

Learning from the Field: Applying Commons Theory in Practice

Stephen R. Tyler¹

Abstract:

Development projects aimed at rural poverty reduction and natural resource management typically focus on cultivated lands and private tenure institutions, despite the importance of common pool resources to the poor. One of the challenges of adopting a common property focus to poverty reduction practice is that, while the principles and theory of common property institutions are robust and well-documented, these institutions are difficult to build (or re-build) in typical situations of degraded and contested resources. Nor can the structure of legitimate and effective local institutions in one site be copied to another context. This paper briefly reviews the experience of 5 cases from varied contexts around the world, in which action research projects introduced new institutions intended to manage common property. Despite the diversity among the projects, participatory approaches led in all cases to an emphasis on greater collective tenure security for marginalized social groups, to community organization and institution-building for the management of common pool resources. These results are entirely consistent with criteria found in the commons literature. For practitioners intent on reproducing these results, the common procedural elements of each of the cases included: introduction of new information and analysis to different stakeholders; the meaningful participation of multiple stakeholders in assessing problems and responses as well as designing institutions for resource management; and systematic processes for shared learning. These procedural and attitudinal elements of good practice provide guidance to foster the broader introduction of common property institutions in rural poverty reduction programs.

Introduction

The twin challenges of rural poverty reduction and environmental sustainability are prominent elements of international development practice. This is appropriate in a world where around a billion people are threatened by poverty and the degradation of the resource base on which they depend for their immediate livelihoods ([UN Millenium Project 2005](#)). Common pool resources are particularly important to the livelihoods of the poor (Beck and Naismith, 2001). Environmental and resource degradation has been widely recognized as a crucial constraint to reducing poverty among the most disadvantaged and marginalized populations in the world, who remain largely rural (Brundtland 1987). Common property is also an important factor in the degradation of natural resources, because in the absence of legitimate and robust institutions of collective tenure and management, common pool resources become effectively open access, and hence are prone to degradation. One would therefore expect that commons

¹ President, Adaptive Resource Management Ltd, Victoria B.C. Canada
adaptive@telus.net

theory would inform a great deal of programming effort for poverty reduction and environmental sustainability.

Yet conventional policy approaches to rural poverty reduction have always tended to emphasize the use of cultivated land, which is typically held in private tenure. This has been the focus of most technology development and policy reform (Sayer and Campbell, 2004; Deininger and Binswanger, 1999). Despite its importance for environmental degradation and for the rural poor, the commons remains a challenge for development practitioners. International and domestic legal frameworks reinforce private property rights to strengthen commerce and the role of markets in land and resource management. Even when policies supportive of common property institutions emerge, they can be frustrated in their implementation (see for example O'Hara 2006).

The criteria for successful institutions to manage common pool resources such as water, forests, pasture, or fisheries have been well described in the literature (Ostrom, 2004; Meinzen-Dick, et. al. 2002; McKean, 2000; Ostrom, 1990). However, these criteria cannot be satisfied only by macro-level policy measures (Ostrom, 2004). In particular, because of the importance of local knowledge, social institutions and sanctions to enforce collective resource use rules, they require high levels of interaction among affected local groups managing the resource and frequently across scales between resource users, responsible government agencies, planners, and markets (Berkes, et.al. 2003).

The details of common property institutions and co-management arrangements are inherently contextual: they will depend on the nature of biophysical, social and political conditions. In the language of complex systems theory, these institutions are also *emergent*, in the sense that they are not pre-defined constituents of a complex socio-ecological system, but rather characteristics which emerge from the interactions of the system itself (Ruitenbeek and Cartier 2001). For practitioners then, the challenge becomes how best to foster the emergence of more robust common property and co-management institutions.

If commons theory is to be relevant to development practice, more effort needs to be devoted to the *implementation* of innovative collective resource tenure and management regimes to address both poverty reduction and environmental objectives. Crafting institutions in challenging conditions is not just a matter of following theoretical precepts or design principles. Beyond the important questions of what to do, for which theory can provide helpful direction, are questions of *how* to go about it.

Processes for building local resource management institutions are not self-evident. Community interests diverge. Resource claims are typically contested and conflictual. Long-standing disputes are reinforced by differences of social status, caste, clan, gender and political power. Changes in resource tenure are normally strongly contested because of their livelihood and status implications. And if successful local institutions emerge which are capable of improving equity, managing conflict, representing diverse interests, and still introduce sustainable resource management practices, they cannot simply be copied from one context to another. Different biophysical, social, political and cultural conditions mean that the specific institutional and technical solutions for

managing common pool resources in any particular site are unlikely to be well suited for application someplace else.

This paper will review practical lessons from a series of applied research projects in different regions of the world that have specifically focused on implementation of innovative local resource management regimes to improve productivity and sustainability of common pool resource utilization. Unsurprisingly, the outcomes of the projects are consistent with well-established theories about the institutional criteria for commons management. But it is one thing to agree on theory, and another to accomplish meaningful institutional change in complex socio-ecological systems. The main value of the cases is not to derive further inductive evidence for theory, but to illustrate guidelines for *practice* in an area of high complexity and challenge.

