

A photograph of a traditional wooden house with a thatched roof, elevated on stilts and situated on a riverbank. The house is surrounded by lush greenery and trees. The water in the foreground is calm, reflecting the surrounding landscape. The title text is overlaid on the lower half of the image.

Social Landscapes and Rural Livelihoods

Cambodian Communities in Transition

Cambodia Rural Livelihoods and Natural Resources (RLNR)
Development Research Programme
2010

The views expressed in the following papers are those of the authors and are not necessarily reflective of the supporting partners.

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Design and Layout:

Nova Cambodia and
Hay Sochet, The Learning Institute

Photo Credit (Cover page):

The Learning Institute

Copies Available from:

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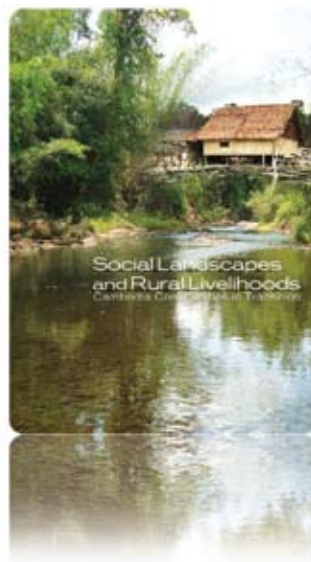
ISBN

9789996350658

Printed in Cambodia

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Cambodia Rural Livelihoods and
Natural Resources (RLNR)
Development Research Programme



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Suggested Citation:

Rural Livelihoods and Natural Resources Development
Research Programme, 2010. *Social Landscapes and Rural
Livelihoods: Cambodian Communities in Transition*.
Phnom Penh: The Learning Institute



Social Landscapes and Rural Livelihoods

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Development Research Programme

2010

Supporters and Contributors

Improving Rural Livelihoods through Community Fisheries Management (IRLCFM) Project
Based at Community Fisheries Development Department (CFDD)
Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries

Strengthening the National Community Forestry Program (NCFP) to support Community Livelihoods: Constraints, Opportunities and Development Support
Based at Community Forestry Office (CFO)
Forestry Administration, Ministry of Agriculture, Forestry and Fisheries

Protected Area Co-Management
Based at the Learning Institute

Livelihoods and Protected Area Management Project (LiPA)
Based at General Department of Administration for Nature Conservation and Protection,
Ministry of Environment

Crossing Boundaries (CB): Decentralization Work of the Community Federation in Koh Kong Province, Cambodia
Participatory Management of Coastal Resources (PMCR)
Based at Ministry of Environment

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International Development Research Centre (IDRC)



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PREFACE

David Chandler¹

I am delighted to write a few words of welcome for this poignant, absorbing and persuasive collection of essays. Many of the voices emerging from the essays are those of the Cambodian rural poor, who make up more than three-quarters of the kingdom's population. These voices are well worth listening to and learning from.

I also admire the voices of the professionals who have written the chapters. Their capacity to hear the voices of the poor, to pass on what they have heard and to understand people's lives makes the collection a pleasure to read.

The compelling and vexatious issues that the book addresses are all too pressing in 2010. They include the depletion of natural resources, the often painful rearrangement of social landscapes, the ongoing absence of equity and the perennial insecurities of rural life. On the positive side, the book looks into strategies to answer the need for enhanced community, greater cooperation among actors and a growing awareness that sharing resources and responsibilities is the only feasible way to lessen the pressures mentioned above.

The clear-eyed perception of problems and the willingness to try to solve them are characteristics of rural Khmer people that I have admired for many years. These are on view in this collection. I wish the authors well and hope for the best for the people the book is really about, even though many of them may never have a chance to read it.

⁽¹⁾ Professor Emeritus, History Department, Monash University, Australia.

ACKNOWLEDGEMENTS

Development Research Support Team (DReST) and Secretariat of Research Coordination Committee (RCC) of Rural Livelihoods and Natural Resources (RLNR) Development Research Program in Cambodia wish to express sincere thanks to those who helped to make this book possible.

First, we must acknowledge the support – moral, intellectual and financial – of Canada’s International Development Research Centre, and its regional base in Singapore, ably stewarded by Richard Fuchs, now retired. We are especially grateful to Hein Mallee, based in Singapore, who has been a steadfast champion of this research development programme from the beginning.

Tribute must also be paid to the resolve and dedication of the five research team leaders, who collectively chaired the research programme (RCC) by which this book was inspired. Based in the Ministry of Environment and the Ministry of Agriculture, Forestry and Fisheries (Fisheries and Forestry Administrations) and The Learning Institute, they ensured that a variety of perspectives was put forward. Indeed, despite the name, which we often found difficult to recollect, the RLNR programme was a project to which we all became deeply committed. The team leaders – Kim Nong, Ly Vuthy, Sokh Heng, Srey Marona and Sy Ramony – were not only skilled and resourceful but also clearly passionate about learning and putting into action ideas and practices to benefit rural Cambodian communities.

They were ably assisted by the 27 research team members, who proved to be enthusiastic learners of participatory rural appraisal methods and keen observers of rural communities. Their diligence in reflecting back what they had learnt from the community meant that data could be interpreted to create effective programmes of action with community members. They are: Chann Ratana, Chhor Elett, Eam Bopharasy, Heng Hong, Heng Ponley, Hou Vong Vichheka, Keo Piseth, Kou Huy Leang, Mean Sok Aun, Meas Sothun Vathanak, Nem Kano, Oun Pisey, Phon Sophay, Samreth Sambo, Sokheng Novin, Souk Vin, Tong Sokunthea and Yim Heng. Other team members who also acted as contributing authors were: Cheam Pe A, Heng Borany, Kim Sarin, Ma Vuthy, Long Ratanakoma, Rang Sokha, Tithuot Vathana, Tol Sokchea and Tit Phearak.

The project also owes much to the many Learning Institute staff who took part. This includes the current Executive Director, Srey Marona, who is also leader of one of the research teams contributing to this book. Toby Carson, Programme Advisor, and

Ken Sopheap, Manager of The Learning Institute's Administration and Finance Unit, as well as Hay Sochet, who heads the Communication Unit, were also crucial to the smooth management of this book publication, despite a tight schedule.

Much credit, too, is owed to Kate Grace Frieson, DReST Research Advisor for the Rural Livelihoods and Natural Resources (RLNR) Development Research Programme. She came up with the idea to produce this publication in consultation with the five partner team leaders, and provided invaluable advice on technical aspects. She also oversaw the facilitation process with partners, from the beginning to the final stages.

We also thank editor Roo Griffiths and translators Neth Baromey and Hou Kalyan. They have done a professional job on this publication that we hope will be of interest and value to all who are interested in the wide scope of issues it covers. The service provider including Nova Cambodia, too, has worked on time and work closely with our team for design and layout of the book.

Above all, we must pay our respects to the women and men in natural resource communities in Cambodia who aspire to generate improvements through collective action. They have been the source and inspiration for this book, and literally hundreds of them shared in the process of action research with us. In this way, all participants were able to learn about fundamental problems affecting livelihoods and natural and social environments, and about the challenges to sustainable living in Cambodia.

LIST OF ACRONYMS

3Rs	Reduce, Reuse and Recycle
ADB	Asian Development Bank
BPAMP	Biodiversity and Protected Area Management Project (Ministry of Environment)
CDRI	Cambodia Development Resource Institute
CDRF	Cambodian Development Research Forum
CFDD	Community Fisheries Development Department (Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries)
CFO	Community Forestry Office (Forestry Administration, Ministry of Agriculture, Forestry and Fisheries)
CMLN	Collaborative Management Learning Network
DFID	UK Department for International Development
DReST	Development Research Support Team (The Learning Institute)
EEPSEA	Economy and Environment Programme for Southeast Asia (IDRC)
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GPS	Global Positioning System
IDRC	International Development Research Centre (Canada)
LiPA	Livelihoods and Protected Area Management Project (General Department of Nature, Conservation and Protection, Ministry of Environment)
MAP	Mangrove Action Project
NCDD	National Committee for Decentralisation and De-concentration
NGO	Non-Governmental Organisation
NIS	National Institute of Statistics (Ministry of Planning)
NTFP	Non-Timber Forest Product
PLA	Participatory Learning and Action
PMCR	Participatory Management of Coastal Resources (Ministry of Environment)
PMMR	Participatory Management of Mangrove Resources (Ministry of Environment)
PRA	Participatory Rural Appraisal
RGC	Royal Government of Cambodia
RNLR	Rural Livelihoods and Natural Resources Development Research Programme
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNTAC	United Nations Transitional Authority in Cambodia
US	United States
USAID	United States Agency for International Development

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Introduction



Introduction

Kate Grace Frieson²

This book explores how rural communities with others in Cambodia have been managing complex commons during a period of rapid economic and political change, so as to conserve natural resources while also responding to the need for livelihood improvements. Three themes crosscut this endeavour: rural livelihoods in transition; crossing boundaries and mapping resources; and institutions and innovations.

Our thesis is that rural livelihoods in Cambodia are in transition, from near total reliance for subsistence on natural resources within forests, fisheries, protected wildlife parks and coastal mangroves, to more diversified approaches.

What is driving the transition and where will it lead? This is one of the main questions that this book strives to answer. The diversity of the sectors and regions represented here makes it foolhardy to assert that one variable, such as Cambodia's depleted natural resources or its entry into the global capital market, is paramount in this transition. Nevertheless, the evidence clearly shows that rural livelihoods are transforming, as a result of demographic pulses, land use changes, environmental pressures, including climate change impacts, and food security risks.

As to what is driving the transition, it clear that, from the perspective of the communities themselves, deepening poverty is the major spur. Research across four resource sectors and five different ecological zones has yielded the same conclusion: those who are most vulnerable to global economic forces beyond their control are the ones unable to adapt in beneficial ways. And the more they depend on natural resources the poorer they become, because the resources are simply not of the quality and quantity they were even some 20 years ago in the effort to trade, barter or sell for decent living standards.

At the core lies the matter of survival, and the human impulse to adapt in order to do so. In Cambodia, from what we are seeing from our collective problem-oriented research over three years, fishers, foresters and indigenous peoples can no longer secure sufficient means from natural resource extraction, even when supplemented by

⁽²⁾ Research Advisor, Development Research Support Team (DReST), The Learning Institute.

agricultural opportunities, to meet livelihood needs sustainably. The message sounds bleak. It is not all bleak. There are many innovative communities and initiatives underway to redress this imbalance, to diversify sources of livelihoods and to adapt to external influences such as foreign direct investment, exports and manufacturing of natural resources.

The diversification of approaches is characterised by increasing dependence on resource management mechanisms with outsiders, especially the state, than ever before (Chambers and Conway 1992). Resource management regimes, often referred to as common pool resources or common property resources, typically entail adaptive or co-management operational features.

Common pool resources

Common pool resources are natural or human-made resources, such as water systems, pastures or lakes, characterised by the difficulty of excluding actors from using them and the fact that use by one individual or group means that less is available for use by others. For this reason, such resources need a defined set of users and a management system. In most cases, they are open only to those with historical rights through kinship or community membership, who are generally protective of them.

Source: Adapted from Berkes (1989) and Ostrom (1990).

These new arrangements to manage natural resources are dependent on government actors at all levels bringing the state and its apparatus of power and protection ever closer to the folks on the ground. Challenges and opportunities abound in this.

Livelihoods and alternatives to impoverishment

So what are the alternatives? How have rural communities coped with the stresses and strains?

One way is through establishing domains over common pooled resources, whereby users avoid the “tragedy of the commons” by asserting rules of use for members and negotiating threats or interference with those outside the domain. This approach is often termed “co-management,” as it relies on multiple levels of stakeholders to manage resource use, from the local to the national level.

Co-management

Co-management is in place with programmes that increase “partnership arrangements in which government, the community of local resource users, external agents (NGOs [non-governmental organisations], academic and research institutions), and other stakeholders (fish traders, moneylenders, tourism) share the responsibility and authority in decision-making over the management of natural resources.” This covers various partnership arrangements and degrees of power sharing and integration of local (informal, traditional and customary) and centralised government management systems.

Source: Pomeroy and Katon (2000).

This has entailed integrating communities more into the state, involving local authorities (including police, commune officials and government technical and research departments) and outreach to non-governmental organisations (NGOs) working on community development. Together, these groups are piloting sustainable management systems that are based in communities but assisted by mapping, administration, resource use monitoring and rules of engagement, through statutes, memberships and overall planning.

Defining rural communities

Rural communities in this book refer to those who have organised themselves or been organised by outsiders into community-based resource managers of specific sectors in order to have greater governance, control and decision making with regard to how resources are collectively held, monitored and used for the betterment of individuals and for the greater good of the community. Communities are notoriously difficult to quantify, characterise and define. And Cambodian rural communities are much more complex than when American anthropologist May Ebihara in the late 1950s defined the classic Khmer village as: largely wet rice based; spatially organised into clusters of wood and thatch family homes on stilts; and socially organised into family units, with no other organising institutions beyond the village temple, from which villagers drew spiritual, social and emotional sustenance for the main rhythms of life (Ebihara 1968; Frieson 2010). Social hierarchies and power relations have nevertheless been a constant feature of Khmer society and, as Chandler (2006) notes, the concept of equity, while not unfamiliar or unrecognised, is difficult to realise.

However, communities have changed a great deal in the interim, forcibly torn asunder by war and revolution in the 1970s (Chandler 1991; 2006); reshaped and reformulated by socialist political design in the 1980s; led into democratisation and elections in the 1990s (Heder and Ledgerwood 1995); and put into various community development paradigms (The Learning Institute 2009). This tumultuous history has taken its toll on Cambodian communities, yet there are very few who would argue against their resilience.

Communities are of course not homogenous in their makeup. They are regulated and understood by their members as hierarchically arranged through fairly complex social rankings linked to gender, class, educational background, connections to powerful outsiders and spiritual wealth and power.

Communities

A community is a collection of human beings who have something in common (kinship, language, shared history) and who share a common space of residence and a set of institutions that bind them together. The word “community” is also used to refer to larger collections of people who have something else in common (e.g. national community, donor community).

Source: Chandler (2006) and Tyler (2006).

Another finding across the research sites was that communities themselves have strong and marginalising divisions within them, based on access to entitlements, relationships with moral and political authority structures and a weakening of moral economies to protect vulnerable families that lack healthy household heads, are headed by a widowed member or are otherwise marginalised by gender or age indices. The significance of this is that, what at first appeared to be successful local adaptation to environmental entitlements from common pooled resources, ended up being support to some members of the local community to the exclusion of others.

For the purposes of this book, communities refer to specifically organised groups of people working in natural resource committees to regulate their fish, forests and protected areas on the coasts and in the hinterlands. These are the community forests, the community fisheries, the mangrove protected areas and the wildlife protected areas. They are located all over Cambodia and have legal recognition from the Royal Government of Cambodia (RGC).

These resource management communities are the face of the rural transition: they are engaging with external institutional actors such as government resource management administrations at national and sub-national levels, NGOs, credit and savings groups, marketers and ecotourism companies and, in some cases, directly with international aid donors.

Social landscapes

The collective impact of these new livelihood approaches is changing the social landscapes of Cambodia's rural areas. Four social typographies define the main features of these social landscapes: 1) the vulnerable or poor and very poor, who form between 30 and 70 percent of populations in the research sites; 2) migrants, mostly children of the middle class and poor who cannot make a living in rural areas anymore and who seek paid employment outside their native villages and provinces; 3) moneylenders and middlemen and women, who help fund migration, livelihood experiments or simply basic needs; and 4) government researchers and NGO workers, who engage in establishing development projects to assist sustainable natural resource management strategies in tandem with livelihood improvements. Each of the chapters in this volume speaks to these groups, albeit in different contexts. Most prominent are the vulnerable populations, the poor and very poor, who have complex interactions with middlemen and women, migrants and researchers and non-governmental workers.

Genesis of this book

The genesis of this book was a happy one. It came from a proposal during a meeting organised by The Learning Institute's Development Research Support Team (DReST) and the research advisor of the Rural Livelihoods and Natural Resources (RLNR)

Development Research Programme. This three-year programme, funded by the International Development Research Centre (IDRC), is a multi-partner initiative bringing together five projects, bonded together thematically but representing different sectors (see table below).

Rural Livelihoods and Natural Resources Development Research Programme

Partner/actor	Location
Community Fisheries Development Department (CFDD)	Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries
Community Forestry Office (CFO)	Forestry Administration, Ministry of Agriculture, Forestry and Fisheries
Protected Area Co-Management	The Learning Institute
Livelihoods and Protected Area (LiPA) Management Project	General Department of Administration for Nature Conservation and Protection, Ministry of Environment
Participatory Management of Coastal Resources (PMCR)	Ministry of Environment
Development Research Support Team (DReST)	The Learning Institute

Each of the research teams had generated a plethora of results using different media, for policymakers, community members and NGOs. Various research reports, briefs, films, lectures, seminars and conference proceedings had been produced or were in the planning stages. We had also represented ourselves as one programme in a national development research conference, when preliminary sketches of theoretical frameworks tied to empirical data were collated in a panel discussion (RLNR Panel 2009).³ However, there was no plan to produce a thematically unified book forging across natural resource sectors. When the idea was suggested, even though the programme was drawing to an end and the writers and researchers were committed to other demanding work with their communities, the response was instant and positive: “Yes, we must write this book – it is very important for our communities and for us.” And so here it is.

⁽³⁾ See also the website of the Cambodia Development Research Forum (CDRF) Symposium, held on 9-10 September 2009, Phnom Penh, Cambodia: www.drforcambodia.net.

Organisation of the book

The book is arranged around three themes: rural livelihoods in transition; crossing boundaries and mapping resources; and institutions and innovations. In sum, these themes broadly represent the main crosscutting currents that have emerged from the RLNR programme of research.

In the first section of the book, on rural livelihoods, five chapters representing different natural resource sectors and geographical areas discuss various livelihood initiatives and contexts within local communities. Social, economic and gender dimensions of these initiatives are detailed. The first chapter charts the conceptual terrain of rural livelihoods, underscoring what is meant by livelihoods and what is then meant by sustainable livelihoods. This concept is at the core of much of the development agenda in most poor countries of the world, including Cambodia (Agrawal and Perrin 2008; Scoones 1998; Tyler 2006).

The second section of the book, on crossing boundaries and mapping resources, engages with the ecological and environmental management boundaries: how these are complexly related, can be at odds with administrative and political boundaries and lead to community management challenges. The chapters in this section review common pool resource approaches and principles; types of conflict emerging as a result of these new approaches; and how communities via action research are managing or responding in positive and negative ways.

The third and final section, on institutions and innovations, contains three chapters that speak to the growing importance of the co-management approach and the relevance of local governing institutions and national ministries in helping communities navigate natural resource needs and challenges. This final section looks at the role of government researchers as possible agents of social change via research results that advocate the need to listen to voices from the grassroots. How do research results get translated through the government bureaucracy? How can they reach the eyes and ears of policymakers, those whose influence can and does make a difference to the types of opportunities and challenges faced by ordinary rural Cambodians struggling to navigate their rapidly changing economic environment?

The research programme on which this book draws included around 30 researchers in its five projects, with two teams from the Ministry of Agriculture, Forestry and Fisheries and two from the Ministry of Environment. The fifth team was based in The Learning Institute. The programme of research for this fifth team was slightly different from that of the other four teams, in that it evolved from a previous programme and merged in with the larger research programme in fits and starts. The research teams were of varying sizes (three to nine members) and capabilities, based on the mix of junior and senior researchers assigned to each. Their compositions remained fairly constant, an achievement in the Cambodian environment of limited human

resources, as ministry staff are in almost constant demand to multitask and perform both research and policy/programming tasks for their superiors. Some of the junior researchers left us to engage in life-changing events, such as graduate degrees abroad or marriage, sometimes in combination. Team leaders provided constancy in the pursuit of research objectives, alertness to new and interesting results and commitment to ensuring results were shared and learned at local community level for maximum benefits.

To guide the programme, to provide it with an intellectual home and to coordinate the sharing of learning across the teams, IDRC, with ideas and funds, very ably supported the setup of a research support unit based in The Learning Institute, which is an independent non-governmental institution with a shared history of research with the partners and a commitment to action research in the field of natural resource management.⁴ DReST coordinated the learning and overall research aims of the programme together with the five research team leaders. The support unit provided technical input via trainings and mentoring on theoretical and methodological approaches to natural resource management, data analysis and cross-sectoral linkages.

The chapters themselves were written by research team leaders and senior field researchers through a series of writing workshops and consultations. The chapters draw on data from the respective research teams, bearing witness to three years of fieldwork interspersed with several collective learning and sharing forums. These unique forums brought together researchers from different natural resource management sectors, who then carried out peer review and interrogation of data results and analysis, facilitated by a research advisor and other expert practitioners through a three-year reflective process.

What this book tries to do is to document the situation from a problem-oriented research design, based on action research cycles involving communities. So this is their story as much as ours. We are still very much at the beginning of our research journey with these communities. It is our commitment to continue working with them as long as they need researchers with them, to bring forth to a wider audience their dilemmas and experiences in natural resource management and their demands for a more just, stable and sustainable future.

⁽⁴⁾ For a fuller description of the programme and how it is situated in The Learning Institute, the website is valuable: www.learninginstitute.org.

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Section A:

Rural Livelihoods in Transition



Photo by: The Learning Institute.

Section A:

RURAL LIVELIHOODS IN TRANSITION

Chapter 1: Social landscapes and rural livelihoods in transition
By: Kate Grace Frieson and Pech Sithan

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Chapter 1

Social landscapes and rural livelihoods in transition

Kate Grace Frieson⁵ and Pech Sithan⁶

Introduction

This chapter introduces key conceptual themes with regard to social landscapes and rural livelihoods, and then ties them to a phenomenon of change that we view as “communities in transition.” By social landscapes, we are referring to the changing relationships between people and the natural resources on which they depend for their livelihoods. The demographic and eco-environmental picture in Cambodia is changing rapidly: a population bonus of young people is seeking to enter the paid workforce at the same time as the diminishing natural resource base is limiting the success of rural Cambodians, whose livelihoods remain tied to rural landscapes.

Social landscapes in Cambodia are more complex now than at any other time in the past, especially given that the country’s population is also on the move. No longer are single household units the main unit of social organisation, loosely tied to kinship networks in rural rice-growing villages disconnected from one another (Delvert 1961; Ebihara 1968). Cambodia’s development is fast paced and well funded by international banks and donors, and is bringing Cambodians from different environmental regions, ethnic backgrounds and social classes in contact with each other. Male migration is changing the family dynamics, and close to one-third of households are now female headed (NIS 2004b); most villages have either distant or direct connections to non-governmental organisations (NGOs) with community-based rural development programmes; proximity to markets and urban centres is greater than before for rural communities along the highways and near rapidly growing urban areas; and mass media, including mobile telephones, radio and television, are now communication mainstays for most Cambodians.

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Cambodian rural communities may look unchanged from the outside, with their wood and thatch homes on stilts situated in clusters near natural resource eco-scapes, from which they derive their spiritual and material sustenance. But their social networks are vastly more integrated with modernising forces and the influences of globalisation. In particular, social landscapes in Cambodia's rural communities have three new and modern features that characterise what could be called the period of liberalisation beginning in the 1990s: linguistic, financial and political.

New social landscapes are represented by the plethora of rudimentary English, Chinese and Korean language “international” schools that dot provincial towns and large villages, spurred by the job market and foreign direct investment. A second language is keenly sought after by the young generations as an entry point to social mobility. Second language facility, especially English, enables access to the internet and, through this, global influences.

Financial services in the form of credit institutions are also springing up in provincial towns and making reaches far into the countryside, as people seek loans and capital inputs for their livelihoods and lifecycle needs (Kim 2009).

Political change is happening through Cambodia's policy of decentralisation and de-concentration, underway since 2002 with commune council elections taking place every four years. Councils now have development budgets and are tasked with natural resource management planning and gender equity outreach, as well as the infrastructure projects that have been the mainstay of material development in much of Cambodia.

Amartya Sen in his 2009 book *The Idea of Justice* puts forth the very significant notion that, instead of thinking about how institutions and policies shape access to justice, we should begin to think more about access to capacity among vulnerable and marginalised populations to make their lives better. In Sen's words: “The freedom to choose our lives can make a significant contribution to our wellbeing, but going beyond the perspective of wellbeing, the freedom itself may be seen as important.” In this sense, capabilities are about the opportunity to do something – to migrate, to invest in fishing gear, to join a women's savings group: “Freedom to choose gives us the opportunity to decide what we should do.” It is very unfortunate that the very poor and vulnerable are without this freedom to choose what to do and that they are the ones left out of opportunities for resource management livelihood improvements, simply because they are too poor, too hungry and too marginalised to count themselves in or to be brought in by the larger community.

This thinking is not far removed from the livelihood assets analysis framework that Chambers and Conway (1992) and Scoones (1998), among others, developed in the 1990s, which was later introduced by the UK Department for International Development (DFID) to address failures in poverty reduction across the globe (Ashley and Carney 1999). In this framework, the assets of vulnerable populations, usually those in rural and remote areas, are measured across five areas: human, physical, natural, social and financial. The holistic approach of the assets framework is very useful to quickly scan a community's overall situation and to identify the gaps that prevent them developing their capacities to take part in agricultural extension, natural resource management collectives or community savings groups, etc.

The social science literature of the 1970s contributed much to our knowledge of historical stock responses of peasants to threats to subsistence: passive resistance, rebellion, revolution, rationale choice theory, etc (Popkin 1979; Scott 1976; Shanin 1971; Skocpol 1979). But in the age of stronger state power, relative political security and development, supported and spurred in many cases by international banks, bilateral aid agencies and global economic forces, rural communities have to forge new strategies and responses to livelihood needs and poverty.

Government strategies to lift rural people in Southeast Asia out of antiquated methods of subsistence rice production and dependence on raw natural resources is leading to major transformations in social and power relations. The rice-producing family unit is increasingly an anachronism, replaced by mono crops such as rubber, cassava and oil palm organised into plantations, with wage labour the modus operandi in agricultural mega projects. This trend is also present in Cambodia and, alongside tourism and the construction industry, is slated to propel the country towards middle-income status in the next 20 years (ADB 2009). From the perspective of rural communities dependent on natural resources, some of which have lived in harmony with their ecological environment for generations, these changes bring both opportunities and threats. The opportunities include income to pay for health and education costs as well as basic foods and other material goods. The threats loom large and relate to disturbances to natural ecosystems, disrupted community care for natural environments and encroachments on indigenous lands and other properties held in common by rural communities.

These trends impact social landscapes, as rural people adapt to the changing economic environment while also trying to hold on to traditional livelihood practices based in their own natural resource environment. Within this, four types of social groupings stand out as forming new and complexly related components of Cambodia's rural society. The broad features of these groupings are sketched out below.

Social landscapes in rural lands

The vulnerable

Poverty and wealth mapping using participatory rural appraisal (PRA) methods in communities representing five natural resource sectors and geographical areas (the coast, inland fisheries, northern forests, northwest protected areas and northeast indigenous areas) indicates a disturbing trend of deepening poverty among the poorest social classes in Cambodia.⁷

These poor and very poor groups explain that access to assets in their traditional eco-habitats is rapidly diminishing, signalled most poignantly by a loss of land. This latter is attributed overwhelmingly to health crises and the need to pay for diagnosis and treatment for the all-too-common diseases of malaria, dengue fever and respiratory illnesses in children and adults.⁸

Simply put, the rural poor in Cambodia, forming some 30 to 40 percent of the total population (Ministry of Planning and UNDP 2007), are becoming alienated from the land and therefore are more dependent than ever before on natural resources that are diminishing at an alarming rate. Over three years of research among rural communities, we observed that the livelihood requirements of the poor are not being met, food hunger and malnutrition are common (30 to 70 percent of the poor and very poor in the research sites) and the need for new innovative methods in protecting, stocking and using resources has perhaps never been greater than it is now.

Migrants

Young men and women are now largely absent from the social landscape in rural Cambodia, having left to seek paid employment in clothing and brick-making factories in nearby provincial centres, the capital or further afield (such as in Thailand) (Derks 2006; Ngin and Pilgrim 2009). Many of these find love and seek marriage in the cities without family guidance, thereby diminishing the pivotal role of the elderly kinfolk and Buddhist monks and nuns in marriage ceremonies, once elaborate and lengthy in rural Cambodia.

⁽⁷⁾ For our purposes, the poorest social classes are those identified by community members themselves with researchers, using PRA tools such as wealth ranking, livelihood and assets analysis and risk analysis tools. They are characterised by landlessness, limited education and low literacy levels, unstable thatch homes set on the ground or sometimes on low stilts and lack of a secure or safe supply of drinking water. For their daily needs, they seek seasonal wage employment in their village or commune from landowners or fishers of middle class or more wealthy means, who need labour for rice farming or other work (cutting grass, tending to cows, cleaning fish, mending fishnets, foraging in the forest, cutting wood and so forth).

⁽⁸⁾ See field data for the various projects (CFDD 2008; 2009; CFO 2008; 2009; LiPA 2008; PMCR 2008; The Learning Institute 2009a; 2009b).

“There are no young men and women left in the village that we can partner with each other and it is absolutely lonely and quiet now.”

Elderly woman, Kampong Thom province.

As a result of the 1980s post-war baby boom, there is an abundance of school-age children in rural Cambodia and fewer elders than before (NIS 2004b). With 250,000 young people joining the ranks of the employed every year, there are simply not enough opportunities in rural areas to keep them there. Indeed, the fact that rural households cannot produce sufficient food or income to care for the family is weighing hard on young people, whose migratory search for jobs is tied largely to the objective of sending back remittances to parents and elders (Derks 2005; Ngin and Pilgrim 2008). What happens when these young people do not return to rural areas to manage community natural resources? This question does not have a ready answer.

Microfinance agencies and middlemen and women

Credit and microfinance institutions are either embedded in rural communities or not far away. These sprouting enterprises are encouraged by the state as a mechanism to fund and develop entrepreneurial approaches to rural development in Cambodia, which is still largely a subsistence-based society. Most rural Cambodians are too poor to benefit from formal credit operations and rely on the more familiar practices of dealing with moneylenders or playing in Chinese ton tin group savings and borrowing schemes.

Middlemen and women are a key socioeconomic group with complex relationships within communities that are dependent to a large extent on natural resources. This group often remains hidden from view in PRA exercises but can emerge when the income-expenditure ratios of different social classes are better understood.

These middlemen and women are usually long-time residents of the communities, occupying a middle class or wealthy social ranking overall. They mostly have secure tenure arrangements, usually with some hectares of rice or vegetable farming land beyond that needed for self-sufficiency. Profits from farm produce marketing are used to enhance assets and generate more.

From the outside, middlemen and women's relationships with the most vulnerable may appear wholly opportunistic, one sided and self-enriching. However, their absence could result in deeper marginalisation of the very poor and poor. Middlemen and women are important sources of economic security for community members who otherwise have no access to markets, which are typically far in distance for most people who depend on natural resources, sometimes requiring up

to two days of travel by bicycle or motorcycle. This time away from the day-to-day needs of livelihood subsistence is not possible for the vulnerable. Middlemen and women are the marketers of natural resource collection and production, carrying out a vital function with regard to getting products to market. However, they are not particularly benign economic forces: they tend to ensure the indebted stay that way, sometimes for generations.

Government researchers and non-governmental organisations

The final feature that is new to the social landscape in rural Cambodia is represented by the environmental and social researchers who are members of the growing research community within the national government and the NGO community. The RLNR programme is an example of this.⁹ Veterans of this programme are environmental experts from technical departments in the Ministry of Agriculture, Forestry and Fisheries and the Ministry of Environment who make regular trips to the same communities, sometimes for over a decade or more, to promote and help develop co-management practices with local communities in relation to their natural resources.

These national researchers are also building bridges across communities in different sectors by organising study tours on specialised topics related to social and eco-habitats, such as water resource management, conflict resolution and inventory and monitoring mechanisms. Researchers are also directly engaged in development projects with government and bilateral aid donors and become well-known members of the community (Kim et al 2009). NGOs are multitudinous in Cambodia and work in partnership with communities and in connection with environmental researchers attached to ministries.

It is as yet unclear how beneficial these research interventions have been with regard to increased access to assets for community members, or how benign development models have been for communities (Meas and McCallum 2009). However, what is clear is that most rural communities are dependent on NGOs for some aspect of their community development, as the Cambodian government is not yet resource strong enough to perform all of the usual public service delivery on its own.

This three-year programme of work was unique in its design in that it bridged management challenges of complex commons across sector divisions. National research practitioners and policymakers came from backgrounds of fisheries,

⁽⁹⁾ The evidence of this relatively new and organised research community is also shown by the Cambodian Development Research Forum (CDRF), among other bodies, created in 2008 to share and promote quality research results with academics, universities, policymakers, NGOs, community-based groups and interested individuals. See www.drforcambodia.net for more details on the annual symposium and other events and publications.

forestry and protected areas, enabling them to come together with local communities in long-term engagement in problem-oriented research that placed community problems at centre stage, while acknowledging the complex wider socioeconomic and political developments that often are at odds with community control and management of natural resources in Cambodia.

Rural transitions: The outlook

While deepening poverty is the main threat to rural livelihoods, there is a silver lining to this story, which this book celebrates and reflects through most of its chapters. The context for this is Cambodia's stated political commitment to democracy at the grassroots level through commune elections every four years and support to communities to have greater control over their natural resources in approved managed areas that are demarcated, managed through community-level committees and free from private sector development and infringement.

Charting rural livelihoods in transition highlights the change underway in Cambodia, as fishers, foresters, indigenous Cambodians and ethnic Khmers traverse the new economic arrangements brought about by: increasing land alienation and landlessness among poor strata; urbanisation and the demand for wage labour in the construction, garment and services sectors; globalisation and foreign direct investment in economic land concessions; and depletion of natural resources.

Rural livelihoods in Cambodia are fundamentally at point of no return, because fishers, foresters and indigenous peoples can no longer obtain sufficient income to meet their livelihood needs from natural resources. In particular, this research has made important poverty and exclusion findings: whereas wealthy and middle class segments of the population together account for only 30 to 40 percent of the populations in the research sites, the poor and very poor account for some 60 to 70 percent. And yet the livelihoods of these latter groups are facing a crisis of sustainability, and they do not have the physical, natural, social, financial or human resources needed to eke out a living. This poverty and exclusion also has significant gender and ethnographic aspects. These research results are based on mixed methods, including problem-oriented action research, ethnography, participant observation, in-depth interviews, focus group discussions (FGDs) and reflection workshops with communities and other stakeholders.¹⁰

⁽¹⁰⁾ This paragraph draws on field data from across the projects.

