to provide for better analysis and prediction.

30. Fellizar, F.P., Jr. 1993. **Community-Based Resource Management: Perspectives, Experiences and Policy Issues.** ERMP Reports No.6. College, Laguna, Philippines; Halifax, Nova Scotia: Environment and Resource Management Project (ERMP).

Abstract: This document contains the output of the experts' workshop on Community-Based Resource Management (CBRM) perspectives, experiences, and policy issues. Discussions focused on the various perspectives of CBRM elements and actual experiences on CBRM implementation by different organizations. Policy related issues were also presented for further studies and consideration by policy makers and researchers.

31. Ghai, D. 1994. **Development and environment: sustaining people and nature.** Oxford, U.K. Blackwell. 263pp.

Notes: Contents: Environment, livelihood and empowerment (Ghai); Community-based fisheries management, tradition and the challenges of development in Marovo, Solomon Islands (Hviding and Baines); Ecological knowledge and the regional economy: environmental management in the Asesewa District of Ghana (Amanor); Sustaining the forests: the community-based approach to South and South-east Asia (Colchester); Ecological conflicts and the environmental movement in India (Gadgil and Guha); Gender, environment and population (Joekes, Heyzer, Oniang'o, Salles); NGOs and sustainable development in Zimbabwe: no magic bullets (Vivian); Parks and people: livelihood issues in national parks management in Thailand and Madagascar (Ghimire); Social and political dimensions of environmental protection in Central America (Utting).

32. Grimble, R., Chan, M. 1995. **Stakeholder analysis for natural resource management in developing countries: Some practical guidelines for making management more participatory and effective.** Natural Resources Forum 19(2)

33. Gubbels, P. 1997. **Strengthening Community Capacity for Sustainable Agriculture.** In *Farmers' Research in Practice: Lessons from the Field.* Veldhuizen, L.V., Waters-Bayer, A., Ramirez, R. et al. Eds. London: Intermediate Technology Publications. p. 1-285.

34. Hasler, R. 1995. **Political Ecologies of Scale: The Multi-tiered Co-management of Zimbabwean Wildlife Resources.** IIED Wildlife and Development Series No.7. London: IIED with the CAMPFIRE Collaborative Group.

35. Hirashima, S., Gooneratne, W. 1998. **State and Community in Rural Resource-management - The Asian Experience.** New Delhi: Har-Anand Publications. 326pp.

36. Hoan, P.Q. 1995. **The Role of Traditional Social Institutions in Community Management of Resources among the Hmong of Vietnam.** East-West Center Occasional Paper No.5.

37. Hviding, E., Baines, G.B.K. 1994. **Community-based Fisheries Management, Tradition and the Challenges of Development In Marovo, Solomon Islands.** Development and Change 25:13-39.

Abstract: This study examines traditional fisheries-related resource management through a case in which local communities, from a basis of customary, 'common property' control over the sea and its resources, handle a multitude of development issues. Presenting first some important issues relating to people's role in fisheries management and to the 'common property' debate, the article then describes a traditional system for management of land and sea resources in a Pacific Islands society: that of Marovo Lagoon, Solomon Islands. Emphasis is given to fisheries resources, with a view to explaining in practical terms how a system of customary marine tenure operates under the wider social, political, economic and ecological circumstances of change arising from development pressures. Against this background, assessments are made of the viability of this traditional fisheries management system under present conditions of state control and of both external and internal pressures for large-scale resource development enterprises.

38. ICLARM (International Center for Living Aquatic Resources Management) and NSC (North Sea Center). 1997. **Analysis of Fisheries Co-Management Arrangements: A Research Framework.** Ottawa, Canada: IDRC.

Notes: Paper presented at the Community-based Natural Resource Management Workshop, May 12-16th, 1997. Hue University of Agriculture and Forestry, Hue, Vietnam.

39. IFPRI & ODI. 1994. **Policies on Local Organizations for Natural Resource Management: Towards an Interdisciplinary Research Agenda.** Washington, DC: IFPRI.

40. International Institute for Environment, Development IIED. 1994. **Whose Eden? An Overview of Community Approaches to Wildlife Management.** London, England: IIED.

41. Isemonger, A.G., Tewari, D.D. 1998. **Joint forest management in South Gujarat, India: a case of successful community development.** Community Development Journal 33(1):32-40.

Abstract: Since the colonization of India the encroaching modern environment has led to both the gradual disempowerment of forest dwelling communities and forest degradation. The passage in 1988 of a new Forest Policy Act allowed for Joint Forest Management (JFM), in which the Forest Department and the village communities act as co-managers of forest resources. Forest Protection Committees have been set up to drive the programme, and their actions have stimulated and led to the psychological regeneration of the forest dwelling communities. The JFM programme is an institutional innovation that has much potential in any country confronting the disempowerment of indigenous communities and environmental degradation.

42. IUCN, UNEP, WWF. 1991. **Caring for the Earth - A Strategy for Sustainable Living.** Geneva: IUCN

43. Jackson, C. 1993. **Environmentalisms and Gender Interests in the Third World.** Development and Change 24(4):649-677.

Abstract: Examines why much environment and development discourse assumes that women are the natural constituency for conservation interventions, using a gendered critique of environmentalisms - technocentric, ecocentic, and non-Western. Discussion includes how the intellectual roots of Western environmentalisms influence the positions of contemporary environmentalism with regard to gender, and what research on environmental perceptions in non-Western societies implies about gender differentiation in environmental relations. It is concluded that there are no grounds for assuming an affinity between women's gender interests and those of environments, and that such a view is symptomatic of the gender-blind, ethnocentric, and populist character of Western environmentalisms. By contrast, the application of gender analysis to environmental relations involves seeing women in relation to men, the disaggregation of the category of women, and an understanding of gender roles as socially and historically constructed, materially grounded, and continually reformulated.

44. Jentoft, S., McCay, B.J., Wilson, D.C. 1998. **Social-Theory and Fisheries Co-management.** Marine Policy 22(4-5):423-436.

Abstract: Co-management is a tool of fisheries management that has received much attention in recent years. Although there are great hopes about what it may accomplish, there are also serious doubts, questions and criticisms regarding its general applicability. The authors believe that many of these concerns are valid ones. However, many of the negative predictions reflect overly narrow perspectives on the role and nature of institutions. Other, no less valid, presuppositions lead to more optimistic hypotheses concerning the outcomes of co-management arrangements. The institutional problems associated with co-management have been analyzed from the perspective of rational choice. We offer another perspective by analyzing these problems from the standpoint of how institutions are embedded in human community.

45. Jentoft, S., McCay, B.J. 1995. **User Participation Fisheries Management: Lessons Drawn from International Experience.** Marine Policy 19(3):227-246.

Abstract: This paper summarizes the findings of two partly overlapping comparative international projects on government-industry interaction in fisheries management in the seven Nordic countries, the USA, Canada, Spain, France and New Zealand. Fisheries management agencies often rely on inputs from user groups in planning, implementation and enforcement of regulatory systems. User involvement in fisheries management is a controversial subject in most of the countries represented here. Too much or too little involvement seem equally problematic. The issue is not so much if and why user groups should be involved, as how, which is basically a political question. User participation is a means through which users are empowered, and there is always a possibility that some will win while others will lose or be left out entirely. However, the question of how user groups should be incorporated in the management process is also a question of institutional design. In this respect, great diversity is demonstrated in our case studies. This suggests that the question of how users should be involved has many possible answers, none of them easy.

46. Jodha, N.S. 1995. **Common Property Resources and the Environmental Context: Role of Biophysical vs. Social Stresses.** Economic and Political Weekly 30(51)

47. Jodha, N.S. 1995. **Common Property Resources and the Dynamics of Rural Poverty in India's Dry Regions.** Unasylva 46(180)

48. **Joint Forest Management in India: Achievements, Unaddressed Challenges.** 1995. Unasylva 46 (180):30-36.

Abstract: Common Property resources are an important component of the natural resource endowment of rural communities in developing countries. CPRs continue to be a significant component of the land resources base of rural communities. This is more

so in the relatively high risk, low productivity areas such as the arid and semi-arid tropical regions of India and several African countries. Historically, the circumstances that favoured the provision of common property resources in these areas included: (i) the community level concern for collective sustenance and ecological fragility; and dependence of private farming on the collective risk sharing arrangements, unavoidable, especially during periodic distress (e.g. due to droughts). Thus, CPRs as an institutional arrangement are a product of (bio-physically) stressed environments. However, in Indian dry tropical areas, even when basic factors responsible for 'provision of CPRs' continue undiminished, the CPRs are drastically declining. This decline can be attributed to other sources of stress including population growth, and public policies that are both ignorant and insensitive to rationale and utility of CPRs. The study records the quantitative and qualitative decline of CPRs and explains the same with reference to new source of stress. One major consequence of this decline is reduced capacity of CPRs to perform their (traditional) intended functions in the high-risk environments. This is revealed by the contribution of CPRs towards people's sustenance during the droughts of 1963 and 1987.

49. Kanetkar, R.S. and V.Varalakshmi. 1994. **Women in Godam-Haryana: A gender and caste based study on conservation of forest resources.** Joint Forest Management Series No.13. New Delhi.

50. Kant, S. 1994. **Sustainable Joint Forest Management Through Bargaining - A Bilateral Monopoly Gaming Approach.**
Forest Ecology And Management 65(2-3):251-264.

Abstract: The failure of forest owners and managers to exclude user groups from use of the resource forces them to opt for a collaborative management approach, termed as joint management or co-management. Joint forest management has been compared with agriculture crop sharing arrangements. With the objective of making joint forest management a sustainable venture, a model based on the cooperative/bargaining nature of the agreements for sharing the forest produce between the two partners has been developed. Shares of the two partners have been worked out for two cases of joint forest management from the state of West Bengal in India, and outcomes have been compared with existing sharing arrangements.

51. King, L.A.Cutshall C.R. ed. 1994. **Inter-Organizational Dynamics in Natural Resource Management - A Study of CAMPFIRE Implementation in Zimbabwe.** Occasional Paper. Harare: Centre for Applied Social Sciences.

52. Knudsen, A.J. 1995. **Living with the Commons: Local Institutions for Natural Resource Management.** CMI Report Series No.R1995:2. Bergen, Norway: CMI.