Cases

These cases were selected to cover a range of contexts, from uplands to coastal sites, from semi-arid to monsoon climates, from a range of political systems and cultures. The research underlying these cases took place over a number of years, sometimes through several multi-year funding phases. All the research projects reported here were supported by the International Development Research Centre of Canada². These research projects were all undertaken with the intent to find innovative ways to strengthen local livelihoods. Their approach was normative, oriented to practical change and not primarily to theory-building. Researchers adopted similar conceptual frameworks built on participatory methods and local initiatives (for further details, see Tyler, 2006). As all the cases are reported elsewhere, this paper will only briefly review them and synthesize conclusions arising from a comparison of these experiences.

Ratanakiri, Cambodia

The first case is from the highland province of Ratanakiri in northeastern Cambodia, and focuses on indigenous claims to forest land (John and Phalla, 2006; Ironside and Nhem, 1998). With the gradual return of civil order and public administration in Cambodia through the 1990's, this region's vast forests were perceived by central government authorities and private investors as a bonanza. Concessions for forestry and industrial tree crop plantations were issued readily, at one point in the late 1990's totaling over 100% of the province's territory (Bottomley, 2000).

At this time, over 2/3 of the inhabitants of the province belonged to nine different ethnic minority groups who mostly did not speak or read the national language (Khmer), practiced shifting cultivation and held animist religious beliefs. The dominant lowland Khmer people, who were Buddhist and cultivate paddy (wet rice), regarded them with suspicion and viewed their cultures as "backward". There was little recognition of the local people's traditional communal use of forest land for shifting cultivation and many other purposes (food collection, hunting, spiritual, etc). Conflicts with emerging large scale forestry and plantations became widespread, as local people found themselves excluded from their traditional territories and further impoverished.

² The author was a program manager for IDRC from 1997-2005, and directly or indirectly responsible for development and oversight of some of these projects.

Provincial government officials, responsible for rural development but seldom consulted on the awarding of major forest concessions, became frustrated with the mounting problems. Local researchers saw an opportunity to explore traditional land and resource management practices, and develop new management institutions while linking their work to a large parallel international project to build local governance and public administration.

The findings of field studies confirmed that local communities managed large areas of forest for multiple uses including subsistence and trade-based livelihoods. These findings provided important empirical evidence for a network of advocates, donors and sympathetic officials to successfully press for the recognition of traditional collective land tenure in new national land tenure legislation (Muny, 2001).

But in addition to the impact on national policy from this local research, there were important changes to development practice and official expectations. The research team recognized that local resources could not be managed sustainably without much stronger institutions. They helped communities to build awareness of environmental issues as well as individual and community rights and obligations under the emerging legal system in Cambodia. They facilitated adult literacy instruction by other NGOs. They encouraged new processes for decision-making based on traditional practices, by strengthening village-level natural resource committees and facilitating their codification of rules and practices for forest use. They engaged government officials in local learning with these committees to foster communication and shared expectations. By adapting participatory research tools (such as appraisal, mapping, and planning) to local cultures and field conditions, they developed a new framework for Participatory Land Use Planning (or PLUP) at the village level. When local plans were finalized and approved by the provincial governor, they carried sufficient legitimacy to force several forest concessionaires to relinquish the village lands they held.

With the introduction of a new system of locally-elected commune (municipal) councils, the village level committees and participatory planning processes were made accountable to formally elected local officials. The new PLUP tools were widely adopted by provincial government staff and by donor agencies, refined and transferred for application to local governments throughout the country.

These broad impacts were not the result of the quality of data or analysis, but of the strongly participatory practices adopted by the research team, engaging local people, government officials and other researchers and donors in shared learning.

The crucial foundation of this success has been the action research work undertaken by the project team at the grassroots level. Testing innovations on the ground is essential to understanding complex and dynamic local situations, and to providing credible evidence to policy makers. Learning from innovative local practice is crucial to building the commitment of local, provincial and national governments and the capacity and confidence of communities themselves. (John and Phalla, 2006; p. 54)

By envisioning learning as a collaborative endeavour, researchers engaged provincial government officials, local leaders, men and women farmers in sharing knowledge,

building capacity, and innovation. Beyond specific policy and local governance outcomes, they were able to effect widespread changes in expectations. The project led to greater voice for local people, new consultative roles for public administrators, and greater transparency and accountability for decision-making at the local level. This strengthened the legitimacy and power of local political institutions, leading to many examples of communities successfully reclaiming portions of forest concessions. And while local resource decisions retain the potential to generate conflict, people expect them to be conducted in a much more transparent way (Suzuki, 2005). The project generated innovations that have been widely shared throughout the province and the country.