Photo 1.1: Examples of household type in the research sites

Very poor household



Poor household



Middle class household



Wealthy household



Photos by RLNR team.

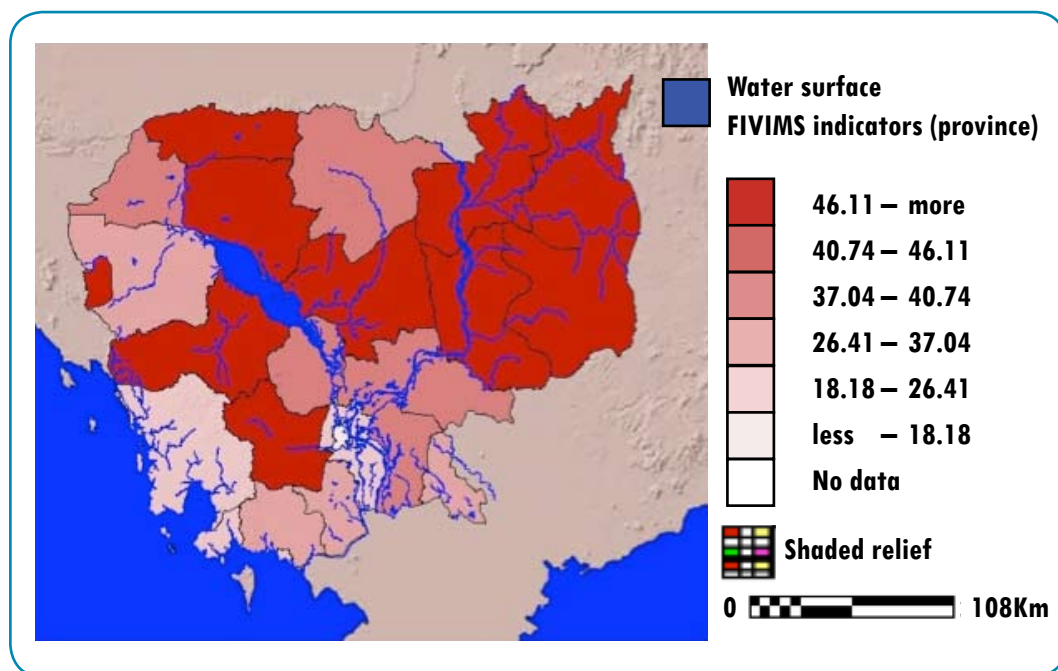
The need for livelihood diversification is largely the result of diminished access by the rural poor to traditional resource stocks stemming from conversion of land to economic land concessions, managed in the main by foreign (Chinese, Korean) companies. This increases landlessness among the poor, which is combined with agricultural risks and threats from climate change-related phenomena and poor governance at all levels (Chan 2010; EEPSEA 2008; 2009; Hang 2010; LiPA 2008; Ministry of Planning and UNDP 2007; World Bank 2009).

Ten years ago, nearly everyone in these communities had a parcel of land, as a result of the land distribution carried out by the Cambodian state in the late 1980s (during the twilight of socialism and just before the United Nations Transitional Authority in Cambodia (UNTAC) ushered in the current period of democratisation). Most Cambodians grew rice on the land and toiled in family groups and with

neighbours' help in the ancient community practice of *provasdai*, or “helping hands,” when farmers would come together for the labour-intensive periods of the agricultural cycle.

With access to water sources, fertiliser, transportation and markets, it is possible to farm fruit and vegetables, colloquially called *chamcar* farming. The produce is used for family consumption, with the leftover sold. However, since the 1990s, and particularly in the past five years, land speculators have been roaming the countryside. With the country hit hard by the food and financial crises, poorer Cambodians, having to cope with external pressures and suffering from health problems, malnutrition and high infant and maternal mortality, have begun to sell their land (Chan 2009; Chan and Acharya 2002). Indigenous populations may have suffered the biggest land loss per capita by ethnic grouping, as their lands are almost all “eaten up” by outside speculators, including members of Cambodia's powerful elite (Fox et al 2008; The Learning Institute 2005; 2009b; Van Acker 2010).

Map 1.1: Population under the poverty line, Cambodia, 2004



Note: The population under the poverty line is the population living with a level of income lower than the requirement for basic minimum needs – e.g. buying food necessary to maintain good health and nutrition. The total poverty line for 2004 was estimated to be 1,753 riel (US\$0.44 in 2004), 1,952 riel (US\$0.49) and 2,351 riel (US\$0.59), for rural areas, other urban areas and Phnom Penh, respectively.

Source: www.asiafivims.net/cmb/page.jsp (indicator data from NIS 2004a).

Map 1.1 shows poverty spread over Cambodia's population across the country, with deep red areas of just over 46 percent in the mountainous northeast and around the Tonle Sap Lake. In spite of the vast potential for irrigation using the Tonle Sap, the largest freshwater lake in the Asian region, and the Mekong River, which runs north to south through Cambodia's alluvial flood plains and the Mekong Delta rice bowl, Cambodia's farmers are dependent on the skies for their water. There is as yet no integrated water management system for agriculture, including groundwater use in river catchments or other water management technologies, although there is recognition of the urgent need for such a development (Hang 2009).

The World Bank's poverty assessment of Cambodia, released in 2006, reported a decline in overall poverty rates to 35 percent, based on poverty calculations of US\$1 a day to meet subsistence needs to bare minimum standards (World Bank 2006a). Poverty alleviation has been unevenly spread, however. The very poor, especially in the vulnerable areas of Cambodia, have become poorer, and the "non-poor" have gone up in terms of living standards (CDRI 2007).

Cambodia's brisk economic growth over the past 15 years has led to steadily increasing per capita incomes, but disparities remain between urban and rural populations. This is a worry, since most of the population resides in the countryside and works in the agricultural sector (World Bank 2006a). Further, Cambodia's agricultural development has not thrived. Its share of gross domestic product (GDP) shrank from a high of 45 percent in 1996 to 30 to 32 percent in the period between 1993 and 2005 (Ministry of Planning and UNDP 2007).¹¹ Rice production is limited by absence of irrigation, extension services and technical inputs regulating growth and harvest cycles during the dry and rainy seasons. The paddy yield rate of just over 2 tonnes/ha is among the lowest in the region (Hang 2009; RGC 2006).

"Because agriculture and its allied activities employ most people in the countryside, low and uneven yield rates across [domestic] regions have implications for farmers' incomes, and hence, human development. Thriving agriculture often is the basis for greater economic diversification."

Ministry of Planning and UNDP (2007).

⁽¹¹⁾ Reduction of the agricultural share of GDP could be interpreted positively if the shares contributed to GDP by the industrial and services sectors were absorbing the workforce leaving the agricultural sector. These two sectors are driving economic growth and have grown steadily, but the distribution of wealth from them has not benefited most Cambodians who live in rural areas.

Other characteristics of Cambodia's domestic development affecting food security are unregulated market forces and weak governance, which are enabling factors for the rising concentration of landholdings (Hang 2009; Ministry of Planning and UNDP 2007; World Bank 2006a). Landlessness was a characteristic of 20 percent of rural households in 2004 (Ministry of Planning and UNDP 2007) and is a key vulnerability factor with regard to food security and climate change adaptation. Landlessness in 2004 affected mostly rural Cambodians, who were in the main subsistence farmers. There are strong indications that this trend has not abated. The overall percentage of landlessness "may be increasing by as much as two percentage points per year" (ibid).

Current statistics to 2009 from the National Committee for Decentralisation and De-concentration (NCDD) provincial database on landholdings substantiates the pattern of growing disparities between wealthy landed and poor landless, with provincial- and district-level data for the whole country showing landless rates as high as 60 percent in some areas. Several of these areas are contiguous to economic land concessions.¹²

This, then, is the broad context to the transitions of those dependent on natural resources for their livelihoods and of those who mix rice or vegetable and fruit cultivation with fishing, foraging in community forests or protected areas or living among the mangroves and sea grasses of the southern coast.

Conclusion

The transitions underway in rural communities are related to: strong and marginalising divisions based on access to entitlements; relationships with local authorities; gender and ethnicity issues of equity; youth migration to cities; increasing landlessness and impoverishment; food security concerns; high demand for credit; the importance of local institutions to mitigate and negotiate cross-boundary claims and disputes; and the challenges of decentralisation, where ecosystem boundaries and administrative/political boundaries are not always aligned.

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Chapter 2

Catalytic action research: An approach for social change and empowerment?

Oum Sopharo,¹³ Pech Sithan¹⁴ and Loun Phanit¹⁵

Action research empowers groups within a community to take action to address and help solve their own problems. As such, it is crucial to supporting changes in the livelihoods of rural people.

This chapter provides evidence to support the call for action research to generate social change and empowerment. It first defines action research and its process, then moves on to describe the ways in which the approach can generate social change, especially among community members at local levels. Next, it looks at how local people are empowered through this kind of research, and the ways in which it contributes towards rural development. Finally, it considers the factors necessary to ensure the tool's smooth implementation.

The chapter deals mostly with participatory action research with Cambodian rural populations in the context of community development, specifically with regard to improving rural livelihoods. It does this by integrating experiences collected from a number of action research teams with theories and concepts gathered from the literature.

Overview of action research

Definition

Research is conducted to uncover required information or to look for new understanding. However, it does not include carrying out the action deemed necessary to solve any issues uncovered during such study.

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Action research goes further than conventional research. The researcher identifies a problem, does something to resolve it, returns to see how successful these efforts were and, if not satisfied, tries again.

“Action research ... aims to contribute both to the practical concerns of people in an immediate problematic situation and to further the goals of social science simultaneously. Thus, there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process.”

Gilmore et al (1986).

When action research is used

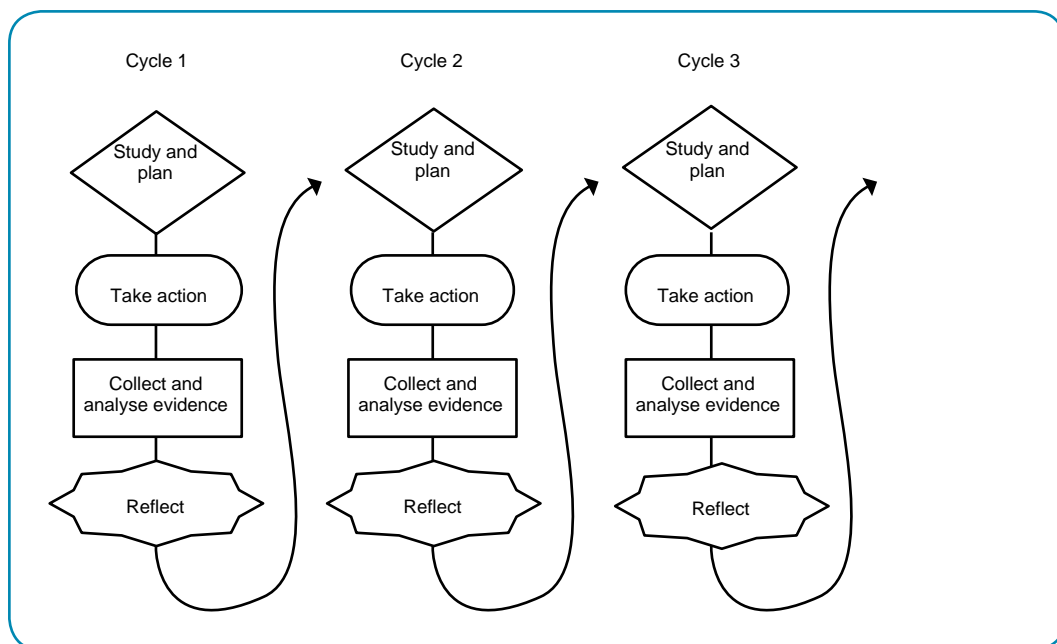
Action research is used in real situations, as it focuses primarily on solving real problems. It can also be used in situations that are too ambiguous for the framing of a precise research question. For the most part, it is used when flexibility is necessary, when people need to be involved in the research and/or when change must take place quickly or holistically (O’Brien 2001). It is also recommended for practitioners who wish to improve their understanding of their work (ibid).

O’Brien (2001) argues that action research can be a suitable methodology in situations where: 1) investigators are faced with complex and/or diverse problems; 2) resolving problems involves a lack of clarity (especially in complex situations); 3) changes require a common vision or a negotiated compromise; and/or 4) the situation or context is changing.

Process of action research

Action research is cyclical in nature. According to Riel (2007), each cycle has four steps: plan, take action, observe (collect and analyse evidence), reflect (see Figure 2.1).

Figure 2.1: Simple action research model



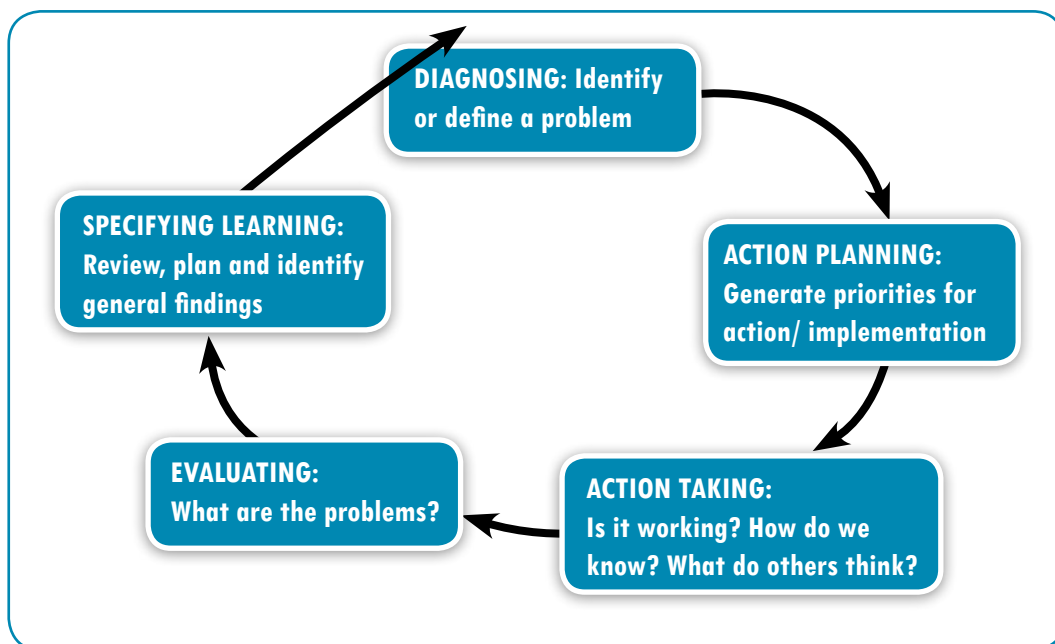
Source: Riel (2007).

A common way to divide the action research cycle is into five stages (Susman and Evered 1978, in Baskerville 1999):

- 1. Diagnosing:** Identification of the problem that we want to solve
- 2. Action planning:** Finding actions to solve the problem
- 3. Action taking:** Implementation of the planned action
- 4. Evaluating:** Reflection on whether the problem is continuing to arise
- 5. Specifying learning** (formally undertaken last but usually an ongoing process)

The action research cycle can continue and develop into another cycle, whether or not the action is successful. The next cycle follows the same stages. As more cycles are conducted, further knowledge is generated and changes become more in depth.

Figure 2.2: Action research model



Source: Adapted from Baskerville (1997).

Participatory action research

The traditional action research approach described above has been extended into a form known as participatory action research. This approach puts more emphasis on collaborative and synergistic methods, to ensure that researchers and local people work together to take joint responsibility for the quest for information and for ideas to guide problem resolution (Whyte 1991).

Participatory action research approaches encourage participation: researchers and local people contribute their own knowledge/ideas to the action research process. Action researchers share the concepts of action research along with general information; local people share practical knowledge/ideas for the action research process, given that they have an in-depth understanding of their own social context (which cannot usually be said for the researchers). As a result, planned actions are more likely to be aligned with social realities.

Action research and social change

Social change arises as a result of participation, knowledge building and, finally, personal change. Each of these is described in detail below.

Participation

Participation is about taking part in or being involved in something. In participatory action research, researchers and local people work together to assess the situation, make choices and change their behaviour in the face of any constraints (Tyler 2006).

Participation and collaboration are necessary so that community members can determine the nature and operation of the things that affect their lives in order to be able to change them for the better. It also motivates joint decision making that resonates well with local people's cultural context and lifestyle. Just because the same issue arises in different places does not mean that we can use the same method to resolve it.

Collaborative work encourages more participation from community members: joining in action research cycles makes commitment to behaviour change more likely, going on to generate positive thinking with regard to future resolution of issues for better livelihood and natural resource management.

In order to achieve effective cooperation and shared learning among a range of stakeholders, action research supports the building of partnerships with various actors, including national, provincial and local institutions, non-governmental organisations (NGOs) and the private sector (as well as researchers and community members). Broad participation in community-based natural resource management happens when there are structures in place for communication, learning and cooperation among stakeholders and across sectors.

Knowledge building

Building local people's knowledge and ability to understand and address the issues confronting them and their community helps ensure effective action research. However, it is often the case that broad and complex issues surround the situation in question. Action researchers act as guides/facilitators (rather than decision makers) to help community members improve their own capacity continuously, through joint work with other stakeholders along with sharing of ideas and learning.

Personal change

Action research is “learning by doing,” with continuous improvement anticipated from one cycle to another. Knowledge building is supported by personal commitment generated through participation in the research process. “Fundamental to action research is the idea that the social world can only be understood by trying to change it” (McTaggart 2002), and commitment by researchers and community members to such change is another unique contribution of action research.

Joint commitment is generated by the approach’s innate respect for people and for the knowledge and experience that they bring to the research process. Kurt Lewin’s work led to “the powerful notion that human systems could only be understood and changed if one involved the members of the system in the inquiry process itself” (Coghlan 2002). Working collaboratively with others not only leads to community and organisational change, but also is believed to influence personal change among those who are involved in action research. Furthermore, action researchers also reflect on their experiences and acknowledge being profoundly changed by these.

Empowering local people

Empowerment is a process that aims to help people become confident in what they are doing and thinking, as well as allowing them to feel a sense of control over their own lives. Collaboration and continuous local capacity building contribute towards the building of empowerment.

Working and planning collaboratively

When local people, as the actors who know the situation better than anyone else, are given the opportunity to work and plan collaboratively in natural resource management, they begin to understand their own interests and their role in addressing issues and conflicts and achieving common goals. To this end, with support from external actors (action researchers), they can strengthen their own capacity to plan and form their own structures.

Action research allows local people both to work together on joint actions and to share information and experience in the community and with external actors. This increases the capacity of local people to resolve problems, make decisions, share responsibilities and attain more control over the management of their resources. Opportunities for working and planning collaboratively include: community member participation in project activities; joint meetings and decision making; and community control over resources.

To ensure that these opportunities bear fruit, it is important to reinforce practical knowledge and knowledge on resource use rights. Training on the short- and long-term usages of direct and indirect natural resource products (especially

non-timber forest products, NTFPs) will help ensure that local communities become interested in joint work and in planning with other stakeholders. Again, the combination of external theories/support and internal situational knowledge can lead to successful and effective natural resource management.

Learning by doing

In “learning by doing,” learning is perceived to be experiential and reflexive, to be followed by change and more learning. The cyclical nature of action research allows people to reflect further at the end of each cycle so as to identify good points and points for further improvement. At this point, the learning process is restarted, each time incorporating more and better learning.

Action research recognises that people learn through active adaptation of their existing practice and knowledge in response to their own experiences with other people and with their own environment (Allen 2001). Within action research, empowerment of local people in “learning by doing” helps them to take control of the research process and to go on to address their own needs.

Local capacity enhancement

A key role of participatory research lies in enhancing the capacity of local people to assess and articulate their own situation. Capacity development not only enables local people to capture the benefits of the research results but also enhances their ability to exercise choice. Establishing linkages and networks between communities and policymakers, policy formulation processes and academics is a main component of the empowering process in pro-poor research. Once they find a voice, the poor can enter into a dialogue with the powerful. By organising themselves, they can gain more control over their resources so that they can continue to improve their livelihood situation and contribute to the formation of both private and social assets. This empowerment to take active part in the decisions that affect them is what a participatory approach catalyses (Gonsalves and Mendoza 2006).

In full knowledge of the advantages of capacity building, the Development Research Support Team (DReST) provides a great deal of training to strengthen partners’ knowledge on action research methods. This includes training on the Ten Seed Technique (see below), governance theory, common pool resource management, non-violent communication, adaptive management (see below), geographical information systems, data analysis, writing skills, etc. DReST also encourages and supports its partners to further share their knowledge to improve the capacity of community members and local stakeholders.

Photo 2.1: Training of local stakeholders

On leadership and adaptive management



On common pool resource management



On non-violent communication



Photos by Loun Phanit

Contributing to rural development

Development is being realised when positive growth or change occurs in a community. Action research can help in solving complex problems to improve the social and natural resource situation in local communities and thus contribute towards development.

Dealing with complexity

Natural resource management is complex, because ecosystems are dynamic and because we as humans are limited as to our understanding of, and ability to know everything about, every situation ever occurring in the world. Gaps in knowledge lead to uncertainty – especially in community development, where the problems are

often complex and capacity is often limited. Given that people still need to make decisions and implement plans, it is important to ensure that approaches taken are flexible, adaptive and participatory (Fisher 2004). In such circumstances, adaptive management can play a big role (see below).

Livelihood improvement

Action research is believed to support participatory planning and decision making, along with improving capacity to identify issues, problems and ideas for possible interventions so as to generate social, political and environmental change. In the conventional development approach, external actors influence local communities to work for development. In action research, local communities are given the opportunity to enjoy full involvement in resolving the identified problem, to ensure that their livelihood improvement needs are fulfilled.

Sustainable resource use

Undertaking participatory action research enables community members to be directly involved in community development. This results in commitment and motivation, generated by means of a greater understanding of the issues and challenges within their own area. It also enables income generation benefits that are more sustainable, as communities come to appreciate cause and effect in natural resource management and work according to community-set rules. This means that communities learn how to use and manage their resources in a sustainable manner to ensure that they are maintained for future generations.

Best practice

Useful concepts

Participatory rural appraisal

Participatory rural appraisal (PRA) has been used effectively in action research. PRA allows both internal and external stakeholders to participate in the research process, by sharing information in the actual working environment and enabling internal stakeholders (villagers) to learn from external stakeholders (researchers). PRA is based on the participation of all interest groups, but especially recognises indigenous technical knowledge (Wilde et al 1995).

Some of the tools of PRA are: the dialogue process (semi-structured interviews, group discussion); diagrams (Venn diagrams, systems diagrams, seasonal calendars, flow diagrams, historical transects, trend lines); tables and charts (list making, organisational charts, timelines, simple ranking, pair-wise ranking, scoring); and spatial analysis (community sketch mapping, watershed/sub-district profiling, participatory three-dimensional modelling) (Asia Forest Network 2002).

Ten Sed Technique

The Teen Seed Technique is a modified participatory learning and action (PLA) tool. Created by Dr. Ravi Jayakaran, it is a useful tool for action research and can be used to carry out several different PLA exercises. The technique makes it possible to collect data from the field very fast and effectively, using seeds to present responses (each one representing 10 percent) (Jayakaran 2002a).

The technique's flexibility and adaptability mean that it also can be used in combination with, or support, other PRA tools, such as Wholistic World View Analysis. This latter is a way of carrying out a village capacity/vulnerability analysis, combining livelihoods analysis and problem analysis with information on village uncertainties. Wholistic World View Analysis involves the whole village and enables the active participation of all village residents in community resource development planning (Jayakaran 2002b).

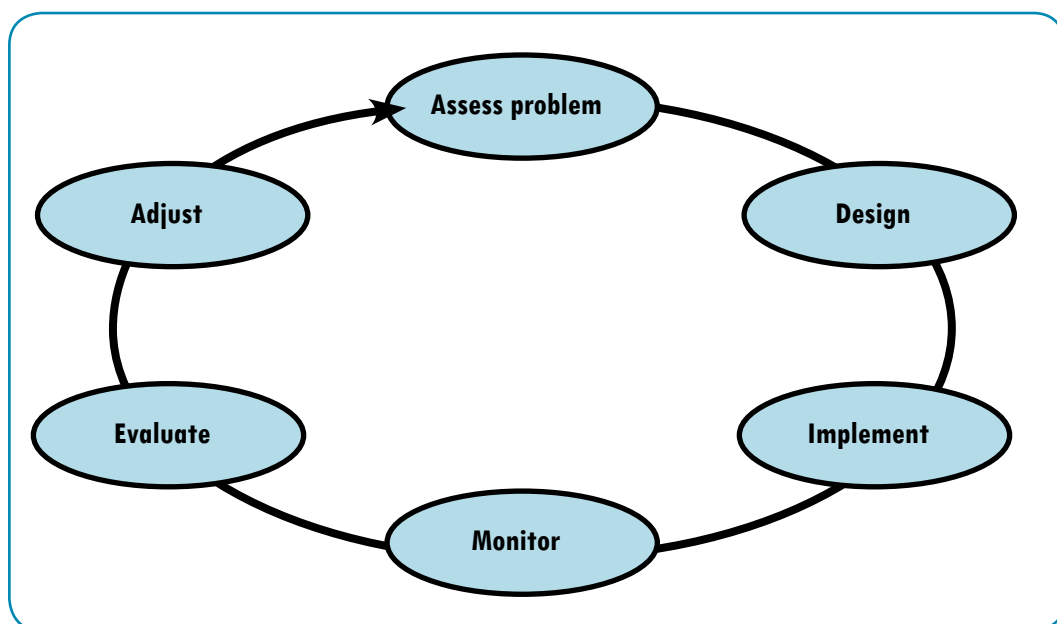
Adaptive management

The adaptive management concept fits well with action research in dealing with limited information, complexity, uncertainty, conflicts and constant change. Adaptive management is an approach to ecosystem management that recognises the limit of our understanding of natural systems and accepts that changes are intrinsic to the ecosystem. It promotes conscious and systematic learning (not trial and error) to improve future courses of action – “triple loop learning.” It also promotes collaboration and the institutionalisation of effective conflict management (Nyberg 1999).

Adaptive management consists of six steps (see Figure 2.3):

- 1. Problem assessment:** Define the scope of the management problem, synthesise existing knowledge about the system and explore the potential outcomes of alternative management actions
- 2. Design:** Create a management plan and monitoring programme that will provide reliable feedback about the effectiveness of the chosen action(s)
- 3. Implementation:** Put the plan into practice
- 4. Monitoring:** Monitor indicators to determine how effective actions are in meeting management objectives
- 5. Evaluation:** Compare actual outcomes with proposed ones
- 6. Adjustment:** Adapt practices, objectives and models to reflect new understanding, leading to a reassessment of the problem, new questions and new options to try in a continual cycle of improvement

Figure 2.3: Framework for adaptive management



Source: Nyberg (1999).

More than one cycle

As we have seen, action research is a cyclical process, not limited to and ending with a single cycle of research. To ensure continuous improvement, it is best to conduct reflection at the end of each cycle, including monitoring and evaluation to gather lessons learnt and information on areas for enhancement in the next cycle. Not all issues will be resolved during a single cycle, and new issues are expected to crop up in each subsequent cycle. As well as being a result of limited information and weak (but growing) strategic capacity, many of these new issues will be related to the dynamism generated by the action research. That is, they are thrown up by the changing nature of the social, ecological and political environment, and therefore should be viewed as a somewhat positive impact of the research rather than merely as representing an unending spiral of difficulty.

Factors in success

The long-term goal of action research in natural resource management is to ensure natural resource sustainability. To enable this, it is vital to support among all stakeholders the promotion of effective communication, equitable benefit sharing and proactive conflict management. These factors are key to the search for a variety of alternative solutions to community development issues and challenges (Gonsalves et al 2005).

As we have seen, successful action research requires active participation by and commitment from all stakeholders, especially community members. The method should also be flexible and therefore suitable to the specific context.

Policymakers need to be able to make use of research findings to help develop supportive natural resource management laws and regulations. Such tools can help ensure local participation and, in the long term, sustainable natural resource management. They are also necessary to strengthen institutional capacity, especially at provincial and local authority level, as government officials have the potential to have great influence on local communities. Some communities also set up their own rule system adjusted to their own environment.

Conclusion

Action research is a cyclical process of identifying problems with the community to find appropriate local solutions. Social changes are generated through the use of participation, knowledge building and personal change. Collaboration and continuous capacity building contribute towards the empowerment of the local community, which is a key factor in resolving complexity and maximising positive social and natural resource outcomes.

It is hoped that this chapter has gone some way towards describing the concept of action research and presenting evidence as to its value, in order that researchers, development practitioners and community members in Cambodia will be able to apply the approach with community engagement to improve rural livelihoods and natural resource management.

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Chapter 3

Voices from the community forests: Gender, geography and generations

Heng Borany,¹⁶ Ma Vuthy¹⁷ and Kate Frieson¹⁸

Introduction

“With all the youth gone to the cities or to Thailand in search of jobs, who is going to look after the forests when we are gone?”

Elderly male, Kon Tnaut village, Kampong Thom province.

This chapter examines dimensions of gender relations with respect to non-timber forest product (NTFP) extraction within the context of one community forest in Cambodia, where geographic and generational factors, including migration of men and youth, have combined to put the onus on women to carry out family livelihoods. The findings stem from a larger research project based in seven villages in Kampong Thom and Kampot provinces that engages community forestry organisations in issues of institutional arrangements and livelihood improvements.¹⁹

Our theoretical position stems from common pool approaches to resource management, with particular emphasis on the geographic and ecological qualities of the forest resource base and the community’s monitoring and extraction guidelines of NTFPs. We have developed an analytical framework for exploring these issues that provides for conceptual interrelations among gender, geography and generations.

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⁽¹⁹⁾ The three-year research project based at the CFO is called Strengthening the National Community Forestry Programme to Support Community Livelihoods: Constraints, Opportunities and Development Support. The findings from this larger project are provided in other chapters of this book and in other CFO publications.

The argument of this chapter is that poor and very poor women figure prominently in the extraction of NTFPs from the community forest but benefit very little from their labour. This finding has implications for the National Forest Programme and how its implementation of the community forestry component can have differential benefits for women and men (Forestry Administration 2009).

The National Community Forestry Programme

The National Community Forestry Programme was developed by key actors in the community forestry sector under the leadership of the Forestry Administration and was launched in May 2006.²⁰ The impetus behind it was an independent Forest Sector Review, commissioned in 2004 by the Cambodian government in partnership with its development aid partners, which recommended that a community forestry programme be established as the best method for introducing sustainable forest management practices (Ashwell et al 2004).

This review stemmed from the decimation of Cambodia's old growth forests under a forest concession programme (1990-1997) that permitted private companies with unrestricted logging rights to log in state forests of in total nearly 6.5 million ha, or 35 percent of the total land area of Cambodia. A logging moratorium was eventually imposed by the Cambodian government in 2001 in response to the criticism of local communities and development partners as a result of the heavy degradation of the forests and the maltreatment of communities by logging companies (Ashwell et al 2004; Babon 2004; McKenney and Prom 2002; NGO Forum on Cambodia 2007; Oxfam GB 2000).

Positive measures in the legal apparatus to support sustainable forest management by community members include the Law on Forestry (2002) and the Sub-Decree on Community Forestry, approved in December 2003 and based on the recognition of the importance of forest resources for rural people and their actual and potential contribution to sustainable forest management.

The National Community Forestry Programme's objectives are to achieve sustainable forest management and livelihood improvements for community forestry

⁽²⁰⁾ The programme has four main priority areas to be implemented over a 20-year period (2010-2020): decentralised forest management (community forestry, community-based production forestry, partnership forestry, community conservation forestry); community forest identification and formalisation; community, institutional and livelihood development; and community forestry development support services. The planning document currently does not consider the gender dimensions of these four areas but we anticipate that this chapter and other research that profiles gender elements of community forestry will provide sufficient information for policymakers and planners to ensure gender-responsive considerations are put into effect when the plan is put into action. See Forestry Administration (2009).

members. To support implementation of the programme, the Forestry Administration of the Ministry of Agriculture, Forestry and Fisheries is tasked with arranging official recognition of community forestry initiatives on the ground; assisting these communities to improve the management of forest resources; and ensuring greater benefits from community-based management for all members of the communities (CFO 2007). There are 264 community forests, covering some 179,000 ha and averaging about 600 ha per site, most of which are registered as potential areas with the Ministry of Agriculture, Forestry and Fishery (Forestry Administration 2006a).

Action research to support the National Community Forestry Programme

In 2007, a research team within the CFO was established to investigate over a three-year period the implementation of the existing community forestry programme by focusing on the key issues of: effective modes and tools for supporting arrangements for sustainable forest governance and management; and utilisation, processing, marketing and benefit distribution of NTFPs. The research programme had three main components: diagnostic studies; research and development of local institutional arrangements; and action research on forest-based livelihood improvements.

During the course of the research and especially as a result of the community situation analysis, three themes kept surfacing, even though they had not previously been identified for any rigorous attention: gender dimensions of the community forest; geography of the forest and its ecological, economic and historical importance with regard to the community's ability to improve livelihoods and govern its management; and the generational aspect in the past, present and future of the community forest, with youth migrating out of villages, adult males seeking paid work outside of the natural resource sector and women left as the primary users of the community forest.

The main objective of this research was to identify and investigate the main livelihood issues confronting a core group of four villages in a community forest located just north of Kampong Thom provincial centre. In the larger research project, containing two provincial research sites, the analytical context was to investigate the nexus between institutional arrangements for successfully co-managing the community forest, and opportunities and constraints for improving the livelihoods of those most in need. This entailed analysis of the socioeconomic situation, availability of resources and issues arising in the community forest in the Kampong Thom site.

In order to achieve these objectives, the research team used direct observation and participatory rural appraisal (PRA) tools to investigate the livelihoods and activities of people at the study site related to NTFP extraction and use, including examining the

roles of women in daily livelihood activities. The team identified main opportunities and constraints in livelihood improvement and explored potential benefits to community members from belonging to and managing the community forest.

A further objective later identified as contextually new was an analysis of the causes and implications of youth and mainly male out-migration from the community.

Photo 3.1: Focus group discussion with community forest members, Kampong Thom province



Photo by the CFO research team.