53. Krishnaswamy, V. 1995. **Sustainable Development and Community Forest Management in Bihar India.** Society and Natural Resources 8(4):339-350.

Abstract: Deforestation has impoverished many rural communities in developing countries that depend on forests for their basic needs. Contemporary sustainable development (SD) theory focuses on how to meet the basic needs of the poor while conserving the resource base on which they depend. Thus, forest conservation is a major component of SD efforts. In the Indian state of Bihar, efforts to conserve forests through centralized tree plantation programs have not succeeded. High priority has since been accorded to community forest management on the assumption that sustainable resource use is most likely to occur if local communities participate in managing tile resources on which they depend. However, externally initiated community forest management efforts in Bihar have not proved very effective in controlling deforestation. Consequently local communities have started managing state-owned forests on their own. These self-initiated efforts have proved quite effective at regenerating forests. However, local initiatives can be sustained only if supported by external institutions.

54. Leach, M., Mearns, R., Scoones, I. 1997. **Challenges To Community-based Sustainable Development - Dynamics, Entitlements, Institutions.** IDS Bulletin 28(4):4-14.

Abstract: Recent approaches to community-based natural resource management frequently present 'communities' as consensual units, able to act collectively in restoring population-resource imbalances or reestablishing harmonious relations between local livelihoods and stable environments. Arguing that these underlying assumptions and policy narratives are flawed as guidelines for policy, this article presents an alternative perspective which starts from a perspective which sees the politics of resource access as central among diverse social actors, and sees patterns of environmental change as the outcomes of negotiation or contestation between their conflicting perspectives. The notion of 'environmental entitlements' encapsulates this shift in perspective, and provides analytical tools to specify the benefits that people gain from the environment which contribute to their well-being. The processes by which people gain environmental endowments and entitlements are, in turn, shaped by diverse institutions, both formal and informal.

55. Lewis, D.M. 1995. **Importance of GIS to Community-based Management of Wildlife - Lessons From Zambia.** Ecological Applications 5(4):861-871.

Abstract: Wildlife resources under the protective custodianship of skilled managers can thrive and sustain important revenues. Such custodianship is generally lacking among communal rural societies in Africa because of land use policies that overlook the capacity and the practical importance of actively engaging these societies in wildlife management. In Zambia, participation by local village communities in this management is recognized as a prerequisite for wildlife development and conservation. This

participation is permitted through the administrative management design (called ADMADE) for game management areas. To help improve the capacity of rural communities to become more knowledgeable and effective in managing their wildlife resources, a geographical information system (GIS), based on ARC/INFO software, was applied and tested as an appropriate technology. It was hypothesized that maps composed of easily recognizable information about land use issues affecting the welfare of local residents and their natural resources would facilitate communal societies to make technically improved land use decisions with broad-based support within the community. Results offered a growing set of achievements in land use planning by local community leaders in support of this hypothesis. Custom-designed maps produced by this technology were used by these leaders to explain and build consensus at the community level on ways to resolve resource use conflicts. Results also demonstrated the pragmatic and cost-effective value of training local residents to participate in the collection of GIS data as a way of making maps more locally acceptable and better focused on relevant issues and needs.

56. Li, T.M. 1996. **Images of community - discourse and strategy in property relations.** Development & Change 27(3):501-527.

Notes: This article argues that divergent images of community result not from inadequate knowledge or confusion of purpose, but from the location of discourse and action in the context of specific struggles and dilemmas. It supports the view that 'struggles over resources' are also 'struggles over meaning'. It demonstrates the ways in which contests over the distribution of property are articulated in terms of competing representations of community at a range of levels and sites. It suggests that, through the exercise of 'practical political economy', particular representations of community can be used strategically to strengthen the property claims of potentially disadvantaged groups. In the policy arena, advocates for 'community based resource management' have represented communities as sites of consensus and sustainability. Though idealized, such representations have provided a vocabulary with which to defend the rights of communities vis-a-vis states. Poor farmers, development planners, consultants and academics can also use representations of community strategically to achieve positive effects, or at least to mitigate negative ones. Most, but not all, of the illustrations in this article are drawn from Indonesia, with special reference to Central Sulawesi.

57. Lynch, O.J., Kirk Talbott. 1995. **Balancing Acts: Community-Based Forest Management and National Law in Asia and the Pacific.** Washington, DC: World Resources Institute.

Abstract: Despite increasing interest in community-based forest management, real on-the-ground progress is still lagging. Data and analysis emerging from the seven countries studied in *Balancing Acts: Community-Based Forest Management and National Law in Asia and the Pacific* indicate that except for Papua New Guinea, national legal incentives for sustainable community-based management of forest

resources in Indonesia, the Philippines, Thailand, India, Nepal, and Sri Lanka are inadequate. Still, promising developments give hope. Although no two nations face the same resource-management constraints and opportunities, helpful and important lessons can be learned by comparing experiences and trends. This report describes and analyzes the various legal, historical, and cultural settings under which community-based forest management initiatives have been forged, and more important, are being revised in response to ever more severe forest degradation. The authors identify roadblocks to community-based forest management and recommend steps to overcome them.

58. Maikhuri, R., K., Senwal, R.L., Rao, K.S. 1997. **Rehabilitation of Degraded Community Lands For Sustainable Development In Himalaya - A Case-study in Garhwal Himalaya, India.** International Journal of Sustainable Development and World Ecology 4(3):192-203.

Abstract: An approach to the rehabilitation of degraded community lands built on people's perceptions and traditional knowledge was developed, implemented on a small scale (6 ha plot), and evaluated in terms of economic and ecological casts and benefits over a period of 5 years in a mid-altitude (1200 m) village of Garhwal Himalaya. Rehabilitation comprised establishment of water harvesting tanks, organic management of soil, agroforestry (native multipurpose trees + traditional crops), and decison-making by the whole village community. Costs and benefits under irrigated and unirrigated conditions were compared. The total cost of establishing the irrigated agroforestry system was 1.23 fold that of the unirrigated one, whereas the total benefit was 2.09 fold. The average standing above-ground biomass of the 4 year-old plantation in the irrigated agroforestry system was 11.69 t/ha compared to 8.34 t/ha in the unirrigated system. Improvement in soil properties was more pronounced in the irrigated system than in the unirrigated one. Nutrient input, an input derived largely from forest biomass, in the unirrigated system was nearly 3 times higher than that in the irrigated system. It is concluded that, considering the local and national/regional/global interests in an integrated manner, agroforestry incorporating water management would be a more effective option for rehabilitating degraded community lands than the afforestation currently being attempted by the government in the mid-altitudes of Indian Himalaya.

59. Maine, R.A., Cam, B., Davis-Case, D. 1996. **Participatory Analysis, Monitoring and Evaluation for Fishing Communities: A Manual.** Rome: Food and Agriculture Organization of the United Nations.

Abstract: While there are many manuals available on participatory rapid appraisal approaches to monitoring and evaluation, there were none easily used by field officers attempting to aid and encourage fishing community level participation in monitoring and evaluating activities of projects and programmes in rural fishing communities. This manual is prepared in cook book fashion with easily followed instructions for 26 participatory monitoring tools to allow use by both local field staff acting as facilitators and directly by community members engaged in the evaluation process.

Notes: A Hands-on guide to doing participatory analysis . Easy to use with many diagrams and drawings. Very much an introductory manual that does not use overly technical language or jargon. Good introduction to participatory approaches but lacking in detailed discussion. Examples relate to a fishing community context but much of what is contained in the document could be adapted to other ecosystems/resource management systems. Very similar to D. Davis-Cases publication, *The Community's Toolbox.*

60. Mantjoro, E. 1998. **Management of Traditional Common Fishing Grounds - The Experience of the Para Community, Indonesia.**
Coastal Management 24(3):229-250.

Abstract: The experience of the Para fishing community in managing its traditional fishing commons is explored. The concepts, methods, challenges to survive, and transformations in the direction of traditional community-based management in coastal fisheries are documented. Some lessons can be extracted from the Para experience that may be useful as an additional perspective in governing new management regimes for sustainable use of fishing commons. Evidence at Para shows that the fishers themselves founded the basis of management, erected an effective organization, constructed the equity share principle, invented and enforced regulations, and meted out the punishments. The delegation of authority in the local community to establish their sea tenure system is considered as a pivotal element in the management of communal property resources.

61. Matzke, G. and Mazambani, D. 1993. **Resource Sharing Schemes for State Land in Zimbabwe - A Discussion of Conceptual Issues Needing Consideration in the Development and Planning of Co-Management Regimes.** CASS Occasional Paper No. NRM 54/93. Harare: Centre for Applied Social Sciences.

62. McCay, B., J., Jentoft, S. 1998. **Market or Community Failure - Critical Perspectives on Common Property Research.**
Human Organization 57(1):21-29.

Abstract: The best known revisionist perspective on the so-called "tragedy of the commons" underscores important conceptual and hence policy errors and has been important in contributing to understanding of conditions in which collective action for common benefits, with respect to common pool resources, can take place. Characterizing this perspective as a "thin" or abstract, generalizing explanatory model with strengths and weaknesses, we discuss a "thicker" or more ethnographic perspective that emphasizes the importance of specifying property rights and their embeddedness within discrete and changing historical moments, social and political relations. We argue that this perspective leads to a focus on "community failure" rather

than "market failure" as the presumed cause of environmental problems, and hence, to questions about how markets, states, and other external and internal factors affect the capacities of communities and user-groups to respond adequately to environmental change.

63. McCay, B.J., Jentoft, S. 1996. **From the Bottom Up - Participatory Issues in Fisheries Management.** Society and Natural Resources 9(3):237-250.

Abstract: "Co-management" is among several slogans used to indicate a dissatisfaction with present systems and a movement to more decentralized systems of marine resource management. The authors note the necessary distinction between decentralization and participatory management and use comparative analyses of case studies of fisheries management systems in Scandinavian and North American countries and New Zealand to explore potentials for both decentralization and delegation of authority in fisheries management. The article focuses on issues of representation, domain, and communication in the design of fisheries management systems. It notes the value of the concept of subsidiarity, recently adopted in the process of European integration, and raises the question of sources of more "communicative rationality" in the social and political processes surrounding fisheries management.

64. McIvor, C. 1994. **Management of Wildlife, Tourism and Local Communities in Zimbabwe.** Discussion Paper No.53. Geneva: UNRISD.