Tam Giang Lagoon, Viet Nam

The Tam Giang Lagoon in central Viet Nam is over 70 kilometers long, but averages only 2 meters in depth. It has two small openings to the sea, and receives fresh water from 1 major river and three smaller ones. The lagoon is a dynamic brackish-water system, with seasonally and locally variable salinity and water quality. But it is a highly productive habitat for both freshwater and marine aquatic species, and has long been an important fishery. More than 300,000 people live on the margins of the lagoon, most of whom are dependent on farming or fishing for the main part of their livelihoods.

The research team originally came together in the mid-1990's to study the condition of the aquatic resource base and its utilization by communities around the lagoon. A significant innovation for the researchers was the formation of a large multidisciplinary team from Hue University of Agriculture and Forestry, Hue University of Sciences and the provincial Department of Fisheries, who were all engaged in the project from the outset (Tuyen et al 2006; Brzeski and Newkirk, 2002).

During the study period, use of the lagoon underwent dramatic changes. In the productive central lagoon municipality of Phu Tan, at the beginning of the 1990's, aquaculture net enclosures were virtually unknown in the lagoon waters, but by the close of the decade they covered 75% of its water territory, an area of more than 360 ha. Shrimp ponds built out from flooded rice fields on the low-lying shore occupied another 20% of the water surface. There was hardly any open water left.

The rapid growth of aquaculture was unplanned, and took the researchers and local governments by surprise. The tenure regulations for "privatizing" the lagoon surface were murky, to say the least. Wealthy fishing families who previously held rights to fixed gear were the first to replace that gear with permanent fish net enclosures, for stocking high-value species instead of relying on capture fisheries. But then other fishers and local landowners joined in the bonanza, investing in the poles and nets required to stake out private aquaculture areas in the lagoon, with the encouragement of government policies.

But the aquaculture boom created several problems. Water quality and current flow declined dramatically, creating problems of disease and reducing productivity for all. The benefits of increased aquaculture production were not evenly shared: the poorest mobile-gear fishers were dependent on the common pool resources of the lagoon.

When these became privatized, they were excluded and either had to try fishing in other territories that were already heavily exploited, or leave the community entirely and seek other livelihoods.

The issue that finally attracted government attention was the loss of waterways through the maze of net enclosures to allow navigation across the lagoon and access to landing areas on the shoreline. Researchers worked with local government, with the net enclosure owners, and with mobile gear fishers, who hoped the re-opening of waterways would allow them greater fishing opportunities. Through mapping, examination of water quality data, and negotiation with the different interests, the research team facilitated participatory design of appropriate clearings for navigation and water exchange. However, the conflict between mobile gear fishers and net enclosure owners prevented agreement on fishing rights in the navigation lanes adjacent to net enclosures. The conflict escalated into violence when the local government tried to implement the waterway plan by decree without adopting the conflict management provisions proposed by researchers.

In Quang Thai municipality in the northern part of the lagoon, conflicts were also emerging as fish cages proliferated and the traditional fixed gear blocked navigation and water flows. The research team, armed with the experience of Phu Tan and with evidence of local resource degradation, convinced government of the need for action.

The research team made it clear that solutions could only come from participatory planning and co-management, in which local fishers and governments agreed on guiding principles for use of the resources and made commitments which could be jointly enforced. They were aided by the introduction in 2003 of new national legislation that provided for fisheries co-management through locally-defined user groups, and specifically mandated provincial authorities as implementing agencies.

All the parties involved could now benefit from their experience of working together for 5 or 6 years on participatory research. Fishers in Quang Thai proposed formation of a user group and development of the first participatory plan for formal allocation of rights to lagoon areas. The provincial Department of Fisheries saw this as an opportunity to test practical implementation strategies for its new mandate, and had enough confidence in the researchers to allow them to guide the planning process. Local fishers had learned a lot about the lagoon resource base, and had sufficient information to make reasoned arguments and plans. The research team had acquired skills in communications and facilitation and could lead the process without imposing solutions.

The key challenge was to re-organize fish cages and fish corrals to provide space necessary for water flows and navigation, as well as a base for improved administration and enforcement of conservation regulations. The user groups, local and provincial officials all agreed that planning should maintain access for current users, respect customary tenure rights (even though these had no legal standing) and share the dislocations needed to re-arrange gear in the lagoon waters.

With these principles and objectives agreed, the plan took shape through application of participatory research and shared information from joint mapping, focus group surveys, group analysis and then elaboration of specific details. The plan, developed in 2004, defined limits for fish corrals and fish cage development; identified, mapped and

demarcated navigation waterways; mapped zones for different fishing and aquaculture gear; and defined several types of resource user groups with varying rights and responsibilities for implementation, monitoring and enforcement of their management decisions.

Now the Quang Thai experience with participatory resource planning is being replicated in adjoining municipalities in the northern Tam Giang lagoon. Training materials and guidelines are being developed for provincial staff, who are taking leadership in fostering the new participatory planning and co-management system elsewhere in the lagoon.

