Participatory Research for Community-Based Natural Resource Management in Asia

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ABSTRACT

A key question for rural poverty alleviation in Asia is how to improve livelihoods for the most marginal elements of the rural population. These groups, in the poorest countries of the region or in remote areas of low- and middle-income countries, are most often dependent on a degrading natural resource base for their increasingly vulnerable livelihoods. Typically, the agro-ecological conditions in these areas mitigate against intensive production systems due to such factors as low-quality soils, high slopes, limited access to inputs or markets, and extremely diverse and site-specific conditions (e.g. uplands or remote coastal communities). In addition, the most productive interventions in such areas are dependent on complex linkages between ecological systems (e.g. multiple uses of forests and watersheds in the uplands; estuaries on the coast) where various resources are subject to conflicting claims by local communities and outsiders. Local livelihoods in such conditions are highly diverse, and many resource exploitation practices (agriculture, agroforestry, forestry, aquaculture) are either ecologically unsustainable, or becoming so, under conditions of increased population pressure and tenure conflicts. The situation contrasts with that of conventional intensive agricultural mono-cropping, where tenure is clear and there is extensive knowledge of crop productivity interventions and a wide range of inputs and technical advice available.

In these particular contexts, the issues are not only how to integrate crops, trees, and livestock / fish in improved production systems, but also how to address insecurity of tenure, how to manage conflicts over resources, and how to devise systems for collective action to manage resources which are essential to productivity, but not amenable to household ownership (e.g. forests, water). In these heterogeneous agro-ecosystems, there are also questions of scientific understanding. In most sites, data are lacking, and the effort needed to collect data across a wide range of relevant biophysical parameters is intimidating. Finally, as in other rural environments, if improved production systems are to be implemented by local farmers they have to fit with local priorities, culture and capacities for change. Canada's International Development Research Centre (IDRC) has 30 years of experience with research in Asia. This background led us to develop a participatory and interdisciplinary research approach which addresses institutional and technical innovations while building local capacity for adaptation.

IDRC's approach links participatory research to Community Based Natural Resource Management (CBNRM) interventions. The key elements of participatory research as applied by IDRC's research partners are: engagement with the local community; recognition and critical assessment of indigenous knowledge; joint diagnosis and definition of research problems; researcher-led analysis and development of interventions; and farmer-led testing of interventions. The objective of CBNRM interventions is to improve local resource-based livelihoods and their sustainability. A major task of the program has been the development and promulgation among Asian researchers of tools and methods for participatory research. Most of these require

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strength in social science skills, yet technical interventions to improve production require applied science skills. As a result, research teams must learn to work across disciplines, developing methodologies and innovations that surpass disciplinary boundaries.

The outcomes of this research program can only be partly measured in terms of increased production. Crucial benefits from the standpoint of local farmers and resource users include community organization and social capital, which can be applied to other social objectives besides resource management. Local leadership development and governance are important outcomes at a time of increased decentralization. New co-management approaches based on better-organized, better-informed, and more articulate community resource users in partnership with government agencies provide effective options for increasing local benefits from resource use. Lessons from new forms of local organization, resource access and utilization find their way into policy changes and replication.

RESEARCH FOR THE RURAL POOR

Rural poverty in Asia is concentrated in marginal areas. While the successes of agricultural research have already reached most of the productive rain-fed areas, the complex agro-ecosystems in the marginally productive uplands and coastal regions are less amenable to standardized prescriptive packages and interventions. The resources are very fragile, and farmers in such systems rely on diverse strategies for minimizing the risks of single-resource dependencies. This makes it hard to design interventions that are going to be successful across multiple resource bases. To be effective, the interventions have to be systemic in their approach.

In many of these areas, the control and access of the resources are contested between different local people or local people and outsiders. Moreover, tenure is opaque and rapidly changing. In the absence of clear tenure and good technology choices, the farmers continue with the practices they already know, and this is leading to further resource degradation in these areas, as well as increased conflict in many cases. All of these factors contribute to resource degradation and unsustainable practices.

COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT

Recognizing these problems, the International Development Research Center of Canada (IDRC) decided to formulate research strategies to improve the livelihoods of the rural poor in these kinds of communities. In naming its research program to this end—the program to support "Community-Based Natural Resource Management"—the IDRC deliberately left out the words "agriculture," "forestry," and "fisheries" in the title. These have been the foundations for classic research strategies for natural resource management, and all have been very successful, but the improved technology packages have not been sufficient to reach the poor, and that has been the IDRC's concern.