65. Mearns, R. 1995. **Community, Collective Action and Common Grazing: the Case of Post-Socialist Mongolia.** Discussion Paper No.350. Brighton, UK: IDS.

66. Mosse, D. 1994. **Authority, gender and knowledge - theoretical reflections on the practice of participatory rural appraisal.** Development & Change 25(3):497-526.

Notes: Participatory rural appraisal (PRA) methods are increasingly taken up by public sector organizations as well as NGOs among whom they have been pioneered. While PRA methods are successfully employed in a variety of project planning situations, and with increasing sophistication, in some contexts the practice of PRA faces constraints. This article examines the constraints as experienced in the early stages of one project, and suggests some more general issues to which these point. In particular, it is suggested that, as participatory exercises, PRAs involve 'public' social events which construct 'local knowledge' in ways that are strongly influenced by existing social relationships. It suggests that information for planning is shaped by relations of power and gender, and by the investigators themselves, and that certain kinds of knowledge are often excluded. Finally, the paper suggests that as a method for articulating existing

local knowledge, PRA needs to be complemented by other methods of 'participation' which generate the changed awareness and new ways of knowing, which are necessary to locally-controlled innovation and change.

67. Murombedzi, J. 1990. **Communal Land Tenure and Common Property Resource Management: An Evaluation of the Potential for Sustainable Common Property Resource Management in Zimbabwe's Communal Lands.** Occasional Paper. Harare: Centre for Applied Social Sciences.

68. Murphree, M.W. 1993. **Communities as resource management institutions.** Gatekeeper Series No.36. London: Sustainable Agriculture Program, IIED. 15pp.

69. Nabane, N. 1995. **Lacking Confidence? A Gender-Sensitive Analysis of CAMPFIRE in Masoka Village.** IIED Wildlife and Development Series No.3. London: IIED.

70. Nabane, N., Dzingirai, V., and Madzudzo, E. 1996. **Membership in Common Property Regimes - A Case Study of Guruve, Binga, Tsholotsho and Bulilimamangwe CAMPFIRE Programs.** Occasional Paper Series. Harare: Centre for Applied Social Sciences.

71. Naik, G. 1997. **Joint Forest Management: Factors Influencing Household Participation.** Economic and Political Weekly 32(48):3084-3089.

Abstract: Forest departments in various states have made efforts to manage forests jointly with the focal community in selected areas in order to prevent current rates of degradation of forests and ensure their regeneration. The theoretical framework used in this paper suggests that the extent of participation in JFM activities is dependent on the expected levels and variations in the marginal profit to labour from JFM and alternative enterprises; co-variance of their profit; expected share of households in the profit; JFM risk awareness of the households; interest rate prevailing in the village; and total labour available with the households. The Hua case studies provide empirical support to the conclusions drawn from the theoretical framework.

72. Ostrom, E. 1990. **Governing the Commons - The Evolution of Institutions for Collective Action.** Cambridge, UK: Cambridge University Press.

73. Ostrom, E. 1992. **Crafting Institutions for Self-Governing Irrigation Systems.** San Francisco: Institute of Contemporary Studies.

74. Ostrom, E. 1994. **Neither Market, Nor State: Governance of Common-Pool Resources in the Twenty-first Century.** Washington, D.C. IFPRI.

75. Palit, S. 1993. **The Future of Indian Forest Management: Into the Twenty-First Century.** Joint Forest Management Working Paper No.15. New Delhi.

76. Pathan, R.S., Arul, N.J., and Poffenberger, M. 1996. **Forest Protection Committees in Gujarat- Joint Management Initiative.** Sustainable Forest Management Working Paper Series No.7. New Delhi.

77. Peluso, N.L., Poffenberger, M. 1989. **Social Forestry in Java: Reorienting Management Systems.** Human Organization 84(4):333-342.

78. Pinkerton, E., W. 1989. **Co-operative management of local fisheries.** Vancouver, BC: University of British Columbia Press, 1989.

Abstract: This book combines the perspectives of many different disciplines. It overviews the development of both theory and practice of co-management. It gives special attention to both theory and practice, and the relationship between the two. Finally, it emphasizes the need for a holistic approach to the problem of fisheries management.

79. Pinkerton, E., W. 1994. **Local fisheries co-management: a review of international experiences and their implications for salmon management in British Columbia.**
Canadian Journal of Fisheries and Aquatic Sciences 1994(10)2378.

Notes: The theory and practice of community-based self- management and government/community co-management is examined in terms of the potential of these management systems to address some of the major biological, economic, and political problems of the salmon fishery of British Columbia, Canada. Particular attention is given to government/multiparty arrangements that integrate the concerns of multiple interests, while recognizing the special rights of aboriginal communities. The processes engendering social learning, through which government and local bodies could move toward such regimes, are discussed through a review of relevant literature on inter-organizational conflict resolution, public policy, and organizational learning. Many of the elements of success of both arrangements and processes are likely to apply to a broad range of fisheries co-management situations.

80. Pinkerton, E.W., Weinstein, M. 1995. **Fisheries that work: sustainability through community-based management.** Vancouver, B.C. David Suzuki Foundation. 199pp.

Abstract: This report looks at what co-operatively and sustainably-managed fishery systems have in common. How do government managers share power with fisherman's organizations and communities? How do these systems make both government and fishermen accountable? What makes them function effectively? How are different parties and communities represented in the management system? Who bears the costs of non-sustainable use and who enjoys the benefits of sustainable use? This report presents 10 case studies of sustainably managed fisheries with high levels of power sharing. A number of other cases are presented that ended in collapse. General principles are drawn from these experiences to help people make strategic choices.

Contents: 1. Opportunities and problems in fisheries management institutions; 2. Small villages on the shores of Lake Titicaca, Peru; 3. Cost recovery salmon enhancement associations, Alaska; 4. The Kuskokwim River management working group, Alaska; 5. The Skeena Watershed Committee, British Columbia; 6. Gitksan management of subsistence and commercial salmon fisheries, Skeena River, British Columbia; 7. Management of inshore fisheries by Japanese co-operative associations; 8. Community-management in Gulf of Mexico and Long Island oyster fisheries; 9. Community management of Korean seaweed fisheries; 10. A multi-party clam management board, Sunshine coast, B.C.; 11. A multi-party watershed management working group on the Mitchell River, Queensland, Australia; 12. Shuswap multi-party watershed planning committees; 13. The Kennedy Lake Salmonid Technical Working Group and The West Coast Sustainability Association; 14. Newfoundland inshore cod fisheries; 15. Synthesis and conclusion: principles for success.

81. Poffenberger, M. 1990. **Keepers of the Forest: Land Management Alternatives in Southeast Asia.** West Hartford, CT: Kumarian Press.

Abstract: This book deals with Forest policy and management experience in Indonesia, the Philippines and Thailand in three parts: historical perspectives, tools and techniques for participatory management, and case studies focusing on the forestry bureaucracy and the project level of social forestry initiatives. Part 2 includes chapters on how to facilitate change in forestry bureaucracies; the use of diagnostic tools; communal forest leases in the Philippine Uplands; and agro-forestry technologies in Java. In Part 3, a number of the case studies present the process for gaining acceptance for different forest policies with the involvement of local communities.

82. Poffenberger, M. 1994. **The Resurgence of Community Forest Management: Case Studies from Eastern India.** In *Natural Connections: Perspectives in Community Based Conservation*. Western D., Wright R.M., and Strum S.C. eds. Washington D.C. Island Press. p. 1-581.

83. Poffenberger, M.E. 1997. **Linking government with community resource management: what's working and what's not. A report of the 5th Asia Forest Network Meeting, Surajkund, India, 2-6 December, 1996.** Research network report No.9. Berkeley: Asia Forest Network. 76pp.

Abstract: This report (based largely on the discussions held at the 5th Asia Forest Network meeting held at Surajkund, India in 1996), synthesizes the experiences of community forestry management in the region. The report begins by outlining the main trends in forest policy in each country. The elements considered necessary for transition of forest management to local communities are examined, including enabling policies, the need for reorientation of Forestry Agencies and ways of enhancing development support agency programs. The political and economic factors which undermine community involvement in forest management are considered, including inequities in resource flows whereby national governments tend to regard forest regions as resource banks to be used according to state requirements and also problems of delegating authority to the administrative village level which may not reflect interest user groups. Finally, the strategies and activities planned to be taken in the future are outlined for each participating country.

84. Poffenberger, M., Lawrence, K., Josayma, C. et al. 1995. **Transitions in Forest Management: Shifting Community Forestry from Project to Process (Proceedings of the 4th Annual Meeting of the Asian Forestry Network (2-4 April, 1995).** Research Network Report No.6. Berkeley, California, USA.

85. Poffenberger, M. and McGean, B. 1993. **Community Allies: Forest Co-Management in Thailand.** Southeast Asia Sustainable Forest Management Network No.2. Berkeley, California, USA.

86. Poffenberger, M., McGean, B., Khare, A., et al. 1992. **Field Methods Manual, Volume II. Community Forest Economy and Use Patterns: Participatory Rural Appraisal (PRA) Methods In South Gujarat, India.** New Delhi: Society for Promotion of Wastelands Development.

Notes: This report is the second of a two volume Field Methods Manual developed to support the implementation of a Joint Forest Management (JFM) program. Volume II summarizes the learning from a field training workshop held in Gujarat, India, in 1992. The primary objective of the workshop was to explore the usefulness of participatory rural appraisal (PRA) methods for assessing human-forest interaction patterns. The contents of the workshop report are organized into two main parts: experiences with PRA methods, and three case studies. This is followed by a summary discussion.

87. Poffenberger, M., McGean, B., Ravindranath, N.H., et al. 1992. **Field Methods Manual Vol I: Diagnostic Tools for Supporting Joint Forest Management Systems.** New Delhi: Society for the Promotion of Wastelands Development.