The impact of the research was attributed by the team to its use throughout of strongly participatory methods that built local capacity, engaged governments and different categories of fishers in joint learning and decision-making.

The long-term participatory research project was a crucial prerequisite to the planning innovations for several reasons. First, it helped all the stakeholders to understand the context and livelihoods of people, instead of seeing problems in simplistic terms and making assumptions about their causes and solutions. This enabled all parties to recognize the source of the problems and to develop effective strategies for solving them. Participatory action research approaches helped the research team to develop new skills, which proved invaluable in developing co-management solutions. Participatory research also respected the people's knowledge and practices; therefore, it invited local people into the learning process with the researchers. Together, researchers and local people were able to generate ideas to learn and change, and to convince governments at different levels that their recommendations would be practical. (Tuyen et. al. 2006, p. 81)

Arsaal, Lebanon

The sprawling rural watershed of Arsaal lies in the remote northeast corner of Lebanon, on the slopes of the Anti-Lebanon Mountains along the border with Syria. The Arsaali people, as minority Sunni Muslims, are isolated in religious and political terms from the rest of the country, and have long practiced a self-reliant way of life.

The watershed is marginal for agriculture, with an average of less than 300 mm of annual precipitation, enhanced by snowmelt runoff from the mountains. For centuries, the livelihoods of this region relied on pastoralism and low-input cereal agriculture. But since the 1960's, landowners have found it increasingly profitable to plant rainfed orchards whose high-value stonefruit are trucked to urban markets.

This conversion of land from traditional cereal production and grazing to fruit orchards attracted the interest of an emerging multi-disciplinary environmental research group at the American University of Lebanon (AUB), who set out to explore the socio-economic and biophysical sustainability of the changing agricultural system in Arsaal (Zurayk, et. al. 2001; Hamadeh et. al. 2006).

The AUB researchers found that these new orchards created a conflict between families with large land holdings and the less prosperous small-holder herders. The centuries-

old pastoral system had relied on traditional clan-based exchange relationships between large and small herders, and on consensus decisions about the use of common pastures. After the first official land survey in 1945, private land holdings could be formally registered. A few powerful farmers began to appropriate communal grazing lands for small orchards. This trend slowly gathered momentum. Orchards offered higher returns with much less labour, but as a result shortages of fodder became especially critical in dry years. Orchards also contributed to land degradation because they required cultivation of steep slopes to manage weeds.

In the mid-1960's, the conflicts created by these changes contributed to the dissolution of the municipal council. With growing political and military conflict throughout Lebanon in the next decades, formal local elections would not be held for 33 years, and the functions of local government largely dissolved. The agro-pastoral system was changing rapidly, and off-farm income became more and more important to the Arsaalis. With rapid changes in the social and livelihood systems, the roots of conflict were complex. Traditional clan animosities, differences in class, in generations, in ethnicity and religion combined with gradual changes in resource access rights to entrench conflicts and impoverish those with the least power and fewest livelihood options.

The researchers worked with the community, with local leaders and with the Arsaal Rural Development Association (ARDA), a local NGO, to help them establish a "Local Users Network". This informal organization served as a platform for bringing together diverse resource user interests and fostering communications, participation and learning. Researchers brought technical knowledge to improve orchards and livestock rearing, and in return sought to engage herders, orchardists, NGOs and local leaders in face-to-face discussions of resource management problems.

An important success of the LUN was to facilitate consensus-based solutions to decades-old conflicts between pastoralists and orchard growers. As traditional conflict management practices disintegrated, and after local government was dissolved, for many years there were no legitimate mechanisms for the parties to address their dispute.

The researchers were able to use private video interviews with key informants and resource users on all sides to expose issues and challenge assumptions. When the videos were edited and shown to the user network, they introduced new perspectives on decades-old conflicts. Issues that could not be raised in face-to-face meetings where social status and honour were at stake could be addressed through the neutral medium of video documentation (IDRC Reports). The researchers were also able to help the process both by validating a common GIS database for all sides to use in their discussions and by suggesting win-win solutions, such as the intercropping of leguminous forages in the orchards.

The major problems in the agro-pastoral system in Arsaal were with livestock rearing, which had very low returns. It became evident that only through collective action could herders make improvements to this system. A herders' cooperative, the first in Lebanon, was formed to organize and implement improvements in livestock management, range management and marketing. The cooperative tested and supervised the implementation of a number of innovations with the support of researchers and the Ministry of

Agriculture. Successful innovations, even in this conservative and divisive community, helped to rebuild social relations essential for re-establishing common property institutions.

Extension efforts also led to improved orchard management, pest control, fruit production and marketing and reduced conflicts with grazing (e.g. by introducing leguminous forage inter-cropping). Innovations introduced by local groups with the support of the research team strengthened collective institutions for herders to manage common grazing lands while increasing recognition by orchardists of the herders' rights to this land and directing orchard expansion to other areas.