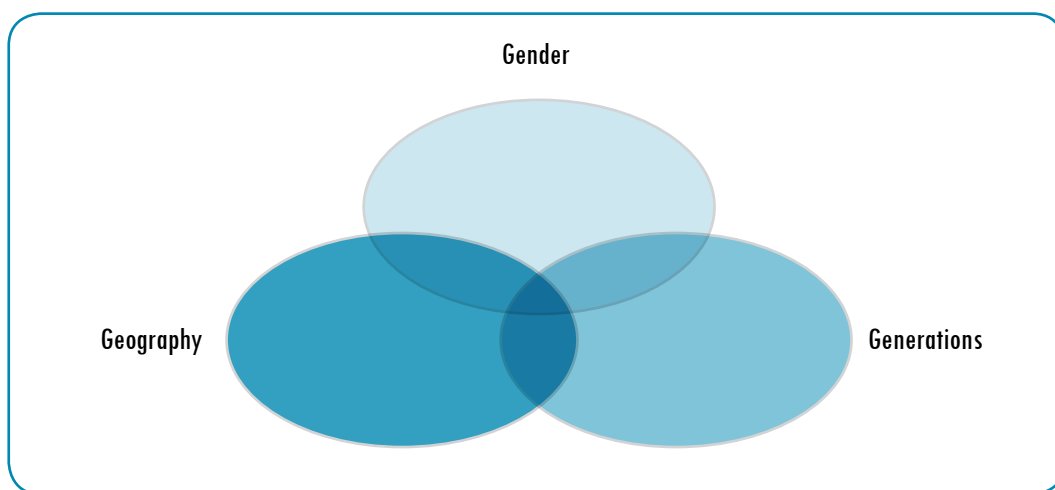
The research was originally conceived of to enable legal recognition of the community forest (it had received provisional registration). This was expected to better equip the local community to manage and benefit from forestry resources to improve their livelihoods, as legal recognition increases tenure arrangements, improves community members' trust in community forestry management institutions and attracts development partners. From the perspective of the government CFO, the significance of the research was linked to its ability to provide evidence on how national-level Forestry Administration researchers, acting as capacity builders of local managers, could concretely improve the effectiveness of the implementation of the National Community Forestry Programme.

Finally, the research was significant in a way that was not originally anticipated: that is, in terms of the gender dimensions of poverty within the community forestry context in relation to migration, the resource extraction capacity of poor women and the generational sustainability of forest management. In this, the on-the-ground research context was different from in the research conceptualisation. Diagnostic studies and site visits in 2007 and 2008 revealed that the mesh of gender, geography and generations was relevant to the original objectives and needed to be better understood. This raised a very large question as to the sustainability of community forests in Kampong Thom and the suitability of co-management models for institutional arrangements which, in other studies, have been seen to be powerless to respond adequately to the food security needs of natural resource-dependent households (Babon 2004; Fichtenau and Ly Choung 2002).

Conceptual framework

So how can we put all these factors together? One way is to create a conceptual framework that reflects the singular importance of three concepts and posits their interlinked characteristics and dependencies within a Venn diagram of interrelations and crosscutting influence. We call this the 3G framework: gender, geography and generations.

Figure 3.1: The 3G framework



Source: Generated by research team/authors.

Gender

By gender, we refer to the social, economic and cultural construction of identities of males and females with respect to expected norms of behaviour and, in this rural context, the agricultural labour division between the sexes (Ebihara 1968; Frieson 2010). By gender relations, we mean the reproductive and productive means available to men and women in access to and use of the community forest. We are also interested in the gender differences of women and men in labour earnings and valuing their labour in local markets.

Two of the questions that arose in the context of community forest management are: How can women be equally active as men in community forest management? How can women be supported in being selected as community forest management committee members?

Geography

Geography is used in the sense of identity of place and space – how the physical location of the community forest itself has meanings for access by different socioeconomic strata within the community of forest users in the research site, and how the space that the community forest takes up has multiple meanings for its different users.

The geography of place also has meanings for the gendered and age-related dimensions of migration that are taking place in the research site.

In addition, the geography element has important ecological elements: What is the type of forest and what are the main sources of NTFP that are of value to the community? What are the mapping features of the community forest, including how well it is demarcated and how these demarcations are of benefit for monitoring stocks, tracking use and resolving tenure disputes.

Generation

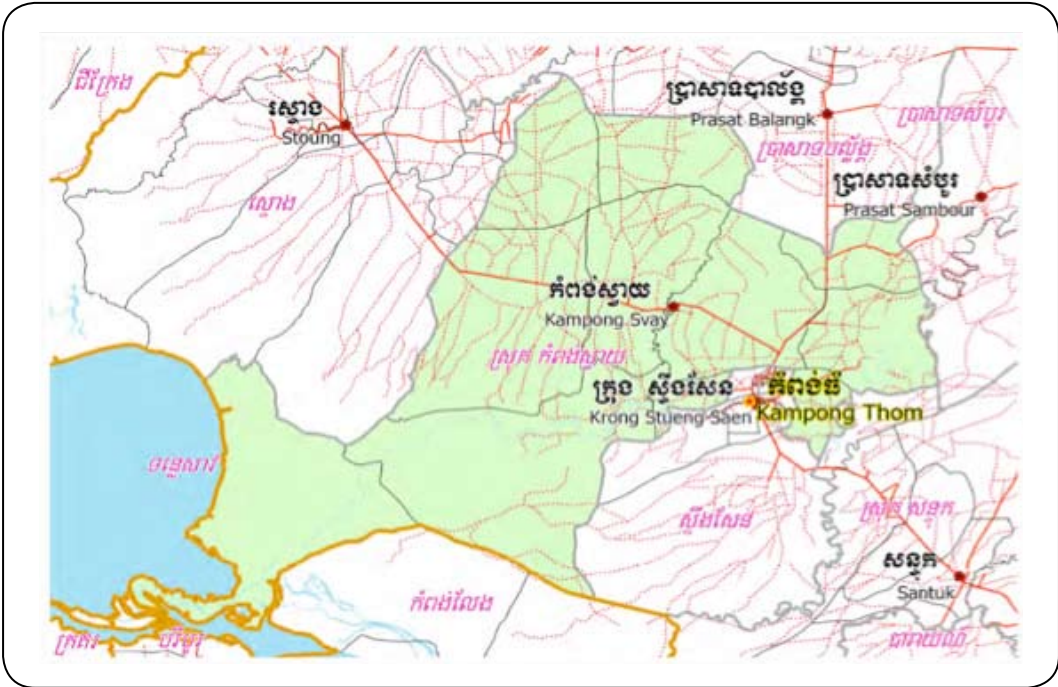
The concept of generation has the potential for multiple meanings, including the idea of producing something (the generation of forest products) and the (re)generation of tree species. We use the term in a more specific way, applying it to the generations of families that have lived in the research site tied to their increasingly tenuous connection with the management of the forest. The generational element is important to consider because of the out-migration of youth in search of paid employment in urban areas.

Indicative questions from this concept include: How will the demographic trends towards urbanisation impact on the community management of forests? What are the gendered dimensions of migration on the community of female and male forestry managers?

Trapaing Rong Community Forest research site

The research data and analysis presented here comes from Trapaing Rong Community Forest, located in Chey commune, Kampong Svay district, Kampong Thom province, central Cambodia. Chey commune is located 15km along National Road 64 from Kampong Thom to Preah Vihear province. Part of the commune is adjacent to National Road 220, which leads to the pre-Angkorean Sambor Prey Kok Temple in the northeast of Kampong Thom province.

Map 3.1: Map of Kampong Svay district, Kampong Thom province



Source: NCDD Database, (2009).

Chey commune was established during the late colonial period, according to elderly residents. Infrastructure in the commune includes roads, water channels, wells, schools and a health care centre. Challenges remain with regard to children dropping out of school or migrating with their parents as a result of family poverty, family violence, lack of toilets, lack of medicines in the health centre and limited knowledge among villagers.

Table 3.1: Population statistics for Chey commune, Kampong Thom province, 2008

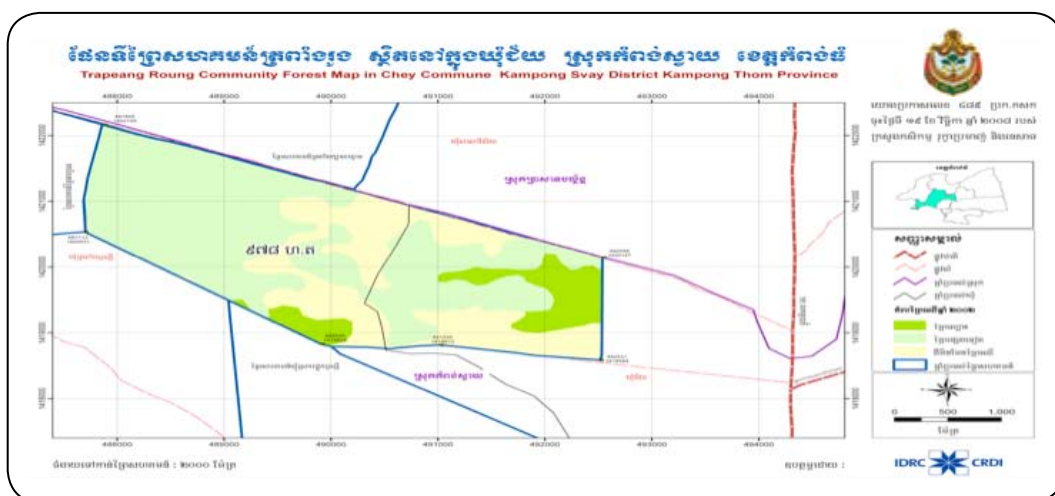
	No. of families	Houses	Population		Adults (18 years or above)	
			Total	Women	Total	Women
Kon Tnaut	91	97	445	241	253	135
Prey Tub	180	172	986	503	511	240
Trapeang Arak	190	177	1,035	523	498	236
Total	461	446	2,466	1,267	1,262	611

Source: Chey Commune Council www.ncdd.gov.kh/resources/documents/district-and-provincial-data-books?showall=1.

Trapaing Rong was selected from the national community forestry database and subject to a field test diagnostic study based on the following selection criteria: date established; area covered; condition of the forest; prevailing land use and customary rights; organisations supporting community forest management; number of villages and households and population in the area; and economically important forest products. The site needed to have been established for at least three years for the research to be of value, to contain the potential for economically important forest products to link to livelihood improvements and to be within geographical reach of the researchers travelling to and from Phnom Penh over a three-year period (2007-2010).

Trapaing Rong Community Forest, covering 998 ha, was established in 1999 with facilitation from the non-governmental organisation (NGO) Buddhism for Development, funded by the US Agency for International Development (USAID) and technically supported by the Kampong Thom Provincial Forestry Office.

Map 3.2: Map of Trapaing Rong Community Forest, Kampong Thom province



Source: Forestry Land and Watershed Management, Forestry Administration.

Map 3.2 shows the demarcations of Trapaing Rong Community Forest in green. It is bordered by Sala Popel village, Sala Visai commune, Prasat Balang district, to the east; Skun Prey Moul forest of Skun village to the west; Trapaing Thmor Dam and Trapaing Thmor Community Forest to the south; and Meh Prey Road bordering Trapaing Kraul Community Forest to the north.

The 747 members of the community forest belong to three villages: Kon Tnaut, Prey Tub and Trapaing Arak (CFO 2009). There are currently nine community forest management committees and sub-committees, with a total number of 21 people from the three villages. Female members comprise more than half of the total (407 out

of 747). The largest membership comes from Prey Tub village (404), Trapaing Arak and Kon Tnaut having 189 and 154 members, respectively. The reason that Prey Tub has more members is because it was the site of the first initiative to create the community forest and it was where the Buddhism for Development had its projects.

Table 3.2: Members of Trapaing Rong Community Forest, Kampong Thom province, 2007

	Male	Female	Total
Kon Tnaut	66	88	154
Prey Tub	185	219	404
Trapaing Arak	89	100	189
Total	340	407	747

Source: Trapaing Rong Community Forest leader.

Action research methodology

The research team developed a data research protocol to look for patterns, inconsistencies and gaps in the overall approach. This was based on action research and supplemented by a series of data compilation and analysis seminars with the larger team and team leader back at the Forestry Administration over the course of two years. A series of field reports were generated over time to form the basis for the Kampong Thom site data pool of the larger research project and shared with the Kampot province team.

The team's main approach was one of action research. This involved a lengthy series of interactions between the Forestry Administration team in its twin capacity as government "officials" on the one hand and "researchers" on the other. Most of the dialogues and meetings took place in village open air salas (wooden buildings raised on stilts that are traditionally used as a common space for community gatherings and information sharing). Altogether, the national research team spent nearly 200 days in the field from late 2006 to the middle of 2010 (see table 3.3). There were altogether 10 field trips by the CFO research team of three to four members over a 12-month period in the last two years of the research programme.

Table 3.3: Time and activities of the research team in Trapaing ROUNG Community Forest, Kampong Thom province, 2006-2010

	Research activity	Days
2006	Field site selection and literature review	4
2007	Diagnostic study; identification of partners; field research with community forestry partners	14
2008	Implement PRA tools; meetings with district and commune Forestry Administration officials; timber and NTFP study; three learning and sharing workshops with district, commune, forestry community, NGOs, Rural Livelihoods and Natural Resources (RLNR) Development Research Programme partner teams	32
2009	Focus group discussions (FGDs); in-depth interviews; PRA tools; data verification meetings; capacity building trainings for community forest members; reflection workshops with district, commune, forestry community, NGOs, RLNR teams; follow-up rattan production case study	139
2010	Field data verification	6
Total		195

Note: This table represents the total field time of two of the authors. The third author went to the field for eight days.

Source: Generated by research team/authors.

For the research team, the action research approach had two specific benefits. It built up their capacities to undertake sustained research using field-tested tools that had to be learned in advance, then implemented, recorded, reflected back to the community and analysed in a cyclical manner. The second benefit was that it brought the team emotionally close to the community members, given the very nature of the exercises – in groups with open and frank discussions over a period of two years. The space for trust was created gradually and took root when the community members themselves could understand the value of the methods, whereby they were creating the data that were analysed and reflected back in a collaborative method. In this sense, the capacity building developed around a programme of knowledge exchange between the national researchers and the community members.

Not all was smooth or easy, however, as is to be expected, especially given the troubled history of forestry management in the 1990s, when logging companies had concession rights to clear cut valuable forests. This prompted serious and sometimes violent confrontations between villagers whose livelihoods were directly harmed by the logging and the local officials who were complicit in the profiteering from large-scale unregulated logging (Ashwell et al 2004; Babon 2004).

What led the community members to become invested in the research project owed in no small measure to the frank and open style of collaboration that the national research team was consciously bringing to the field. This was put into practice by sharing the products of the knowledge that the community forest members were instrumental in creating. Finally, information on the community forest produced by the research was used collaboratively with the community in order to pilot concrete activities to benefit their members.

The action research was based on a series of information sets required to undertake a livelihoods and poverty situation analysis of the community forest members in each of the three villages. The team applied PRA tools, including wealth ranking exercises, seasonal mapping, livelihoods analysis and community forest mapping. These were done in FGDs, with data crosschecked with commune council statistics for verification on population statistics, migration and land use change, and also for information about tenure conflicts.

One PRA tool is the Ten Seed Technique (Jayakaran 2002), which starts with acquiring basic general information. Then, using an “opening-up” technique, research teams can probe more deeply into different dimensions of an issue. For example, after generating a basic socioeconomic profile of the village or community, the research team in Trapaing Rong could probe deeper to find out the reasons for differences between the different socioeconomic groups (wealthy, middle class, poor and very poor) and then link up issues such as access to natural resources, decision making, credit and so forth. This opening-up process can continue, in order to find linkages across any variables that researchers identify, for example: traditional resource management practices; gender aspects of resource management; institutional arrangements between the community and local authorities; attitudes towards change; etc.

Data collection also saw: 30 in-depth face-to-face interviews with key members of the community forest, including elderly men and women of the villages for basic village histories; 69 household interviews representing 15 percent of the 461 households in the three villages; and 10 FGDs with between 14 and 17 community forest members in each.

Information collected from May to December 2008 focused on effectiveness of community forest management, forest product marketing, wealth ranking, seasonal calendars, processing techniques, natural resource dependency and benefit sharing for sustainable forest use and management, through household interviews and FGDs.

Main findings

The main issues that came out of the data collection were: the significantly high poverty rate in the community forest community; the agricultural and environmental context – out-migration of young males and females as a result of the limitations of rural agriculture and reliance on NTFP collection; the gendered dimensions of community forestry management and livelihood options; and finally the generational and geographic dimensions of migration and implications for the future management of Trapaing Rong Community Forest.

Poverty and geography: Wealth ranking and gender implications

The geography of Chey commune is not well suited to wet rice agriculture, so most of the villagers in the community forestry area depend on vegetable farming, fishing and animal raising to supplement their livelihood needs. A great majority face difficulties in making decent earnings and many have to find work outside their community to supplement their income. Men usually seek construction work in Cambodia and to a lesser extent Thailand, whereas young females look for work in the garment factories in Phnom Penh. Wages for these sectors are still very modest (between US\$50 and \$100 a month).

Interviews and FGDs with villagers indicated increasing landlessness, resulting from a series of crisis land sales by poorer households over the past 10 years. Such crises are in almost all cases related to health (malaria, dengue, etc) and the resulting costs of treatment. For women, reproductive health costs are high, exacerbated by malnutrition, food insecurity and iodine and iron deficiency within the family, especially in women of childbearing age. Stunting and malnutrition are common among young children, who typically drop out of school to sell their labour cutting grass, attending cows or carrying out other agriculture-related work. Since health care entails user fees, as well as additional “unofficial” charges, poor and very poor members of the community suffer the worst in terms of bundling of debts from multiple moneylenders, who typically charge usurious rates of up to 50 percent compound interest monthly. Indebtedness among rural villagers is common, challenging the sustainability of their livelihoods (Hang 2009).

According to PRA data examining village history in relation to poverty and wealth rankings, poor families, which 10 years ago accounted for some 20 to 30 percent of the community population across the villages, now account for some 70 to 80 percent of households.

Table 3.4: Socioeconomic wealth ranking of members of Trapaing ROUNG Community Forest, Kampong Thom province, 2008

	Wealthy	Middle class	Poor	Very poor	Total
Kon Tnaut	10	20	30	40	100
Prey Tub	10	20	30	40	100
Trapaing Arak	5	15	40	40	100

Source: PRA exercises.

The results of the wealth ranking exercise using the Ten Seed Technique show a large difference between the wealthy and the poor and very poor. Between 5 and 10 percent of community forest members are considered wealthy because they have an occupation and household capital to run a business (buying products and lending money for interest to the poor and very poor). They own big paddy fields and plantations (more than 2 ha), are government or company employees, have a medium level of education and have sufficient transportation means, which all allow them to earn a living.

The poor and very poor represent 70 to 80 percent of community forest members. Their poverty is defined by a lack of assets in material, human, financial and capital forms. Land and access to productive land for rice farming or other food products for consumption and sale are the main determinants in their own definition of their status as poor and very poor. The poor have insufficient land, and what they have is infertile and has no access to irrigation. The very poor have no land and must build thatch shelters on land belonging to others. The very poor include widowers, old people and young married couples who take loans from the better-off or microcredit institutions. Most of the poor and very poor have no stable occupation. Most of them depend on loans to make ends meet and have many children because they have no access to birth spacing information. When they are sick, they need to sell little land parcels for money to spend on medical treatment, making it difficult for them to escape poverty.

Seasonal livelihood activities of Trapaing ROUNG Community Forest members

Generally, the period of farming and other livelihood activities is short, and varies according to plant harvesting seasons. Livelihood activities are not stable and do not generate a high income. Villagers are busiest with these activities from January to July; the rest of the year is focused on daily survival, with labour concentrated in NTFP collection.

Table 3.5: Seasonal labour calendar in Trapeang Rong Community Forest, Kampong Thom province, 2008

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wet rice farming					Plough	Sow	Transplant		Take care	Harvest	→
Cashew plantation			→	→	→	→						
Palm production	→	→	→	→								
Vegetable farming by family (potatoes, cucumbers)	→	→	→									
Firewood collection	→	→	→	→	→	→	→	→	→	→	→	→
Labour selling (factories, construction, work in Thailand)	→	→	→	→	→	→	→	→	→	→	→	→
NTFP collection (mushrooms, wild vegetables, bamboo shoots, rattan)			→	Kuy	Mushroom	→	Fruit	→				
			Fruit	→	→	→	→	→				

Note: The solid lines refer to uninterrupted activity whereas the dotted lines refer to the continuation of the activity on an irregular basis, as other work becomes priority for the season.

Source: PRA exercises.

Gender aspects of labour and community participation

Figure 3.6: Participation of women and men in three villages of Kampong Thom province, 2008

	Women	Men
Farming of all types	50%	50%
Labour selling		
Local	55%	45%
Outside community	45%	55%
NTFP collection	60%	40%
Small family trade	70%	30%
Community work	55%	45%

Source: PRA exercises.

The labour division in agricultural work overall is even, although women and men do different tasks: men plough and women plant.

Women represent 55 percent of local paid labour and men 45 percent overall, because adult males migrate outside the community to seek paid work in construction in the provincial town or in the capital city. Women, meanwhile, are more involved in paid work than ever before; they say that this is because they have similar levels of education to men and that this enables them to find work (garment factory work, waitressing, etc). This is a big difference on the past, when women said they could do only the household chores.

More females participate in activities related to social aspects (55 percent). This is because men focus more on activities such as farming, logging or firewood collection and on selling labour in and outside the community.

In NTFP collection, there are differences between men and women with regard to the types of resource collected. These are related to labour requirements and gendered elements of their values and uses. For example, men normally collect only medicinal plants, construction materials and animal fodder. Overall, women are significantly more active as resource collectors, at 60 percent of the labour force. Most women are also involved more in daily livelihood activities, such as business at home or at the market (70 percent).

Ranking community forest NTFPs for value: Gender implications

Table 3.7: Non-timber forest product livelihood sources in Trapaing Rong Community Forest, Kampong Thom province, 2008

	No.	Honey raising	Bamboo processing	Rattan processing	Mushroom	Others
Kon Tnaut	28	5	10	25	20	40
Prey Tub	18	5	15	25	30	25
Trapaing Arak	19	10	5	35	35	15
Total	65 (42F)	6	9	24	31	30

Source: PRA exercises.

According to FGD results, only between 6 and 9 percent of community forest members seek a livelihood from honey production and bamboo processing, respectively. This is because bamboo and plants with flowers are not abundant in the community forest. Most activities are in mushroom collection and rattan processing, with a spread of between 24 and 31 percent of forest users. Rattan and mushrooms are abundant in the community forest and are not difficult to find and transport. The category of “others” includes fuel wood, poles for construction of homes and furniture, medicinal plants and small animals and insects for food sources.

The research team did not sex disaggregate the above data by each livelihood so it is difficult to draw out information on the gender implications of the stated activities above. However, in discussion during data collection, women and men both stated that actual honey collection from trees is done by men, as it is a relatively dangerous job that involves climbing up to high branches and being skilled in taking the honeycomb without getting stung too many times. The women process the honey and the men then sell it. In rattan processing, it is almost all women who do this work, from the walking to the forest, to the cutting, to the carrying, to the storing, treating and processing of the rattan into products that are used mostly by women but also by men (baskets, mats and hats). Mushrooms are collected by both men and women and also children, in relatively equal portions.

Rattan processing by women in neighbouring Prasat Sombor district

In 2008-2009, the research team conducted a case study among female rattan producers outside the boundary of the community forest. Prasat Sombor district lies to the east of Trapaing Rong Community Forest and is best-known for its pre-Angkorean forest temples embedded in teak and rosewood trees. According to local custodians in the temple grounds, this area was first mapped as a protected area in the French colonial period and later managed under sustainable forestry principles.

After farming, middle class women in Kampong Chheu Teal village, Sombor commune, Prasat Sombor district, Kampong Thom province, take up rattan processing as their secondary occupation. The market for rattan products is at the temple, where middlemen and women order it directly.²¹ The price depends on the negotiation between the seller and the buyer and the type and quality of the product.

The idea for rattan production originally came from a Japanese student who was based at the nearby temple site and who had an interest in generating local livelihood improvements that could link to the Angkor Wat tourist market in neighbouring Siem Reap province. This student spent some time developing ideas and technical trainings with women, who then applied them in their own time.

The group of women was close to 10 at the beginning and consisted of very poor, poor and middle class villagers. The women who persisted are from middle class backgrounds. They have rice lands, cows and sufficient food sources. Their husbands work in the rice fields and earn an income from selling surplus rice and also from raising and selling cows, pigs and chickens. These women explain that they can continue to make rattan products because it is done in their spare time, because they

⁽²¹⁾ Japanese people buy and sell out at Siem Reap

do not have to worry about food security and because it is pleasant and enjoyable. Their products are sold with the help of the Japanese student, who picks them up from the village and markets them in neighbouring Siem Reap.

“The income from rattan processing is worth 50 percent of the total income in my family. This work does not require as much labour and I can do it at home while looking after my children as well as doing my cooking.”

Female rattan processor, Kampong Chheu Teal village, Kampong Thom province.

Photo 3.2: Rattan collector, Kampong Chheu Teal village, Kampong Thom province



Photo by Ma Vuthy.

The poorer women have given up this work since they need to make ends meet on a daily basis and they do not have the necessary several hours a day to commit to making the product. They also cannot wait for the cash from its sale. Moreover, the job needs a lot of patience and support from family members. Women have to spend half a day collecting rattan, sometimes taking their children with them. When their husbands have time, they help collect rattan, which cannot be stored more than four days.

Rattan processing in Vor Yav village, Trapaing Russei commune, Kampong Svay district, failed because the area around the village had little rattan. Women had to spend a whole day collecting rattan from about 6km away. These villagers instead collected rattan from the area near neighbouring villages or from inside the community forest area, which they are not allowed to do. They also could not afford to take the products to the market: the only way was to trade through middlemen and women and they lost out. In addition, most of those who were knowledgeable about rattan processing became sick with malaria and other debilitating illnesses for lengthy periods and were unable to continue the work; some of them migrated to other areas.

"I sold all my land when I got sick. My land now belongs to another person who allows me to live on it temporarily only. I am disabled. I was given a sewing machine so I changed my business from rattan processing to sewing as it gives me a higher income."

Female former rattan collector, Vor Yav village, Kampong Thom province.

Photo 3.3: Former rattan collector, Vor Yav village, Kampong Thom province



Photo by Ma Vuthy.

Gender dimensions of community forest management

Equal participation of women and men in forest use, conservation, management and social aspects is an influential and effective strategy in the effort to alleviate poverty and ensure economic development. This was a message that the research team heard from both men and women members of the community forest during FGDs and interviews. Respondents said that it is necessary because women are very active in collection of NTFPs and so have relevant knowledge about the state of the forest to share with others. Also, villagers feel that women carry a large burden in raising their families when the young people have left and adult men also go to look for paid work. Women stay behind to care for the children and the elderly. They are therefore necessary partners in all aspects of forest management and livelihood development. Realising this, a number of projects, governmental and non-governmental, have been promoting gender considerations across sectors. However, in Trapaing Rong Community Forest, women face problems. For example, despite the fact that they make great use of NTFPs, they have fewer representatives on management committees, little role in planning and decision making and therefore less voice.

Women's participation is vital in the planning, decision making and operationalisation of the community forest. They express great interest and capacity to undertake mapping and seasonal calendar activities; monitoring of forest resource use; and analysis of livelihoods and poverty dimensions affecting their community members. Women are also very important to consider in training on

NTPF processing, marketing and benefit distribution. Women need to be encouraged by their families and by management committees to participate in every meeting, since they know very well the needs and resource spread within the community. Male members are still learning how to encourage women to express themselves and how to respect women's voices and thoughts.

Gendered, generational and geographical dimensions of migration

Gendered and generational aspects of migration are clear in Trapaing Rong. The main push factors for out-migration relate to changes in land use from single-family subsistence rice farms for most villagers to more insecure land tenure holdings and no landholdings for poor and very poor members of the community. Deforestation and poor quality agricultural lands push males and females out of the community, leaving the villages short of youth and adult males in particular. There is also the complication of economic concessions bordering the community forest closely, although the field researchers did not incorporate this into the poverty or labour analyses. This would be a fruitful avenue to pursue in future.

Youth aged 18-24 are considered the main labour force in the family and there are few opportunities in the villages for them to obtain secure and paid work. Their parents say that if their children did not go outside the villages to find other jobs, and rather depended on forest resources, they would not be able to feed their families: the supply is not enough and prices are too low to make ends meet. In addition, there is little land for farming, the land is infertile and no irrigation system is available.

Box 3.1: Sala Popel: An empty village

Sala Popel village was established in 1993, when the government allocated land for 104 families of returning refugees and displaced people. Prior to this, nearby villagers used this land for shifting cultivation. When land started to become a marketable commodity, conflicts sprung up between the new villagers and those who had used the land before. The consequence was that the newcomers were prevented from farming on the land they had been granted by the government. The conflict was exacerbated by outsiders who sought to buy land in the area. The land was sold mostly in favour of long-term village owners rather than the newcomers. Most of them finally decided to move away. Today, only 29 families live in Sala Popel village.

What, then, is the future of the community forest, if the young people are gone, the old folks are getting older and the women who depend on the forest are not able to make sustainable livelihoods from their labour-intensive work?

Conclusion

Symmetry between gender, poverty and resource use in the community forest has implications for the National Community Forestry Programme and livelihood issues. The data show that women, very poor or poor women in particular, figure prominently in the extraction of forest products in the community forest but benefit very little from their labour.

The beneficiaries of female labour are wealthier members of the community, who buy forest products, such as rattan, at low prices from women collectors and then sell it to middlemen/women or marketers for production of commercial items such as mats, baskets and bags. This raises a question as to the value of the labour of these women, and who the main beneficiaries of the community forest actually are.

The second main finding is a connection between youth migration and community forestry management. Given mass migration of both young males and young females from the research site, there is a shortage of community members to participate in the management of the community forest. This is a particularly pertinent issue when considering the future, when the elderly members of the villages will have gone.

Urgent change is necessary at both community level and government research and policy level, so as to ameliorate what is an increasingly precarious existence for 80 percent of the community dwellers in three villages dependent on the community forest for their main sustenance. We also take the view that the situation in this community forest may not be too different from that in other community forests in the country.

We anticipate a second stage of this research to take up some of these questions in concert with community members in order to try to seek sustainable solutions for these incredibly challenging problems.

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Chapter 4

Malva nuts and co-management: Can the poor benefit?

Tol Sokchea²² and Srey Marona²³

Introduction

Ratanakiri is a remote and sparsely populated province in the northeast of Cambodia, covering an area of 11,673km². The province borders Laos to the north and Vietnam to the east, and has provincial boundaries with Stung Treng to the west and Mondulakiri to the north. The province holds nine districts: Andong Meas, Banlung, Bokeo, Kon Mum, Lumphat, O Chum, O Yadav, Ta Veng and Voeun Sai (Bann 2003).

The province contains two protected areas: Virachey National Park and Lumphat Wildlife Sanctuary. Lumphat Wildlife Sanctuary covers 250,000 ha, across Ratanakiri, Mondulakiri and Kratie provinces. It is home to a number of wild animals, including buffaloes, tigers, wild pigs and bears. Virachey National Park, the largest national park in Cambodia, covers 3,325,000 ha of Ratanakiri and Stung Treng provinces (Bann 2003). Virachey National Park is valuable in terms of its biodiversity and its contribution towards cultural and economic development, with its significance going beyond local level to reach regional, national and international levels. The park connects to Vietnam's Mom Ray Nature Reserve and Dong Ampham Protected Area of Laos to constitute one of the biggest regional protected areas in Asia (BPAMP 2003).

This is the ancestral home of several indigenous groups that live closely connected to nature. For example, the Kavet used to live in parts of Virachey National Park. The Kavet are one of the subgroups of the Brao people (also known as the Brao-Kavet, given their close linkages) (Baird 2000). According to one Kavet elder and Baird (2000), the Kavet used to live far north of the Cambodia-Laos border,

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along O Kavet River. In the 1980s, the government asked them to relocate to Kok Lak commune town,²⁴ a lowland area near the Sesan River, for reasons that included security (presence of Khmer Rouge soldiers) and access to health and education services. The Kavet, as well as other indigenous groups, continue to make use of the natural resources in Virachey National Park for their livelihoods.

The 2003-2007 Management Plan of the World Bank-funded Biodiversity and Protected Area Management Project (BPAMP), implemented in Virachey National Park, spelled out six programmes of action (BPAMP 2003), one of which was the Community Development Programme, aimed at increasing community participation in and support for conservation. The institutional arrangements supporting this programme were based largely on a co-management model, represented as a community protected area and taking into account indigenous groups, communities, commune councils and Virachey National Park officials as its main stakeholders. Key representatives of the community protected area were elected as committee members, to handle daily management activities and facilitate communication between members, national park officials and commune councils. With the participation of 15 villages, five community protected areas were established, covering 18,395 ha in a sustainable use zone.²⁵

O Tung Community Protected Area is the largest of these, at 9,862 ha (Community Protected Area Development Office 2010). It is co-managed and used by four Brao-Kavet villages in Kok Lak commune, whose commune town is located about 10km south of the national park boundary (see map 4.1). The community protected area is part of the customary territory of the Kavet, and is where they carry out traditional shifting cultivation, collect non-timber forest products (NTFPs) and catch fish from the streams. The community protected area aims to contribute to the protection and sustainable management of natural resources in the park and, through this, to improvements in the livelihoods of the people of Kok Lak.

Malva nuts are the most valuable NTFP collected by the Kavet in the forests of O Tung. This product makes up a large proportion of the annual income of many of those in Kok Lak commune. Village elders, Virachey National Park officials and non-governmental organisation (NGO) facilitators all emphasise the significant role of malva nuts in Kok Lak livelihoods. However, a closer look at the distributional pattern of the nut within the community protected area raises a question as to whether or not the product is actually contributing towards improving the livelihoods of all members residing in the commune. This chapter describes the characteristics of

(24) Kok Lak commune is one of eight in Voeun Sai district, lying 45km from Banlung provincial town.

(25) Interview with Community Protected Area Development Office, 2010.

O Tung Community Protected Area Map

Legend

- District centers
- Main Roads
- Community Protected Area
- Commune Boundaries

Forest Cover 2002

- Evergreen Forest
- Semi-Evergreen Forest
- Deciduous Forest
- Other Forest
- Wood Shrubland Evergreen
- Wood Shrubland Dry
- Non Forest
- Bamboo
- Main River

Map Labels: Siem Pang, Otung (9862 Ha), Kok Lak, Laos POR, Siem Pang, Trai Ror, Le Lak, Veung Sai, La Mory, La Vekeng, Ou Chum, Ban Lung, Laos POR, Vietnam.

Inset Map: Ratanak Kiri Location. Shows the location of Ratanak Kiri province within Cambodia, bordered by Laos to the north and Vietnam to the east. Other provinces shown include Kampong Cham, Kampong Speu, Kampong Thom, Kampong Cham, Kampong Speu, Kampong Thom, Kampong Cham, Kampong Speu, Kampong Thom.