88. Poffenberger, M., Sarin, M. 1995. **Fiber Grass from Forest Land.** Society and Natural Resources 8:219-230.

Abstract: For more than a century in India, rural communities and government forest departments have struggled over the control of forest resources. State bureaucracies have prevailed in circles of law and political power in their attempt to dominate nearly one-quarter of India's land area, but forest villages, because of their traditional rights, number, and proximity, have maintained their position as the principle resource user. This case study provides an example of the new types of co-management systems beginning to evolve in India. Reviewing the experiences of the Haryana Forest Department and rope-making communities, the authors identify points of conflict and compromise emerging as new management agreements are formulated. Points of tension are identified as communities attempt to compete with paper mills and local contractors for grass cutting leases. The authors suggest that the grass leases be part of an integrated watershed management agreement that provides incentives to local communities to enhance the productive and sustainable use of the larger forest ecosystem.

89. Pomeroy, R. 1997. **Community-based Coastal Resource-Management in the Philippines - A Review and Evaluation of Programs and Projects, 1984-1994.** Marine Policy 21(5):445-464.

Abstract: Between 1984 and 1994, a total of 43 Community-Based Coastal Resource Management (CBCRM) programs and projects were implemented throughout the Philippines. This paper presents a review and evaluation of these programs and projects, which provide a wealth of experience and "lessons learned" to guide the design and implementation of CBCRM policy and local-level initiatives, A range of institutions and processes are identified for the implementation of CBCRM, as well as considerations for design and implementation of programs and projects and specific interventions. Policy implications for CBCRM are presented.

90. Pomeroy, R.S. 1995. **Community-based and co-management institutions for sustainable coastal fisheries management in Southeast Asia.** Ocean and Coastal Management 27(3):143-162.

Notes: Examines legal, institutional, and administrative arrangements to facilitate the involvement of fishers and other resource users in decision-making in Southeast Asia, with special reference to the Philippines, Thailand, Malaysia, Indonesia, and Vietnam.

91. Pomeroy, R.S. 1998. **Fisheries Co-Management and Community-Based Management: Lessons Drawn from Asian Experiences.** [Unpublished] Author: R.Pomeroy@cgnet.com or International Association for the Study of Common Property, Indiana University: Bloomington, Indiana.

Abstract: With funding from the Danish International Development Assistance, ICLARM and the Institute of Fisheries Management initiated a five-year, worldwide research project on fisheries co-management in early 1994. The collaboration was based on a mutual interest to gain practical experience in research in fisheries co-management, to demonstrate its applicability as a sustainable, equitable and efficient management strategy, and to determine the prospects and conditions for successful implementation of fisheries co-management. The project has undertaken a range of research activities in 14 countries in Asia and Africa. In Asia, project activities have been undertaken with national partners in the Philippines, Vietnam, Cambodia, Thailand, Malaysia, Indonesia and Bangladesh. These activities have included cases studies of co-management, project impact evaluations, testing of hypotheses related to co-management, country historical reviews, sponsorship of workshops and seminars on co-management, methodology development, government law, policy and institutional analysis, and co-management pilot sites. The research project has utilized a comparative analytical approach, relying on a common research strategy and use of an institutional analysis research framework. The purpose of this paper is to report on the results of this research project in Asia. More specifically, the paper will discuss the prospects for, the processes of, and the conditions and principles for successful implementation of fisheries co-management in Asia. The paper begins with a brief overview of the fisheries co-management project. This is followed by a discussion of the status of fisheries co-management at national government and fisher community levels in the seven project countries. Utilizing the research undertaken by the national partners and ICLARM in each country, a synthesis of the results of this research will be presented focusing on institutional and organizational arrangements. A comparative approach will be taken in the discussion to identify common processes and conditions of co-management in each country and to integrate the results. Finally, lessons and conclusions will be drawn from the overall research on the applicability of fisheries co-management in Asia and conditions and principles for successful implementation of fisheries co-management.

Several important lessons have been learned, or confirmed, by the analysis. Positive cultural attitudes toward the efficacy of collective action were consistently related to perceptions of positive change. The projects' training in organizing and leadership enhanced these attitudes, as reflected in fishers' statements that they now know how to run meetings and get something accomplished. At several of the study sites, community organizers initially encountered either apathy or resistance to the project from the fishers. This was primarily due to government neglect of the community in the past, or people's disenchantment with previous top-down government projects and programs.

Thus, it is imperative for project staff to carefully analyze the prevailing dynamics in the community toward collective action and the project. Needs, attitudes, perceptions, and experiences of people living in the community must be examined early in the project's life.

Capability-building efforts enhance the perception of empowerment and sense of confidence of project cooperators to undertake new tasks and to meet current and future challenges. While many of the material interventions of the projects failed, the fishers reported an increased perception of empowerment from participating in project meetings and training. The meetings and training provided the fishers with information and skills with which to improve the resource, their life and livelihood, and their community. This increased perception of empowerment was found to stay with the fishers after the completion of the project.

User rights to material interventions must be specified and enforced. These user rights —either individual or collective—should address the ownership of the resources, and define the mechanisms (economic, administrative, collective) and the structures required for allocating use rights to optimize use and ensure conservation of resources, and the means and procedures for enforcement. The experiences at the case study sites showed that when user rights are specified and secure (such as with a mangrove certificate of stewardship contract), there is a change in the behavior and attitude of the fisher toward conservation and a much greater chance that the intervention will be maintained. In addition, the case studies showed that government support through legislation, funding, and enforcement is crucial to sustaining the intervention. In most cases, local initiatives require active collaboration with government to enforce user rights. The data indicate that fishers like their occupation and would not necessarily change to another job, suggesting that the development of supplemental, rather than alternative, occupations may be the most effective strategy. These supplemental activities could be spread over a larger number of fishers, reducing rather than eliminating their fishing activity, and probably having a great or greater effect than trying to attract (or force) fishers to some alternative form of employment. Learning more about what fishers like about their occupation as well as characteristics of those who would like to leave the occupation would serve both to facilitate identification of appropriate alternative or supplemental occupations and to target them at the appropriate individuals. Future CBCRM projects should build on the already existing occupational multiplicity of most fishers and fishing households. The interventions are more likely to be sustainable since they would fit into the successful adaptive strategy of occupational multiplicity.

Notes: Paper presented at the Seventh Common Property Conference of the International Association for the Study of Common Property (IASCP) Conference, 10-14 June , 1998, Vancouver, Canada.

92. Pomeroy, R.S., Pido, M. 1998. **Initiatives Towards Fisheries Co-management in the Philippines - The Case Of San-Miguel Bay.** Marine Policy 19(3):213-226.

Abstract: The future success of fisheries management in the Philippines may lie in a form of co-management involving a partnership whereby authority and responsibility for fisheries management is shared between various levels of government and the local fishing community. This paper examines initiatives towards such an arrangement by using the case of San Miguel Bay, a key fishing ground which has been well studied over the last 15 years.

93. Pomeroy, R.S. and Williams, M.J. 1994. **Fisheries Co-Management and Small-scale Fisheries: A Policy Brief.** Manila: ICLARM.

94. Pretty, J.N. 1995. **Regenerating Agriculture: Policies and Practice for Sustainability and Self-Reliance.** London: Earthscan. 320pp.

Abstract: This book draws together for the first time new empirical evidence from a diverse range of agroecological and community settings to show the impacts of more sustainable practices. Twenty cases demonstrating widespread success from Brazil, Burkina Faso, Honduras, India, Indonesia, Kenya, Lesotho, Mali, Mexico, Peru, Philippines and Sri Lanka are presented, and are supported by field and community-level data from more than 50 projects and programmes in 28 countries. Despite this emerging evidence, farmers are still "locked" into modernist approaches to agriculture with their dependency on high levels of external inputs. The basic aim for *Regenerating Agriculture* is to identify the common elements of success and show how to replicate them widely.

95. Pye-Smith, C., Borrinni, G., Sandbrook, R. 1994. **The wealth of communities: stories of success in local environmental management.** London: Earthscan. 224pp.

Abstract: This book tells the stories of ten communities from around the world and their efforts at developing sustainable livelihoods and improving their local environment through community action. The authors discuss the activities and opinions of key individuals and community groups in each community.

Contents- *Calcutta*: the Mudialy Fishermen's Cooperative Society; *Nepal*: Annapurna Conservation Area Project; *Zimbabwe*: CAMPFIRE; *Uganda*: Pallisa Community Development Trust; *Mauritania*: Second Livestock Project; *Krakow*: The Green Federation; *Los Angeles*: WATCHDOG; *Costa Rica*: San Miguel Association for Conservation and Development; *Ecuador*: Licto and Salinas Communities; *The Philippines*: The Hook and Line Fishers' Organization; *Conclusions*: Anything new? What Makes a difference? What next?

96. Ralston, L., Colson, E. 1983. **Voluntary Efforts in Decentralized Management-Opportunities and Constraints in Rural Development.** Berkeley, California, USA.

97. Rambo, T., Gillogly, K., and Hutterer, K.L. 1988. **Ethnic diversity and the control of natural resources in Southeast Asia.** Michigan papers on South and Southeast Asia. No.32. Ann Arbor, Michigan: University of Michigan. 292pp.

98. Regional Community Forestry Training Center & Asia Forest Network. 1995. **Community Forestry Case Study Series.** Berkeley, California, USA.

99. Renard, Y. 1991. **Institutional Challenges for Community-Based Management in the Caribbean.** Nature & Resources 27(4):4-9.

100. Sarin, M. and SARTHI. 1996. **A View from the Ground - Community Perspectives on Joint Forestry Management in Gujarat, India.** Forest Participation Series No.4. London.

101. Saxena, N.C. 1991. **Sustainable Development of Forest Lands and Joint Forest Management in India.** International Journal of Public Administration 39(3):465-472.

102. Scherl, L.M., Cassells D, and Gilmour, D.A. 1994. **Pluralistic Planning - Creating Room for Community Action in the Management of the Global Environment.** Gland, Switzerland: IUCN.

Notes: Presented at the 5th Int'l Symposium on Society and Resource Management.

103. Scherl, L.M., Dight, I.J. 1997. **The International Coral Reef Initiative (ICRI) Global Priorities for the Conservation and Management of Coral Reefs and the Need for Partnerships.** Coral Reefs 16:139-147.