The local council and the new resource user groups and networks established the institutional foundations for shared learning and resource sustainability using the tools generated by the research project. They are now better able to manage local resources sustainably and productively, to articulate resource management issues to outsiders, and to request policy and investment support from government or donors.

El Angel Watershed, Ecuador

Water is essential to livelihoods in the dry mountain valleys of Carchi province in northeastern Ecuador, but many local residents cannot predict from one day to the next whether they will have water for their fields or their homes. Despite a scheme of government water licenses to regulate withdrawals from streams and rivers, downstream licensees frequently do not receive the water they are entitled to. At the same time, water sources are threatened by over-utilization and development. Poor farmers find their livelihoods at risk and the water supply deteriorating (Waldick, 2003).

Despite the closely-linked issues of water availability, quality, agricultural land use and health throughout the watershed, most of the residents in the watershed saw only their own local issues. Irrigation canals, many of them more than 100 years old, had passed through their communities for generations, and they had always been able to withdraw water for drinking and livestock. Upstream water users thought there was lots of water, so they could justify taking a bit more (or a lot more) themselves. The lengthy canals are unlined, so there can be high losses in addition to the cumulative over-extractions.

The formal system for volumetric water allocation covered by national legislation does not include reliable measurement of streamflow or withdrawals. Irrigation systems are managed by water user associations, and formal applications for water withdrawals are processed by a state water adjudicator. Disagreements can be taken to the water courts and heard by the adjudicator. But without reliable data on which to base judgements, it was impossible to satisfy users, and when their sense of injustice grew, so did water theft.

Researchers from Grupo Randi Randi, a regional NGO, started the Manrecur project to learn what the foundation of these conflicts was. But to understand the system and its problems better, they needed an integrated assessment of the entire watershed, its hydrology and resources, that could be analyzed spatially using GIS technology. This early research activity led to an important innovation in information sharing. (Proaño and Poats, 2000; Poats 2002; Crespo and Faminow, 2002).

The Carchi Consortium was started by researchers as a way to share existing and new data on the El Angel watershed, and to coordinate with government officials and other organizations active in the watershed. But its informal meetings attracted the attention of local communities, who were concerned about water availability and water conflicts. The water user associations became involved. Agricultural groups, county governments, and officials from central ministries all were brought in to help clarify the resource situation for the watershed, using the base data generated by the Manrecur research team.

The Carchi Consortium has met regularly for ten years now, attracting men, women, students, professionals, researchers, farmers, and government officials in varying numbers depending on the issue. Its “roundtable” format provides for interest-based consultation and sharing of data, but is not intended for negotiating conflicts.

To address specific water conflicts, more detailed information was needed. The researchers devised a simple water flow meter, which could be built by local users. With regular participatory monitoring of key points in the irrigation network, a much better picture of actual flows and uses could be built up. The evidence collected by the research team began to be used by the water adjudicator and by local municipalities. Applications for more water extraction were refused on the grounds that existing flows were inadequate. Discussions about water use could be based on data rather than accusation.

This began to yield new solutions, for example upstream and downstream municipalities jointly investing in reservoir rehabilitation. Gradually, through the interaction permitted by the Carchi Consortium, it became obvious to the residents of the watershed that their water problems could only be resolved by improved governance. An early step was to make water use and theft more transparent through improved monitoring. Continuing efforts are underway to strengthen upstream and downstream rights and build common management structures. The recognition of linked water management problems in El Angel has helped to design solutions to specific conflicts, and to gain the recognition of regional and national government authorities in transferring lessons.

Mongolia

Grasslands cover 82% of Mongolia's territory, and comprise the chief resource for a rural economy based primarily on livestock. The country has less than 200,000 herder families, but these manage over 24 million animals (83% of these goats and sheep, the rest horses, cattle and camels). During the soviet era, the state owned not only the resource base but also all the livestock. Herders were paid a regular salary and produced animals according to a central plan. But since 1992, herders have owned their own livestock, while the land remains owned by the state. This, of course, provides the classic mismatched incentives that lead to degradation of the common pool resources. Mongolia has seen massive degradation of its grasslands in the subsequent years, along with unsustainable growth of livestock herds and huge herd losses in severe winters (Ykhanbai et. al. 2006; Ykhanbai and Bulgan, 2006).

A research team based at the Ministry of Nature and Environment, undertaking field studies of herder practices and resource degradation, quickly focused on the tenure issue as the core of the problem. Customary pastoralism in Mongolia has meant regular seasonal migration of family groups together with their livestock. Each group of households would typically move to four different pasture sites during the four distinct seasons of the year. They would also use more remote reserve sites under extreme conditions. But after several generations of soviet style economic planning, the traditional institutions that supported this complex rotational pasture system broke down. Now, especially near market centres, grazing rights are contested, and a minority with large animal herds seems to exert broader claims than the poor majority (those households with less than 100 animals).