Scale: 1:50,000

Coordinates: UTM Zone 48N, Easting: 640000 to 790000, Northing: 1540000 to 1570000.

Produced by: ICRHE Learning Institution, Cambodia July 2005

Methodology

Concepts

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benefits and responsibilities for a particular territory, area or set of natural resources (Borrini-Feyerabend 2007).

The term poverty has evolved from one focusing solely on income generation, with dollar income per day as a measurement, to include aspects such as access to basic services, health and education. Other intangible measures include degree of empowerment and freedom (ADB 1999). Poverty also makes reference to the asset base of each individual household, which may include type of house and facilities, land ownership, ratio of dependent household members to productive members, debt, means of transportation, etc (Ministry of Planning 2006).

Although Cambodia has enjoyed high levels of growth over the past decade, the results of this have been spread unevenly across society. This highlights the need to further improve equitable benefit and cost sharing in the country. Equity implies a fair share, not necessarily an equal share (Fisher 1989, in Mahanty et al 2006), and the concept of “fair” is understood differently in different social and cultural contexts. Mahanty et al (2006) state that, in community-based natural resource management, or co-management of natural resources, equity may have two dimensions. These include: 1) the economic aspect, which refers to the distribution of benefits and costs from natural resource co-management; and 2) the political aspect, which refers to the level of individual voice in decision making on such distribution. As a result, equity is central to the elimination of poverty through community-based natural resource management or co-management of natural resources.

Finally, Frieson (2009) notes two ways of conceptualising tenure: by means of social relations and in terms of the legal framework. According to the first of these, tenure refers to holding, ownership and access to land and natural resources; the legal framework is defined as the institutions governing these aspects. Although access is embodied in the concept of tenure, analysis in this chapter is advanced by taking a closer look at this aspect by viewing it from both a physical and a political perspective.

Tools and methods

Data and information presented in this chapter come from two sources: a literature review and fieldwork. The field data come from meetings and consultations throughout the course of the four-year research, and from direct assessment in Kok Lak commune in 2009 and 2010. The first direct assessment was held in May 2009 and the second in July 2009, using focus group discussions (FGDs). Additional interviews with selected households took place in January, April and May 2010.

Tools employed in the data collection included wealth ranking, a food-based Ten Seed Technique exercise (Jayakaran 2002), participatory resource mapping, timelines and direct observation. Not counting community meetings/consultations and

provincial workshops, 51 people participated directly in four FGDs relevant to the issues in this chapter, and 24 people participated in follow-up household interviews (including commune councillors). Additional information was generated through interviews with three Virachey National Park officials and three NTFP Organisation staff members. The tables below summarise this information.

Table 4.1: Focus group discussion participants in Kok Lak commune, Ratanakiri province

	Date of FGD	No. of FGDs	No. of participants
Lalay	15-16 July 2009	1	14
Lameouy	29-30 May, 14 July 2009	1	18
Rok	29-30 May, 14 July 2009	1	9
Trak	15-16 July 2009	1	10
Total		4	51

Source: Generated by research team/authors.

Table 4.2: Respondents in Kok Lak commune, Ratanakiri province, by occupation

	Date of interview	Male	Female	Total
CPA members	19-21 May 2010	9	3	12
Commune councillors	28 January 2010	2	1	3
CPA committee members	29-30 January 2010	4	1	5
Village chiefs	19 May 2010	4	0	4
Virachey National Park officials	22 May 2010	3	0	3
NTFP Organization staff members	18 May 2010	2	1	3
Total		24	6	30

Source: Generated by research team/authors.

Poverty in Kok Lak commune: Who are the poor?

There are 421 households in Kok Lak commune, corresponding to 2,050 people, of whom 1,039 are female, according to commune data. The main source of food is rice, grown either on small paddy fields, less than 2 ha on average, or on plantations, where the people practise shifting cultivation. Apart from rice, people also rely on the natural resources in the nearby forests, in the areas around their plantations and in the community protected area. The Kavet treat the forests as their “food shop,” where they can find a variety of different edible plants (Baird 2000). Fishing is also common, with a number of streams to be found in the area. However, respondents claimed that recently they had hardly found any fish and that this was creating some gaps in their daily food needs. The most important product, enabling the generation of a large amount of income, is the malva nut (described below).

Photo 4.1: House of a poorest community member, made from bamboo, Kok Lak commune, Ratanakiri province



Photo by Tol Sokchea.

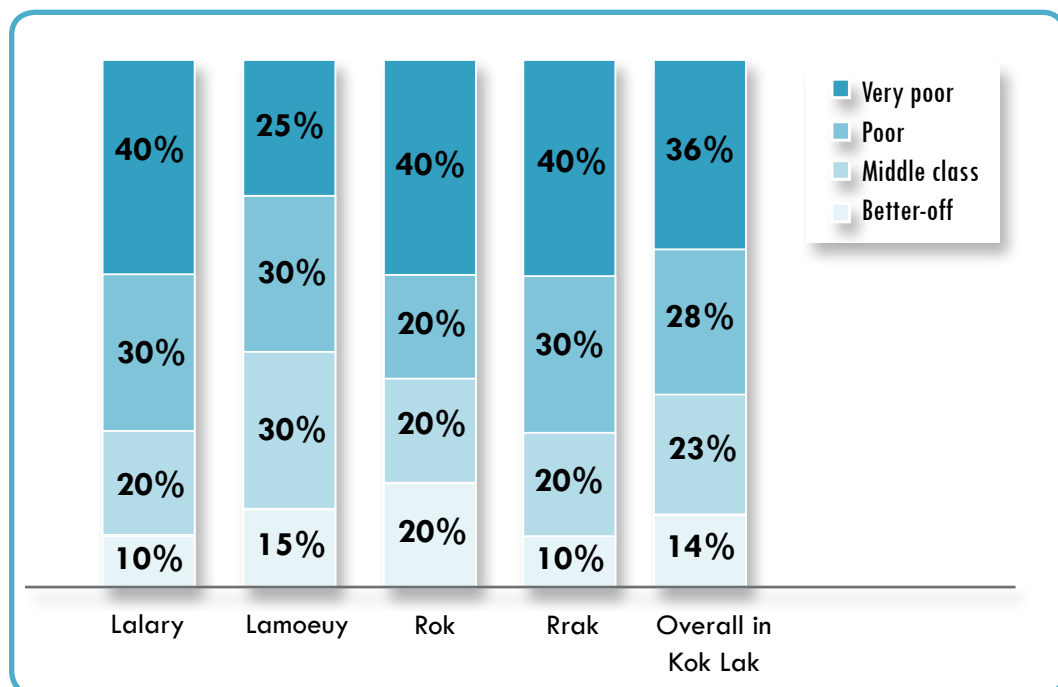
Traditionally, people utilise bamboo for much of their household consumption, for uses that range from building to household equipment. Most villagers' houses, in particular in the groups classified as poor and very poor (see below), are built of bamboo. This is because of its abundance close to the streams, from where it can easily be transported on rafts.

Although they are all from one indigenous group, there are also many differences among the Kavet in Kok Lak commune. Kok Lak is made up of four villages, namely, Lalay, Lameouy, Rok and Trak, which were originally the names of separate tribal groups living along different streams. Internal differences in the commune remain (which the community protected area has failed to take into account), including between each village's rules and norms in terms of its development processes. This means that relationships are closer among people in the same village than among villages. This heterogeneity also affects the natural resource tenure system (the next section looks at how this affects the extent of malva nut distribution in the commune).

In terms of wealth, each village is categorised into four, according to local criteria. Household food availability is the basis for this categorisation, which also refers to assets such as housing materials, means of transportation, paddy field and

plantation area, number of animals and income-expenditure ratio. With the exception of the 14 percent of residents who are classed as better-off, the people of Kok Lak are vulnerable to poverty. More than 60 percent suffer food shortages for six to ten months of the year and more than 20 percent are subsistence farmers. Those suffering food shortages normally have less than 1 ha of productive land (both paddy and plantation). Alternative livelihood strategies include collecting NTFPs (particularly malva nuts) from the forests – inside and outside the community protected area – and fishing around their plantations.

Figure 4.1: Wealth status in Kok Lak commune, Ratanakiri province, 2009



Source: PRA exercises

According to key informants in each village during the FGD exercise, women-headed households, older people and families with more young children tend to be poorer than those who have more labour, size of the family notwithstanding. For example, one very poor family had 14 members, with only two able to perform labour; one better-off family had six labourers out of eight members.

Respondents saw access to basic services, such as health and education, as having less to do with poverty in Kok Lak and more to do with means of transportation (although these are often interlinked), since there is no school in the commune and only one (inactive) health centre. Transport availability also ensures quick access to Voeun Sai district town, which has better health services and a market for selling

forest products and buying spices. Better-off families use motorbikes and motorboats to get to Voeun Sai, whereas the poor and very poor have to depend on bamboo rafts and walking. Lalay River (a large stream) is navigable only in the rainy season, when the water level is higher. The better-off can use a motorboat both ways but the poor and very poor have to raft down and walk back. They usually take bamboo on the rafts (when it is not always in demand and therefore sells at a lower price). In the dry season, the better-off access the town using motorbikes but the poor and very poor have to walk.

Malva nuts and poverty in Kok Lak

This section addresses the extent to which malva nuts contribute to the wealth of poor and very poor people in Kok Lak, looking in particular at factors related to households' knowledge, skills and assets.

Photo 4.2: The standing malva tree, Kok Lak commune, Ratanakiri province



Photo by Proeu Bunthoeun, NTFP Organization.

The scientific name of the malva nut is *Scaphium macropodum*. The trees usually grow in evergreen forests, in hilly areas at an elevation of about 300 to 700m. Mature trees may reach 30 to 40m, with a diameter of 1m (Baird and Bounphasy 2003; Hong and Pinto 2007). In Cambodia, malva nut trees are found not only in Ratanakiri but also in Mondulakiri, Kratie, Preah Vihear, Kampong Speu and Kampot provinces (Ham 2004, in Hong and Pinto 2007). According to Kok Lak villagers, malva nut trees produce fruit when they are about 15 to 20 years old. Different

ideas exist on the peak year cycle, varying from three to seven years. The harvesting season is from April to May, just before the rain comes (which ruins the nuts). Inconsistency in the volume and quality of the malva nut yield each year may relate to rainfall and climatic patterns (Baird and Bounphasy 2003; Hong and Pinto 2007).

In Kok Lak commune, according to respondents, 80 percent of people collect malva nuts every year. They normally go into the forest as a group of five to ten people for about one to two weeks. This year (2010) has been a peak year, with almost everyone going to collect the nuts and receiving a larger income than in recent years. According to the four village chiefs and the commune councillors of Kok Lak, the amount of nuts collected in the 2010 harvesting season was approximately 13 tons, contributing to the survival of some and enabling a great deal of additional income for others. Table 4.3 calculates incomes generated from malva nut sales on the basis of an average selling price of 18,000 riel/kg (US\$4.26).²⁶

Table 4.3: Income from malva nuts in Kok Lak commune, Ratanakiri province, 2010

	No. of households	Annual harvest (tons)	Gross income (riel)	Household income (equal share scenario)	
				Riel	US\$
Lalay	91	2	36,000,000	395,604	93.53
Lameouy	132	5	90,000,000	681,818	161.18
Rok	139	4	72,000,000	517,986	122.45
Trak	59	2	36,000,000	610,169	144.24
Total	421	13	234,000,000	555,819	131.39

Note: 18,000 riel/kg.

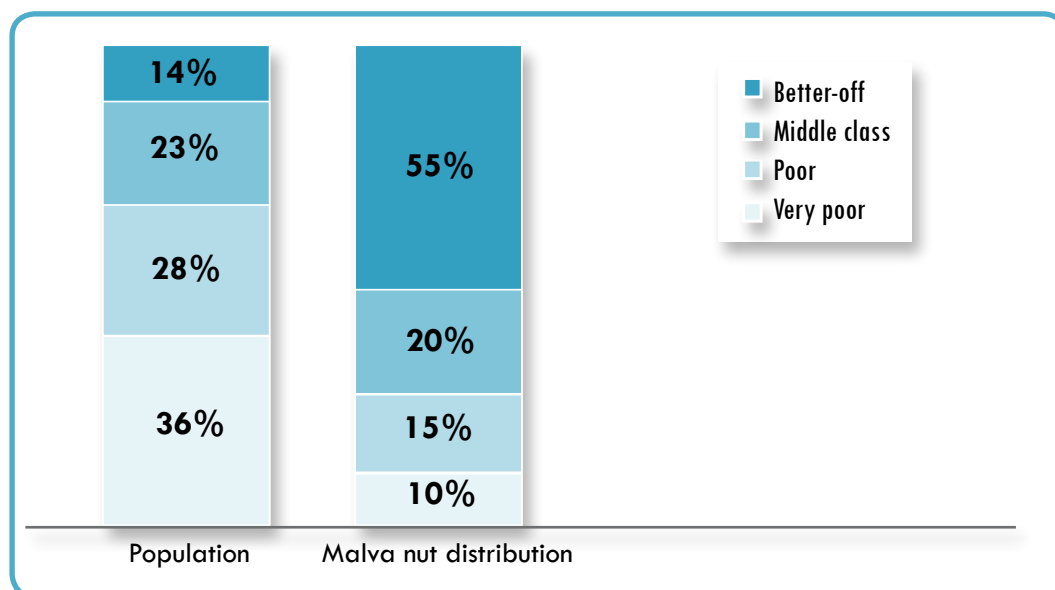
Source: FGDs.

The total income in the whole commune in 2010 was 234 million riel, or US\$55,319. This means that, in only two months of the year (April and May), under an equal share scenario, each family in the commune earned US\$131. Together with other sources of income and food produced in paddy field and plantations, one would imagine a significant improvement in the livelihoods of the people of Kok Lak. However, in reality the distribution of income from malva nuts is uneven among the different households in the four villages. A few households earned several million riel whereas others received very little.

⁽²⁶⁾ National Bank of Cambodia on 22 June 2010 (US\$1 corresponding to 4,230 riel) (www.nbc.org.kh/khmer).

FGDs the previous year in all four villages revealed a similar pattern of malva nut income distribution within the village among different households from different wealth classes (see Figure 4.2). Aggregated findings show that the biggest proportion of the malva nut harvest, up to 55 percent of the total yield, went to the better-off. The proportions were at 20 percent, 10 percent and 10 percent, respectively, for the other wealth classes (in declining order). This reflects highly uneven distribution of this resource among the population of Kok Lak: the group with the lowest number of people benefits the most and the other groups take the smallest share. Even within the better-off group (and the same for other groups), a few households got most of the nuts; that is, distribution within groups was uneven also.

Figure 4.2: Population and malva nut distribution in Kok Lak commune, Ratanakiri province, by wealth class, 2009



Source: Aggregated by research team/authors from FGDs.

For instance, in Lameouy village, four households out of 132 took in the highest proportion of total village income from malva nuts in 2010 (on average 15 million riel per household, or US\$3,546). These households had more members of labouring age/ability and an asset base that enabled a greater harvest (malva nut harvesting costs include food, medicine, time and materials (shelter) to be able to stay a long time in the forest). In addition, some villagers climbed the malva nut trees without waiting for the nuts to fall down of their own accord. This meant they could collect more nuts than others (malva nut trees are very tall and straight and it is difficult and risky to climb them – only the young and skilled can do it well). Finally, those who

were able to pinpoint accurately the actual days when the nuts would be ripe and the plots where the trees were abundant were able to collect more without staying in the forest longer.

“I did not go into the forest early because I would have had to wait many days until the nuts were ripe. Some villagers went before me and could not stay because they ran out of rice. Going back to the village to get more rice took them many days while other villagers were collecting and leaving fewer nuts to collect.”

Male malva nut collector, Kok Lak commune, Ratanakiri province.

Photo 4.3: Malva nut collector, Kok Lak commune, Ratanakiri province



Photo by Hou Vong Vichheka.

Other factors affecting the extent of benefits derived from malva nuts include a shortage of market information: most harvesters this year sold their nuts cheaply without knowing the selling price in the district and the provincial towns. Ability to negotiate with middlemen and women is also crucial to ensuring a satisfactory selling price. Normally, late nuts have a higher selling price: when nuts are sold early, the middlemen and women tell the villagers that they will buy from other villagers if their offer is not accepted. During the 2010 harvest, the selling price for malva nuts varied from 14,000 to 35,000 riel/kg (US\$3.31 to \$8.28); earlier nuts were sold for no more than 25,000 riel/kg (US\$5.91) whereas late nuts received 30,000 to 35,000 riel/kg (US\$7.09 to \$8.28). However, not all late nuts received a high selling price, as the price peaked and then started to decline. Mid- to late April was the big selling period, with many middlemen and women coming to buy the nuts and competing with each other, therefore offering higher prices. This did not benefit the poor, who normally sell their nuts as quickly as possible without good market information.

Photo 4.4: Fresh and ripe malva nuts, Kok Lak commune, Ratanakiri province



Photo by Hou Vong Vichheka.

Malva nut management in Kok Lak

The forests in Kok Lak commune, particularly those in the community protected area, are co-managed by the residents of Kok Lak and Virachey National Park officials towards the twin objectives of promoting the conservation of biodiversity and improving livelihoods (CMLN 2008). As described, the malva nut is the product with the most potential for income generation. Good management of this product would maximise its contribution for all the people of Kok Lak. Therefore, we ask, is the malva nut management model in Kok Lak equitable and pro-poor?

Photo 4.5: Cement poles at the Virachey National Park border (also the O Tung Community Protected Area border), Ratanakiri province



Photo by Meas Sothun Vathanak.

Van Acker (2010) explains, from a theoretical viewpoint, that to manage natural resources, such as O Tung Community Protected Area forest, is to make choices over the natural endowment that result in excluding some users but not others. In its endorsed regulations, O Tung should be divided into seven zones, for conservation, spiritual forest, buried forest, shifting cultivation, bamboo forest, ecotourism and multiple use. Access to these zones by outsiders requires a permit from the community protected area committee, commune elders and the commune council (Virachey National Park 2006). This implies that the people of Kok Lak have full tenure over the resources in the community protected area – including malva nuts – and can enforce regulations to exclude outsiders or even create conditions for those who want to benefit from the resource. In reality, a traditional tenure system exists, whereby each village defines its malva nut harvesting zone. This division is also stated in the draft Kok Lak malva nut management papers, which are currently under consultation and improvement (CMLN 2010). However, these papers do not spell out clearly the distributional pattern of benefit from malva nuts.

Photo 4.6: Malva nut collectors waiting for fallen nuts during the harvest, Kok Lak commune, Ratanakiri province



Photo by Proeu Bunthoeun, NTFP Organization.

In practice, the people of Kok Lak do not feel a sense of ownership over their resource and instead feel obliged to protect it. Several respondents complained that outsiders disagree with their requests not to cut down the trees or even cut them down at night in secret. Residents are afraid to confront the offenders for fear of black magic from Laos or other indigenous groups. They suggest that Virachey National Park officials enforce the malva nut management papers to help protect the resource. However, although the papers suggest protection and fining, they do not specify conditions for outsiders to generate benefit for the community protected area and its poor members.

Meanwhile, some people contribute to the (village-based) community fund as a form of tax on their malva nut sales, but there is no clear system for this and different collectors contribute different amounts. In addition, some villages implement such a system and some do not. For instance, this year Rok and Trak villages took in a substantial amount of money from taxation but Lalay and Lameouy villages did not.

Conclusion: How can malva nut management be pro-poor?

Malva nuts are the most valuable product in O Tung Community Protected Area and the people can legally access this resource under the co-management scheme. However, under the current practice and situation, the poor in the commune, who are in theory the co-managers of the nuts, seem able to gain no or very little benefit from the resource. The distribution trend of the product has seen uneven income generation and has exacerbated the income gap between the poor and the rich.

Lack of the necessary household assets, skills (in tree climbing) and knowledge (on tree maturity and marketing) prevents the poor in Kok Lak from gaining significant benefit from malva nuts. Competition from outsiders is also a problem, and lack of effective regulation may discourage residents from participating further in the co-management scheme. Provisions in the management papers, on protection and fining, are likely to contribute very little with regard to the equitable benefit sharing of malva nuts to the advantage of the poor. This means that local ownership of the resources in the community protected area, particularly malva nuts, is weak, given a lack of equity in the distribution of the benefits and local people's poor understanding of their rights. Since their capacity is limited with regard to incorporating practical experiences into and enforcing regulations, external facilitators are crucial here.

The findings suggest that management of malva nuts will not be successful if it pays attention only to protection or conservation of the resource, and instead requires the establishment and effective enforcement of a clear and equitable benefit sharing

scheme, if possible in consensus with the people of Kok Lak and other key stakeholders. Linking up management rules and decision making on malva nut benefit sharing with customary governance conditions will help maximise the outcomes.

In addition, the scheme needs to spell out the ways in which income from this product can be used to strengthen local institutions and organisations, particularly the community protected area, to enable it to regulate malva nut protection. The community protected area can also play a role in providing intensive market information on the malva nut selling price to all Kok Lak collectors. Establishing a community enterprise for malva nut trade in Kok Lak should also be a consideration, to increase the negotiation power of the people of the commune as well as providing clear market information. This could also help with the development of the tax system to ensure that any income earned also contributes to the community protected area. Above all, further research on the above issues is necessary to increase understanding on the whole situation from all perspectives.

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Chapter 5

Gender and livelihoods in community coastal areas: Women's savings groups

Kim Nong²⁷ and Rang Sokha²⁸

Introduction

Coastal communities everywhere are dependent on an ever-declining resource base, and this is also true for Cambodia. Although people are creative in terms of pursuing their livelihood options, things can be difficult for them, particularly when they do not have access to land. Over 80 percent of Cambodians continue to rely on natural resources for their livelihoods, although these are diversifying as household members move to the city in search of other forms of income. By livelihoods, we mean “the capabilities, assets (both material and social resources) and activities required for a means of living” (Chambers and Conway 1992). For livelihoods to be sustainable requires not only the conservation of natural resources and the ability to survive external shocks and stresses (Ashley and Carney 1999), but also sufficient access to financial, physical, human, social and natural assets to ensure a stable and healthy life. Cambodians are still limited in all asset areas, particularly in terms of human and financial resources.

Since 2000, many forestry, fisheries and natural conservation and protection communities have been organised in Cambodia under the Royal Government of Cambodia (RGC) policy reform programme, with strong participation by local government institutions and non-governmental organisations (NGOs). There are now over 500 community fisheries, 300 community forests and 50 community protected areas (The Learning Institute 2009). The reform has assisted a great deal in preserving natural resources, particularly in and around communities, and in some cases has enhanced local community livelihoods by providing a habitat for aquatic species, for example, or promoting the collection of honey and other non-timber forest products (NTFPs) (Kim et al 2008; The Learning Institute 2009).

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However, the need to improve sustainable resource management and local livelihoods is still great, since local resource management practices are relatively new in Cambodia. One area that needs greater support is encouraging women's access to, and participation in, building financial assets for family and community benefit. Gender equity is an important component of any successful community natural resource management strategy, because the roles of women in the community are key to livelihood improvement, especially their contribution to decision making.

This case study focuses on southwest Cambodia, where several mangrove estuary communities are taking part in a savings group process, facilitated since 2006 by the Ministry of Environment's Participatory Management of Coastal Resources (PMCR).²⁹ There is not one single approach towards organising communities to manage fisheries and to carry out coastal resource conservation and protection to ensure sustainable resources and improved local livelihoods. Setting up women's savings groups is one way to provide an opportunity for women to participate in the management of common pool resources.

This case study was documented by the project's research team and aims to generate an understanding of the effectiveness of women's savings groups and to enable learning from the experiences of the women and men involved, so as to contribute towards strengthening such groups and making them more durable. Results can also be shared with others so that they also can learn and benefit.

In determining the effectiveness of women's savings groups, the team focused on only three factors (given time and data limitations):

- 1. Awareness raising and participation:** Relative success of awareness raising on the concept of savings among women who participate in the groups, as indicated by their taking on more responsibility for livelihood improvements for their families
- 2. Livelihood analysis and improvements** among households of different socioeconomic backgrounds as a direct result of their involvement in the women's savings groups
- 3. Social network strengthening:** Indications that social networks between men and women have been strengthened in coastal resource management and livelihood interventions

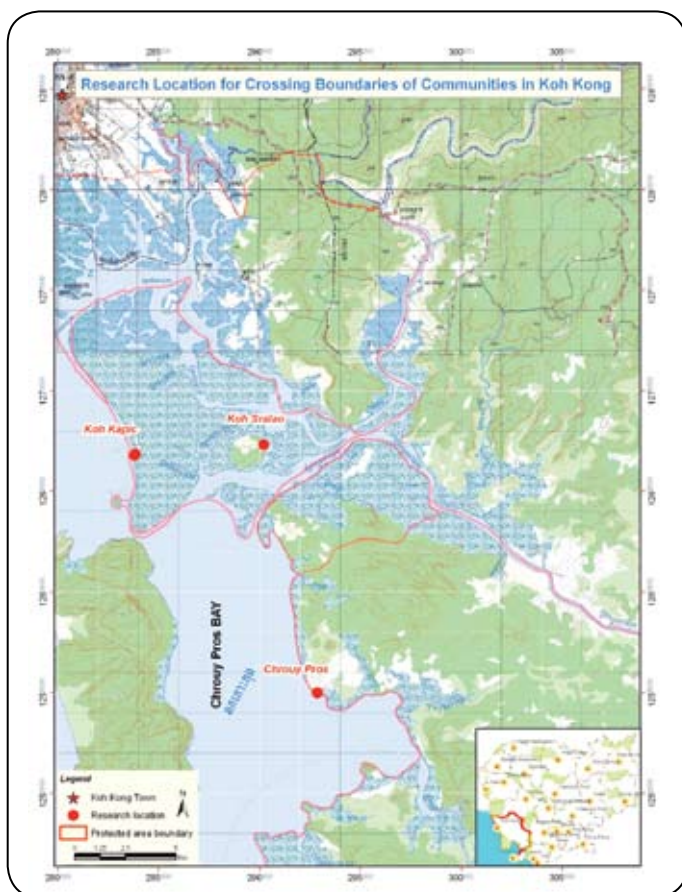
⁽²⁹⁾ This participatory action research project is supported by the International Development Research Centre (IDRC) and works with community federations on resource management and livelihood issues. It emerged from Participatory Management of Mangrove Resources (PMMR) (December 1997 to May 2004) to cover the wider coastal environmental ecosystem, driven by an interdisciplinary team of national and provincial members.

The more we understand about the processes of women's savings groups, the more we are able to transfer our learning to relevant natural resource management partners, in order to ensure the best support for affected people. This approach also helps us decide on the most effective approach to resource management and local livelihood improvement. Equally important, this was a chance for the team to learn how to research and write a case study and to share its experiences and results with the savings groups, others in the local community, partners at district, provincial and national level and others working in the areas of self-help and gender equity more generally.

Methodology

The research team has been involved in supporting the women's savings group process since 2006, mainly through the facilitation of focus group discussions (FGDs) and the provision of backstopping support to the groups when necessary. In addition to insights gained from this, and also a literature review, the team used a qualitative approach and action research methods over a six-month period (July to December

Map 5.1: Map of research area in Koh Kong province, showing Chrouy Pros, Koh Kapi and Koh Sralao



Source: PMCR (2007)

2009) in three island research sites in Koh Kong province: Chrouy Pros, Koh Kaptic and Koh Sralao. Visits to each of these were facilitated by the Chrouy Pros and Koh Kaptic commune chiefs and members of the respective women's savings groups. There were four follow-up field trips and a dozen communications via mobile phone, as well as trips to the three sites to meet with the local community to further verify the data and enable initial analysis.

In-depth, semi-structured interviews were held with local community members and savings group members and leaders to gauge perceptions on the women's savings groups.

Table 5.1: In-depth interviews on women's savings groups in the Koh Kong research site, male and female

	Male	Female
Chrouy Pros	15	21
Koh Sralao	8	8
Koh Kaptic	16	27
Provincial departments	3	2
Total	42	58

Source: Generated by research team/authors.

Table 5.2: Respondents on women's savings groups in the Koh Kong research site, by occupation

	No. of participants
Women's savings group members	55
Women's savings group leaders and deputy leaders	21
Commune officials	4
Village officials/chiefs	7
Provincial departments	5
Community representatives	9
Total	101

Source: Generated by research team/authors.

The research team also used FGDs to help with wealth ranking and to understand who could access credit (Selener et al 1999), supported by participatory rural appraisal (PRA) tools such as the Ten Seed Technique (Jayakaran 2002). In this way, the team assessed livelihoods, poverty ratios within communities and participation in savings groups (PMCR 2008). For the savings group FGDs, in total 94 people were randomly selected, representing 77 percent of the total number of savings group members in all three sites.

Table 5.3: Participants in focus group discussions on women's savings groups in the Koh Kong research site

	No. of FGDs	No. of participants
Chrouy Pros	4	45
Koh Sralao	3	35
Koh Kaptic	2	14
Total	9	94

Source: Generated by research team/authors.

During the study, three people from the research team and one representative of the Mangrove Action Project (MAP) (also from the Ministry of Environment) spent at least five days per month at the research sites to assist or advise the communities, especially on cross-boundary issues of coastal resource management and livelihoods. At the same time, the team held interviews and FGDs as part of the study process. All research was done in Khmer, and participant observation was incorporated into the field visits.

Background of the research area

PMCR is an action research project that had its first incarnation in 1998. It set out to focus on resource management in a relatively isolated part of Cambodia, where little research had taken place and mangrove forest declines were rampant. Funded by IDRC, the project is implemented by the Cambodian Ministry of the Environment.

The team started using action research activities as a catalyst for capacity building and human resource development, both of government and of affected local communities. In addition to networking and building collaboration among stakeholders, the project shares experiences with other community learners and community workers. The overall aim is to ensure successful transition to community-based coastal resource management in the Peam Krasaop Wildlife Sanctuary and Chrouy Pros Bay in Koh Kong province, Cambodia.

Chrouy Pros, Koh Kaptic and Koh Sralao communities were organised in 2000 to participate in a community coastal natural resource management project facilitated

by the research team, with support and participation from local authorities and relevant technical institutions, such as the local Departments of Agriculture, Forestry and Fisheries, Environment, Rural Development and Women's Affairs, among others. The goals of the community organising were to enhance the roles, rights and powers of local communities to manage coastal ecosystems.³⁰

Chrouy Pros Bay lies at the bottom end of Botum Sakor National Park and is adjacent to Peam Krasaop Wildlife Sanctuary. It is an important fishing site for local communities. Moreover, parts of it lie within one of three Ramsar sites (internationally important wetlands) in Cambodia. Administratively, the bay is located primarily within Chrouy Pros commune, although a small portion is located in Peam Krasaop Wildlife Sanctuary. Chrouy Pros Bay is approximately 30km² and is a bay area with an island bordering its seaward side (Koh Kong Island).

As an estuary area, Chrouy Pros Bay is rich in fishery resources, such as fish, crabs, shells, shrimps, sea grass and mangrove. Ecologically, the bay has close links with the open sea and Peam Krasaop Wildlife Sanctuary, which is diverse in mangrove, aquatic and upland species, sea grass and waterfowl. Mangrove resources, such as mud crabs and fish, migrate from the open sea into the mangroves to breed and feed, using the bay as their channel. The bay therefore plays a substantial role in supporting fish migration and providing a fish and plant habitat (Kim et al 2008).

Each community is led by a village management committee. Along with community members, partner organisations and commune councils, these were active in rehabilitating, protecting and conserving coastal resources, through activities such as: mangrove replanting; patrols to stop illegal fishing practices and to prevent people from cutting down mangroves for charcoal production; community clean-ups; conflict resolution among community fishers and outsiders; etc. However, these activities were not yet sufficient to meet the needs of the communities, given limited assistance from both local authorities and technical officers.

In order to rehabilitate and increase the availability of natural resources, as well as to improve and sustain community livelihoods, the three communities developed a joint concept proposal to replant, protect and conserve mangrove forests and sea grass resources. This was to be done by establishing a community federation for coastal resource management in Chrouy Pros Bay and enhancing women's participation. The community federation was also expected to contribute significantly to improved livelihoods and increased economic sustainability of community members in the future (see PMCR 2008).

⁽³⁰⁾ Community organising refers to groups of villagers being organised by outsiders (project or technical institution staff) to build their capacity to manage fisheries, forestry and other areas related to resource management and livelihoods.

Background to the women's savings groups initiative

The women's savings groups were part of the joint concept proposal described above, facilitated by the PMCR team in collaboration with the Small Grants Programme of the United Nations Development Programme (UNDP) at the end of 2006. The initiative was one among many undertaken by the community federation, with others including mangrove replanting, sea grass conservation and protection and capacity building on resource management and environmental education. The community federation (which consists of elected representatives from each of the three local village management committees) serves as an attractive way to gain donor funding, but the women's savings groups function in practice through each of the three individual village management committees. Ability to join a savings group is linked to membership in a local village management committee, as a benefit for people involved in community-based management. In each village, over 90 percent of villagers belong to the village management committee.

The main purpose of the women's savings groups is to encourage women to become involved in both savings activities and community networks to assist with livelihood issues, both within their own family and in their community. Over the past decade, PMCR activities have led to human resource development and improved conservation/sustainable use of coastal resources, such as more care by local people of mangrove and sea grass resources (Kim et al 2008). However, participation has mostly been by men. This is in part because of the nature of community work in Cambodia (men are encouraged to participate in the public sphere more than women are) and also because women are for the most part responsible for the family, especially daily expenses on food, clothes and household consumption (Ministry of Environment 2007). The women's savings group initiative was a new strategy to engage women in the community and to build their management capacity to improve livelihoods. Including women in the process made a great deal of sense, given that women are often charged with managing household budgets and with administrating funds.

The PMCR team played a catalyst role in bringing isolated coastal communities and development partners together on natural resource management and livelihood issues. Capacity building of local communities is a widespread need in Cambodia, especially through community meetings, training, workshops and study tours to learn from others' experiences. The women's savings group concept was a direct result of training and a study tour to the Tonle Sap region in Kampong Chhnang province in August 2006, also supported by UNDP and PMCR.

Case study results

The remainder of this chapter addresses the three factors used to assess the effectiveness of the women's savings groups in the three research sites.

Awareness raising and participation

Overall, the results indicate that awareness among women and men in Chrouy Pros, Koh Kaptic and Koh Sralao on the concept of savings has increased. This is evidenced by the three-step training programme, followed by the process leading to the creation of the savings groups, which then stayed operational and drew in members. However, not all the sites succeeded equally in using the awareness to build sustainable savings groups.

Training of men and women community representatives

To ensure effective learning, the research team organised a three-step approach (see Table 5.4).