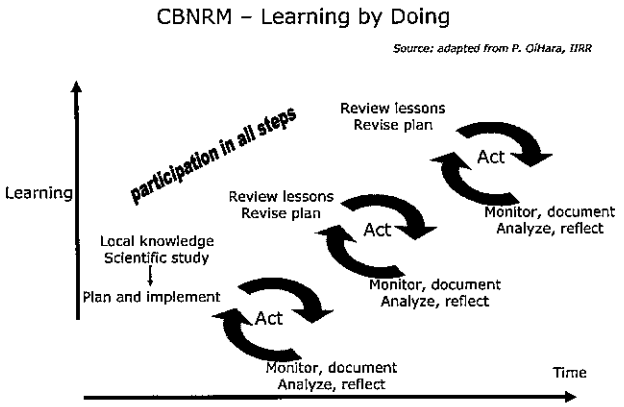

Fig. 1. Concept of community-based natural resource management

What approaches can be developed to address some of the problems? Policies and technologies for agriculture and natural resource research and extension have typically been sectoral—people working on crops and livestock, on forestry and

fisheries, and so on—but at the farmer's level, the strategies that people adopt cross sectoral boundaries. As such, IDRC and like institutions must find ways to address these concerns themselves.

Similarly, the agro-eco systems are highly variable in marginal production areas. In mountainous areas, for example, variations in altitude, slope, and aspect create very different conditions from one field to another. As the farmers—not the researchers—know their lands, they may be better able to breed and select local varieties for desirable characteristics.

There are often institutional failures of tenure in these areas, particularly with land reforms, commercialization, and markets. There has also been a lot of enclosure: privatization of common property resources that poor people have traditionally depended upon such as forests, open access water bodies, and watershed areas. Poor people are excluded as these resources are privatized, and this further constrains their livelihoods. Under these conditions, researchers need new research strategies based on community-level natural resource management.

"Community-based" has become almost a buzzword: every group needs to do community-based something in their research. When IDRC set out to develop its Community-Based Natural Resource Management program five or six years ago, it took steps to preserve the meaning and integrity of "participatory" and "community-based research" by getting together with its research partners to consider their significance within its program. To begin with, it identified forms of research that it distinctly wanted to exclude from its program. Specifically, the Center did not want to have governments recruiting local communities to do natural resource management projects designed in capital cities; nor to have outside experts set the rules and priorities for local decision making; nor to have IDRC research teams arrive in the field with predetermined agendas. At the same time, IDRC did not want to turn over all decision making and all authority to local communities. Local communities are fallible themselves and often captured by local elites who can cause just as much damage as central elites. Lastly, as IDRC recognized that community-based natural resource management is not a single framework that can be applied in all situations, it worked to tailor the program to the contexts and to brace itself for cases of failure within the program.

As IDRC set out with its partners to conduct this community-based research, it developed a set of foundations on which to base it. First, it took as a given that local people have knowledge about their agro-ecological system, and that they also have rights to use that system to assure their own livelihoods. Accordingly, researchers should respect that knowledge and those rights, and build on them.

Second, the context in which local farmers, local landless, local poor and marginal people make their livelihood decisions is complicated, involving not only the resource base, but social relations and constraints that are opaque to outsiders. Local people are not likely to readily share this context with outside researchers who just stroll in and hope to tamper with the local power structures. Communication skills and the building of trust are essential to this kind of work, and not all researchers are equipped with these skills.

Third, while IDRC recognized the importance of interventions in light of the urgency of the problems, in most cases interventions involve both improved technologies and improved production systems that draw on the experience of an agricultural research system. Thus, the programs also had to involve innovative institutional changes, that is, decision-making processes and new rules for access and management of the resource base.

Finally, IDRC started with the understanding that communities are not homogeneous. Different interests, different biases, and different power structures have to be accounted for within any community or farming village. As such, the only way to do this type of work is to have full participation of community members.

While considerable attention has been devoted to multidisciplinary approaches and the combination of local knowledge and scientific knowledge, less has focused on the challenges of including marginal groups within a community-based research program. Research teams have to approach these groups through the existing power structure, and often by definition that power structure excludes the people whom the

researchers are most interested in reaching with improved livelihood opportunities.