Researchers found that there was interest in re-introducing local management systems, to better manage pastures in the new market economy. But there were no local institutions to lead this task: no local herder organizations, no decision-making processes, no links to government authorities with official responsibility. The research team developed a series of participatory approaches to engage with local leaders and local government officials to identify the problems, build local organizations, and develop pasture co-management plans to adapt customary practices to current conditions. The researchers also worked with government officials to create opportunities for the plans to be reviewed and approved, lending legitimacy and enforceability to the decisions taken by local groups.

These co-management “contracts” define the roles and responsibilities of local groups and of government officials at the municipal and regional levels. They establish boundaries for different pasture areas. They oblige group members to honour the rules and regulations for pasture use contained therein. Their approval by the local governor created new rights of resource access and exclusion for herder groups who were largely self-defined. The first co-management contracts were reviewed and revised after one year, and experience since has been consistently positive, with the number of herder groups and contracts expanding rapidly in the 3 pilot districts.

Social ties in rural Mongolia are strong, both within and between groups who live in close proximity (mostly, they do not live in permanent settlements). There are also strong ties between different wealth groups. These factors help to explain the relative ease with which herders adopted the concept of more formal co-management structures and shared decision-making. But in addition to pasture and resource management, the local people identified the need for alternative livelihood strategies. Agricultural extensionists helped them to explore vegetable production and small enterprise development.

The formation of women’s groups was an important element of project activities. Women’s ecological knowledge was under-valued by men, who made most of the livestock management decisions despite women’s high involvement in some aspects of the work (Ykhanbai, et. al. 2006). With a new voice in pasture management groups and shared learning about livelihood alternatives, women built stronger social support networks and gained respect from traditional male leaders.

The experience of introducing formalized common property management systems in Mongolia also met with challenges. Wealthy herders had less incentive to join the community herder groups, but as the groups gained social legitimacy, government support, and practical success, the pressure on them to join has increased and they increasingly have done so. Community groups have struggled with how to exclude other herders, particularly in harsh winter conditions, and government officials are sometimes called on to mediate disputes.

Development of new land tenure legislation takes account of these experiences through the advisory role of several research team members, and through direct feedback on draft policy terms by pilot communities. As a result, collective lease agreements have for the first time been defined by the government as an instrument for implementation of new co-management policies.

Comparison

These cases all provide examples of development innovation addressing issues of natural resource degradation in order to improve local livelihoods. The cases all describe marginal agricultural areas, in which the poorest resource users have limited entitlements and are unable to gain access to key resource assets. Addressing rural poverty therefore required addressing common property resource management. This is quite different from conventional rural development approaches, which tend to strengthen individual, as opposed to collective, resource tenure and access to other inputs.

In all the cases, resource users faced multiple claims, or were transitioning between different kinds of tenure. Lack of clarity, legitimacy or recognition of rights by multiple resource users led to conflict or degradation. Privatization or enclosure of resources that had previously been treated as common pool or open access was one of the main sources of such conflict. Those individuals or groups who were able to gain private rights (whether local or external claimants) generally prospered through these changes, but traditional users of common pool resources lost out. These kinds of problems are frequently reported in the literature.

The cases demonstrate that despite these problems, development practitioners can facilitate the introduction of institutional innovations that strengthen common pool resource management and improve local livelihoods even in the face of enclosure challenges.

What can researchers and practitioners learn from these experiences of introducing common property institutions to strengthen local livelihoods? This comparison addresses three issues:

- 1) resource tenure: how did each project address changes to resource rights?
- 2) CPR management: what kinds of institutional innovations were essential for better CPR management.
- 3) mechanisms by which successful interventions were developed.

Table 1 provides a comparative overview of the five cases.

Table 1: Comparison of Cases

Case and Resources under threat	Resource tenure issues	New CPR management institutions
Ratanakiri, Cambodia Forests	Traditional community forests allocated to commercial firms Conflicts over forest access	Collective tenure recognized in legislation Participatory land use planning (users clarify boundaries and rights) Conflict resolution
Tam Giang, Viet Nam Lagoon	De facto enclosure of lagoon surface Conflicts over access to lagoon	Long-term tenure Organization of user groups Participatory planning (users clarify boundaries and rights) Conflict resolution Monitoring
Arsaal, Lebanon Pasture	Enclosure of orchards Conflicts over pasture access	Organization of user groups Users clarify rights Conflict resolution Monitoring
El Angel, Ecuador Water	Water rights insecure Conflicts over water use	Information sharing Monitoring / data collection Conflict resolution Multi-stakeholder consultations
Mongolia Pasture	Herd privatization combined with collapse of central pasture management led to overexploitation	Organization of herder groups Shared decisions on territorial boundaries, pasture use, exclusion Formal processes for government approval and co-management Conflict resolution

For example, in Ratanakiri, forest dwellers were able to legitimize and strengthen their negotiating position with government and concessionaires by documenting their use and management of forest lands, and by building transparent management institutions on the foundation of traditional practice.