Table 5.4: Steps involved in awareness raising on women's savings groups in the Koh Kong research site

	Activity	Results
1. Identifying key community representatives	<ul style="list-style-type: none"> • Consultations and FGDs to select male and female representatives • Support to key people in training and the study tour • Drawing of lessons learnt 	<ul style="list-style-type: none"> • Key people selected as group leaders and facilitators • Groups gained knowledge and experience • Concepts introduced in communities
2. Training representatives and key community members on concept and process	<ul style="list-style-type: none"> • Two-day training of trainers for group leaders to encourage their own community members • Training of community members on concept and savings model • Community members sought for group establishment 	<ul style="list-style-type: none"> • Selected representatives trained • Participants of gender-responsive trainings selected and trainings held in villages (mindful of women's other responsibilities) • Small women's savings group pilot in each community
3. Encouraging women's involvement	<ul style="list-style-type: none"> • Trainees meet community members to explain concepts and practice • Fundraising • Creation of group rules by group members based on training model sheet • Learning by doing (ongoing) 	<ul style="list-style-type: none"> • Awareness on the savings groups spread to wider community • Community funds sufficient to support group establishment • Group rules improved to support the process • Community ownership of group activities and responsibilities deepened

Note: Each set of rules has seven chapters and 35 articles in the Khmer version. They are approved and supported by the relevant village management committee and commune chief.

Source: Generated by research team/authors.

In all, 52 people (33 women and 19 men) from the three research sites were trained, going on to teach others and to begin establishing the women's savings groups. In this way, the responsibility for setting up the savings groups lay with the community, an important element in their sustainability. The three-step training process was effective in raising awareness on the concept of women's savings groups, at least in the sense that it resulted in their establishment.

Establishment of women's savings groups

Each of the three communities organised a women's savings group using community funds and the funds of those who had sufficient savings to make monthly contributions. This meant that the savings groups necessarily excluded the very poor, who did not have any monthly savings.

Step 1: Each group selected members, ranging from six to seventeen people. Next, each group selected a leader, secretary and cashier, following rules developed by the group. According to the rules: the leader manages and regularly monitors the financial situation, is responsible for communication among relevant institutions, both inside and outside, and generally ensures that the group progresses; the secretary collects money, disseminates information to the group, takes meeting minutes and manages the savings report and other important documents; and the cashier is responsible for managing the members in terms of their saving and borrowing, as well as interest rate options.

Table 5.5: Participants in women's savings groups in the Koh Kong research site

	Male	Female	
Chrouy Pros	57 (37 female, 20 male)	4	Group 1: 14 (2 male) Group 2: 12 (all female) Group 3: 14 (1 male) Group 4: 17 (all male)
Koh Kaptic	21 (16 female, 5 male)	2	Group 1: 11 (3 male) Group 2: 10 (2 male)
Koh Sralao	44 (27 female, 17 male)	4	Group 1: 17 (8 male) Group 2: 12 (3 male) Group 3: 6 (2 male) Group 4: 9 (4 male)

Source: Generated by research team/authors.

Most groups have both women and men, except in Chrouy Pros, where there is one all-male group and one all-female group. In the early thinking stages, the focus was solely on women, because their numbers in community organisations for coastal management were very few and they talked about how their men-folk would go out to fish but not always bring home enough income to sustain the family. The concept of a women's savings group took hold as a way to get women more involved in community coastal resource management. However, when they got going, men also joined in. This factor deserves more attention and analysis in future studies; perhaps there will be a name change to "savings groups" to reflect participation by both sexes. In discussion, respondents from the all-male group said they wanted to test their own ability in order to be able to share their experiences with other groups in the community.

"Before I did not have any money left over, but after I got involved with the savings group I started to think more about my unnecessary expenditure, especially on wine and cigarettes. Now, using my own savings, I can generate alternative livelihood strategies and help with the other important needs of my family."

All-male savings group leader, Chrouy Pros, Koh Kong province.

Step 2: Each group needed to discuss and create its own rules on saving and borrowing money. For the most part, these were adapted from the manual produced for the initial trainings. Generally, the rules in the three community sites are similar, because lessons learnt have been shared through group discussion. The most important of these rules are:

- **Group management selection:** Each group member has the power and right to select and change their group leader, secretary and cashier based on a majority vote
- **Savings and remittance period:** Each member needs to save 30,000 riel (US\$7.09)³¹ per month and submit it to the group cashier on time
- **Borrowing:** When the savings box has sufficient funds, any member can borrow from 100,000 to 500,000 riel (US\$23.61 to \$118.20)
- **Interest:** The borrower must pay the group 2 percent interest on the total amount borrowed
- **Return payment:** The borrower must pay off the debt to the group within 10 months of borrowing the funds
- **Penalties:** Any member found not respecting the rules will be removed from the group

⁽³¹⁾ National Bank of Cambodia on 22 June 2010 (US\$1 corresponding to 4,230 riel) (www.nbc.org.kh/khmer).

Step 3: When each group has developed its rules and savings model sheet, it can begin the cycle of saving, borrowing and repaying.

Livelihood analysis and improvements

The second component in examining the effectiveness of the women's savings groups aimed to see how livelihoods had changed as a result of participation and who had benefitted the most among the different socioeconomic groups.

The “livelihoods” concept is not simple to define. However, for the purposes of this case study, livelihoods refer to the capabilities and material and social assets needed to make a living (as described earlier). In the research site, most people depend on coastal resources for income generation, especially those sourced from fisheries and mangroves. Livelihood activities vary from one household to another and are based on knowledge, skills, experiences, capital and gender roles within each household (Kim et al 2008). Table 5.6 synthesises information gathered on the livelihood activities of group members in the three sites.

Table 5.6: Major livelihood activities among women's savings group members in the Koh Kong research site, 2009

Major primary occupation	Households in Chrouy Pros	Households in Koh Kapic	Households in Koh Sralao
Fishing	39%	38%	32%
Farming	14%	0%	7%
Animal husbandry	5%	6%	2%
Small shop	7%	19%	18%
Selling snacks	7%	12%	9%
Boat taxi driving	3%	0%	5%
Buying/selling fish	4%	6%	7%
Multiple occupations	21%	19%	20%

Source: PMCR (2009).

Use of funds borrowed for livelihood development

The women's savings groups have become an important source of credit for members in all three sites. According to interviews with each group leader in each of the three communities, 80 percent of each community's savings groups' members have borrowed money to directly improve their own livelihoods. About 20 percent use funds for social and cultural purposes, such as: sending children to study in the town, weddings, paying off debts to local banks and moneylenders, house construction or repairs, etc.

“My husband is a local police officer and I have three children. There is a lot of pressure on me to look after my family but I earn too little from selling rice porridge in front of the school. My income is not sufficient to feed my children. My youngest daughter is not healthy like other children and has problems with her nervous system. I heard about a savings group being organised in the community and decided to get involved. Before, I had planned to borrow money from ACLEDA Bank but was afraid that I could not return the money on time. The savings group was different and the process was easier and more beneficial. After I borrowed money, I sold some things from my home and then had more money to feed my family. Now my family is better-off than before. I have enough money to send my children to school and can buy enough food for them to eat. I am very happy: even though it is not much it is just enough, and not too little, as it was before.”

Female savings group member, Chrouy Pros, Koh Kong province.

Photo 5.1: Gill net fishing in Chrouy Pros Bay, Koh Kong province



Photo by Chhor Elet.

Photo 5.1: Small shop in Koh Sralao village, Koh Kong province



Photo by Chhor Elet.

As a result of coordination by the PMCR team with other projects/programmes, each community received additional funds of US\$1,450 to help in the savings group process and to support livelihood activities in the community, especially targeted at local fishers in need of funds to repair equipment and to reduce their debt to middlemen and women and local banks.

Socioeconomic analysis of participation in women's savings groups

Data on livelihoods and social classifications were obtained using the Ten Seed Technique with working groups of representatives from the three research sites between March 2008 and December 2009.³² A total of 57 households in Chrouy Pros, 21 in Koh Kapic and 44 in Koh Sralao were selected for the socioeconomic and livelihoods analysis, on the basis of their knowledge of and participation in women's savings groups and community affairs.

The households categorised members of their community according to asset ownership, with assets including: landholdings for agricultural or other purposes; home (and type of home); boats and other equipment for fishing; motorcycles and bicycles; wells and water systems; fowl and animals for subsistence and sale; and income for education, health, food and other basic necessities. Poor and very poor households are unable to find adequate means to sustain a living over a sustained period of time as a result of: a lack of material, social and natural resource assets; inability to put children in school or seek medical care; and/or insufficient food for sustained periods. The results were achieved through consensus, were verified by the researchers and were triangulated with data from other sources, such as village and commune authorities, interviews with key community representatives and observation.

⁽³²⁾ The Ten Seed Technique is a PRA tool which gathers community members in a group and asks questions about the community, using the seeds to represent various categories, such as wealth rankings, type of occupation, borrowing practices, etc, with 10 seeds representing 100 percent. For example, participants are asked to divide the seeds between the wealth categories, discussing among themselves the percentages the seeds represent and the criteria for the category (Jayakaran 2002).

Table 5.7: Wealth and women's savings group borrower profiles in the Koh Kong research site, 2009

Major primary occupation	Income/expenditure in one year		Proportion of borrowers
	Income	Expenditure	
Chrouy Pros			
Wealthy (10%)	80%	30%	8 of 57 households (14%)
Middle class (20%)	60%	40%	41 of 57 households (72%)
Poor (20%)	50%	50%	8 of 57 households (14%)
Very poor (50%)	40%	60%	0 of 57 households (0%)
Koh Kapi			
Wealthy (10%)	70%	30%	8 of 16 households (50%)
Middle class (30%)	60%	40%	6 of 16 households (38%)
Poor (40%)	50%	50%	2 of 16 households (12%)
Very poor (20%)	40%	60%	0 of 16 households (0%)
Koh Sralao			
Wealthy (10%)	80%	20%	9 of 44 households (20%)
Middle class (20%)	70%	30%	24 of 44 households (55%)
Poor (30%)	60%	40%	11 of 44 households (25%)
Very poor (40%)	40%	60%	0 of 44 households (0%)

Source: Aggregated by research team/authors from PRA exercises.

Analysis shows that the savings groups are used mainly by middle class and wealthier households. Wealthy and middle class members of the community earn sufficient income to cover all their living expenses (food, shelter, health, education), with cash left over to invest in building livelihoods and asset bases and to recover from any unforeseen shocks or crises (such as storm damage, health problems, etc). They are also able to hire poor and very poor community members and to lend them money at high rates of interest (therefore benefiting from their poverty). These two groups represent 55 percent of savings groups, with the majority made up of middle class community members (the wealthy typically do not need to borrow). They use leftover income to make the monthly savings payment and take out loans to invest in capital equipment.

Between 60 and 70 percent of all villagers in the research sites are defined as poor or very poor. As we have seen, this means they are without land, live a precarious subsistence existence characterised by food insecurity and lack sufficient assets to generate a sustainable livelihood. Any shocks or stresses, such as health problems, cannot be survived without incurring high debt burdens at very high interest rates.

The poor and very poor generally labour to earn an income. They work for middle income/middle class fishers and supplement this income by catching snails and crabs to feed themselves and to sell. Poor and very poor respondents noted that they had no money to contribute to the savings groups and that the process did not actually encourage their participation anyway. The monthly contribution of 30,000 riel (US\$7.09) is prohibitive, plus wealthier villagers are nervous of including poorer people as they want to make sure that loans are actually paid back. In other cases, the poorest are labour migrants without permanent residence in the community, and this excludes them from participation.

Only when people trust poorer community members, and feel that they have good ideas in terms of using the money, are they allowed to join (the very poor are not represented at all). The poor represent between 12 and 25 percent of savings group participants. When these poorer households cannot contribute the necessary 30,000 riel (US\$7.09), especially in the rainy season, they are allowed to pay what they can (depending on the individual group). Most savings group members said that they help each other in the village, especially those in their group, through kin and social ties and with small investments.

Perspectives are mixed among savings group leaders with regard to participation of the poor and the very poor. Some say they are a risk but others feel more able to trust them.

"The incomes of the poor are not stable, and their jobs always meet a lot of problems, which threatens their ability to pay money back to the group."

Male savings group leader, Chrouy Pros, Koh Kong province.

"The poor people who are allowed to be involved in the women's savings groups are good people, loyal; most of the people trust them and they never do bad things in the community."

Female savings group leader, Chrouy Pros, Koh Kong Province.

The research team also asked savings group members for some evidence of ways in which their livelihoods had tangibly improved as a result of their participation and also to discuss any challenges. They were asked to list only those benefits that came about as a result of the funds they borrowed and not from any other sources of income.

Table 5.8: Benefits from using funds from the women's savings groups in Koh Kong, 2009

Before	After
<ul style="list-style-type: none"> • Fishing with small boat valued at 80,000 to 200,000 riel (US\$18.91 to \$47.28) • Crab traps (150 to 300) • Small store • Old small house • No cassette player or TV etc • Fishing net short and old (600m) • Farming with old equipment 	<ul style="list-style-type: none"> • Fishing with big boat valued at 100,000 to 400,000 riel (US\$23.64 to \$94.56) • Crab traps (300 to 500) • Medium-sized store • New bigger house • Cassette player and TV etc • Long new fishing (900 to 1000m+) • Farming with new equipment

Source: FGDs.

Photo 5.3: Fishing net improvements using a savings group loan, Koh Kong province



Photo by Chhor Elet.

Another benefit is the amount of interest that participants pay. At 2 percent, this is lower than ACLEDA Bank rates (between 3 and 3.5 percent) and much lower than rates from local moneylenders (between 8 and 10 percent). Members also do not need to demonstrate proof of property ownership as they do with the local bank. The savings groups are also more flexible: if someone is a few days late in paying back the loan, this is generally acceptable (in comparison with the bank, which has a strict repayment schedule). Moreover, it is expensive and takes time to go to the local bank, which is located in the provincial town.

Overall, group members highlighted more benefits than drawbacks in the setting up, practice and outcomes of the savings groups. However, a need was noted for caution in the future in relation to who is the neediest and who gains the most benefits from the savings groups.

Social network strengthening

The intention of every women's savings group is for its members to live better lives and for their communities to see an increase in solidarity.

Overall, the interviewees noted positive results in relation to strengthened community awareness, members helping each other more and better connections between participants and other members of the community as a result of the women's savings groups. One of the biggest challenges faced by women in relation to such social networking is gender-based discrimination from within their own families, typically from their husbands.

“When they first formed these women's savings groups, women faced many objections from their husbands. In the beginning, married women could be stopped from attending meetings by husbands, who accused them of infidelity. Some women dropped out of the groups following mounting pressure at home. Those who continued are now being admired by their husbands and families for the benefits they have achieved.”

Commune chief, Chrouy Pros, Koh Kong province.

Social funds

Some women's savings groups which have extra funding support hold a portion to contribute to small community development projects or the emergency needs of vulnerable and very poor members of their community (the latter as a no-interest loan). In this respect, the groups build social capital, networks and a sense of community identity and belonging, as well as helping the worse-off.

For example, a women's savings group in Koh Kapic repaired the community water storage facility. In Chrouy Pros, funds were used to repair the public well. A Koh Sralao group used funds to support community waste collection. Meanwhile, funds have helped send pregnant woman to the hospital in Koh Kong town, bought snacks for community meetings and assisted families with emergency needs. These cases are not restricted to one or two savings groups but are common throughout the research sites.

“Our group has been involved in the women's savings group since January 2007. I feel that this approach not only helps our group members with their livelihood activities but also contributes to the urgent needs of our community members when emergencies arise. Last year, one family in my village saw their home catch fire, and another man needed money to take his wife to give birth in hospital in Koh Kong town. I am pleased that we had saved some funds to support such urgent needs. The people who borrow money for emergency needs do not need to pay interest to the savings group members and other community members.”

Savings group leader, Koh Kapic, Koh Kong province.

Good management and governance

Another marker of social networking lies in the management practices and overall governance of the women's savings groups. When the groups have strong leadership and transparent management practices, participants' confidence in them grows and the groups can attract new members and increased overall community support. In this way, strong management stimulates and advances social networking.

Management and governance performance varies across the three sites. In particular, management structures and abilities within the groups are still developing and, according to group leaders, cashiers and secretaries, there is room for improvement.

Respondents noted that some of the leaders of the women's savings groups are trusted members of the community but are not skilled in numeracy, literacy and management. Those who do have these skills are not always trusted by the community, because there is a fear that the skills will be used to dupe others or cheat them of their benefits.

According to FGDs and in-depth interviews with group members and leaders, all groups in Chrouy Pros have good management and leadership skills. In each savings group, there are three responsible persons: the leader (responsible for keeping the key of the savings box); the cashier (who looks after the savings box); and the secretary (who records the group's activities in cooperation with the leader and cashier). These three management-level staff work together well and with all the other members within the groups, and are effective in ensuring participation within their own groups.

The Chrouy Pros and Koh Sralao savings groups have regular monthly meetings to review activities in order to work towards improvements. During group meetings, leaders encourage members to discuss livelihood issues that they and the wider community face, with a view to making plans to resolve these. As such, good group coordination has led to improved communication and social networking within the villages.

By contrast, women's savings groups in Koh Kapic community seem to have faced some challenges. Respondents said that the leaders of one of the savings groups had performed poorly in terms of management, records and coordinating with group members. As a result, members said that they had lost trust and interest in the savings group. The main reason for this failure was a lack of leadership skills, not poor governance. This was a case of a community choosing a leader who was well liked for their character but who lacked the leadership skills to perform as needed.

Box 5.1: Borrowing issues in Koh Sralao and Koh Kaptic, Koh Kong province

During the field survey in December 2009 in Koh Sralao, the PMCR team met some group members at the coffee shop. They said that the previous year their group had run well but, over the past six months, they had had a problem with one group member, a police officer in the village. He had borrowed money from the group to help his family but was late paying back both interest and the original funds. This had made all the group members angry and they had all resigned. The provincial PMCR team has tried to resolve this by pushing the man to make a contract to pay the money back in the next six months.

Conclusions and lessons learnt

Overall, the fact that the women's savings groups were still in operation three years after their establishment (with the exception of one in Koh Kaptic) suggests that they have been more or less successful. The Chrouy Pros and Koh Sralao communities are still functioning well, particularly in the case of Chrouy Pros. Funds supplied in 2006 (US\$1,450) are still being well managed and the groups have contributed to community livelihood development, have improved social networking and have provided women with a stake in the economic and natural resource management of their communities.

Management skills and trustworthiness among group leaders are vital to operations and to the success of the women's savings groups. Meanwhile, having male and female community members involved in the awareness raising from the inception phase is a key factor leading to community-wide acceptance and support.

However, whereas the poor and the very poor outnumber the wealthy and the middle class in the community, they are the least able to participate in and benefit from the groups. The poor may benefit a little but their participation has not led to significant improvements in their livelihoods (as with wealthy and middle class participants), as their loans are used more for social than for capital investments, which would bring greater returns in the long run. The very poor have no access at all to the savings groups, as they lack the savings to make the initial contribution and are usually heavily in debt because of a lack of assets needed to eke out a subsistence living.

The groups would be of great benefit for poor and very poor villagers, who are most in need of livelihood improvements and who may be borrowing money at high interest rates from moneylenders (given that they may not be able to access local banks). One of the main lessons is that, to benefit the poor and very poor, savings and loan conditions will have to be adjusted to fit their needs and ability to repay. This aspect requires further reflection, since backstopping support would likely be necessary to ensure that a group could work with poor and very poor members and that others in the village did not take advantage of the group.

Recommendations

Despite positive accomplishments, a number of challenges remain for joint effort. Some recommendations are as follows:

1. Local government and NGOs should help diversify coastal livelihoods by both providing technical and financial support and giving encouragement to community members. Livelihood interventions should integrate both local and outside technical knowledge.
2. Greater efforts are needed to target husbands and male members of the community to ensure that they support female household members to participate in the savings groups.
3. Those supporting the communities should have a deep understanding of the issues affecting the poor and the very poor and provide them with opportunities to become involved in savings groups.
4. Implementation of new concepts in the communities is not easy. Great commitment, a lot of time and strong support are necessary to ensure that communities can learn by doing, analyse their own strengths and weaknesses and improve management of their own groups and communities.
5. Other factors need to be taken into account, including enhancement and extension of local knowledge and experiences regarding livelihoods concepts and options.

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Section B:

Crossing Boundaries and Mapping Resources



Section B:

CROSSING BOUNDARIES AND MAPPING RESOURCES

Chapter 6: Crossing boundaries and mapping resources:
Multiple sites, multiple scales

By: Kate Grace Frieson

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Chapter 6

Crossing boundaries and mapping resources: Multiple sites, multiple scales

Kate Grace Frieson³³

Resource management underscores the complex interplay between ecosystem boundaries and human societies (Friedman 2009; Guasay and Vaddhanaphuti 2005; Owen 1971). What are the boundaries of this interplay and how can they be mapped out, both conceptually and territorially, in academic approaches to understanding natural resource management under regimes of community-based action and in contexts of state-led decentralisation?

Crossing boundaries

Crossing boundaries is conceived of in multiple ways: at the conceptual level through academic multidisciplinary approaches to research; as ecological imprints of interrelations between social and biological interactions; and as political and social interactions through the administration of “the commons.”

Conceptually, we consider the crossover of academic disciplines in the study of the commons, common property regimes and natural resource management. Political scientists, economists, environmentalists and biologists are moving closer together in their conversations on sustainable management and conservation, given the ever-shrinking physical boundaries separating human societies and wildlife and nature reserves (Zerner 2000).

Forestry is a good example of this. It is no longer sufficient for forestry researchers to simply study the ecological state of forest reserves and wildlife without understanding the social economies of forestry use at local community levels and by the state (Peluso 1996). So too, looking at nature reserves and protected areas requires a hard look at the social, political and statist imperatives at work in the control, management and even identity of national parks (Vandergeest 1996).

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Ecological boundaries of natural resources are more difficult to “capture” because of the fluid and changing nature of natural resources. There is also an imagined element to ecological boundaries, particularly when applied to aquatic resources. This is particularly notable in coastal areas, where boundaries are partly imagined because of the vastness of the sea and the liberty of the life forms within it to reproduce, be mobile and cross human-made boundaries.

A final set of boundaries is social and political. Social boundaries are culturally contextualised and complexly woven into webs of identities and hierarchies of language, power and gender and issues of access, equity and control. Political boundaries can be administrative but also are related to regime type (e.g. authoritarian, democratic, quasi-democratic and so forth) and to state-driven processes such as decentralisation, adaptive management or co-management mechanisms.

Crossing boundaries in the context of decentralisation has significance for collective action by local communities and accountability mechanisms at the lower levels of government. The Royal Government of Cambodia (RGC) initiated decentralisation reform in 2002, beginning with commune council elections. Its decentralisation programme aims to promote participatory local democracy with scope for natural resource management mandates at local council and community levels.

In tandem with decentralisation, natural resource sector policy reforms were initiated with the creation of community fisheries and community forestry administrations in the Ministry of Agriculture, Forestry and Fisheries. These natural resource administrations have specific co-management mandates with local communities over how natural resources are defined, valued, mapped, monitored and controlled.

There is a general assumption that decentralisation is necessarily good for collective action and sustainable resource management. Peluso (2005) writes that “decentralization of resource management is taking place in many parts of the world, much to the joy of many common pool resource proponents. And while this global move toward decentralization coincides with neoliberal agendas which are far less deserving of celebration, it brings, at least, a greater possibility of more fair representation of common property resource users.”

This works in theory, if decentralisation designs allow for collaboration across administrative and institutional boundaries, which are deeply engrained in most government institutions. In the cases of Koh Kong’s community federation and the community fishery lying across the zones of two provinces, as detailed in this section by Kim Nong and by Ly Vuthy and Tit Phearak, respectively, decentralisation is a hindrance to the first and a boon to the second. The Koh Kong community federation straddles different commune boundaries, and this frustrates administrative

efforts, requiring collaboration among different police, commune councils and district authorities. In the case of the community fishery, which also crosses boundaries, clear lines of administrative control under the provincial police and commune councils over each part of the community fishery have been used effectively by the community leaders to advocate for conflict resolution and discuss boundary demarcations.

Mapping resources

Mapping resources is very much bound up with issues of rights, justice, access and representation. The community-based natural resource management approach, which grew out of academic research on common pool resources, champions the rights of local communities and their perceptions of land use rights and ideas for resource conservation (Gonsalves and Mendoza 2006; Tyler 2006).

The poor are more dependent on natural resources for their livelihoods than the non-poor. As such, their spatial mapping of and access to forests, wetlands, coastal areas, inland fisheries and grazing lands is one method to assert their collective rights, especially when access to common property is threatened by outsiders, including the state. Peluso (2005) has called this a counter-mapping movement, one which “has exploded all over the world. Everyone seems to be mapping against power and creating new dimensions of power. Getting contending practices on maps and gaining the recognition of multiple versions of maps has become in some places a standard development practice.”

Mapping initiatives are powerful means for communities to visualise themselves in relation to what is outside their boundaries. This is certainly the case for the coastal mangrove community in Koh Kong province, the inland fisheries communities in Kandal and Takeo provinces and the villagers who are members of a community forest in three villages in the central province of Kampong Thom.

There are also elements of inclusion and exclusion to mapping and delineating resource use. Who gets included and who gets excluded and under what conditions? These issues are also taken up in this section of the book.

That is enough about boundaries and mapping resources. What about multiple sites and multiple spaces?

Multiple sites

Multiple sites refers to the geographic reach of the research projects presented in the chapters that follow, across the southern coastal zones, the inland fisheries sector (mixed with wet rice agriculture farming) in the southwest and the forest lands of the central interior. The research was conducted at multiple village sites, reinforcing the cross-boundary theme of the research programme.

Another dimension to the sites is institutional. The common thread across the chapters in this section relates to the importance and impact of local institutions in shaping the natural resource management capabilities of local communities. What has been learned is that Cambodia is increasingly leaning towards a co-management approach. Decentralisation processes underway explain this trend.

Commune councils, popularly elected, and local government agencies help to frame community-centred development of natural resource management. Local institutions such as commune councils will be at the centre stage in negotiating access and rights to environmental entitlements from natural resource management strategies. What the Participatory Management of Coastal Resources (PMCR) research underscores in this regard is that, by enabling local coastal resource users to form institutional structures, such as the community federation representing three island management committees in Koh Kong, they have been engaged directly with local governments that have increasing power over how resources are managed.

The challenges for the community federation have lain not only in internal consolidation through transparent procedures of election and creation of priority action plans, but also in negotiations with the co-management realities of coastal resources that are nationally managed via the Ministries of Environment and Agriculture, Forestry and Fisheries. Decentralisation initiatives have typically been focused on devolving ministry authority to local levels, but the cross-boundary decentralisation that the community federation represents remains a challenge in responding to environmental and community-based natural resource management requirements.

The research project on community fisheries demonstrates the importance of local institutions across boundaries uniting to solve resource conflicts. Community fishery organisations were able to bridge divides over resource use entitlements when the national Fisheries Administration supported and encouraged them to enter into a guided process of dialogue, information dissemination and consideration of livelihood alternatives for the free riders, whose illegal fishing equipment was posing serious ecological threats to the commonly pooled catchment areas.

Multiple spaces

Multiple spaces in the research programme were created by bringing together researchers from diverse sectors, including forestry, fisheries, coastal zones and protected areas, to discuss the common challenges of livelihood improvements and resource management methods across different resource sectors.

The significance of this is that the Rural Livelihoods and Natural Resources (RLNR) Development Research Programme, by its very design, has created opportunities to bridge very natural sector divides that traditionally separate researchers based in ministries and non-governmental organisations (NGOs).

Spaces also refer to the intellectual room to grow and learn from rural poor people. Seeing and experiencing inequity can create space for action among researchers and community members, if the research is powerful enough to connect them. In this sense, then, although the community is at the core of the community-based natural resource management approach, the role of national and sub-national academics, researchers, development workers and government authorities needs to be factored into initiatives and calls for collective action: the community is not autonomous in decision making.

The benefits of the action research approach using community-based natural resource management models is that it is participatory, it spurs community organising and it tackles the difficult issues of equity and benefit sharing, gender fair shares and respect for indigenous knowledge.

The drawbacks of the approach are that: communities depend on outsiders to facilitate their interactions with the external world; communities are not homogenous and the poor and marginalised are often unwittingly cast outside the net of benefits; and there is no real evidence that the approach improves livelihoods in any significant and sustainable way. Finally, the approach does not conceptually tackle the power that outsiders have to influence outcomes at the community level that may not be in their favour.

The research has so far led to innovations in livelihood approaches in relation to cross-boundary cooperation in coastal and protected areas among diverse communities with different stakes and demands. It has restored faith in commons protection through conflict management in the fisheries. And it has underscored the growing interdependence of institutional arrangements in strengthening forestry communities.

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Chapter 7

United we stand:

Coastal communities and the rise of the community federation

Kim Nong³⁴ and Tithuot Vathana³⁵

Introduction

Adaptive co-management as theory and practice is increasingly taking hold in the natural resource sector in order to respond to demands for sustainable and participatory development (Agrawal and Gibson 1999; Holling 1978; Stankey et al 2005). While acknowledging different conceptual interpretations of adaptive co-management, for the purposes of this chapter we refer to Pomeroy and Katon (2000) who define this as: “partnership arrangements in which government, the community of local resource users, external agents (NGOs [non-governmental organisations], academic and research institutions), and other stakeholders (fish traders, moneylenders, tourism) share the responsibility and authority in decision-making over the management of natural resources.” Given Cambodia’s recent political history of war and conflict, and the fragility of democratic development, partnership arrangements have tended to be “more on the government controlled side of the co-management spectrum” than on the community-based side (The Learning Institute 2005).

This chapter explores the significance of this government-initiated and donor-encouraged and supported approach as a catalyst for collective action for three fishery communities in one coastal wildlife sanctuary in Cambodia. The community fisheries have formed into a loose federation across three islands as a strategy for sustainable resource management in post-war Cambodia. The hypothesis is that cross-boundary collaboration is an important way forward for such coastal communities to sustainably manage their ecosystems. This is tested through facilitation of an action research process initiative.

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The research site, Peam Krasaop Wildlife Sanctuary and Chrouy Pros Bay in southwest Cambodia, is subject to many external factors that have been detrimental to the livelihoods and ecological safeguarding of its coastal mangrove and sea grass habitat. These include in-migration by wartime refugees; fishing encroachments by Thai fishers, using large nets and trawlers that are unavailable to the mostly poorer Cambodian fisher folk; the onset of large-scale sand mining in nearby waters, which appears to be threatening crab and fish stocks; and decentralisation policies that tend to work through vertical administrative structures, making collective organisation across communities a challenge (Kim et al 2008).

Primary data are drawn from a two and a half years (2008-2010) of action research carried out by the Participatory Management of Coastal Resources (PMCR) project of the Ministry of Environment, which is engaged in promoting and documenting cross-boundary collaboration and collective action processes.³⁶ The research used diagnostic studies for problem identification with communities and reflection workshops for verification and engagement in plans of action. Participatory rural appraisal (PRA) tools were applied (community mapping, wealth and poverty ranking, livelihood and problem analysis) in combination with other qualitative methods, such as participatory observation, focus group discussions (FGDs) and semi-structured interviews with representatives and community federation members. Data were used to generate an understanding of how the federation can support poor fishers and those most vulnerable to negative external influences and livelihood challenges, while also attending to their capacity needs with regard to collaboration.

The chapter also highlights best practices tested through the action research to sustain fisheries federations in coastal Cambodia.

Background

Cambodia is a relatively small country, covering an area of approximately 181,035km² with 435km of coastline.³⁷ Cambodia is classified as a low-income economy, with 34.7 percent of people living below the poverty line and 19.7 percent living below the food poverty line (Ministry of Environment 2007). In total, 80 percent of Cambodia's nearly 14 million people live in rural areas and 74 percent are employed in the primary sector, i.e. in extraction of natural resources

⁽³⁶⁾ PMCR is supported by the International Development Research Centre (IDRC). It emerged from the Participatory Management of Mangrove Resources (PMMR) project (December 1997 to May 2004) to cover the wider coastal environmental ecosystem, driven by an interdisciplinary team comprising national and provincial members.

⁽³⁷⁾ http://en.wikipedia.org/wiki/Geography_of_Cambodia.

for their conversion to primary products (NIS 2008). High dependency on agriculture and on natural resource extraction is typically found in developing countries where the industry and services sectors are underdeveloped.

Koh Kong is one of four coastal provinces in Cambodia and holds the country's biggest area of mangrove forests and sea grass beds together, which are essential to the web of life. They are home to hundreds of aquatic species (fish, crab, shrimp), protect the coastline from storms and erosion, produce oxygen and break down carbon dioxide and help maintain the regional and global climate. Within Koh Kong province, Peam Krasaop Wildlife Sanctuary boasts a unique mangrove ecosystem (23,750 ha granted protected area status)³⁸ that is connected to a shallow-water, sea grass ecosystem in Chrouy Pros Bay. Both Peam Krasaop Wildlife Sanctuary (under management by the Ministry of Environment) and Chrouy Pros Bay (under the Fisheries Administration) play a very important role in fisheries and energy production to supply domestic needs and for the export market (i.e. providing a habitat and nursery grounds in the mangrove and sea grass beds for various crab and fish species and generating firewood and construction materials for local populations).

Almost all people living in these areas are dependent on coastal resources. Indeed, many migrated to the area in the 1990s as a result of rumours of abundant resources and cash-potential opportunities from activities such as fishing, shrimp farming and mangrove cutting for charcoal production, among others. This led to serious pressure on the mangrove and sea grass ecosystem and the livelihoods of local fishers. Intensive fishing has led to sea grass bed destruction in Chrouy Pros Bay, which is of major concern for local villagers (Kim and PMMR 2004). Gear used in Chrouy Pros Bay includes crab traps and crab nets, motorised push nets, hand-held push nets, trawlers and purse seines. In the past, catches consisted mainly of grouper fish, shrimp and two types of crabs (the mangrove mud crab and the swimming crab). In recent years, a variety of small fish used for bait have been caught, as well as crabs, squid and shrimp.

Lack of collaboration among local agencies, and lack of management generally, contributed to a rapid resource decline, especially in mangrove forest and fisheries production, seriously threatening the local socioeconomic situation. Many institutional and legal constraints to the management of coastal natural resources in Koh Kong province existed:

⁽³⁸⁾Cambodia's system of protected areas was set up in 1993, after the establishment of the Ministry of Environment. Protected areas are state land, so the Ministry is responsible for their protection, management and development.