Abstract: The International Coral Reef Initiative (ICRI) is an international partnership, established to reverse the global degradation of coral reefs. In this paper, the ICRI process is outlined and placed within an international policy framework. The outcomes of five regional ICRI workshops are also summarized with respect to threats to coral reefs and needs for their conservation and management. One global priority is to develop and/or establish multi-stakeholder partnerships involving the public and private sectors, NGOs, the scientific community and, in particular, local communities. This reflects growing skepticism that governments alone can bear the responsibility for managing and protecting the environment. The theme of 'partnerships' is then discussed and a framework for their establishment is presented. This is followed by a synthesis of experiences and lessons learned in fostering the involvement of stakeholders in resource management. Finally, it is argued that much of the debate

between 'top-down' versus 'bottom-up' approaches is misplaced and that attention should focus, instead, on the need to link local concerns, needs and actions to the national and international governance structures that have been developed to conserve and manage the global environment.

104. Selin, S.C., Deborah. 1995. **Developing a Collaborative Model for Environmental Planning and Management.** Environmental Management 19(2):189-195.

Abstract: Methods for involving the public in natural resource management are changing as agencies adjust to an increasingly turbulent social and political environment. There is growing interest among managers and scholars in collaborative approaches to public involvement. Collaboration is conceptually defined and elaborated using examples from the natural resource management field. This paper then examines how collaboration theory from the organizational behavior field can help environmental managers to better understand those factors that facilitate and inhibit collaborative solutions to resource problems. A process-oriented model is presented that proposes that collaboration emerges out of an environmental context and then proceeds sequentially through a problem-setting, direction-setting, and structuring phase. Factors constraining collaboration are also specified, including organizational culture and power differentials. Designs for managing collaboration are identified, which include appreciative planning, joint agreements, dialogues, and negotiated settlements. Environmental managers need new skills to manage collaboration within a dynamic social and political environment. Further research is needed to test the propositions outlined here.

105. Sen, S., Nielsen, J.R. 1996. **Fisheries Co-Management: A Comparative Analysis.** Marine Policy 20(5):405-418.

Abstract: The paper is based on a review of 22 case studies on fisheries co-management in small-scale, semi-industrial and industrial fisheries in developing and developed countries in Africa, Asia, the Caribbean, Europe, North America and the Pacific. Case studies are classified according to a typology of co-management arrangements. The typology is based on the nature of the decision- making arrangements between governments and users. Decision- making arrangements refer to the roles of governments and user groups, the management tasks and the stages in the management process. Eleven case studies are analyzed in detail. The analysis shows that co-management covers a wide variety of collaborative arrangements between governments and users. On the basis of the information from these case studies, a number of observations are made concerning the determinants of the type of co-management regime in place. Determinants include the capabilities and aspirations of user groups, the type of approach, the difficulty of the decision to be taken, the type of management tasks, the stage in the management process, boundaries, types of user groups and political culture and social norms. The paper concludes with the issues that require further research.

106. Singh, K. 1994. **Managing Common Pool Resources: Principles and Case Studies.** Delhi: Oxford University Press.

Abstract: This publication combines theoretical and empirical approaches to CPR development and management. Part 1 addresses basic concepts, the role of CPRs, theoretical models for analyzing CPR problems, alternative CPR management systems, instruments of CPR policy, decision-making tools and techniques. Part 2 comprises 9 case studies of different forms of CPR management from various parts of India. Part 3 synthesizes the insights gained from the review of the literature and analytical lessons and conclusions drawn from the case studies into a coherent and environmentally sound policy for development and management of CPRs.

107. Smith, A.H., Fikret Berkes. 1993. **Community-based Use of Managed Resources in St. Lucia.**
International Journal of Environmental Studies 43:123-131.

108. Smith, A.H. and Walters, R. 1991. **Co-management of the White Sea Urchin Resource in St. Lucia (CANARI Communication No.38).**
CANARI Communication No.8. St. Croix, US Virgin Islands: CANARI.

Notes: Presented at IDRC Workshop on Common Property Resources, Winnipeg, Canada.

109. Sriskarajah, N., Fisher, R.J., and Packham, R.G. 1996. **Community Participation in Natural Resource Management: Lessons from Field Experiences.**
Richmond, NSW, Australia.

110. Sunderlin, W.D., Gorospe, M.L. 1997. **Fishers' Organizations and Modes of Co-Management: The Case of San Miguel Bay, Philippines.**
Human Organization 56(3)

111. Thomas, S. 1995. **Share and Share Alike? Equity in CAMPFIRE.**
IIED Wildlife and Development Series No.2. London: IIED.

112. Thomas, S. 1995. **The Legacy of Dualism in Decision-making within CAMPFIRE.** IIED Wildlife and Development Series No.4. London: IIED.

113. Uphoff, N. 1996. **Learning from Gal Oya: Possibilities for Participatory Development and Post-Newtonian Social Science.**
London: Intermediate Technology Publications. 464pp.

Notes: This is a revised edition of the book that recounts the remarkably successful experiment that introduced farmer organization for self-managed development in the largest and most run-down conflict-ridden irrigation system in Sri Lanka and now updates the story to record the author's picture of Gal Oya in 1996. Gal Oya, initially

considered one of the least desirable areas in the country, became one of the most progressive and peaceful during the 1980s. People reshaped their working and living conditions and accomplished changes no one previously thought possible. In an unusual combination of description and analysis Norman Uphoff seeks to interpret the Gal Oya project and draws far reaching conclusions for participatory development and contemporary social science. He documents and analyzes the remarkable progress made by farmers, community organizers, officials, researchers and finally policy makers, iteratively forging progressive changes in the midst of ethnic and political strife. The improvement achieved through farmer initiatives in Gal Oya provided impetus and ideas for making participatory irrigation management national policy for all major schemes in the country. Ten years after outside assistance was withdrawn, the organizations continue their effective management and commitment to equitable outcomes.

114. Vandergeest, P. 1996. **Property-Rights in Protected Areas - Obstacles to Community Involvement as a Solution in Thailand.** Environmental Conservation 23(3):259-268.

Abstract: Conflicts between local people and managers of protected areas (PAs) have often undermined conservation goals in Asia. Since the 1970s, conservation planners have tried to address these problems by incorporating rural development into PA planning. More recently, many conservationists have argued for increasing community involvement in PA management, and for allowing traditional resource uses inside PAs. Based on research in Thailand I make three arguments regarding obstacles to implementing the new approach. In Thailand, laws governing Wildlife Sanctuaries and National Parks enacted in the early 1960s were premised on the idea that human use and nature preservation were incompatible. Rapid expansion of these PAs in recent years has produced endemic conflict with rural people claiming resources inside PAs. To address this problem, the Thai Royal Forestry Department has cooperated with NGOs providing development assistance to rural people living in buffer zones outside of some PAs. I argue that this approach has met limited success because the main source of conflict is not poverty but claims on resources inside PAs. The second argument is that the Forestry Department has resisted changes to laws making local use inside PAs illegal because these laws are important for consolidating the Department's control over territory and in justifying increasing budgetary allocations. In addition, by redefining itself as an organization devoted to strict defense of forests, the Department has obtained the support of many urban environmentalists. The third argument is that the community forest approach taken by a recent draft Community Forest Bill is an important first step in that it implicitly recognizes community property. At the same time, this approach will also fail to address key problems because it is based on a notion of the traditional village, and does not allow for the commercial nature of rural forest use or the household-based nature of forest tenure.

115. Varalakshmi, V. and Rohini Vijh & Sham Sunder Arora. 1993. **Constraints in the Implementation of Joint Participatory Forest Management Programme-Some Lessons from Haryana.** New Delhi.

116. Warner, G. 1997. **Participatory Management, Popular Knowledge, and Community Empowerment - The Case of Sea-urchin Harvesting in the Vieux-fort Area of St-Lucia.** Human Ecology 25(1):29-46.

Abstract: Participatory management approaches are increasingly recognized as an effective strategy for enabling the sustainable use of natural resources. The southeast coast of St. Lucia is one of the sites where a particular form of participatory management, a co-management regime, was recently developed to control the sea urchin fishery. The Caribbean Natural Resources Institute (CANARI) an NGO based in Vieux-Fort, St. Lucia, played a key role in the development of this co-management arrangement. This case study of the sea urchin fishery in Vieux-Fort examines the extent of the devolution of authority to locally-based sea urchin harvesters, explores the potential contribution of local knowledge to the understanding of sea urchin behavior and points to elements of a strategy aimed at strengthening the organizational capacity of the core group of sea urchin harvesters. The study addresses both present practice and future possibilities in response to concrete questions raised by participants in the study.

117. Wily, L. 1993. **Community-Based Approach to Forest Management with Integrated Information Collection.** P O Box 68228 Nairobi, Kenya: Liz Wily.

118. Wily, L. 1994. **Helping Villagers Manage Their Own Forests: Guidelines for Action.** P O Box 68228 Nairobi, Kenya: Liz Wily.

119. Wily, L. 1995. **Moving Forward in African Community Forestry: Establishing the First Village-Owned & Managed Forest Reserves. Duru-Haitemba, Tanzania.** P O Box 68228 Nairobi, Kenya: Liz Wily.

120. World Wide Fund for Nature (WWF). 1994. **Community-Based Planning for Wetland Conservation: Lessons from the Ucchali Complex in Pakistan** (Report on the PRA Training Workshop Held in Ucchali Complex, Pakistan). Gland, Switzerland: WWF.

121. Zerner, C. 1994. **Through a Green Lens: The Construction of Customary Environmental Law and Community in Indonesia's Maluku Islands.** Law and Society Review 28(5):1079-1122.

Abstract: In the Maluku Islands of Eastern Indonesia, a center of global diversity in coral reef systems and the historic center of trade in cloves and other spices, tenure practices known as *sasi* have flourished for at least a century. This article analyzes changes in the ways Dutch colonial officials, Indonesian government officials, and environmental NGOs have interpreted Moluccan customary law and local institutions.

Dutch colonial accounts of *sasi*, a generic name for a historic family of institutions, laws, and ritual practices that regulated access to fields, reefs, and rivers, suggest that *sasi* was a synthetic, highly variable body of practices linked to religious beliefs and local cultural ideas of nature. During the past two decades, as international and national conservation discourses have proliferated and a movement has developed to support indigenous Indonesian cultural communities, Indonesian NGOs and the Ministry of the Environment have promoted, and largely created, images of *sasi* as an environmental institution and body of customary law promoting sustainable development, conservation, and social equity. This article focuses on how *sasi* has been continuously reinterpreted by a variety of actors, following the trajectory of changing institutional interests and images.