Local leadership and local commitment to change and the adoption of new practices will be essential to modify and sustain innovations. Both are important elements of participatory action research.

Participation is also a very important way to empower farmers and local leaders to learn new ways of making decisions. The model applied by the IDRC is an adaptive approach to joint learning whereby farmers, local leaders, extension officers, and researchers learn together. The process moves ahead in an ongoing series of cycles, each consisting of an initial planning stage, followed by plan execution, followed by review of results, followed by another round of planning. The local community and researchers begin by planning and implementing activities based on local knowledge and scientific investigation, and next they jointly monitor and document the results. The community then reflects on what it learns from the experience, reviews the lessons, revises the plans, and acts again together with the researchers and extension people. The process repeats itself, and everyone learns more over time.

EXAMPLES FROM THE FIELD

Lingmuteychu Watershed, Bhutan

IDRC collaborates with the Renewable Natural Resource Research Centre in Bajo, Bhutan to research the Lingmuteychu Watershed. The Center has helped greatly increase the rice production in the area through an earlier collaboration with IRRI, but more recently there has been conflict in some of these watersheds over the water supply during the rice transplanting season. These conflicts have arisen due to traditional water allocation systems that inequitably grant the rights of water access to upstream users. As the foreign researchers had little understanding of these systems, it took them time to understand how things were actually done. Ultimately they had to create new local institutions for negotiation, and they applied simulation models and gaming theory to develop win-win strategies for the local people. In doing so, however, they learned that the national water policy needed to be overhauled, hence their research not only improved local water management, but demonstrated the need for national policy change to enable local innovations to emerge. The research also revealed that the local situation was very highly dynamic: ongoing migration, changing crops, and a changing livestock market created a need for a more adaptive form of watershed-based management.

Hong Ha Commune, Central Vietnam

Four or five years ago IDRC and CIAT collaborated in a rice project in Hong Ha, one of the poorest rural municipalities in Vietnam at that time. The area faced a great deal of resource degradation dating back to the war years and a limited land base for the ethnic minority people who lived there. After four years of research, the community has doubled the yield from its rice fields with the help of improved varieties and improved management practices. Together with farmers and researchers, the number of households raising livestock has increased from 5% to 80% and the weight gain of their pigs has more than tripled through the use of cassava as a feed. The community gained access to increased land and has introduced 2.5 hectares of small fish ponds. They are also beginning to use agro-forestry systems and home gardens to improve their nutrition.

The local women of the community informed IDRC they are currently contributing a major share of household income, and this has completely altered the household dynamics. Now that the women are bringing in more income, the men are contributing more to household maintenance activities, to childcare, and to cleaning. This is a major social change that has increased the quality of life for the people.

Koh Kong District, Cambodia

Until about 1998, Cambodian migrants displaced by the conflict in their country were forced to cut down large areas of mangrove forest to harvest their only available means of livelihood, the sale of charcoal from the mangrove timber. The activity became illegal when the Royal Government of Cambodia established the Pream Krasaop Wildlife Sanctuary in 1994, leading to a high level of conflict between the local people and police forces.

The IDRC research agenda in Koh Kong was to build local trust and design options for increased livelihoods that did not rely on cutting mangroves. The project proved successful: mangrove cutting was halted, the habitat regenerated very quickly, fisheries yields improved, and mussel culture and home gardens were introduced. The same research team is now working on tenure management for community fishing areas.

Challenges ahead

Agricultural research has introduced not only production systems, but new tenure and institutional arrangements that have fed into policy change at the national level. This kind of research reduces poverty by improving productivity gains, applying the benefits of agricultural research, building equity through participation, improving the security of the poor through collective tenure arrangements, and changing government policy to facilitate decentralization processes. The whole process increases the confidence of local people and local government to manage adaptive change.

The challenges for agricultural researchers are not only to continue improving productivity and adding value to agricultural output at the local level, but to collaborate on the design of new institutions and on co-management and conflict management processes, and to put these activities together at the local level with improved tools for diagnosis, for analysis, for integration, and for monitoring. To address these challenges, researchers can develop packages that incorporate not just technology, but institutional and monitoring components as well.

The challenges for local communities and natural resource management are adaptation: adaptive management under conditions of high variability and rapid changes in markets, in climate, and in the technology choices that are available.

For researchers, the challenge is to learn how to see themselves as partners in learning and in science with local people.