- Lack of human resources to initiate community-based integration planning
- Inadequate knowledge, skills and experience among both responsible institutions and local communities
- Improper management and unwise use of coastal resources
- Lack of financing, equipment and means of monitoring illegal activities, particularly in large-scale fishing
- Lack of clear explanations of laws and sub-decrees, resulting in different interpretations
- Rapid development of many laws and other legal instruments, without proper consultation with local communities, resulting in difficulties in law enforcement
- Illiteracy and poverty in local communities

One way that the government decided to address these problems, with the technical and financial support of the international community, was through adaptive co-management of natural resources and/or community-based natural resource management programmes. The Ministry of Environment's adaptive co-management approach, led by PMCR, has generated popular support for community-based management of coastal resources, including mangroves, sea grass beds and aquatic species. Community organising, or the establishment of village management committees and community federations, has been instrumental in building awareness and support for data collection, resource management planning, mangrove replanting, sea grass conservation, waste management, fisheries conflict resolution, livelihood improvement projects, etc.

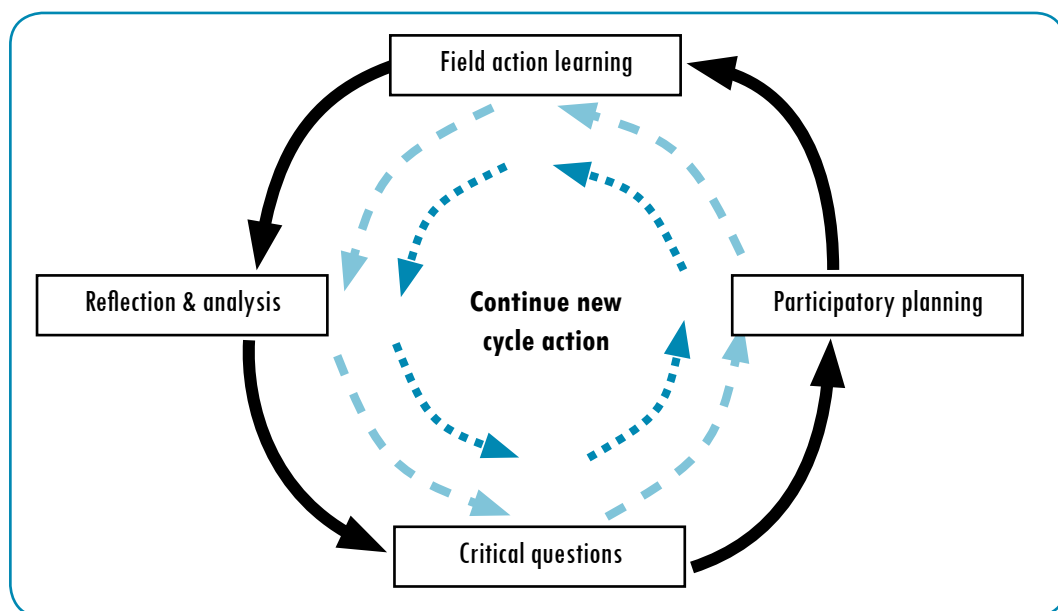
The PMCR approach is unique in several ways. In the PMCR experience, community organising/establishment of village management committees (which occurred in 2000 under PMMR) is not just a technique for problem solving but also a way to improve local incomes, strengthen awareness and enhance the natural environment in coordination with government institutions, local NGOs and other stakeholders. One aim is to spur changes in perspective on integrated resource management among all actors. Learning from previous phases of PMCR, combined with action research on crossing boundaries (both social and ecological), in the context of the decentralisation of coastal resource management, can be used to influence the thinking of local communities, government institutions and stakeholders with regard to sustainable management of coastal resources and livelihood security.

The community federation was born out of a compelling need for the village management committees to be able to cooperate with each other to stop illegal

fishing. Committee leaders were arguing for a joint community patrol team, but district authorities were insisting that it was not appropriate for the police to move beyond the administrative borders of their respective communes. The leaders refused to give up, though, and this led to the birth of the community federation in 2006, named the Natural Resource Coastal Community Coalition, merging village management committees in Chrouy Pros, Koh Kapic and Koh Sralao. Aside from efforts to stop illegal fishing, this entity resolved to expand mangrove re-plantation, protect the sea grass beds, clean up the villages, manage the water supply and work on fisheries management beyond individual villages in order to improve the coastal environment and community livelihoods. Cross-boundary collaboration is seen as the key to ensuring the sustainability of participatory management of coastal resources. In this, PMCR has three main objectives:

1. Communities in the community federation and authorities at all levels cooperate across boundaries in the context of decentralisation and de-concentration
2. Evidence is provided on the importance of cross-boundary and cross-sectoral cooperation in community federation work in the context of decentralisation and de-concentration
3. Wider stakeholders are convinced that cross-sectoral and cross-boundary cooperation is the key to decentralisation and de-concentration and become aware of the success of the community federation in coastal resource management

Figure 7.1: The cyclical process of action research



Source: Generated by research team/authors.

Methodology

Participatory action research is a cyclical method that moves from critical questioning to participatory planning, to learning from field action and finally to reflecting. It then moves on to a new cycle, starting anew from the questioning phase.

Between January 2008 and December 2009, five PMCR team members and the national coordinator of the Mangrove Action Project (MAP) spent at least five days a month in Chrouy Pros, Koh Kapic and Koh Sralao, assisting or advising communities, especially on cross-boundary collaboration on coastal resource management and livelihood interventions. The federation met at least one time every two months between 2008 and 2010 and the PMCR team often joined in these meetings, sometimes providing backstopping support on complicated issues. As such, participant observation was an important aspect of the research (observing and reflecting on conversations among federation members, etc). FGDs and interviews were also held, in participants' homes, in the pagodas or schools of the three communities and in concerned government institutions, such as provincial Departments of Agriculture, Forestry and Fisheries, Environment, Planning and Women's Affairs, as well as local authority offices. Secondary data collection from national and provincial institutions was carried out to back up the primary data collection.

The questionnaire for semi-structured interviews was designed for local community members and key informants from all sources.

Table 7.1: Respondents on community federation in the Koh Kong research site, by occupation

	Male	Female	Total
Villagers	23	34	57
Community representatives	26	12	38
District, commune and village officials	16	5	21
Village school teachers	22	3	25
Line department provincial offices	47	9	56
Local NGOs	7	3	10
National institutions	4	1	5
Total	145	64	209

Source: Generated by research team/authors.

Table 7.2: Participants in focus group discussions on community federation in the Koh Kong research site

	No. of FGDs	No. of participants
Koh Sralao	3	35
Koh Kapic	3	34
Chrouy Pros	4	45
Peam Krasaop (sometimes) ³⁹	4	56
Village schools	4	25
District, commune and village officials	5	21
Line department provincial offices	4	56
Total	27	272

Source: Generated by research team/authors.

Using the participatory action research approach, PMCR team members had the opportunity to learn about and write research project proposals, research strategy planning and technical reports, in consultation with villagers, local NGOs, government officials and project advisors. Local villagers were able to be involved in public forums and to become more active in participatory resource planning and management. For example, local fishers have made efforts to demonstrate to local government their right to participatory coastal resource conservation and protection, with the recognition and support of the provincial governor and concerned national institutions.

Participatory action research also helps change attitudes and behaviour. Sharing experience and knowledge has led to greater commitment to and increased interest in coastal resource management among community members as well as enhanced local government support to the initiative. It has also convinced key decision makers to change policy with regard to community-based natural resource management and co-management in Cambodia. For example, the Law on Protected Areas now allows local communities working with park rangers to create a management plan under contract with the Ministry of Environment.

Community meetings, short trainings and workshops are also used to build capacity of the PMCR team, local community representatives, local NGO staff and

⁽³⁹⁾ Peam Krasaop was the original community that PMMR worked closely with. During the new phase of the project (PMCR), this community was invited to be involved in some actions in order to share lessons and experience with the three communities that were the main sites of the PMCR research in 2008 to 2010.

government officials, through theoretical learning and field practice. Stakeholders are assisted to develop their own skills and knowledge for participation and collaboration in resource management. The themes introduced include common pool resource management, non-violent communication, leadership and adaptive co-management of resources, etc.

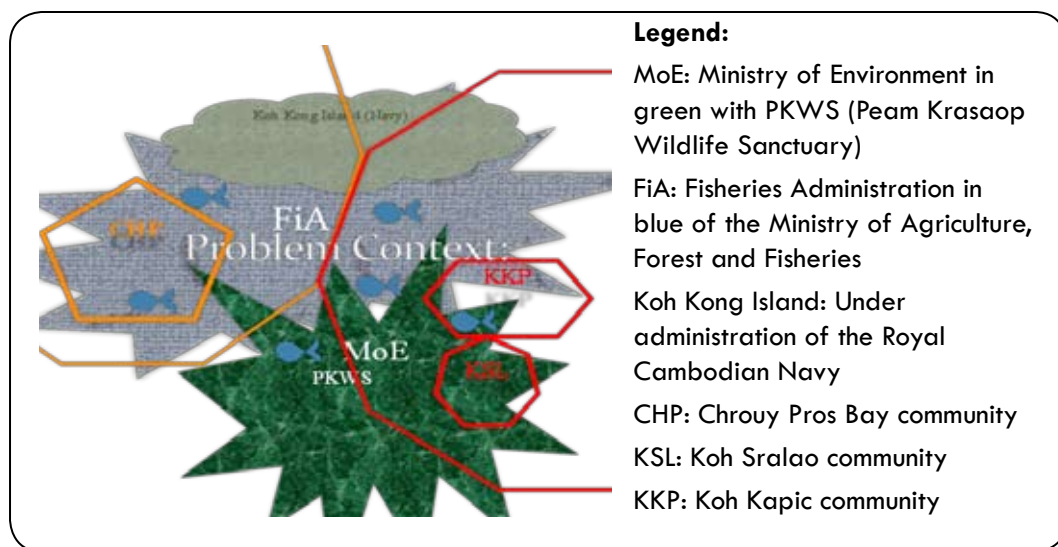
Cross-boundary collaboration in action

Cross-boundary collaboration is a multidimensional approach to supporting the process of coastal resource management in Koh Kong, so as to ensure that issues related to coastal resource use and management are disseminated and discussed widely. The approach is committed to sharing information and experiences and encourages local stakeholders to raise relevant issues by providing an open forum for discussion within a free learning environment, coordinated by the PMCR team and other community development partners. The aim is to increase knowledge among local organisations, communities and individuals during meetings, trainings and workshops in order that they will be able to further develop their own work plans. Issues of particular concern are sustainable coastal resource management, for instance sea grass and mangrove resource conservation and protection, food security and stakeholder participation, among others.

Discussions are frequently held on how to ensure equitable participatory management of coastal resources with the collaboration of all those who have roles and responsibilities in the area. For example, the Ministry of Environment has the obligation to manage Peam Krasaop Wildlife Sanctuary, the Fisheries Administration manages Chrouy Pros Bay, the commune-level authorities of Chrouy Pros and Koh Kapic manage within their administrative boundaries and the village management committees of Chrouy Pros, Koh Kapic and Koh Sralao manage their fishing grounds, where community members can catch fish (see Figure 7.2).

Figure 7.2 shows the three coastal communities as situated across two ministry administrative boundaries dealing with coastal resource management: the Ministry

Figure 7.2: Resource management across administrative boundaries in the Koh Kong research site



Source: Generated by research team/authors.

of Environment and the Ministry of Agriculture, Forestry and Fisheries. The Fisheries Administration has roles and responsibilities for fisheries outside the protected areas, such as the Peam Krasaop Wildlife Sanctuary, whereas the Ministry of Environment has roles and responsibilities in protected areas. However, the three coastal communities straddle both of these administrations. Chrouy Pros Bay community, highlighted in orange, is located in Chrouy Pros administrative commune, whereas Koh Kapor and Koh Sralao, highlighted in red, are in one administrative commune (Koh Kapor commune). This makes for complex collaborations among all coastal resource management stakeholders in the research site.

In the Cambodian context, working across boundaries in a collaborative manner is not easy. In most activities, plenty of time, commitment and support are needed to build appropriate relationships with all partners and stakeholders (both those who have power and those with little). Under coordination by PMCR, different institutions have contributed to promoting and developing participatory management plans, which aim to build linkages between or among local communities, concerned government institutions and donors, as well as local policymakers, through an information-based approach (Kim et al 2008). PMCR has employed many flexible strategies in working with partners to ensure effective change at grassroots level, especially in trying to prevent the degradation of the natural environment and in changing local people's attitudes and behaviour.

The more chances there are to work together, the stronger the relationship will be. For instance, mangrove replanting, sea grass conservation and waste management

cannot run smoothly without the cooperation of relevant stakeholders. Each community has managed to develop regular activities by identifying priority needs. The actual work is normally led by village management committee members, with the participation of community members (men, women and children), local police, monks and commune council members.

Exploration, problem analysis and initial solutions

Southwest Cambodia, particularly Peam Krasaop Wildlife Sanctuary and Chrouy Pros Bay, is home to the country's most extensive mangrove forest and sea grass habitat, an ecosystem that also has high potential in terms of supporting people's livelihoods. As we have seen, intensive resource extraction activities in the 1990s threatened the sustainability of people's livelihoods, especially use of destructive fishing gear, extensive mangrove cutting for charcoal production and degradation of shrimp pond areas. The fluctuating and unpredictable international market (in Thailand and Vietnam) put additional pressure on such resources.

As coastal resource degraded further, people shifted their thinking and became more interested in collaborative management and protection measures. Local communities recognised that, if their children were to have any livelihood opportunities, they needed to do something now to ensure enough resources would be available for them. As such, with technical and financial support from PMCR (as PMMR), village management committees were established in four villages around 2000. Individual committees focused on establishing rules and regulations appropriate for their own villages. As each committee became stronger, it became clear that cross-boundary collaboration was necessary. As such, the community federation for coastal resource management was established in 2006, to bring community members, individual households, other communities and other local agencies, both government and non-governmental, under a common vision and goals.

Within this process, the PMCR project sought to act as a catalyst, providing advice and options to help partners identify issues and reach their goals and objectives through its participatory action research.

Local capacity building

The first priority of the PMCR action research was to develop capacity building to promote the mainstreaming of community-based natural resource management and co-management concepts in formal and non-formal education through village management committees and local partnerships within the area. Then, PMCR attempted to facilitate and enhance these actors' roles in community-based natural resource management and to empower them to address issues with confidence and effectiveness. In the past few years, a number of important trainings, workshops,

management structure reforms and action plans have been developed and implemented to promote management of coastal resources and maintenance of food security at grassroots level. Learning has been on: fishery resource management theory; coastal ecological conservation; common pool resources; leadership and adaptive management; community socioeconomic analysis; women's savings group; coastal environment issues; local community management reform; ecotourism; mangrove replanting; sea grass conservation; crab banks; and patrolling for fishery resource management.

This learning has followed up on the previous PMCR phase and has provided great opportunities for all relevant stakeholders to resolve issues, take action and disseminate information on their successes to other areas (scaling up and scaling out). Both the PMCR team and local communities have been invited to share their lessons in conferences, symposia and workshops, especially learning on co-management of small-scale fisheries, local governance, etc.

Capacity building is an essential component of cross-boundary collaboration, and should be a part of the whole action research process: through definition of problem, choice of methods, analysis of data and use of findings. Capacity building can create greater awareness in people of their own situation and mobilise them towards self-reliant development. For example, sea grass conservation and protection in Chrouy Pros Bay and mangrove replanting in Peam Krasaop Wildlife Sanctuary are used as an educational activity for villagers; as a study tour opportunity for high government officials and researchers to garner support; and as a material for the creation of a learning module on coastal resource management techniques for other interested communities.

Capacity building as an empowering step is critical to the implementation of the next steps. It often requires the assistance of an external change agent (e.g. NGO staff members or government agency officials) during these first stages, not only to provide the actual capacity building but also to generate modest financial and other resources.

Building a common interest among all stakeholders

Theoretical capacity building is not enough to guarantee a sustainable coastal environment and livelihood security for local communities, especially the poor. It is only an initial step towards helping individuals, groups and institutions build common goals and interests before they go on to work on cross-boundary issues in coastal resource management and institutional development.

PMCR aimed to build on previous work to reflect the broader scope of social and ecological systems in integrated coastal resource management. The approach has involved the inclusion of multiple stakeholders from the beginning. This has included fishers (women and men), village, commune and district officials, police, provincial department staff, the provincial governor and national agencies (including the Navy). For example, a workshop on Creating a Common Vision of Co-Management of Coastal Resources was held in Koh Kong in January 2004 to ensure wider consultation among stakeholders from coastal communities and a better understanding of coastal resources and participatory management. The team presented “coastal resources” as meaning both living and non-living resources and the term “participatory management” as implying that all stakeholders have an obligation to protect coastal resources. During the workshop, participants agreed on the following as a vision statement:

“Stakeholders (local communities; village, commune and district authorities; armed forces; relevant technical departments) in Koh Kong province recognise that coastal resources are degraded through illegal fishing activities, overfishing, destruction of coastal forests, pollution and increasing population pressures. These are the main issues that impact coastal biodiversity and affect rural coastal livelihoods. Therefore, stakeholders must actively participate in the management of coastal resources and strengthen cooperation among all actors (at all levels) to rehabilitate coastal resources. This can be done through the elimination of illegal fishing activities, strengthening law enforcement, creating and strengthening fishery communities and ensuring the sustainable use of coastal resources. Not only will this serve an ecological purpose, but also rehabilitation and enrichment of coastal resources on which communities depend for livelihood will benefit the socioeconomic environment of rural communities.”

PMCR (2004) (translation of the original statement in Khmer).

Although participants have a common interest, there are many differences in their backgrounds and contexts, of which PMCR has to be aware. A training workshop on Participatory Common Pool Coastal Resource Management, held in Koh Kong in September 2008, built up the common interest in resource management among communities and stakeholders, aiming to help them achieve their own goals through their own integrated action plans (see PMCR 2008b).

To encourage increased community-level awareness on such issues, scattered throughout PMCR’s experiences of participatory action research are references to specific management sites. Each community, Chrouy Pros, Koh Kapic and Koh Sralao, is urged to take up its roles and responsibilities with its own resources (with some contributions from outside supporters (technical institutions, local authorities and NGOs).

In the technical institutions, coastal resource management was already referred to in guidelines, policies and legislation, with a particular focus on law enforcement within

their own territory. However, the somewhat vertical approach to decentralisation in such institutions presented an obstacle to collaboration. Local NGOs and local communities first learned about participatory action research on coastal resource management through their involvement with programmes and projects supported by international donors. In both cases, participants learned how to promote more collaboration most effectively in very hierarchical societies. The flexibility of participatory action research allows for its application in these very different contexts.

The common interest built in Koh Kong enabled cross-boundary collaboration on resource management at local and provincial level. Although it is often still hard to ensure cross-sectoral collaboration at national level, an examination by PMCR of the field base has generated some experiences to share with other concerned institutions. For example, PMCR has shared its experiences of Koh Kong with government agencies, NGOs and university students, both locally and nationally, in particular information on community-based coastal resource management, mangrove conservation and ecotourism development.

Establishing community-level committees and regular meetings

Conflict over fishery resources among fishers and intimidation and violence have escalated alarmingly in recent years. In particular, the increasing fisher population and more intensive fishing have resulted in problems on the Cambodian coastline between trawlers and small traditional fishers. Trawlers have been accused of destroying coastal resources and damaging the fishing gear of small fishers (Chan et al 2007). The Fisheries Administration sometimes fined illegal fishers when they were caught in the act; however, no consistent and thorough follow-through was done that went through to any judicial system and led to meaningful law enforcement. It is partly in response to this that the community federation was set up in 2006.

Overall, the PMCR team has spent a great deal of time, resources and commitment building up the communities of Chrouy Pros, Koh Kapic and Koh Sralao in order that they can preserve coastal resources for a better environment and improved livelihoods. Every five years, starting in 2000, community members elect their village management committees, (seven to nine persons, depending on the community), with the most recent elections early in 2009. Leaders of each committee are part of the community federation, along with representatives from commune councils, local government technical agencies and local NGOs.

These village management committees represent all levels in the village, ranging from ordinary people to local authorities and local government officials. The committees also require support from various relevant stakeholders both outside and inside the community, including the governor, provincial Department of Environment and Fisheries Administration officials, local NGO staff as well as PMCR facilitators. PMCR plays a key role encouraging everyone to work together.

Community meetings are frequent, in order to strengthen relationships and to ensure follow-up on actions implemented. The meetings have provided an opportunity for each community to deal with issues such as illegal fishing, control of fishing grounds and planning. All communities have learnt to work together towards the same goals – conservation and protection of natural resources, livelihood improvements and implementation of community bylaws – with one voice to influence decision makers.

Some work cannot run smoothly without cooperation from a neighbouring community through the community federation. For example, in 2008 the federation complained about sand mining impacting on their fishing activities to the provincial governor and the Ministry of Environment. Based on this, the ministry designated a national technical working group to help the communities on this issue. Now, the situation has improved but some fishers still have complaints regarding fish stock decreases. However, this is a complex ecological issue, one which is difficult for the federation to make an impact on. In another example, Chrouy Pros and Koh Kapic have developed a local agreement to reduce illegal fishing in Chrouy Pros Bay and to create a sea grass sanctuary in the bay for conservation and protection.

Meanwhile, the community federation serves as a forum to enable village management committee representatives to discuss ideas to take back to their individual communities. For example, through the village development committees, more than 500 ha of degraded mangroves in PKWS have been replanted and more than 20 ha of sea grass bed in Chrouy Pros Bay have been protected (see PCMR 2008a). Table 7.3 provides more details with regard to issues discussed within the federation and activities then carried out at village management committee level.

Table 7.3: Main activities of the community federation and village management committees in the Koh Kong research site

Federation activities	<ul style="list-style-type: none"> • Sharing what each village does; helping each other discuss and solve problems • Discussing fishing issues, including conflicts between fishers, sand mining • Deciding when to protest (e.g. writing up a petition to be thumb-printed also by village management committees) • Discussing with outsiders on general resource management activities • Meeting with National Assembly members 		
Village management committee activities	Chrouy Pros <ul style="list-style-type: none"> • Patrolling • Sea grass protection • Waste management (planning, clean up) • Women's savings groups • Monthly meetings to discuss and solve issues • Assistance in commune planning • Resource base for outsiders 	Koh Sralao <ul style="list-style-type: none"> • Patrolling • Mangrove replanting • Waste management • Women's savings groups • Monthly meetings to discuss and solve issues • Assistance in commune planning • Resource base for outsiders 	Koh Kapic <ul style="list-style-type: none"> • Waste management • Mangrove replanting/sea grass protection • Women's savings groups • Monthly meetings to discuss and solve issues • Assistance in commune planning • Resource base for outsiders

Source: Generated by research team/authors.

Challenges in cross-boundary work

During the past decade, the government has attempted to address poverty through an integrated approach and through governance decentralised to commune councils, which have to handle development and poverty alleviation in their respective commune. Councils now prepare their own commune development plans, having been trained by the government (with financial and technical assistance from international donors).

Discussions with councillors in Chrouy Pros and Koh Kapic communes revealed that, while at least some attention is paid to education, health care, roads, drinking water, etc, insufficient priority is given to natural resource management in the local area. Given that people's livelihoods depend critically on coastal resources, a lack of focus here raises questions as to the sustainability of any commune development plan. If villagers do not earn enough, how can they send their children to school or access hospitals?

To this end, whereas the commune councils are responsible for all commune development, the village management committees and the community federation work on resource management in particular. Meanwhile, the technical institutions work on their own mandates rather than on overall development. Since each actor has its own agenda, it is vital to combine all these focuses in the effort to accomplish sustainable community development.

This is challenging, particularly because authorities and technical officials gain benefit from a top-down management approach and may be reluctant to have their powers “reduced” through new, more horizontal concepts such as co-management and community-based federation. Moreover, many who work officially on natural resource management believe that only those with scientific knowledge can work on the issue, and that local communities cannot deal with it, given a lack of capacity and experience. However, PMCR experience in Koh Kong province has shown that resource management requires all types of inputs, from all actors. This means that an approach integrating all relevant partners is necessary to ensure sustainable use and management of natural resources (Ministry of Environment et al 2009).

PMCR began by talking in households and institutions about respondents’ roles, responsibilities, livelihood situations, relationships within the community, lifestyles and problems. Discussions were also held with local authorities and concerned institutions about their existing management system and the impacts of this with regard to the sustainability of the natural resource base. Besides these separate discussions, face-to-face meetings, workshops and trainings were arranged for whenever all parties could take part, especially in places where and at times when villagers felt comfortable to talk. These meetings, workshops and trainings provided stakeholders with opportunities to grow to understand each other and build relationships, and then to raise issues and come up with possible solutions.

Successes in cross-boundary resource management

Making coastal resource management more effective requires policy and institutional changes and commitments that cross boundaries. More integrated and inclusive approaches build individuals, groups and institutions to engage with and address the key players behind coastal resource degradation.

Participatory action research is one crucial approach in this. It has also proved successful in encouraging community cooperation and participation in data collection and the analysis of local issues (Ministry of Environment et al 2009). Moreover, such techniques enable villagers to work together and, with community helpers, to develop their own plans for resource management. Importantly, participatory action research fosters strong relationships between relevant

institutions, communities and researchers, providing opportunities for everyone to learn and share from each other and compelling people to work together on specific issues rather than alone.

When asked about the usefulness of the community federation, its members mentioned that they highly appreciate the chance to talk with representatives from other villages, which enables them to discuss problems encountered and share ideas on how to solve them. It also enables the community federation to consider issues to be addressed in each of the villages. For example, after one federation meeting in the winter of 2008, members of each village management committee thumb-printed a petition asking local authorities to look into sand mining activities (as noted above).

Mangrove replanting in Peam Krasaop Wildlife Sanctuary and sea grass protection in Chrouy Pros Bay have been managed under the integrated responsibility of local communities, commune councils, provincial technical institutions (the Fisheries Administration and the Department of Environment) and the provincial governor.

In PMCR, four areas have been key to cross-boundary collaboration to improve the coastal environment and assist poor communities:

Improve local governance

- Integrate coastal resources issues, such as mangroves, sea grass beds, coral, fisheries, etc, into the community development framework at all levels
- Strengthen local community and stakeholder capacity to work collaboratively on environmental management, for example in community-based natural resource management, common pool resources and sustainable livelihoods
- Empower local communities, in particular poor communities and groups impacted negatively by development, through community organising and involvement in community federations and community patrols, etc
- Address gender issues in natural resource management – a combined force of both men and women is vital in working towards sustainable resource management and improved livelihoods
- Reduce resource use conflict in pursuit of a more harmonious living environment (for example through the Chrouy Pros/Koh Kapic agreement to reduce illegal fishing and create a sea grass sanctuary in Chrouy Pros Bay)

Enhance community assets

- Strengthen resource use rights of local communities by encouraging local communities, especially vulnerable groups (women and the poor), to participate in activities, both theoretical and practical, on natural resource conservation and rehabilitation, such as mangrove replanting, sea grass protection and boundary management
- Enhance local environmental management capacity, by including in each local programme environmental education, community meetings, workshops and study tours for all socioeconomic groups in the community (and encouraging school children in these activities)
- Reduce the environmental vulnerability of poor communities by creating a livelihood programme to support community members through home gardening, animal raising, crab banks, women's savings group, ecotourism, etc
- Expand appropriate technology for grassroots levels, e.g. agricultural and aqua-cultural development, market analysis, the 3R waste management processes (reduce, reuse and recycle), ways to package fisheries products, methods of producing souvenirs, etc
- Create microfinance to enable community building and improved local livelihoods, such as that in the small livelihoods programme, which is very important in increasing the opportunities of local community members and other stakeholders to learn from each other

Improve management quality

- Integrate effective planning and implementation at local levels (for example, village management committees and commune councils are now working well together in terms of developing community investment plans and carrying out natural resource management by making use of both village management committee and technical institution inputs)
- Increase knowledge and appreciation of the value of coastal environmental management through field action research among local communities, local authorities, provincial technical departments and the PMCR team (mangrove and sea grass bed conservation and protection in Koh Kong Bay have created both environmental and economic value for stakeholders)
- Encourage the involvement of powerful people in coastal resource and environmental management, for example bringing in policymakers and decision makers from national and provincial level to learn about grassroots issues through face-to-face reporting, study visits and participation in community events, such as mangrove replanting and village clean-ups

Reform management structure, policy and legal framework

- Reform the local management structure by means of a democratic approach (for example the village management committees and community federation, elected every five years by their own villagers)
- Enhance the contribution of combined institutional agreements to support grassroots level (for example, provincial technical institutions (the Department of Environment and the Fisheries Administration) and Save Cambodia's Wildlife are working together on environmental education and livelihood programmes with the participation of village management committees, commune councils and school children in the target area)
- Through a process of negotiation, create appropriate rules that all communities and stakeholders can follow (community meetings, workshops and study tours are crucial methods that PMCR uses to encourage all stakeholders to work together on resource use and management)

Positive changes in all of these key areas for the most part require neutral outside facilitators who have the obligation and the commitment to work on these issues to ensure future improvements. However, contributions by community members with power, resources and time are also vital to building communities and ensuring resource management.

Lesson learnt

- Cross-boundary collaboration here means mainstreaming of natural resource management and food security interventions, integrated within all institutions with either direct or indirect involvement in social and ecological management systems
- The success of cross-boundary collaboration in resource management and livelihood improvement is very difficult to define in the short term
- Capacity building is about not just the concepts, guidelines and theories, and needs to be reinforced by learning-by-doing approaches
- Action research is useful to support the work of a community federation and to provide some research insights into such a process
- Working in cross-boundary collaboration on natural resource management needs backstopping support, such as a legal framework, short training courses, communications, relationship building and planning
- Neutral small group facilitation is also very important, as a catalyst to encourage all interested individuals and groups to meet and discuss the issues

- More cross-sectoral approaches are needed to integrate environmental issues and food security into mainstream development planning and resource allocation processes, to forge a more coherent and effective response to natural resource and livelihood issues and to ensure that resources are being allocated and targeted effectively to the grassroots level

Conclusions

Successful cross-boundary collaboration on coastal resource management needs to emphasise communication to reorient the parties' perceptions of each other and to foster an atmosphere of collaboration. This in turn necessitates direct community and stakeholder involvement in order to strengthen relationships among and between communities.

To support cross-boundary collaboration, PMCR has established partnerships at various scales: national, provincial and community. In national partnerships, the attempt is made to ask questions or reflect on issues to do with community-based natural resource management or decentralisation. Provincial partnerships aim to obtain high-level political support for natural resource management activities (both in the law and in terms of official endorsement). Community partnerships help to ensure sustainable natural resource management in the relevant areas. In pursuit of this collaboration, PMCR has spent a great deal of time in formal and informal discussions with both government agencies and NGOs, sharing common issues and information on local communities' needs under a common idea and long-term perspective.

When it comes to actually implementing coastal resource management “on the ground,” this takes a team of people committed to problem solving and working consistently on the issues with different partners. In particular, ensuring benefit and power sharing among partners can lead to stronger relationships and reduced conflict in the communities. Any mechanism for conflict resolution must also emphasise communication and allow all parties to express their perceptions in a fashion that nourishes the integrative power of those in conflict.

Cross-boundary collaboration on coastal resource management needs good governance at all levels and, because it is a crosscutting issue, requires multi-sectoral collaboration to ensure comprehensive implementation. Participatory coastal resource management in Koh Kong has promoted cross-boundary collaboration among local communities, local authorities (village, commune, district and provincial), technical departments and concerned local NGOs to support on-the-ground interventions in community-based resource management. These experiences have now been added within the National Programme for Sub-National Democratic Development,

implemented by the sub-national administration in Cambodia. For example, there is now in the community action plans a sector called natural resource management and environment. In our research site, the two relevant communes have created plans on sea grass protection, mangrove replanting, waste management and response to patrol calls on illegal fishing activities.

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Chapter 8

Protected area mapping initiatives: Community participation in defining management zones

Kim Sarin⁴⁰ and Sy Ramony⁴¹

Introduction

The majority of rural people use natural resources for their daily livelihoods. These forests, wildlife and fishery resources are now facing threats, posed by climate change, exploratory mining and illegal extraction. These threats lead to negative impacts on the natural environment and consequentially on local livelihoods.

This chapter explores a new initiative involving local communities living within protected areas: collaborative mapping and identification of the different types of management zones within communities. The rationale for the collaborative mapping initiative is to empower poor rural dwellers, who suffer the most from the external threats, by facilitating their own resource mapping that accounts for non-traditional boundaries (such as spirit areas), generational family care of certain species of trees and boundary changes as a result of natural changes in ecological states and wildlife populations over time.

Traditional mapping initiatives were carried out from the central level down using technical data on the ecological environment and elementary consideration of indigenous peoples' traditional practices and interactions with the natural environment. Such processes were used to create the protected area management zones in Cambodia beginning in the 1960s. The rights of local communities with regard to participating in decision making on mapping resource areas is still a novel notion. Nevertheless, the main message of this chapter is that the key to sustainable natural resource management in Cambodia's protected areas lies in making the

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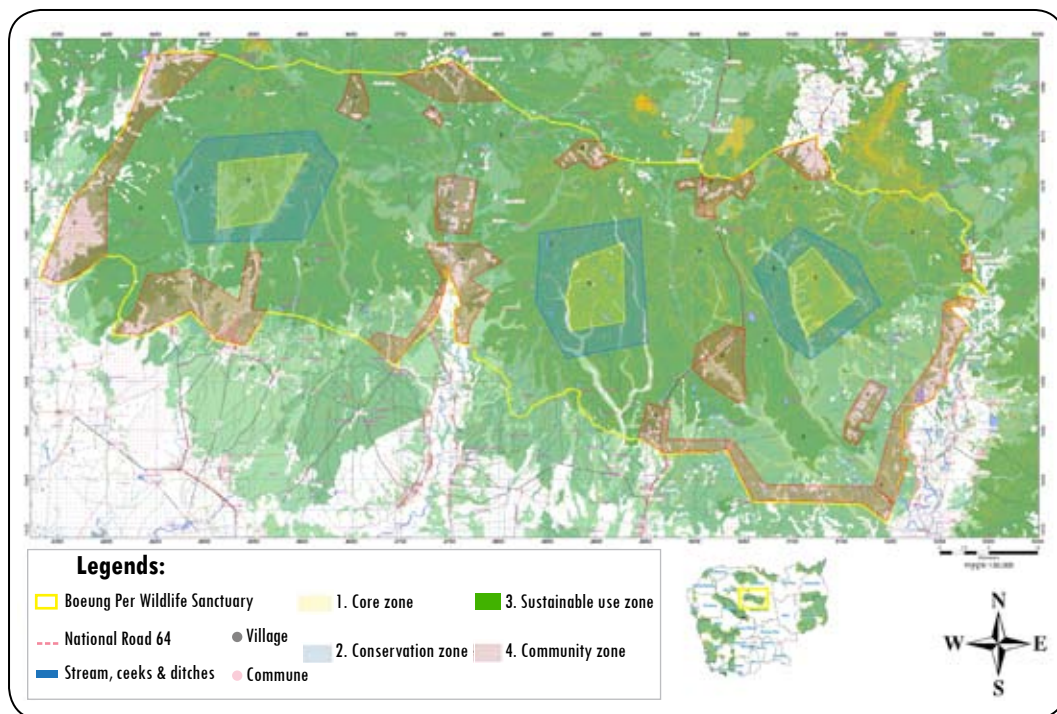
rights and decisions of local communities legal and legitimate and in ensuring their full participation in defining protected area management zones.