This section lists edited volumes (ordered by date ascending)

1. McNeeley, J.A. and Pitt, D. eds. 1985. **Culture and Conservation: The Human Dimension in Environmental Planning.** London: Helm.

2. Cernea, M. ed. 1985. **Putting people first: sociological variables in rural development.** New York: Oxford university Press. 430pp.

Notes: A volume of 13 Chapters arguing the basic tenet that people must be considered first in any developmental project. The chapter breakdown is as follows:
(1) Michael M. Cernea- *Sociological Knowledge for Development Projects* discusses the development project as a framework for sociological endeavor, notes entrance points for sociological knowledge in rural development projects, and proposes ways in which sociological procedures can be organically integrated into development work.
(2) E. Walter Coward, Jr.- *Technical and Social Change in Currently Irrigated Regions: Rules, Roles, and Rehabilitation* argues that the sociology of irrigation must include sociological and organizational analysis, emphasizing the cultural factors, social structure, and processes by which irrigation-related tasks are given form. An analytical scheme of irrigation tasks is elaborated and illustrated in a sociological field study of irrigation in the Philippines. (3) Benjamin U. Bagadion and Frances F. Korten- *Developing Irrigators' Organizations: A Learning Process Approach.* (4) David M. Freeman and Max L. Lowdermilk- *Middle-Level Organizational Linkages in Irrigation Projects* analyzes the problem of irrigation water control and develops a method for sociological investigation of the interface between the central organization and local farmers in order to identify key variables affecting control of irrigation water, based on fieldwork in Asian countries. (5) Thayer Scudder- *A Sociological Framework for the Analysis of New Land Settlements* demonstrates the relevance of a wider social science perspective in realizing the development potential of new land settlement, based on field experience with sponsored and spontaneous settlement, and presents a dynamic model of the settlement process. (6) Neville Dyson-Hudson- *Pastoral*

Production Systems and Livestock Development Projects: An East African Perspective assesses the Kenya First Livestock Development Project and identifies the social organizational factors that must be considered if designed interventions are to be compatible with the basic structural principles of existing social systems in East Africa. Several ways in which anthropological knowledge of cultural variables could improve livestock development projects are noted. (7) Richard B. Pollnac- *Social and Cultural Characteristics in Small- Scale Fishery Development* distinguishes the sociocultural characteristics of capture fishery and aquaculture, outlines the structure of the small-scale fishery development process, and argues that knowledge of sociocultural factors as a resource for development can inspire the social engineering of development efforts so that they fit the fishermen's social and cultural systems. (8) Raymond Noronha and John S. Spears- *Sociological Variables in Forestry Project Design* deals with the issues of user-oriented social forestry (e.g., projects that serve local needs through the active involvement of beneficiaries), identifies key social variables in forestry projects, and suggests how sociological information can be translated into project design. (9) Michael M. Cernea- *Alternative Units of Social Organization Sustaining Afforestation Strategies* outlines the sociostructural variables (e.g., land tenure systems and group organization patterns) involved in social forestry programs, focusing on a case study of an afforestation program in Pakistan to show how misperception of the land tenure system and social stratification led to the project's failure. (10) Cynthia C. Cook- *Social Analysis in Rural Road Projects* advocates making social analysis an integral part of the planning and implementation of rural road projects, defines the major sociocultural factors relevant to rural road building, and suggests sociological training for the technical experts on the design team. (11) Conrad Phillip Kottak- *When People Don't Come First: Some Sociological Lessons from Completed Projects* assesses the value of social analysis based on post-evaluation findings of several completed projects and finds that the average economic rate of return for projects judged as incorporating adequate sociocultural analysis was more than double that for projects judged inadequate from a sociological standpoint. (12) Norman Uphoff- *Fitting Projects to People*. (13) Robert Chambers- *Shortcut Methods of Gathering Social Information for Rural Development Projects* proposes a set of operational procedures to carry out "rapid rural appraisal" (RRA), which tries to uncover practically relevant, accurate sociocultural information in a short time. The RRA repertoire includes use of existing sociological information and utilizing the rural people themselves as a resource.

3. Korten, D.C. ed. 1986. **Community Management: Asian Experience and Perspectives.** West Hartford: Kumarian Press. 328pp.

4. Berkes, F. ed. 1989. **Common Property Resources: Ecology and Community-based Sustainable Development.** London: Bellhaven Press. 302pp.

Abstract: This collection of 16 essays surveys the role and importance of natural resources held in common ownership and the issues raised by their conservation as a key element of sustainable development. The introduction of this book provides a very useful overview of the various definitions and concepts associated with common property systems. The book is divided into four parts respectively entitled: Perspectives on the Commons Debate (4 chapters); Critique of Conventional Resource Management Science (4 chapters); Single Resource Case Studies (4 chapters); Multiple Resource Cases and Integrated Development (3 chapters). Three chapters focus on fisheries issues; three on land and wildlife, one on water and four with mixed resource issues. There is a mix of cases from both developed and developing countries.

5. Borrini, G. ed. 1991. **Lessons Learned in Community-based Environmental Management: Proceedings of the Primary Environmental Care Workshop, Siena Italy, 29 January - 2 February 1990.** Rome, Italy: International Course for Primary Health Care Managers at District Level in Developing Countries (ICHM). 246pp.

6. Bromley, D. ed. 1992. **Making the Commons Work: Theory, Practice and Policy.** San Francisco: Institute for Contemporary Studies. 339pp.

Notes: This edited volume of essays on common property resource management argues against the "Tragedy of the Commons" thesis which stresses that individuals will inevitably destroy common property out of self-interest. The editor and the contributors to this volume argue that the "tragedy" does not always result particularly in situations where common pool resources are controlled and protected collectively, often by local groups who manage the resource in such a way so as to exclude "free riders". Many of the cases in this book provide evidence of this. Included in this volume is the Oakerson framework for analyzing the commons and eight detailed case studies, many applying the Oakerson framework, including: a comparison of natural resource management in Niger and Thailand, customary collective ownership by poor fisherman of sea tenure rights in Brazil and examples from Tamil Nadu of situations where there are no effective local management institutions. The book closes with a synthesizing chapter by Elinor Ostrom on why local organizations work.

7. Rao Y.S., Hoskins M.W., Vergara N. et al. Eds. 1992. **Community Forestry: Lessons from Case Studies in Asia and the Pacific Region.** Bangkok and Honolulu: FAO and East-West Center.

8. Fox, J. ed. 1993. **Legal Frameworks for Forest Management in Asia: Case Studies of Community/State** Relations. No.16. Honolulu: East-West Centre. 200pp.

9. Pomeroy, R.S. ed. 1994. **Community Management and Common Property of Coastal Fisheries in Asia and the Pacific: Concepts, Methods and Experiences.** Manila, Philippines: International Centre for Living Aquatic Resources Management. 189pp.

Notes: This publication provides the proceedings of the *Workshop on Community Management and Common Property of Coastal Fisheries and Upland Resources in Asia and the Pacific: Concepts, Methods and Experiences,* Silang, Cavite 21-23 June 1993.

10. Western, D., Wright, R.M., and Strum S.C. eds. 1994. **Natural Connections: Perspectives in Community Based Conservation.** Washington D.C. Island Press. 581pp.

Abstract: This collection of writings focuses on rural societies and the conservation of biodiversity in rural areas. It represents the first systematic analysis of locally-based efforts, and includes a comprehensive examination of cases from around the world where the community-based approach is used. The book provides: an overview of community-based conservation in the context of the debate over sustainable development, poverty, and environmental decline; case studies from the developed and developing worlds—Indonesia, Peru, Australia, Zimbabwe, Costa Rica, the United Kingdom—that present detailed examples of the locally-based approach to conservation; a review of the principal issues arising from community-based programs; and an agenda for future action.

Contents: The background to community-based conservation (Western and Wright); Ecosystem conservation and rural development: the case of Amboselli (Western); The resurgence of community forest management in Eastern India (Poffenberger); Transforming customary law and coastal management practices in the Maluka Islands, Indonesia, 1870-1992 (Zerner); Managing wildlife with local communities in the Peruvian Amazon: the case of the Reserva Communal Tamshiyacu-Tahuayo (Bodmer); Kakadu National Park: an Australian experience in co-management (Hill and Press); The Zimbabwe Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) (Metcalfe); Local initiatives and the rewards for biodiversity conservation: Crater Mountain Wildlife Management Area, Papua New Guinea (Pearl); BOSCOSA: forest conservation and management through local institutions (Donovan); Profile of national policy: natural forest management in Niger (Otto and Elbow); A profile and interim assessment of the Annapurna Conservation Area Project (Wells); The farm

scheme of North York Moors National Park, United Kingdom (Statham); Community-based approaches to wildlife conservation in neotropical forests (Robinson and Redford); Cultural traditions and community-based conservation (Kleymeyer); The link between local participation and improved conservation: a review of issues and experiences; Tenurial rights and community-based conservation (Lynch and Alcorn); Community environmental action: the national policy context (Feldmann); The role of institutions in community-based conservation (Murphee); Economic dimensions of community-based conservation (Bromley); Ecological limits and opportunities for community-based conservation (Salafsky); Are successful community-based conservation projects designed or discovered? (Seymour); Linking conservation and community aspirations (Western); Lesson learned (Strum); Recommendations (Wright); A few big challenges (Western et al); Visions of the future: the new focus of conservation (Western).

11. White, A.T., Hale, L.Z., Renard, Y. et al. Eds. 1994. **Collaborative and Community-Based Management of Coral Reefs: Lessons from Experience.** West Hartford, Connecticut: Kumarian Press.

12. Singh, N. and Ham, L. eds. 1995. **Community-based resources management and sustainable livelihoods : the grass-roots of sustainable development.** Winnipeg, Manitoba: International Institute of Sustainable Development.

Contents: Community-based resources management and sustainable livelihoods : the grass-roots of sustainable development (Naresh, Ham); Watershed community development -planning for sustainable livelihoods (Oborne); Sustainable livelihoods and the Manitoba Model Forest - a top down initiative to foster bottom-up sustainable resource management at the regional level (Miller); Changing property rights and the pastoral livelihood in the Kulu Valley, Himalayas, Northwest India (Davidson-Hunt); Managing the commons for sustainable livelihoods - the contract system in rural China (Zhang); Restoring sustainable livelihoods in Lesotho (Letsela); Traditional knowledge as an adaptive strategy for sustainable livelihoods among the Western James Bay Cree (Ohmagari); NGO and community partnerships in support of sustainable livelihoods - notes on rural development in and around Cagayan de Oro, the Philippines (Kucey).