In the Tam Giang lagoon, the dominant tenure regime was shifting rapidly from open access to private. This allowed for considerable increase in productivity through intensification of aquaculture production systems in the lagoon, but it also deprived the poorest fishers of a livelihood. The challenge was how to allow for the benefits of productivity investment in a manner that different rights holders would perceive as fair. This required a new participatory planning system that explicitly recognized diverse resource rights and distributed responsibilities for management and enforcement to user groups under sanction of the government. The tenure system worked out through this

mechanism allocated private and collective rights to specific areas of the lagoon among defined user groups. In recognition of the need to ensure livelihood opportunities for the poorest groups, specific compensating interventions helped them to gain entry to small-scale cage aquaculture as well.

While the Arsaal researchers also introduced improved management technologies to benefit local farmers, their most significant innovations were institutional. New mechanisms for interaction, networking and conflict management were important practical innovations. Co-management arrangements between multiple users, herder co-operatives, tenure agreements for shared use of both pasture and orchard lands: all demonstrated the feasibility of collective action for management of the common pool resources.

In the El Angel watershed, the project did not lead to changes in the rights of private and collective resource users. But with new information collection, sharing and collaboration mechanisms, the research team helped build awareness of factual evidence and challenged assumptions that had prevented collective action. By promoting mechanisms for negotiating solutions to water conflicts, the research demonstrated how to use this new knowledge to improve resource governance.

In Mongolia, privatization of animal herds without pasture management institutions led to an open access situation and a classic “commons tragedy”. By using participatory research and active facilitation, researchers helped communities to build new co-management institutions, define territorial boundaries, and gain official legitimacy for collective tenure and sanctions excluding other users. The social processes involved in building herder groups also led to a variety of other local benefits, including strengthening women’s roles and alternative livelihoods.

In all five cases, successful resource management and strengthening of local livelihoods required clarification of individual and collective rights to common pool resources in order to secure access for marginalized user groups, and simultaneous development of institutions for resource management that provided a stronger voice for these users. Conflict management and procedural equity were important elements in all the cases to build legitimacy and credibility of the new institutions. However, in 3 of the cases, political processes to legitimize rights of local people to access and use resources, and to participate in their management, were required. These processes were facilitated by the actions of the research projects (see Tyler and Mallee, 2006).

The tasks of territorial identification and demarcation, group identification, participation of group members in management (rules, planning), as well as monitoring and conflict resolution mechanisms formed the key institutional innovations introduced by these projects. All are consistent with the generalized principles for successful long-term management of CPRs (McKay, 1999; Ostrom, 1994; Ostrom, 1990). This is what we would expect when the key issues in all cases involved strengthening the management of CPRs.

But as practitioners, how do we introduce these institutional innovations to manage CPRs, and to strengthen local livelihoods, in such diverse and heterogeneous contexts? The technical content, biophysical details and socio-cultural conditions differed widely between these cases, as did the structure of resulting institutions. Yet in

all cases, there are common procedural elements that influenced these successful outcomes and provide guidance to practitioners.

1. New Information

Firstly, in all cases a catalytic role was played by the introduction of new, shared information. The various parties involved in resource conflicts were provided with reliable, usually verifiable data about the resource and about user behaviour. This data came not only from scientific research by outside agents (the project research teams), but also from the experience and knowledge of local resource users. The information was provided at scales directly relevant to the decision-making and management requirements of users. For example, in El Angel watershed, users were provided with access to quantitative data on local water flow and extraction, but also information about the interaction of ecosystems and human land use at the watershed scale. This enabled them to not only monitor local changes in resource quality / quantity, but also to link these changes to systemic factors in order to negotiate feasible solutions. The ability of scientific researchers to build on local knowledge also strengthened the confidence of local resource users and validated their roles with government and other players as legitimate “experts” in subsequent decision-making.

The process of sharing information about the resource system, and inviting open exchange and interpretation around this information, was a significant step to change. In most cases, this exchange of information gradually drew in a wider array of participating organizations: various resource users, local government, researchers, NGOs, sometimes students, and technical officials from senior government agencies. The atmosphere of latent (or sometimes overt) conflict was often challenging, so careful and professional facilitation was needed in all cases to establish rules of respect and openness in multi-stakeholder proceedings. For example, in Arsaal, where traditional customs of social exchange and hierarchy mitigated against public airing of grievances, video interviews were used as a tool for exposing misunderstandings and challenging assumptions (Hamadeh et al, 2005).

2. Meaningful Participation and Local Leadership

All of the projects were designed to engage local stakeholders strongly in the conduct of research and in the assessment and adaptation of interventions. Those most affected had an active role in decision-making. This process started with a respectful approach to local farmers and emphasized the value of their inputs, their knowledge and their inventive capacity, without neglecting the importance of scientific rigour and new technologies. This was often a delicate balance, requiring creative engagement of different forms of knowledge and ways of understanding the world.