Boeung Per Wildlife Sanctuary

The Royal Government of Cambodia (RGC), under a Royal Decree issued on 1 November 1993, designated 23 protected areas, covering a total land area of 3.3 million ha, equal to 18 percent of the country's land area. These national protected areas are under the management of the General Department of Administration for Nature Conservation and Protection of the Ministry of Environment. In or near every protected area are village settlements, whose people use and rely on its natural resources for their daily livelihoods.

The Law on Protected Areas was passed by the National Assembly on 27 December 2007, and then signed by King Norodom Sihamoni on 15 February 2008. Article 11 in Chapter 4 defines management zone methods by identifying access and use rights of local communities over protected area natural resources. Articles 25 and 28 in Chapter 6 support and encourage local communities and indigenous minorities to participate in natural resource management through community protected areas in order to ensure their traditional use rights and improve local community livelihoods.

Map 8.1: Draft participatory mapping of management zoning in Boeung Per Wildlife Sanctuary



Source: Ministry of Environment.

Boeung Per Wildlife Sanctuary covers 242,500 ha in Siem Reap, Kampong Thom and Preah Vihear provinces, including 59 villages, 14 communes and six districts. According to a study of the relationship between natural resources and rural livelihoods from the Livelihoods in the Protected Areas (LiPA) research project, rural people depend on non-timber forest products (NTFPs) such as fuel wood, charcoal, resin, vines, rattan, wild vegetables, fruit, potatoes and medicinal plants. Population increases are leading to increased use of natural resources. This is a concern, given that research data collected from seven villages across the three provinces indicate that the majority of local people depend on NTFPs as a main source of livelihood. Pressure on protected area resources is limiting livelihood improvements in local communities to the point where most people are living a hand-to-mouth existence.

At present, local livelihoods are strongly dependent on different natural resource bases, which are divided into three geographical locations: the upper area relies on forest resources; the central area relies on agriculture; and the lower area relies on fishing. Because livelihood needs are growing and many livelihood activities are illegitimate, natural resources cannot recover at their own speed to respond to demand.

Action research on protected areas

Within this context, Ministry of Environment departments responsible for protected areas developed an action research project on community livelihoods in protected areas. This research process enabled local communities and commune councils to participate in reflections on the relationship between local community livelihoods and natural resources in protected areas. The research findings are expected to be used for wider dissemination among all concerned stakeholders. Additionally, empirical data can be used as a knowledge bank, to strengthen the effectiveness of protected area management, to ensure protected areas comply with relevant legal aspects, to ensure a constant supply of NTFPs to support community livelihoods and to promote effective conservation of natural resources.

The research project aimed to identify appropriate mechanisms to define management zones which comply with the Law on Protected Areas and respond to the needs of local communities in using natural resources to support their livelihoods. To ensure that all concerned stakeholders, especially local communities, accepted the resulting management zone definition, an emphasis was put on maintaining a balance between conservation and development in this pursuit.

The research documented and shared information and experiences gathered throughout the implementation of a project on land zoning in Boeung Per Wildlife Sanctuary. This provides a basis for policymakers to address land zoning issues, as well as for concerned stakeholders to increase their awareness on and participate in defining management zone processes based on their specific roles and functions.

In this way, management zoning can respond in a timely way to the need for local community livelihood improvement.

Research context

This research process was based on the following legal and conceptual aspects:

Legal aspects related to defining protected area management zones

In Chapter 4 of the Law on Protected Areas, every protected area is required to be divided into four major zones: the core zone, the conservation zone, the sustainable use zone and the community zone (Article 11). Article 12 points out specific criteria for zoning: 1) clear identification of the aim of zone management; 2) analysis of potential natural resources; 3) study of socioeconomic and cultural impacts; 4) study of the capacity of natural resources versus resource use demands; and 5) study of geographical conditions in zones whose different ecosystems produce different natural resources.

Articles 25 and 28 in Chapter 6 of the law support and encourage local communities and indigenous minorities to participate in natural resource management through community protected areas. This aims to ensure their customary use rights and improve local community livelihoods. Management zone practices are to address both conservation and community livelihood issues.

Research concepts for community mapping initiatives

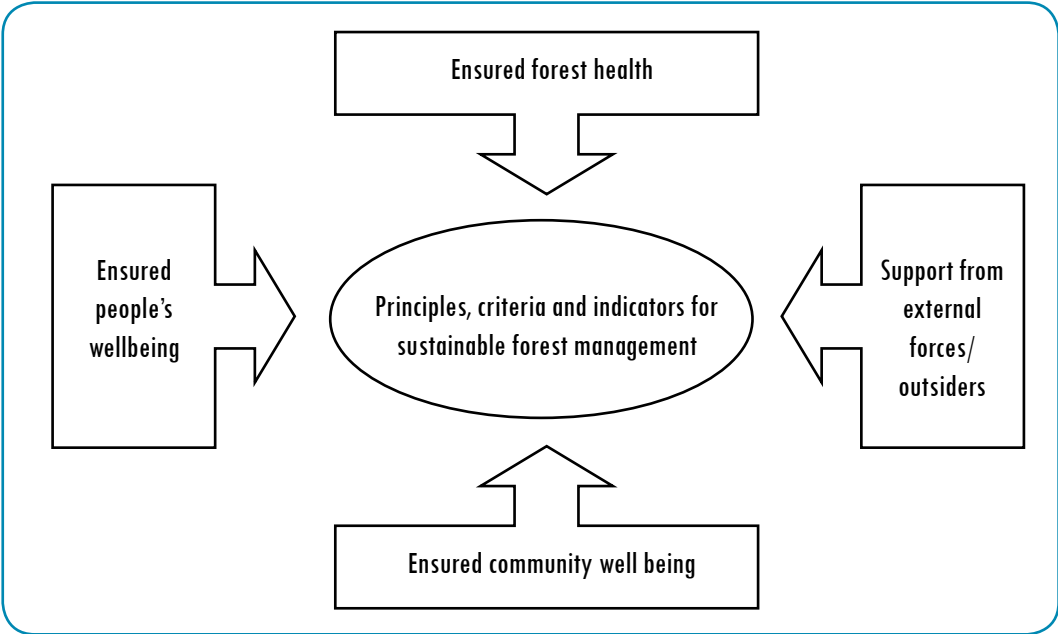
The research incorporated two concepts in its methodological design and approach. The first, sustainable community-based natural resource management principles, is well grounded in forestry management approaches and combines a set of principles, criteria and indicators in a package for work on collaborative arrangements with local communities. The second is the body of thought related to common pool resources.

Principles for community-based sustainable natural resource management

Natural resource management principles, criteria and indicators are a powerful tool in sustainable forest management, as well as in establishing community forestry and providing community members with sufficient scientific knowledge to monitor forest health and local community conditions. These entail several major principles for sustainable forest management: 1) forest health; 2) community wellbeing; 3) people's wellbeing; and 4) external support. Feedback was collected from local communities in this regard: In what condition do you want forest resources to be in the next five to ten years? What do you want the situation to be at that time? In your opinion, how can you get there? Who can help you, with what skills and policies?

Methods to collect this information included focus group discussions (FGDs), which were responsive to communities’ needs in order to determine criteria and indicators for each principle with their approval. Researchers explained the technical processes of these methods to all community representatives. Most of the criteria and indicators identified were key indications of community activities, which were then considered major mechanisms for defining management zones as well as for designing management, monitoring and evaluation plans in protected areas.

Figure 8.1: Sustainable resource management principles



Source: Generated by research team/authors.

Principles for common pool resource use

While there is still ongoing debate among academics and practitioners about what can be defined as “the commons,” there is general agreement that the commons are “systems, such as knowledge and the digital world, in which it is difficult to limit access, but one person’s use does not subtract a finite quantity from another’s use” (Ostrom 2008). The internet is a good example of “the commons.” Common pool resources are more finite in nature, and there is a danger of what is termed the “tragedy of the commons” – if some users of the resource consume more than is sustainably possible, thereby taking away the rights of others to benefit. Ostrom identifies fisheries and forestry as particularly susceptible to this challenge. Other main resources that are commonly pooled are lakes, oceans, grazing areas, irrigation systems and – in this climate change-aware age – the earth’s atmosphere as well.

Photo 8.1: Common pool resources in Boeung Per Wildlife Sanctuary



Photo by Kim Sarin.

According to Ostrom (2008), “common pool resources may be governed and managed by a wide variety of institutional arrangements that can be roughly grouped as governmental, private, or community ownership.” Ostrom has generated a considerable body of knowledge based on the challenges of effectively managing common pool resources in different parts of the world (Ostrom 1990; 1992; 1994). She set up a theoretical milestone by arguing that “all efforts to organize collective action, whether by an external ruler, an entrepreneur, or a set of principals who wish to gain collective benefits, must address a common set of problems.” These problems are “coping with free-riding, solving commitment problems, arranging for the supply of new institutions, and monitoring individual compliance with sets of rules.” In her well-known work, *Governing the Commons* (1990), she described how groups that are able to organise and govern their behaviour successfully are marked by a set of common factors, which she organised into design principles that were reflected by “long enduring common pool resource institutions.” These are paraphrased below:

1. Group boundaries are clearly defined.
2. Rules governing the use of collective goods are well matched to local needs and conditions.
3. Most individuals affected by these rules can participate in modifying the rules.
4. The rights of community members to devise their own rules are respected by external authorities.

5. A system for monitoring members' behaviour exists and the community members themselves undertake this monitoring.
6. A graduated system of sanctions is used.
7. Community members have access to low-cost conflict resolution mechanisms.
8. For common pool resources that are part of larger systems, appropriation, provision, monitoring, enforcement, conflict resolution and governance activities are organised in multiple layers of nested enterprises.

While not all of these principles were tested during the course of this research, most were considered in the mapping exercises and in the diagnostic phase with local communities in Boeung Per Wildlife Sanctuary. Some analysis of these follows later in the chapter.

Action research methodology

During the action research process, the research team used mixed methods including participatory rural appraisal (PRA), the Ten Seed Technique, questionnaire-based interviews and reflection on collected information/data (validation). The choice of instrument depended on the kind of information required from the data source. Action research took place with participation from local communities, commune councils and local natural resource officials, reflecting the relationship between natural resources and community livelihoods.

A breakdown of field-based data collection shows use of the following techniques:

- The Ten Seed Technique (Jayakaran 2002) was undertaken to collect data related to the economic profiles of each household, income sources, food security and the roles of men and women.
- Participatory resource mapping was conducted to collect data on geographical conditions, sources of various resources and locations where natural resources are being used by local communities.
- Transact walking was used to observe actual locations of community-used areas while collecting additional information, especially on the problems that occur in the community and opportunities for improving natural resource use patterns in each zone.
- Questionnaire-based interviews were carried out to understand the amount of NTFPs used by local communities, main occupations, factors influencing community livelihoods and views on local participation in natural resource management.

- Reflection on collected data aimed to verify and validate all data collected as well as to disseminate this through meetings with local communities and through a validation workshop with local stakeholders, such as directors of provincial Departments of Environment, district chiefs, commune councils and partner non-governmental organisations (NGOs).

Secondary data collection took place with local authorities and local stakeholders through interviews with directors of provincial Departments of Environment in Kampong Thom, Preah Vihear and Siem Reap provinces, chiefs of relevant districts in Boeung Per Wildlife Sanctuary, commune councils and various NGOs working in the area.

Photo 8.2: Villagers creating a seasonal calendar of resource use in the protected area of Boeung Per Wildlife Sanctuary



Photo by Kim Sarin.

Experiences

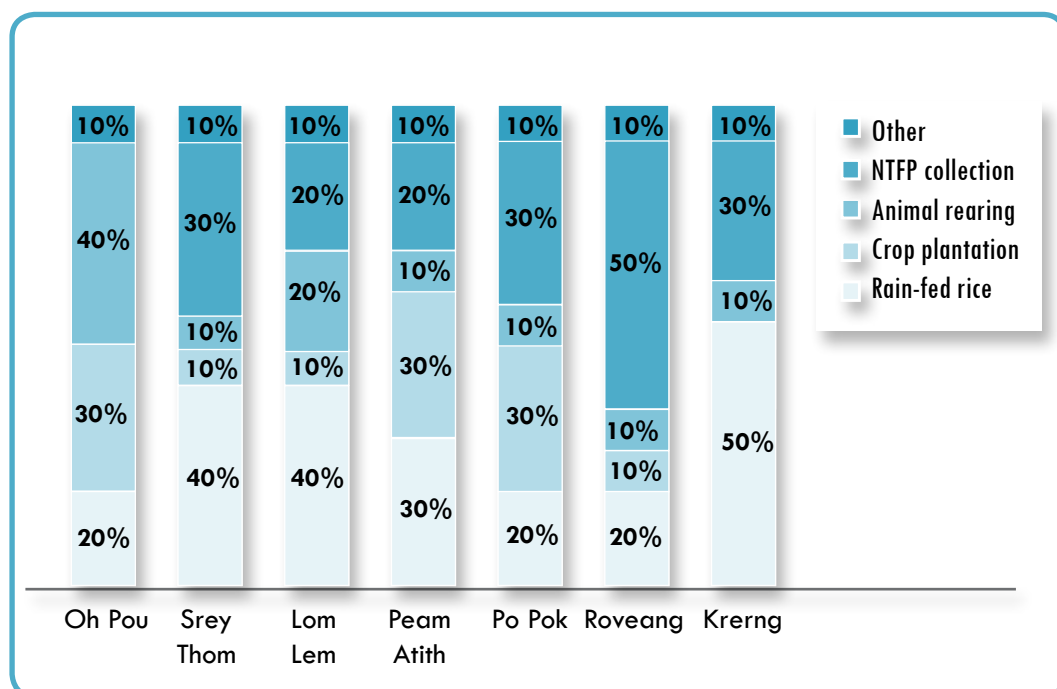
Local livelihoods

Livelihood activities of the local communities living in or close to Boeung Per Wildlife Sanctuary depend on four major occupations: rain-fed rice cultivation, NTFP collection, swidden crop farming (plantations) and animal rearing. Apart from these, people engage in paid labour and grocery selling. The amount of income received varies from one village to another: some villages receive the most income from rain-fed rice cultivation whereas others obtain larger sums from NTFP collection.

In general, the income sources of each community are related to the geographical conditions (rice paddies, forest resources, road systems and markets). In addition, income fluctuates every year depending on natural factors (drought or flood), market demand for NTFPs and availability of NTFPs.

We observed that all local community livelihoods are strongly related to NTFP collection (resin, vines, rattan, wooden poles, wild vegetables and fruits and herbal plants). Figure 8.2 shows the different income sources in the villages under investigation. All villages depend on NTFP collection (between 20 and 50 percent of all income sources).

Figure 8.2: Income sources in the research villages in Boeung Per Wildlife Sanctuary, 2008



Source: PRA exercises.

Local communities living within or in close proximity to Boeung Per Wildlife Sanctuary have their own traditions of managing and using natural resources for their livelihoods. In the past, collection and use of forest products and NTFPs was the most important part of daily local livelihoods. NTFPs were collected partly for household consumption and partly for sale to accumulate an income to support the family.

Before 1975, NTFP collection involved paying respect to guardian spirits, believed to be the protectors of the forest. People had to prepare compounds of wild betel or areca nut as an offering to ensure happiness and permission to extract NTFPs

from the forest. Disregarding this practice might lead to problems such as abdominal pain, itching, snake bites or pursuit by a tiger or an elephant. According to some village elders, these beliefs contributed towards forest resource preservation, as local people had to be trustworthy and could not destroy forest resources or hunt animals anarchically.

One interesting practice is resin tree management. People extract flammable resin from *Dipterocarpus* and *Dipterocarpus intricatus* species by digging a hole in the trees. Resin is collected for consumption and for sale, and is used to make torches, to caulk boats and to produce coloured paints. Traditions in resin management have been practised from one generation to another, and ownership over resin trees in the forests is based on each individual family's capacity and recognised by other members in the community. When children get married and build a separate family, the parents of the groom and the bride give resin trees to them if they can. Traditions in resin tree management provide both conservation benefits and local community livelihood improvements. Market demand for resin is strong, meaning that resin trees are still a substantial source of income for local communities, as in the past.

Defining protected area management zones

According to the Law on Protected Areas, each protected area must be divided into four management zone systems, as we have seen: core zone, conservation zone, sustainable use zone and community zone:

- 1. Core zone:** This is a management area(s) of high conservation value, containing threatened and critically endangered species and fragile ecosystems. Access to the zone is prohibited, except by General Department of Administration for Nature Conservation and Protection officials and researchers (and national security and defence personnel) who, with prior permission from the Ministry of Environment, conduct nature and scientific studies for the purpose of preserving and protecting biological resources and the natural environment.
- 2. Conservation zone:** This is a management area(s) of high conservation value, containing natural resources, ecosystems, watershed areas and natural landscape and located adjacent to the core zone. Access to the zone is allowed only with prior consent from the General Department of Administration for Nature Conservation and Protection (with the exception of national security and defence personnel). Small-scale community use of NTFPs to support local ethnic minorities' livelihood may be allowed under strict control, provided that this does not have serious adverse impacts on the biodiversity within the zone.

- 3. Sustainable use zone:** This is a management area(s) of high value both for national economic development and for management and conservation of the protected area(s) itself. It thus contributes to the improvement of local communities' and indigenous ethnic minorities' livelihoods. After consulting with relevant ministries and institutions, local authorities and local communities, in accordance with relevant laws and procedures, the RGC may permit development and investment activities in this zone in accordance with a request from the Ministry of Environment.
- 4. Community zone:** This is a management area(s) for the socioeconomic development of local communities and indigenous ethnic minorities and may contain existing residential lands, paddy fields and orchards or swidden agriculture.

Figure 8.3 shows the steps and processes involved in defining management zones in Boeung Per Wildlife Sanctuary.

Figure 8.3: Processes and approaches in defining protected area management zones



Source: Generated by research team/authors.

Research in Boeung Per Wildlife Sanctuary aimed to understand all concepts, methods and approaches related to the local setting, as well as to use these concepts as the basis for developing a strategic plan for protected area management. The research team aimed to learn and test applicability to local context, technical expertise and policy.

Discussion on draft mapping (the existing map) with concerned stakeholders was carried out through FGDs, which were facilitated by conservation officials. The participants were park rangers and the chiefs of 13 communes located in Boeung Per Wildlife Sanctuary. The process included several presentations on the relationship between natural resources and local community livelihoods, on common pool resource use and on the Law on Protected Areas (particularly Chapter 4 on land demarcation and defining protected area management zones). Afterwards, participants were divided into different groups, each of which had to discuss and concentrate on a specific location in order to identify appropriate places for the core zone, the conservation zone, the sustainable use zone and the community zone. Finally, the results of all the discussion groups were combined to draw a draft map of management zones in Boeung Per Wildlife Sanctuary.

The draft map was used to support **verification of actual locations in the field**. This activity was undertaken by park rangers and all related commune councils by using the Global Positioning System (GPS) as a tool to verify each position in each location. Then some adjustments were made to the draft map based on the results of the actual fieldwork.

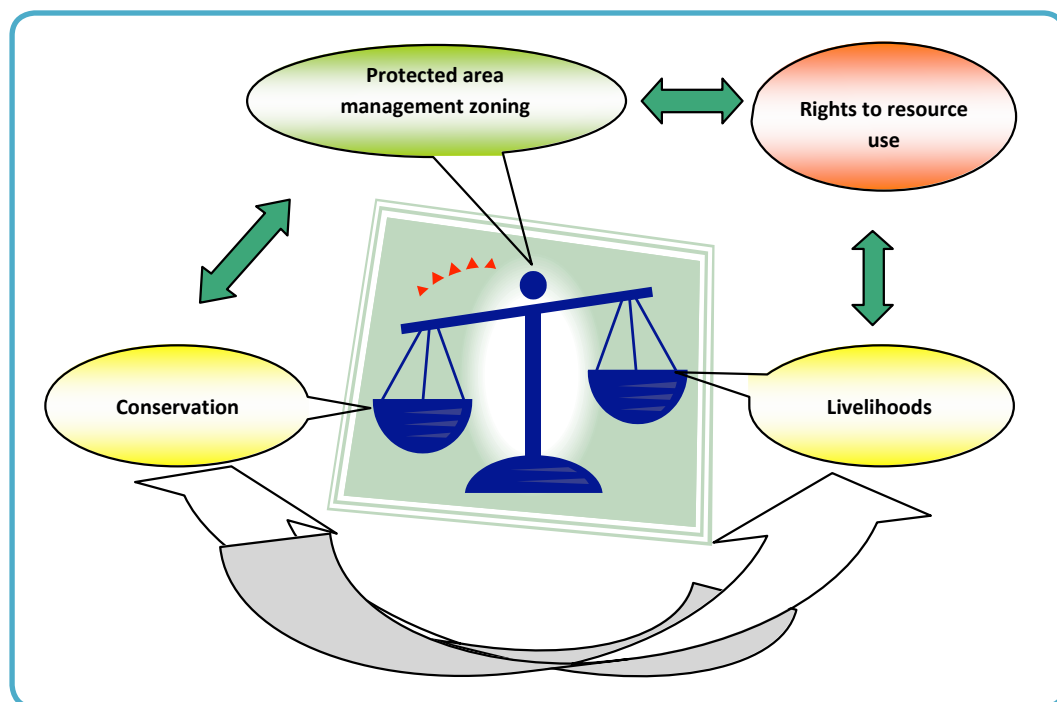
The adjusted draft map was used to support **dissemination meetings with local communities** to request modification, approval and support for management zone processes in Boeung Per Wildlife Sanctuary. Village chiefs and commune councils participated and meeting attendance and minutes were carefully and clearly recorded.

Coordination on conflict resolution: If conflicts occur in the community, coordination to resolve this is carried out based on the actual circumstances. In the case of personal conflicts, legal interventions are made.

Validation meetings: After coordinating and resolving all conflicts, validation meetings were held with participation from commune councils, district councils and district land administrators.

To **obtain ministerial recognition**, it is necessary to prepare general documents showing all activities from the initial stage of the land zoning process, as well as other related documents, and submit them to the Ministry of Environment for a decision.

Figure 8.4: Relations between management zones and community livelihoods, Boeung Per Wildlife Sanctuary



Source: Generated by research team/authors.

Brief analysis

Any analysis of the mapping initiative for protected area management needs to underscore the complex relationships between conservation and livelihoods and rights and access with respect to the principle of equity, especially concerning poor and vulnerable households. The seven villages in the protected areas are in a state of entrenched poverty, with relative variations depending on access to rice lands for cultivation, access to roads leading to markets, ability to raise pigs or chickens and family members well and active enough to collect and sell NTFPs. While villagers and commune council members understand the basic need for conservation, they are also strongly pulled in the direction of maximum use of resources for meeting basic subsistence needs. This could present challenges further down the road when decisions are made concerning core conservation areas out of bounds for resource extraction.

During the research, using PRA tools, LiPA found obvious food insecurity among the poor and very poor, who also were more likely to depend on forest resources at the same time as being distant from the services in the towns (LiPA 2010). Only one of the seven villages in the research area was found to have sufficient food for the whole year; the others experienced food shortages for between two and over six months of the year (to varying degrees within each village's population). In the more

remote areas, this was particularly acute, especially in the highlands, where the soil has become infertile for agriculture.

With regard to equity of and access to resources as one of the guiding principles of the protected area management mapping initiative, the researchers also found power relations and embedded relationships between villagers and their community leaders, benefitting some more than others. The very poor, non-ethnic Khmer benefitted the least of all. This also speaks to the issue of “community” and cautions against assumptions that there will be consensus on access to and use of resources, and how such resources should be delineated within the protected core area.

Vandergeest (2006) argues that: “Some of the more convincing criticisms of CBNRM [community-based natural resource management], those based on detailed fieldwork, argue that one of the most serious practical problems inherent in CBNRM practice revolves around the unexamined nature of rural communities.” A more critical view of the methods of action research within the approach would be useful for “restructuring broader development practices, power relations and the distribution of economic benefits” (ibid). Researchers need to heed this point by undertaking extensive PRA exercises to learn more about the social and economic divisions within communities and how these relate to livelihood opportunities and challenges impacting the mapping initiative on resource management.

A related point in meetings and workshops with participants was that commune council members are viewed as representatives of potentially powerful political networks, not all of which are in favour of having organised communities lend their voices and opinions to shared management of resources, especially when mining and other extractive industries are pushing into the protected areas and seeking local partnerships.

Moving now to reflect on common pool resource principles, several interesting, albeit challenging, results came out of the workshops.

There was much discussion and some uncertainty as to what constitutes a boundary for each of the four zoning areas, and how this should be decided. For some villagers, criteria should include historic use of resin trees passed down from one generation to another. Others discussed the need to have shifting boundaries according to seasonal use. Others again preferred more certain and clear markings that would be more or less permanent, to provide security of tenure arrangements. This raises the very clear challenge for local communities: until the boundaries are clearly defined, with user rights known and respected, they are “open” to outsiders coming in and benefiting from their efforts at conservation and sustainable livelihood options (Ostrom 1990).

Rules governing the use of collective goods are well matched to local needs and conditions. However, with respect to the articulation of rules governing the goods or resources within the protected commons area, there is yet to be a well researched and administered action for this. Distances between villages and the protected areas are sometimes as much as 30km, and it is difficult for rangers and community leaders to keep track of the resource use and devise rules that are consistent with the needs of the villagers.

The design principle: “Most individuals affected by the rules can participate in modifying the rules” is not observed and will not likely be observed until the communities in the protected areas take collective action to articulate the set of rules governing the main resources they depend on for their livelihoods. There is also a valid concern that the very poor within the community, who are food hungry for several months of the year, are not physically and psychologically able to become active members of protected area committees, as their main concern is daily subsistence and not long-term management.

In principle, co-management arrangements and research initiatives by the Ministry of Environment are positive signs that external authorities can and do respect the rights of community members to create their own rules. This research initiative is evidence of how external authorities are assisting in that process. The caution here is that external authorities include other ministries and other levels of government also, and they have other pressures to respond and open pathways for private investment in protected areas. This is a complex problem and will continue to deepen in the future, especially if valuable minerals are found in large quantities in protected areas.

There is no organised and well-coordinated monitoring system undertaken by the community of the protected areas, but there are Ministry of Environment rangers who live in the zones and who, with villagers, do episodically monitor, especially when there is suspicion of illegal logging or capturing of endangered wildlife. Communities will need training and equipment and management inputs for this to develop.

The system of sanctions against those who illegally profit from the resources in the protected areas is irregular, not usually followed up on in a rigorous manner, and therefore subject to repeat offences and, in some cases, an environment of impunity. Sanctions are still a fairly new concept for the community members, and the standard procedure is a verbal warning for first offenders, followed by education sessions with community representatives and leaders for second-time offenders. The worst offenders are usually powerfully connected to companies and local authorities, making sanctions a politically sensitive matter.

NGOs and the Ministry of Environment provide some conflict resolution guidance and training to communities in the protected area. And this is low in cost insofar as it is provided free of charge as long as villagers can afford to take time out from livelihood activities to attend the trainings. How these trainings are internalised and then used to model self-devised mechanisms needs further study.

This summarises some of the current main conceptual analysis in relation to the fieldwork and workshops with participants in the community mapping initiative. This work is still at a preliminary stage, and it will be some years before the design principles are more firmly in place.

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Chapter 9

Community forestry and institutional linkages: Results from the field

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Introduction

Community forestry is a relatively new development in natural resource management in Cambodia, beginning in the mid-1990s with small projects supported by the government and by national and international organisations. It has been recognised as having great potential with regard to protecting the forests and improving forest capacity and productivity to support the daily livelihoods of local communities, as well as balancing the ecosystem and protecting substantial watersheds (McKenney et al 2002; 2004).

Cambodia's forest cover decreased rapidly in the early to mid-1990s and is reportedly at about 59 percent, or 10.7 million ha, according to 2006 statistics (Forestry Administration 2009). Forest resource degradation is caused by "forest clearance, conversion of forest land to agricultural purposes, and illegal logging, and needs effective management" (ibid).

This chapter draws on data and experience from a three-year research project, Strengthening the National Community Forestry Programme to Support Community Livelihoods: Constraints, Opportunities and Development Support. It draws on one of two sites that have been under a pilot action research project by the Forestry Administration of the Ministry of Agriculture, Forestry and Fisheries since early 2007. The purpose of the action research is to obtain experiences in relation to the improvement of local community livelihoods and of institutional capacities of the

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community forest organisation.⁴⁴ So far, few studies have documented experiences, lessons learnt and results of such projects.

The main finding of the action research is that institutional support is crucial to the effective management of community forestry, especially the development of supportive attitudes among key stakeholders at local government level. Currently, there is a lack of legal support and limited confidence in the effective enforcement of regulations. In addition, there is a long history of mistrust between local Forestry Administration officials and the local community, which remained even after two years of facilitation by the research team to bridge divides, although things are improving greatly now (Sokh et al 2008). Another issue relates to community forestry governance. There are still outsiders who are reluctant to respect the bylaws of the community forest in the target areas and who ignore the existing legal framework, which includes the Law on Forestry and the Sub-Decree on Community Forestry.

Research context and key questions

For rural people living outside Cambodia's agricultural heartland, the forestlands and the resources found within them are vital. Studies indicate that these may contribute between 30 and 70 percent of people's livelihoods (Forestry Administration 2009). According to studies by McKenney and Prom (2002) and McKenney et al (2004), forest products account for almost half of household incomes for people who live in community forests or nearby, although most of this is not fully legal. Research by Babon (2004) indicates that non-timber forest products (NTFPs) account for 60 percent of household incomes in some areas.

"Cambodia's forests are a rich common property resource that plays a crucial role in rural livelihoods. Forest resources support subsistence and income-generating activities such as small-scale timber harvesting, fuel-wood collection, resin tapping, and collection of wild fruits, vegetables and medicines ... Even people with no land, little money for capital investments, and few alternative opportunities can collect forest resources for subsistence. In this manner, the forest resource bases serves as an essential 'safety net' for the rural poor."

McKenney and Prom (2002).

Variations in the contributions of forest resources to households are caused by differences in access to sources, as well as in natural resource conditions. Babon (2004) found that two-thirds of the community forests were resource poor, as they were located in areas of "heavily degraded forest." Compounding this issue is differential access within communities to already degraded forests, related to poverty status, asset distribution and access to opportunities.

⁽⁴⁴⁾ The project end date is August 2010.

Changes in rural livelihood strategies in forest-based communities are accelerating with the growing interest from outsiders in the exploitation of forest resources, including the use of forestlands for biodiversity conservation and agricultural plantations.

Local arrangements governing the use of forest resources vary as well, depending on cultural differences and the nature of the resource use. There is limited documented understanding of the nature and efficacy of such “cultural” resource governance, although, for example, the tenure of trees used for resin tapping is generally acknowledged. The same applies to traditional resource tenure arrangements practised by some ethnic groups in northeast Cambodia, recognition of which is officially expressed in the Land Law.

The Sub-Decree on Community Forestry, approved in December 2003, is based on recognition of the importance of forest resources for rural people and their actual and potential contribution to sustainable forest management.

The National Community Forestry Programme, developed by key actors in community forestry development under the leadership of the Forestry Administration, was launched in May 2006. A major objective of the programme is to arrange for official recognition of community forestry initiatives on the ground. Other objectives refer to assisting such communities to improve the management of forest resources and to ensure greater benefits from such management to improve the livelihoods of all members of the communities.

This chapter documents experiences and lessons learnt from implementing the Strengthening the National Community Forestry Programme to Support Community Livelihoods: Constraints, Opportunities and Development Support action research project in Trapaing Rong Community Forest, Chey commune, Kampong Svay district, Kampong Thom province.

The specific objectives of the action research were to:

- Learn how to develop and strengthen local institutions for community forestry management and stakeholder participation
- Obtain experiences in providing training on NTFP processing and in improving community livelihoods
- Analyse strengths and weaknesses of the implementation of the two abovementioned tasks

Methods and key concepts

The methodology used was based on the action research protocol. Community forest members participated in the identification of key problem areas for institutional development through a series of community workshops, focus group discussions (FGDs) and in-depth interviews. This then led to a diagnostic study to further focus the problem and to situate it within the ecological and social environmental context (Sokh et al 2008).

The team used a specialised participatory rural appraisal (PRA) tool, the Ten Seed Technique, to quickly generate wealth and poverty rankings and to assess livelihood assets (Jayakaran 2002). In particular, the tool was used to assess the following, with the participation of community members:

- Resource stocks – who has access and who does not
- Management techniques over resources – what is working and what is failing
- Village poverty profiles and survival strategies
- Gender aspects of natural resource management
- Perceptions of the community and the way people see themselves in relation to others

The Ten Seed Technique starts with acquiring basic general information. Then, using an “opening-up” technique, research teams can probe more deeply into different dimensions of an issue. For example, after generating a basic socioeconomic profile of the village or community, the research team in Trapaing ROUNG could probe deeper to find out the reasons for differences between the different socioeconomic groups (wealthy, middle class, poor and very poor) and then link up issues such as access to natural resources, decision making, credit and so forth. This opening-up process can continue, in order to find linkages across any variables that researchers identify, for example: traditional resource management practices; gender aspects of resource management; institutional arrangements between the community and local authorities; attitudes towards change; etc.

The field research team was composed of two national-level Forestry Administration researchers, one male and one female, who were joined by provincial-level technical staff in their field visits to villages active in the community forest. Overall direction for the action research came from the research project director in the Forestry Administration of the Ministry of Agriculture, Forestry and Fisheries.

The research was mainly qualitative in nature in identifying the main institutional gaps and needs linked to livelihood improvements. Dozens of key interviews were held with community leaders, members of the community and forest rangers. Purposive FGDs and a series of PRA tools helped map the social and economic situation of the community forest groups.

Direct field observation took place over two years, with teams of researchers making monthly field visits to the sites. The “action” aspects of the research mainly involved: the mapping of the community forest’s operations; getting a sense of the forest itself and its potential to support the livelihood improvements of the members; and determining the institutional strengths and weaknesses with regard to linking the community forest to the government and non-governmental institutions that are vital to its viability and sustainability. In the latter stages of the action research, the national research team organised livelihood improvement technical trainings on the production of rattan products for marketing.