13. Cuc, L.T., Rambo, A.T., Reed, R.R. et al. Eds. 1995. **The Challenges of Highland Development in Vietnam.** Honolulu: East-West Centre. 212pp.

14. McNeely, J.A. ed. 1995. **Expanding Partnerships in Conservation.** Washington, DC: Island Press.

15. Poffenberger M. and McGean B. eds. 1996. **Village Voices, Forest Choices: Joint Forest Management in India.** Delhi: Oxford University Press.

Abstract: This publication offers a comprehensive examination of Joint forest management in India.

16. Ferrer, E.M., de la Cruz, L., and Domingo, M. eds. 1996. **Seeds of Hope: A Collection of Case Studies on Community-Based Coastal Resources Management in the Philippines.** Quezon City, Philippines: College of Social Work and Community Development (CSWCD), University of the Philippines and NGO Technical Working Group for Fisheries Reform and Advocacy (NGO TWG).

17. Howitt, R., Connell, J., and Hirsch, P. eds. 1996. **Resources, Nations and Indigenous Peoples: Case Studies from Australasia, Melanesia and Southeast Asia.** Oxford: Oxford University Press. 321pp.

18. Shivakoti G., Varughese G., Ostrom E. et al. Eds. 1997. **People and Participation in Sustainable Development: Understanding the Dynamics of Natural Resource Systems.** Bloomington, Indiana, USA: Workshop in Political Theory and Policy Analysis. 317pp.

Notes: Proceedings of an International Conference held at the Institute of Agriculture and Animal Science, Rampur, Chitwan, Nepal, 17-21 March 1996.

19. **Community-Based Sustainable Development: Consensus or Conflict?** IDS Bulletin - Institute of Development Studies 1997. 28(4):

Abstract: This volume of the IDS bulletin seeks to offer some reflections on the practice of community-based sustainable development and questions basic assumptions concerning the existence of homogenous, consensual "communities", the existence of stable, universally-valued environments and of the potentially harmonious relationship between these. The nine articles in this volume suggest that conflict rather than consensus may be the key defining feature of community-based approaches. This requires an appreciation of social and ecological difference, and of differential perspectives on and command over environmental goods and services. The first three articles provide a conceptual framework as well as some "tools" of practical methods which can assist in moving towards a more differentiated, dynamic understanding of people/environment relationships. The article also addresses the important questions of who might use such methods and why, how research and action might be linked, and the roles and political identity of external researchers in the context of community-based sustainable development. The conceptual and methodological overview is illustrated by 6 case studies (each a separate article) of specific local community-based natural resource management experiences.

20. Cuc, L.T., Vien, T.D., Rambo, A.T. et al. Eds. 1997. **Development Trends in Vietnam's Northern Mountain Region - Volume 1: An Overview and Analysis, 110 pp. Volume 2: Case Studies and Lessons from Asia, 230 pp.** Hanoi: National Political Publishing House. 230pp.

21. Devendra, C. and Thompson, C. eds. 1998. **Community-Based Natural Resource Management: Papers Presented at an International Development Research Centre (IDRC) Workshop (10-14 May, 1997).** Ottawa, Canada: IDRC.

22. Berkes F. and Folke C. eds. 1998. **Linking social and ecological systems: management practices and social mechanisms for building resilience.** Cambridge: Cambridge University Press. 459pp.

Abstract: Resulting from a subproject of "Property Rights and the Performance of Natural Resource Systems", a research program of The Beijer Institute, this book analyzes social and ecological linkages in selected ecosystems using an international and interdisciplinary case-study approach.

Contents: (1) Linking social and ecological systems for resilience and sustainability, F.Berkes and C. Folke; PART I LEARNING FROM LOCALLY DEVISED SYSTEMS (2) People, refugia and resilience, M.Gadgil, N. S. Hemam and B. M. Reddy; (3) Learning by fishing: practical engagement and environmental concerns, G. Palsson; (4) Dalecarlia in Central Sweden before 1800: A society of social and ecological resilience, U. Sporrong; PART II EMERGENCE OF RESOURCE MANAGEMENT ADAPTATIONS (5) Learning to design resilient resource management: Indigenous systems in the Canadian subarctic, F. Berkes; (6) Resilience and neotraditional populations: the caiçaras of the Atlantic forest and caboclos of the Amazon (Brazil), A. Begossi; (7) Indigenous African resource management of a tropical rain forest ecosystem: A case study of the Yoruba of Ara, Nigeria, D. M. Warren and J. Pinkson; (8) Managing for human and ecological context in the Maine soft shell clam fishery, S. Hanna; PART III SUCCESS AND FAILURE IN REGIONAL SYSTEMS (9) Resilient resource management in Mexico's forest ecosystems: the contribution of property rights, J. B. Alcorn and V. M. Toledo; (10) The resilience of pastoral herding in Sahelian Africa, M. Niamir-Fuller; (11) Reviving the social system-ecosystem links in the Himalayas, N. S. Jodha; (12) Crossing the threshold of ecosystem resilience: the commercial extinction of northern cod, A. C. Finlayson and B. J. McCay. PART IV DESIGNING NEW APPROACHES TO MANAGEMENT (13) Science, sustainability and resource management, C.S. Holling, F. Berkes and C. Folke; (14) Integrated management of a temperate montane forest ecosystem through holistic forestry: A British Columbia example, E. Pinkerton; (15) Managing chaotic fisheries, J. M. Acheson, J. A. Wilson and R. S. Steneck; (16) Social mechanisms and institutional learning for resilience and sustainability, C. Folke, F. Berkes and J. Colding.

D. Obtaining Documents Listed in the Bibliography

IDRC Document Delivery Service

The IDRC library offers a document delivery service to all Centre-funded projects. Any project staff member may request, from the IDRC library, copies of journal articles or excerpts from books free of charge. The IDRC library will send these documents to the project via regular mail. Please note that whole books cannot be copied or loaned and only one copy of any journal article can be provided per project.

Procedure

Send a request via e-mail, fax or regular mail (address below) to Madeleine Audet. The request must include a minimum of information in order to be processed.

For a Journal Article please include: Author, Title, Date, Journal Name, Volume, Issue and Pages.
For a Book Chapter, please include: Author, Title, Date, Publisher and Pages

As well, you will need to identify the name and number of your IDRC project and your institution. In order to simplify this process an order form has been attached below. You may wish to print this off and use it when ordering by fax or regular mail or complete it in electronic format and attach it to an e-mail message.

Please note that as an IDRC project recipient you are entitled to this service for any journal article or book chapter that you wish—not just those listed in the resource kit.

Using the form provided on the following page, please direct reference requests to:

Madeleine Audet
Research Information Management Service (RIMS)
IDRC
PO Box 8500
Ottawa, ON
Canada K1G 3H9

Telephone: (613) 236-6163 ext 2257
Fax: (613) 238-7230
e-mail: maudet@idrc.ca (cc your message to cthompson@idrc.ca)

CBNRM Journal Article Request Form

Please use this form to indicate those journal articles and book chapters you would like to have IDRC copy and deliver to you. It may take up to 4 - 6 weeks for delivery from the date we receive your request.

Your Name: _____

Project Title/Number: _____

Institution: _____

Project Leader: _____

Mailing Address: _____

_____

No.	Journal Article or Book Chapter (please include author, title, date, journal name, volume, issue and pages)

E. Websites and Electronic Information

This section presents selected websites and mailing-lists related to CBNRM research that offer useful resources for researchers.

Websites

1. NRM Changelinks

http://nrm.massey.ac.nz/changelinks/

This site provides an excellent, comprehensive on-line guide for natural resource managers and others working to help communities identify and adopt more sustainable natural resource management practices. Links and on-site material provide approaches, information and theory in related fields such as sustainable development, adaptive management, collaborative learning , facilitation, conflict resolution, information management and internet use. How these fields interlink in practice is also illustrated. Other pages provide information on conferences, discussion groups and job opportunities in the fields of environment and development.

2. Coastal Resources Research Network (CoRR)

http://www.dal.ca/corr/index.html

The Coastal Resources Research Network (CoRR) supports researchers in developing countries in their efforts to research and promote Community Based Coastal Resources Management (CBCRM). The Network is based at Dalhousie University, is funded by the International Development Research Centre (IDRC, Canada) and is primarily working with partners in South East Asia. The WWW site includes CoRR`s newsletter *Out of the Shell,* which covers a number of key topics including indigenous knowledge. For past issues, table of contents are posted with article titles and authors' names. Starting with Volume 6 number 2 (1998), all articles are posted in full.

3. Forests, Trees and People Programme & Network

http://www-trees.slu.se/

This Web site is part of the Forests, Trees and People Programme's networking activities. The Network is designed to share information about improved methods of planning and strengthening community forestry activities and about on-going or planned initiatives of potential interest to its members. The Forests, Trees and People

Newsletter, which forms part of the Programme's networking activities, is a quarterly publication distributed to field projects, institutions, organizations and individuals interested in and/or working with community forestry activities. The newsletter contains articles on subjects relevant to community forestry activities (based on field reports and research findings) as well as book reviews and a section on information, activities, events and courses of interest to network members. Several issues are now available on this website and future issues will be included when they become available. Members receive the newsletter free of charge (this may change). For further information on becoming a member and receiving the newsletter, send inquiries to the Programme's contact nearest you.

For members in South Asia (India, Nepal, Bangladesh, Sri Lanka, Pakistan):

WATCH
G.P.O. Box 5723
Baneshor, Kathmandu, NEPAL
E-mail: watchftp@wlink.com.np
Fax: 977-1-473224

For members in the rest of Asia and the Pacific region:

Regional Community Forestry Training Center
Kasetsart University
P O Box 1111
Bangkok 10903, THAILAND
E-mail: corveer@mozart.inet.co.th
Fax: 66-2-5614880

N.B. In the past, membership has been available ***free of charge*** to developing country institutions and individuals.