For example, ethnic minority forest dwellers in Ratanakiri knew a lot about their forest areas, but did not understand the emerging system of public administration in the country, nor their rights and responsibilities under the country’s new constitution. Provincial government officials were accustomed to acting as enforcers of government decrees in an authoritarian political structure, rather than providing services or building capacities. Researchers helped both groups to build on their strengths and supported their adoption of new roles, helping farmers to become innovators and advocates, and officials to become facilitators.

Local leadership was important to successful outcomes from the research innovations. For example, in the Tam Giang lagoon, the structures of user groups, the processes for participatory planning, and the principles for a negotiated solution to lagoon conflicts were all designed through the leadership of the people most directly involved. Most of the projects, like the lagoon user groups, also developed their own monitoring and evaluation procedures. Local criteria for success were critical to this local leadership commitment.

The engagement of local resource users and leadership was not something that happened overnight. In most of the cases, it was only after several years of consultation, learning, and confidence building that local men and women were comfortable taking greater leadership of the processes. The experience of local people in dealing with more powerful government or external organizations is often negative, and trust can be easily destroyed by inattentive or hasty processes. The building of local capacity and initiative starts in the *attitudes and values* of the researchers, as much as in the methods and techniques of participatory research (Gonsalves, et.al. 2005). These cases demonstrate the impacts of long-term value-based relationships in fostering institutional innovation.

3. Iterative Processes of Shared Learning

The engagement of local resource users in sharing knowledge and testing options for improved management was structured, in all the cases, around iterative processes of shared learning and action. Action research methods helped local stakeholders to analyze options, take actions, and monitor outcomes themselves. It was not only researchers, but also farmers and local government officials who learned from these projects. The adoption of a shared learning framework helped strengthen capacity and transform roles of the various stakeholders by showing positive results from new ways of interacting.

For example, in the El Angel watershed, the researchers helped provide data and to structure it in a powerful analytical framework (GIS), but the benefits of this data come from its discussion in the Carchi Consortium. The open forum for presenting and challenging information provides for all the stakeholders to learn in their own context. The discussion also set the terms for further action and research, each iteration building on previous documented discussions and conclusions.

In Mongolia, while herders were well aware of the pasture degradation that was going on, they were unclear about the benefits of local collective rights and planning processes, having never experienced them. By undertaking and evaluating such efforts themselves, they gained awareness and confidence, and demonstrated to the researchers as well as to government officials the practicality and pitfalls of such processes. By adopting inclusive and iterative learning approaches, the research projects ensured that institutional innovations could be designed and implemented by local actors to suit their diverse contexts.

Shared learning and meaningful participation together with new information served to transform the attitudes, expectations and roles of local partners. These types of transformations are crucial to the social and political changes inherent in the establishment of new resource management institutions. Taken together, these three

practices proved a powerful influence in facilitating such changes. Attitudes, expectations and roles change only slowly. Even if the projects themselves cease to operate in the affected communities (several of these examples have concluded), these transformations remain. It will be difficult in any of these communities for local resource users to return to the previous conditions of disenfranchisement, conflict and environmental degradation.

Conclusions

Taken together, these lessons provide guidelines for practice in the introduction of common property management systems to benefit poor resource users. The process of introducing institutional change is always a risky and uncertain endeavour. But for poor rural people who depend on common pool resources for an important part of their livelihoods, stronger access rights, together with a voice in their management, are crucial to building productivity. In all the cases, disadvantaged local resource users now have stronger claims to the resource base and greater potential to invest in productivity improvements.

The test of success in these research cases was their practical impact. They provide examples of how action research can lead to meaningful social and political change. The diversity of the cases highlights the broad applicability of the approach, and the consistency of its results, in marginal areas where poor people depend on common pool resources.

The task of broader implementation of common property resource management institutions is one in which policy will be important, but will play a limited role. Policy changes are essential to re-allocate rights and assets, and to define the sharing of rights between different local groups or between the community and government. Clarification of rights and State-backed sanctions for those rights are essential elements of devolution of NRM to communities. These examples illustrate how policy changes can play an important enabling role in the emergence of local resource management institutions, by legitimizing collective tenure (Ratanakiri and Mongolia); or by defining and legitimizing co-management processes (Vietnam). But in all cases, the structures and processes of new management institutions to **implement** these rights had to emerge locally, grounded in the leadership and capacity of those individuals and organizations involved.

In this evolution, the role of external facilitators/practitioners can be crucial. All of the cases required substantial external and local resources to develop successful innovations. The procedural emphasis on providing new information; on fostering meaningful participation; and on mechanisms for shared learning were consistent across all the cases, and reported by the participants as crucial success factors. They were vital to the transformation of attitudes, roles and responsibilities inherent in the introduction of new institutions for resource management. Through meaningful engagement in action learning, the perceptions of local farmers, fishers and government staff changed to enable innovations that had previously not been possible.

Overall, these experiences ought to reinforce our confidence in CPR theory, but also to point to practical guidelines for its implementation.

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