4. Rural Development Forestry Network

http://www.oneworld.org/odi/rdfn/rdfn.html

The Rural Development Forestry Network focuses on the socio-economic, environmental and developmental aspects of the relationship between people and forest resources, ranging from moist tropical forests to dry woodlands and trees on farms. It provides a forum for exchange between policy-makers, practitioners and researchers working in the forestry field and has, therefore, interacted mainly with those working in the context of tropical forestry projects, action research and in-country line-management institutions. The Network aims to facilitate South-South sharing of experience but is also a mechanism by which experience from the South can be used

to inform understanding and policy-formulation in the North. Currently the Network links about 2,300 members in over 100 countries. At least 70% of individual networkers are based in the developing world. While most networkers are foresters, a wide range of other natural and social scientists are also members.

Membership Details: There is ***no charge*** to those accepted for membership, but members are requested to send their own publications in exchange. The network`s priority is to offer membership to foresters and professionals working in related disciplines in developing countries. Twice a year Network members receive a newsletter and a set of 4-5 network papers on a particular theme. Periodic consultations with all Network members help to set the agenda of topics to be covered in the next few issues, a process which is also continued through correspondence and meetings. A list of past Network Papers is available. Every two years members also receive a Register of Members and a Bibliography of ODI Library accessions on forestry, including a large volume of grey literature sent in by Network members.
For further information and to enroll as member of the network, contact:

The Network Secretary
Rural Development Forestry Network
Overseas Development Institute
Portland House, Stag Place
London SW1E 5DP, UK
Telephone: +44 (0) 171 393 1600
Fax: 0171 393 1699
Email: forestry@odi.org.uk

5. International Institute for Environment and Development (IIED)

http://www.iied.org/

IIED`s principal aim is to improve the management of natural resources so that communities and countries of the South can improve living standards without jeopardising their resource base. Its work is undertaken with, or on behalf of governments and international agencies, the academic community, foundations and groups and the people they represent. The website provides information on IIED`s seven programmes and associated research activities: Environmental Planning and Management; Human Settlements; Sustainable Agriculture; Forestry and Land Use; Drylands; Environmental Economics; and a European Programme. From the website users can link to the IIED Resource Centre, a unique service for those seeking practical information and support on all aspects of research on participatory methodologies, community wildlife management, environmental planning, profiles and

strategies with a particular focus on their application and integration into institutional structures. The website also has a list of IIED publications and, especially interesting, an updated page on `grey` literature which can be downloaded. IIED publishes the journal *PLA Notes* (Participatory Learning and Action), formerly *RRA Notes*, which is free to people from developing countries.

6. Intergovernmental Oceanographic Commission

http://ioc.unesco.org/iocweb/

This website is hosted by the Intergovernmental Oceanographic Commission of UNESCO. It includes the International Marine Science newsletter, a global directory of Marine and Freshwater professionals, an updated list of meetings and events on ocean subjects, lists of publications with a guide to ordering them or downloading them, a list of IOC programmes and activities, data and information and many useful links to other websites.

7. Environment and Development in Coastal Regions and in Small Islands (CSI)

http://www.unesco.org/csi/

UNESCO`s Environment and Development in Coastal Regions and in Small Islands (CSI) has a web page which includes a list of activities (projects and programs) and a list of on-line publications.

8. The Agricultural Research and Extension Network

http://www.oneworld.org/odi/agren/index.html

The Agricultural Research and Extension Network (AgREN) hosted by the Overseas Development Institute (ODI) in the United Kingdom was established in the mid-1980s to link policy-makers, practitioners and researchers in the agriculture sector of developing countries. AgREN was founded on a strong belief in the importance of information exchange and learning from both positive and negative experience. It aims to provide its members with up-to-date information and the opportunity to maintain a dialogue with others who have similar professional interests. Recent areas of focus have been highly relevant to CBNRM research including: Agricultural Extension Reform; Monitoring and Evaluation of Participatory Research; Farmers Organisations; Seed Supply and Regulation; Participatory Planning; Resource Conflicts; and Watershed Development. The network is linked to the broader research of the ODI's Rural Policy and Environment Group. The programme generates research-based policy advice on ways of increasing the effectiveness, efficiency and accountability of rural resource

management and agricultural service delivery. AgREN Members: AgREN currently has around 900 members in more than 100 countries. Over 60% of members are based in developing countries. Members come from: international and national aid agencies; national governments in developing countries; university and research institutes; non-governmental organisations, and the private sector. Membership Details: ***Membership is free to individuals and organisations living in the South*** and to documentation centres and libraries worldwide. North-based members pay a membership charge which is currently £15 p.a. Full details of membership and payment will be sent to you on request .

Benefits of Membership: Network members receive the following:

- *Twice a year* : a Newsletter; a set of Network Papers treating one or more themes in the focus area.
- *Annually*: a list of ODI Library accessions in the focus area, including material sent in by Network members
- *Bi-annually*: a register of Members, giving contact details and professional interests of all members, intended to facilitate direct contact among members.

AgREN E-mail Conference: This electronic network was established early in 1996 to help increase the degree of interaction among AgREN members. 'Discussion' within the conference is structured around the issues raised in the most recent set of Network papers received by members. It enables members to comment on previous papers, contribute their own experiences and advance the discussion in key areas. The proceedings of the conference are summarised in the subsequent AgREN Newsletter for the benefit of those who do not have access to electronic communication systems.

If you are interested in joining the conference, send an e-mail to:
agnet-request@odi.org.uk

For further information and to join the network, contact:
Email: agren@odi.org.uk
Telephone: +44 (0)171 393 1600
Fax: +44 (0)171 393 1699
Agricultural Research and Extension Network
Overseas Development Institute
Portland House, Stag Place
London SW1E 5DP
United Kingdom

9. International Association for the Study of Common Property (IASCP)

http://www.indiana.edu/~iascp/

The International Association for the Study of Common Property (IASCP), founded in 1989, is a nonprofit Association devoted to understanding and improving institutions for the management of environmental resources that are (or could be) held or used collectively by communities in developing or developed countries. The website includes IASCP's mission statement, announcements by IASCP members, conferences, and a brief description of IASCAP's quarterly publication *The Common Property Resource Digest* which features articles, the CPR Forum (Commentaries and responses on CPR issues), Book Reviews, Bibliographies, Announcements, and Letters to the Editor. The Digest is available to members only and is not available on-line. The site also features the CPR Virtual Library of Common Pool Resources, an excellent resource available to both members and non-members which contains searchable bibliographies, conference abstracts, a listing of CPR-related articles and books available for free on-line, and useful links.

For further information and to become a member:

Indiana University, Workshop in Political Theory and Policy Analysis
Woodburn Hall 220, Bloomington, IN 47405-6001 USA
Phone: 1-812-855-9297
Fax: 855-2027
E-mail: iascp@indiana.edu

10. ELDIS: the Electronic Development and Environment Information System

http://www.ids.ac.uk/ELDIS/eldis.html

This is a uniquely internet-based service. ELDIS is a "gateway to information sources on development and the environment available free via the internet. It provides an ever increasing number of descriptions and links to a variety of information sources, including WWW and gopher sites, databases, library catalogues, bibliographies, and e-mail discussion lists, research project information, map and newspaper collections. Where there is no Internet link available, other information on the availability of databases, CD ROMS, etc. is given. For relevance to CBNRM, this is one of the most useful sites currently available.

Mailing Lists

11. Environment Conflict Mediation

e-mail: Listserv@clemson.edu

Subscription Information: Send mail to above address with the command SUBSCRIBE ENVIRONMENT_CONFLICT_MEDIATION-L.

12. Community Forest Management and Joint Forest Management (CFM-JFM)

e-mail: majordomo@slu.se

The Forests, Trees and People Programme (FTPP) network administers the CFM-JFM list, which has been set up to discuss issues related to forest management and ownership. The first case for discussion is the proposed Joint Venture project in Bara forest Nepal. Background information and initial discussion can be viewed here. Through these discussions, the organizers hope to: gain a clearer understanding of the conflicting perspectives and expectations of the project; explore the underlying assumptions informing these different perspectives; look for alternative approaches that will allow the various stakeholders to play complementary roles in contributing to sustainable forest management in Nepal. To subscribe to this list, send an e-mail message to the above address. Leave subject line blank and write: 'subscribe list-name [Your e-mail address]' (without quotes or square parentheses) in your message; eg. subscribe cfm-jfm jdoe@iisdpost.iisd.ca

13. SUSTAG-L Sustainable Agriculture

e-mail: listproc@listproc.wsu.edu

SUSTAG-L is a moderated discussion group whose purpose is to provide a forum for calm and courteous discussion of the scientific, economic, social, and spiritual principles needed as a basis for sustainable agricultural systems. Conference and journal papers on closely related topics can also be submitted for circulation to the subscribers. To subscribe to this list, send an e-mail message to the above address. Leave subject line blank and write: 'subscribe list-name [Your Name]' (without quotes or square parentheses) in your message; eg. subscribe sustag-l jane doe

14. SANET-MG Sustainable Agriculture Network

e-mail: almanac@ces.ncsu.edu

The purpose of Sanet-mg is to share ideas and information about networking sustainable agriculture information. The list also includes recent issues of APIS; Sustainable Agriculture News; PANUPS, the newsletter from the Pesticide Action Network; the AOSA Network Electronic Digest; and a list of AFSIC publications. To subscribe to this list, send an e-mail message to the above address. Leave subject line blank and write: 'subscribe list-name' (without quotes or square parentheses) in your message; eg. subscribe sustag-l jane doe

15. DEVEL-L Technology Transfer in International Development

e-mail: listserv@american.edu

Administered by Volunteers in Technical Assistance (VITA), this list covers a wide range of issues and topics related to technology transfer in international development. Relevant topics include: specific technologies, computers and communications in development, sustainable agriculture, women in development, the environment, small enterprise development, meeting announcements, book reviews, development questions and answers, personal experiences, and observations. Subscribers will also receive VITA's monthly electronic newsletter, DevelopNet News. DevelopNet News provides news and views on technology transfer for international development. Subscription to DevelopNet News is available separate from the discussion list (see DNN-L). To subscribe to this list, send an e-mail message to the address above. Leave subject line blank and write: 'subscribe DEVEL-L [Your Name]' (without quotes or square parentheses) in your message; eg. subscribe sustag-l jane doe

NOTES