The key concepts for the research stemmed from the body of literature on sustainable forest management, institutional arrangements and, to some extent, common pool resources (Berkes 1989; Ostrom 1990).

“Sustainable forest management considers the socioeconomic utilisation of forest resources, the preservation of ecosystem functions over time and the ability of various stakeholders to participate in the formulation and implementation of related policies and programmes.”

Forestry Administration (2009).

One of the looming challenges nationwide, reflected in the research site, is the twin cycle of increasing poverty and overexploitation of forest products in non-sustainable manners:

“The communities’ growing needs for forest products, combined with increasing poverty and the decrease of forest resources, force rural people to further exploit forest resources to maintain a decent livelihood. This includes converting forests to agricultural land, selling timber and other forest products, as well as, in many cases, extracting the remaining rootstocks from forest lands.”

Forestry Administration (2009).

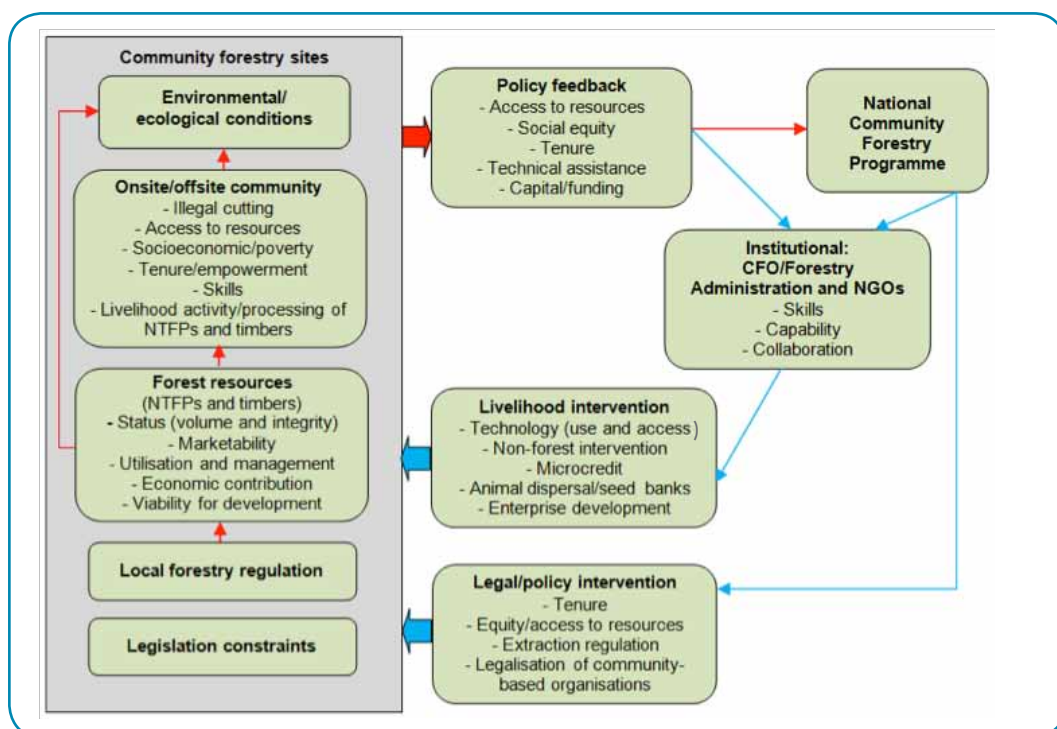
Institutional arrangements and building trust

Institutional arrangements are needed to build legal, policy and programme connections between community forestry members who form into organised groups and the government bodies represented by the Forestry Administration and, more particularly, its Community Forestry Office (CFO), housed within the Ministry of Agriculture, Forestry and Fisheries at national, provincial and district levels.

There are legal and policy implications to consider in relation to the socioeconomic and ecological specifications of the different community forest sites.

For the purposes of our research, we mapped out institutional arrangements to design positive interventions with the community forestry members on strengthening capacities to improve livelihoods from the use of NTFPs.

Figure 9.1: Institutional arrangements and conceptual framework in Trapeang Rong Community Forest, Kampong Thom province



Source: Generated by research team/authors.

Figure 9.1 the interrelationships between the community forest and the Forest Administration, and the nexus between the research programme and legal and policy and livelihood interventions in community forest sites.

The community forest sites are first conceptualised for institutional relations starting with legalisation constraints in the bottom box on the left-hand side of Figure 9.1. This refers to the initial lodging of a request to register a community forest with the Forestry Administration. The constraint feature is that the process of registration is lengthy and time consuming. Going up the chain in the first set of boxes sets the institutional arrangements within local forestry regulations. This refers to access to forest resources by community members, and what can and cannot be utilised. This access is also related to the ecological conditions of what are called onsite, meaning within the community forest boundary, in comparison with offsite forest resources.

Social and ecological contexts are considered within institutional arrangements, as illegal cutting of trees is related to quality of the community forest in relation to what is outside the boundary of the forest. This also includes poverty and land tenure, livelihoods and capacities for NTFP extraction and marketing.

The set of factors governing the internal functioning of the community forest site is then conceptualised in relation to policy context, represented by the policy feedback box. This refers to the National Community Forestry Programme.

The main institutional actors in relation to the community forest are: district, provincial and national representatives of the Forestry Administration and the CFO; and non-governmental organisations (NGOs) that are based in the provinces and that have developed programmes to assist local community forestry committees to strengthen their livelihoods options or management of the forest. The CFO research team is also involved in livelihood interventions in collaboration with NGOs.

The conceptual framework of institutional arrangements is completed by the box on legal/policy intervention, with the focus on: securing tenure arrangements for community forest users; ensuring access to the forest; making clear guidelines on extraction and responses to illegal extraction of timber and timber products; and finally legal recognition of community-based organisations that form the community forestry committees.

The history of mistrust between community members and local officials is rooted in illegal logging involving governance bodies, including the Forest Administration itself. The Prime Minister responded to this ongoing problem by removing the head of the Forest Administration in 2010 for failing to deal with the problem of illegal logging.

The main approach to building trust has been through the creation of opportunities for the community to select and manage its own forestry areas. The National Community Forestry Programme was launched only recently, to institutionalise this initiative, to provide communities with legal and technical frameworks to secure tenure arrangements and to gradually rebuild trust between the Forestry Administration and local communities. This process will take much time, dedicated budget support and immense technical support in mapping, monitoring and making detailed inventories of each community forest.

Geography and socioeconomic context of Trapaing Rong Community Forest

Tropaing Rong Community Forest is located in Chey commune, which is one of the nine communes of Kampong Svay district, Kampong Thom province. Involving the

local people of three different villages (Kon Tnaut, Prey Tub and Trapaing Arak), this community forest is approximately 18km from the northeast border of Kampong Thom and located mainly along National Road 64 (from Kampong Thom to Preah Vihear) and partly along National Road 220 (the entrance to Sambor Prey Kok Temple). Chey commune was established before the Sangkum Reastr Niyum (Democratic Socialist Alliance) regime (1953-1970). It has varying types and levels of infrastructure, including red soil lanes, dams, wells, schools, ponds, canals, irrigation systems and health care centres, among others.

Map 9.1: Community-drawn map of Trapaing ROUNG Community Forest, Kampong Thom province



Source: CFO Research Team.

Community forest resources

Trapaing ROUNG Community Forest covers a total land area of 978 ha. Before 1960, the area was home to dense evergreen forests, which were full of pdeak (*Anisoptera costata*), popel (*Hopea recopei*), koki (*Hopea odorata roxb*), sral (pine tree or *Pinus merkusii*), chheu teal (*Dipterocarpus*), pchek (*Shorea obtusa*), sokrom (*Xylocarpa*) and kokos (*Sindora siamensis*). There was a huge variety of wildlife, including elephants, tigers, deer, musk deer, boars, peacocks, wild chickens, etc. Between 1960 and 1979 there was no change in the forest cover and diversity, but

substantial changes occurred between 1979 and 1998 and some types of trees and animals became almost extinct. Nowadays, there remain only degraded and newly grown forests and several animal species, including deer, boars, peacocks and wild chickens.

Local livelihoods

Based on this study, the majority of the people are engaged in rice cultivation and crop farming. The remaining minority depend almost completely on NTFPs, such as collecting firewood and transporting it by bike to Kampong Thom Market (common in Kon Tnaut village, located close to the community forest). Rice yields in the area have increasingly been dropping off and are insufficient with regard to local households' daily food demands. Community forestry committee members and village and commune chiefs noted that agricultural yields are insufficient to support local households for the whole year: after five to six months of each year, households have to buy rice from outside. The chief of the community forestry committee emphasised that the majority of villagers, especially youth, out-migrate to other areas. They work as paid farm hands, home-based labourers and garment factory workers in order to earn a living or an additional income to support their family members.

In general, sources of income to support the daily household needs of local communities lie mainly in farming, paid labour and NTFP collection. Hence, community livelihoods will be affected strongly if forest resources in the area continue to degrade.

Occupations and wealth/poverty overview

The three villages connected to the community forest showed similar wealth and poverty profiles in the PRA exercise. The poor and very poor comprise approximately 70 percent of the total population in each village. This is double the national average calculated by the World Bank in 2006 (at some 30 percent).

The picture that emerged is that the poor are those with the fewest physical assets. They have very little or no land to farm and are dependent for their daily food on income earned from labour tasks within the village. Importantly, the poor and very poor have no natural resource assets to develop: animal husbandry, handicrafts and rice milling are predominantly the domain of the middle and wealthier classes. Wealth from land is a key marker: the richest 9 percent holds up to 5 ha per household for rice farming.

The poor have virtually no skills to offer beyond physical labour: the skill sets of the wealthy are more plentiful. Villagers listed such skills as food production for selling, vegetable farming for selling and house building and carpentry. Notably, these activities are cash bearing, permitting middle class and wealthier villagers to reinvest in their natural resources to ensure sustainable livelihoods.

A final indicator is the ability to contract factory work in Phnom Penh or in Thailand. The poor and very poor are not able to do this, largely because they are unable to finance travel to the capital and lack food stores to sustain family members while wages are being earned.

Trapaing Arak village has the most poor and very poor (some 80 percent of villagers in total). Of these, 40 percent reportedly have some natural resource assets, such as a modest amount of land (under 1 ha) or a few draft animals.

All the poor and very poor are in debt and have expenditure needs that are greater than their income. Loans carry the poor over and are made locally through the wealthier members of the village.

Table 9.1: Social class rankings in Trapaing Rong Community Forest, Kampong Thom province, 2009

	Wealthy	Middle class	Poor	Poorest
Kon Tnaut	10%	20%	30%	40%
Prey Tub	10%	20%	30%	40%
Trapaing Arak	5%	15%	40%	40%
Average	9%	18%	33%	40%

Source: PRA exercises.

Based on results from interviews and PRA exercises, including wealth ranking and livelihoods analysis with representatives of the community forestry committee and community members, the poor and poorest account for over 70 percent of the overall community. This is an alarmingly high rate when compared with the national poverty rate of 30 percent.

Photo 9.1: Wealth ranking with members of Trapaing Rong Community Forest, Kampong Thom province



Photo by CFO team.

Less than 10 percent of community members were identified as being wealthy. Their wealth was defined as ownership of financial assets and having enough capital to run a small local business (buying local agricultural products or providing loans to the poor to collect interest). Natural resource assets also contribute towards their wealth ranking: all have rice paddies or crop fields (more than 2 ha) inherited from their parents or family members. Social capital human resource assets are important markers of wealth: some work as government officials or in private companies, and most have basic education almost up to high school completion level. Physical assets are considered important to maintain wealth status: sufficient transportation means, sophisticated equipment for cultivation, such as tractors, etc.

In explaining why the poor are poor, the first issue that respondents brought up was the fact that they do not own enough agricultural land. Land is also often not fertile, with a shortage of water sources for irrigation. This is followed by a lack of paid employment opportunities. There is also an age and gender dimension to poverty: respondents identified the poor as being widowed or elderly or, conversely, newlywed families that are in debt to local lenders or private microfinance providers.

The poorest in the three villages are destitute. They do not have land, even residential land, and must “camp out” on someone else’s land in makeshift one-room thatch homes built directly on the ground (rather than on stilts). The poorest do not have specific and stable occupations and are in debt throughout the year because they have many children. There have been few dissemination programmes on birth control and birth spacing. It is hard for them to escape poverty, since they have had to sell off any land to pay for medical treatment for sick family members.

Technical skills in processing and marketing

Because the geographical location and land condition in Chey commune are not very suitable for rice/crop cultivation, most of the people who are dependent on farming and animal rearing face losses or livelihood shortages. As a result, they have to look for other jobs inside and outside their area (in garment factories or construction) in order to support their households. Having received skills trainings on rattan/vine processing, supported by the project, some villagers have become involved in weaving mats. However, some other villagers have turned away from such work, as they feel that it provides less income and it is difficult to find markets. In particular, the work is labour intensive: a person requires around half a day to collect rattan from the forest, one day to split the rattan and four to twenty days to weave rattan products (depending on the type).

“I am afraid that I will not know where to sell my products after the project finishes.”

Female rattan collector, Trapaing Rong Community Forest, Kampong Thom province.

Nevertheless, some women are happy with what the project has enabled them to do.

“After I learned how to do rattan processing, I could earn an income from it. I am very interested in this job because I can work at home while at the same time looking after my children and feeding my pigs.”

Female rattan collector, Trapaing Rong Community Forest, Kampong Thom province.

Usually, local rattan processors sell their products in their village and at the community forest office at the entrance to Sambor Prey Kok Temple site, which attracts both domestic and international tourists.

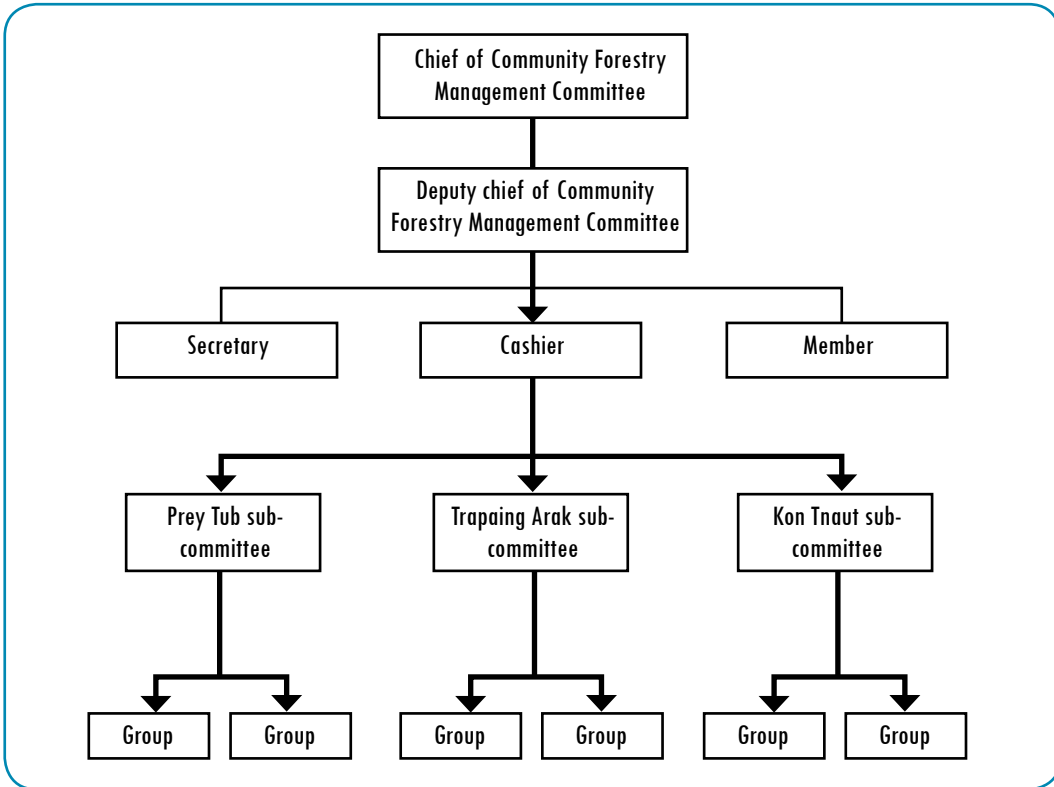
Management structure and resources of the community forest

Trapaing Rong Community Forest was established in 1999, facilitated by Buddhism for Development in Kampong Thom province with financial support and technical assistance from the US Agency for International Development (USAID) and Kampong Thom Provincial Forestry Office.

The community forest shares borders with:

- Sala Popel village, Sala Visai commune, Prasat Balang district, Kampong Thom province (to the east)
- Skun Prey Moul Community Forest: Skun village, Trapaing Russei commune, Kampong Svay district, Kampong Thom province (to the west)
- Trapaing Thmor Dam and Trapaing Thmor Community Forest, Sala Visai commune, Prasat Balang district (to the south) and
- Meh Prey Road (Trapaing Kraul Community Forest)

Figure 9.2: Management structure of Trapaing Rong Community Forest, Kampong Thom province



Source: Generated by research team/authors.

At present, there are nine community committee members and 27 village-based committee members. These were selected on 27 February 2009, recognised by a communal order (deika) issued on 8 August 2009. In acknowledgement of the fact that capacity is the key to setting up appropriate frameworks for community forestry, the project has paid attention to facilitating the development of a clear management structure for Trapaing Rong Community Forest as well as to building up its working capacities. As of now, the community forest involves four major villages, with 456 participating members. These villages include the focus sites of Prey Tub, Kon Tnaut and Trapaing Arak villages, Chey commune, Kampong Svay district, Kampong Thom province.

While there has been some positive development in the organisation of the community forest, there are many challenges in creating the needed institutional arrangements, from the community level up the governance chain to commune, district, provincial and national levels.

The main weaknesses identified in FGDs between community forest representatives and local authorities were the following:

- Limited support from local forestry officials to actively prevent forest crime
- Low levels of political will and capacity for coordination among government institutions
- Insufficient government funding to support continued forest law enforcement and governance activities
- Lack of financial means to support reforms aimed at addressing high-profile forest crime cases

Community forest resource use

There are a variety of NTFPs in the community forest but only a few of them have commercial value. This has complicated the value addition process. People are reluctant to get involved in training course and livelihood improvement activities in which technologies are introduced. Because of their poor living conditions, local community members tend to engage in livelihood activities which can provide them with a tangible income and benefits rather than getting involved in training.

Nevertheless, inhabitants of Chey commune still collect a huge amount of NTFPs from their community forest. Table 9.2 shows the amount and price of each.

Table 9.2: Estimate of the annual harvested amount of non-timber forest products after project start up but before the start of the training course on rattan processing, in Trapaing Rong Community Forest, Kampong Thom province⁴⁵

	Total amount	Inside community forest	Outside community forest	For sale	Unit/price
Firewood	880 carts	40% = 352 carts	60% = 528 carts	×	2,500 riel/cart (US\$0.59)
Charcoal	3 kilns = 60 sacks/50kg	✓	×	✓	10,000 riel/sack (US\$2.36)
Wooden poles	52,800	✓	✓	×	600 riel/pole (US\$0.14)
Herbal plants	1,760kg	✓	✓	×	1,500 riel/kg (US\$0.35)
Timber	8m3	×	✓	×	1 million riel/m3 (US\$236.14)
Wild mushrooms	528kg	✓	×	×	3,500 riel/kg (US\$0.83)
Rattan	×	×	×	×	×
Vines	26,400 trunks	✓	✓	×	150 riel/trunk (US\$0.04)
Wild vegetables/fruit	×	×	×	×	×
Other	×	×	×	×	×

Source: FGDs.

It should be noted that, before the project started, villagers in Chey commune did not collect rattan, either for consumption or for sale, even though there was quite a lot of this type of NTFP in their community forest. After the introduction of rattan processing skills, some villagers started to collect rattan to make handicrafts to sell in the market.

⁽⁴⁵⁾ National Bank of Cambodia on 22 June 2010 (US\$1 corresponding to 4,230 riel) (www.nbc.org.kh/khmer).

Photo 9.2: Rattan products



Photo by CFO team.

Policy support and community forest management

Legal framework

Trapaing Rong Community Forest was acknowledged by Declaration (Prakas) 489 of the Ministry of Agriculture, Forestry and Fisheries, enacted on 19 November 2008, backed up by the deika issued on 8 August 2009. The regulations of the community forestry committee were approved in July 2009 and its statute was decided on in August 2009. The Community Forest Agreement was signed between the Kampong Thom Forestry Administration Cantonment and the community forest management committee on 11 November 2009.

Roles and responsibilities

Commune councillors participate in all activities, such as preventing illegal activities in the community forest, facilitating the election of committee members and generating and agreeing regulations, statutes and communal orders, etc.

Local Forestry Administration officials take the lead in coordinating legal issues, disseminating information on the benefits of forest resources and facilitating community forest management. They are also responsible for providing technical assistance to community forest management.

Local and international NGOs provide financial and technical support or microcredit programmes for village/commune development to committee and community members. They participate proactively in management, protection, monitoring and reporting to the Forestry Administration any illegal activities arising in the community.

Capacities of the community forestry committee

The project has provided three trainings to local working groups made up of the community forest management committee and community members:

- Training on leadership skills, 4-9 May 2009, for 31 (four female) local Forestry Administration officials, commune councillors, community forestry committee members and community members
- Training on the use of common pool resources and good governance, 15-17 August 2009, for 23 local Forestry Administration officials, commune chiefs, community forestry committee members and community members
- Three-phase training on rattan/vine processing, November 2009, for eight local participants in the community (all female)

Furthermore, the project supported seven (four female) committee and community members to join a field trip on 23-26 March 2009 in Siem Reap province, to learn about rattan/vine processing and bee raising.

Despite many efforts to build capacity by local and international NGOs, so far only theoretical knowledge has been generated, which has not yet been put into practice (except rattan processing). The research project surveyed the community forest site looking for bee-raising opportunities but the actual situation does not fit such activities (mainly because there are insufficient wild flowers in the area).

Rattan production has potential but, given the intensive labour requirement in producing marketable products, it attracts better-off community members and therefore does not respond to the need to alleviate poverty among poor and very poor members of the community forest.

Conclusions: Achievements of the community forest project

Studies have shown that the capacity of community forestry to thrive in Cambodia is still questionable (Ashwell et al 2004; Babon 2004; Fichtenau and Ly Choung 2002). Capacity in this regard relates to having a clear understanding of the ecological contexts and the degraded state of the forest and therefore of the economic benefits to participating stakeholders, particularly local communities. Second, capacity is related to trust and goodwill. If tenure arrangements are unclear because registration of the community forest is pending at the Forestry Administration, then it is not unusual for community members to adopt a “wait and see” attitude in terms of their involvement. Engaging committed members is a first step towards building up capacity for management.

Commitment to the community forestry initiative also depends a great deal on the commitment and interest of local government authorities. This has also been slow to develop, as the programme is relatively new and expectations of job duties and responsibilities exceed the material and technical capacities of many provincial and district-level officers. This can have a drag effect on the programme. For instance, before the implementation of the project, local members of Trapaing Rong Community Forest received few benefits from their participation, for a variety of reasons:

- Limited support from concerned stakeholders
- Limited capacity of the community forestry committee and limited transparency in the management process
- Limited harvesting of forest products, because of the level of degradation of the forests
- Limited capacity in product processing and limited information on potential markets
- Illegal logging and anarchical use of forest resources by outsiders

The project concentrated on two major programmes in order to help local communities improve their management capacity while at the same time maximising their economic benefits. These include: 1) institutional strengthening for community management; and 2) provision of knowledge and skills in NTFP processing.

In order to foster and strengthen institutional arrangements and management among stakeholders at different governance levels, especially in the community forestry committee, the project implemented the following strategic actions:

- Establishment of the management structure, including election of community forestry committee members and obtaining of official recognition by local authorities
- Preparation of necessary community forest legislation, including by laws and regulations, towards official acceptance by the Forestry Administration
- Partnership building among concerned stakeholders, including community members, local authorities at commune and district level and the Forestry Administration (especially in coordinating recognition of the community forest and providing timely intervention whenever illegal activities occur)
- Provision of facilities such as mobile phones and means of transport, in order to enhance the communication process and enable the timely sharing of information to ensure effective conflict resolution
- Provision of technical assistance and opportunities for stakeholders to participate in various trainings on management, conflict resolution and communication building

Collaboration between local communities and the Forestry Administration/local authorities was a challenge at the beginning but gradually improved, after intensive facilitation by the project team. As relationships have been built, so forest conditions have improved (replanting of trees) and illegal activities have decreased.

“When I was first selected as community chief, I began to wipe out anarchical kilns in three different places, such as Kbal Tek (one kiln), Tamnab Tralach (one kiln) and Tanhoung Reak Ach (three kilns). These works were undertaken in close collaboration with Stoung Forestry Administration officials, Kampong Svay Forestry Administration officials and Chey’s commune chief.”

Community forestry committee leader, Kampong Thom province.

Achievements made are a result of close collaboration between and constant intervention from relevant institutions and local authorities.

“At present, the amount of forest is more than before because of increased support and collaboration from local Forestry Administration projects and local authorities.”

Male community forester, Kon Tnaut village, Kampong Thom province.

With regard to livelihood improvement, ensuring benefits from community forestry is the key to ensuring and sustaining full local participation. Benefits can range from income from selling NTFPs to food and daily household materials. Community forest members have been able to collect a variety of NTFPs from inside the designated area, including timber, wooden poles, mushrooms, rattan, vines and wild vegetables and fruits. Usually, such NTFPs are collected for household consumption as well as for selling to accumulate household incomes.

The project has also helped Trapaing Rong community members identify high-value forest by-products and NTFPs for local use and processing into local products to sell in local markets. Value-added processing is a means to help improve living conditions, and community members have been able to access training in this regard. For example, the training on rattan processing involved interested community members, who spent three months learning and practising such skills. Some local participants have received an income from their products and other members have become enthusiastic about their work after seeing some training participants obtain both knowledge/skills and an additional income.

With regard to preservation of existing resources, the project has assisted the community forest in demarcating boundaries and in defining strategic plans for patrolling. In addition, some necessary facilities, such as patrolling/guarding centres in the forest and means of communication and transportation, have been supplied in

order to safeguard forests from illegal cutting by outsiders. Moreover, 5,000 small trees have been provided for planting in degraded areas.

Based on its experiences over the past three years, the project team has put strong efforts into developing appropriate field guidance. The research benefits to local communities have been in strengthening their technical capacities to manage, preserve, protect and use forest resources effectively, by working with them to document their forest and human resources, to assess their strengths and weaknesses and to understand the wider social and economic context in which they live.

However, much more needs to be done at all levels to ensure that any momentum gains traction and is well supported in further research and implementation of best practices for institutional strengthening. Most crucially, more work needs to be done to improve the livelihoods of the poor and very poor to ensure that the community forest has relevance for its members. Modest gains have been made in processing rattan, one of the more valuable NTFPs in the community forest. The next stage of research should include a comprehensive value chain analysis with rattan collectors and producers and a scale-up of village women's knowledge on producing good quality rattan products for sale locally and for the tourist markets in neighbouring provinces. Poor and very poor women and men would need support to enable them to participate in rattan collection and production to make this a feasible livelihood alternative over the long term.

Finally, weak governance and continued insecurity in tenure arrangements remain the main challenge to strengthening institutional arrangements. The National Forest Programme, envisioned for implementation over the period 2010-2020, creates the blueprint to overcome some of these obstacles, provided political will is robust to break the cycle of mistrust between community members and state governance structures.

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Chapter 10

Fishers and free riders: Managing conflict across community boundaries

Ly Vuthy⁴⁶ and Tit Phearak⁴⁷

Introduction

Cambodia relies heavily on its natural resources and its agricultural land to provide food and livelihoods for its people, and has done for centuries (Mekong River Commission 2004). Among the country's renewable natural resources, the fisheries sector plays an important role in the national economy, in food security and in income and employment.

However, in the past decade Cambodia's fisheries have come under threat from a number of factors, such as dam construction, destruction of habitats, development in other sectors, illegal fishing practices and unsustainable harvesting. This is because the fisheries sector is open and common and entails a complex intertwining of the ecological, environmental, social, political and economic spheres.

Illegal fishing is a major problem. Such activities have been practised in Cambodia for a long time but have increased since the late 1990s, when fishing technology became more modern and destructive fishing gear began to be copied from neighbouring countries. The spread of illegal fishing in Cambodia's fisheries has had a negative impact on the resources and livelihoods of rural people. Moreover, these practices create social problems, such as conflicts between and among legal and illegal fishers, both within communities and outside.

The issue of illegal fishing has drawn the attention of many stakeholders, notably the Royal Government of Cambodia (RGC). The new Fisheries Law strongly prohibits illegal fishing, especially the use of electro fishing, classifying this latter as a Class

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1 offense, subject to one to three years of imprisonment and a 5 to 50 million riel fine (US\$1,182 to \$11,820).⁴⁸ The issue has been incorporated into discussions at the annual meeting of fisheries stakeholders, and the Ministry of Agriculture Forestry and Fisheries has encouraged the Fisheries Administration to deal strictly with the issue, especially the use of electro fishing and mosquito nets, also suggesting that complementary methods such as education and awareness raising are urgently required.

A provincial diagnostic study conducted by the Fisheries Administration's Community Fisheries Development Department (CFDD), supported by the International Development Research Centre (IDRC), found that the issue of illegal fishing had been prioritised in all three selected provinces: Banteay Meanchey, Koh Kong and Takeo. Follow-up action research on negotiation to combat illegal fishing activities was carried out in Put Sar Community Fishery Federation of Takeo province and Krang Yov Community Fishery of Kandal province. This research was part of a participatory learning process in which local communities and local authorities were the key players.

Negotiation by community fisheries to resolve conflict arising from illegal fishing is a crucial initiative for livelihood improvement. This chapter puts forward a case for all those engaged in community resource management to use such negotiation as a model for addressing illegal fishing practices, in order to help improve the livelihoods of the rural poor.

Methodology

Objectives

The main objectives of this chapter are to:

- Examine how mediation and negotiation can be an effective approach to resolving the problem of illegal fishing
- Document experiences
- Provide lessons learnt as practical recommendations to deal with illegal fishing activities in community fisheries

Research method

This chapter is based on secondary data collection, but mainly on over a year of participatory action research implemented in two community fisheries, selected from the diagnostic study described above. These community fisheries share a boundary but are located in different provinces (Takeo and Kandal).

⁽⁴⁸⁾ National Bank of Cambodia on 22 June 2010 (US\$1 corresponding to 4,230 riel) (www.nbc.org.kh/khmer).

The action research was directly implemented by community fishery members and the two community fishery committees, in close collaboration with local authorities and supported by project counterparts in the Fisheries Administration at all levels. The stages in the action research are: problem identification and prioritisation; planning; action; and reflection.

Problem identification and prioritisation were based on the diagnostic study, which had uncovered common issues from a provincial perspective. A consultation meeting with provincial-level stakeholders had been organised, including representatives from: the Departments of Agriculture, Forestry and Fisheries, Environment, Women's Affairs and Rural Development; the Governor's Office Cabinet; provincial non-governmental organisations (NGOs); and commune and district authorities. Community fishery representatives were asked to share their experiences and meeting participants classified and prioritised the issues they raised. Therefore, the provincial diagnostic acted as a tool for problem identification/prioritisation and also for pilot site selection for the action research. Once the sites had been selected, a detailed study of each community fishery was conducted in order to assess the actual current situation. This study used participatory rural appraisal (PRA) tools, such as the Ten Seed Technique, focus group discussions (FGDs) and semi-structured interviews.

Issues identified by the provincial-level consultation were the basis for planning at community level. The planning process entailed consultations with stakeholders (community fishery members, community fishery committees, village chiefs, commune councils, the relevant provincial Fisheries Cantonments). These identified needs and activities to combat illegal fishing activities in the selected community fisheries.

Action was undertaken immediately after the planning stage, by both Put Sar and Krang Yov Community Fisheries, with collaboration from both commune councils and the Fisheries Cantonments of Takeo and Kandal provinces.

Reflection was done often, during the monthly meetings of each community fishery committee. Outcomes of these meetings were the basis for inputs into commune council meetings and for reporting to competent institutions. Reflection was also carried out in joint community fishery committee meetings every six months.

Research concepts

Common pool resources

A common pool resource refers to a natural or human-made resource system (e.g. a fishing ground) whose size or characteristics make it costly, but not impossible, to exclude potential beneficiaries from obtaining benefits from its use (Ostrom 1990). Common pool resources are to be understood as a subset of public goods, and all

public goods have the property that many can use them simultaneously, given that exclusion is difficult. Some public goods generate infinite benefits, in the sense that, if more is used, there is no reduction in the amount available for others (for example light along the road). Common pool resources, on the other hand, have finite, or subtractive, benefits. That is, if someone uses more, less remains for others to use. Common pool resources are therefore potentially subject to the problems of congestion, pollution, depletion and degradation – through use which is pushed beyond the limits of sustainable yields (Wade 1987).

Fisheries are a common pool resource that can be used jointly because of the high cost of excluding potential beneficiaries from their use. Consumption is subtractive in the sense that, if someone uses the resource, less remains for someone else. Therefore, exploitation tends to take the form of overfishing.

To avoid this, a strong system of property rights is very important. Common pool resources such as fisheries may be owned by national, regional or local government as public goods, by communal groups as common property resources or by private individuals or corporations as private goods. When nobody owns them, they are used as open access resources.

Cambodia's fisheries belong to the state. For management purposes, they are divided into large-, medium- and small-scale fisheries. Large-scale fisheries, known as fishing lots, are auctioned as private concessions. Large- and middle-scale fisheries require a licence and can operate under specific restrictions: payment of a licence fee, seasonal restrictions, gear restriction, location restriction, etc. Small-scale fisheries tend to be open access fisheries, which do not require a licence. These exist in almost all fishing areas and all year round, except in fish sanctuaries and in fishing lots during closed season. More and more small-scale fisheries are now falling under the management of community fisheries.

Co-management

Co-management is a common strategy in fisheries management across the globe. Co-management initiatives are seen to be very practical in their approach and outcomes are reported to be positive. In Southeast Asia, co-management of fisheries focuses on small-scale fisheries. This is because of the important role that small-scale fisheries play in food security, employment and income generation for rural people.

The fisheries co-management arrangement in Cambodia is known as community fisheries. By late 2000, community fisheries began to proliferate, after the Prime Minister announced that a large portion of the commercial fishing lot concession area would be released to local residents. Under this partnership arrangement, between the government and the local community, people are encouraged to participate in the management and protection of fisheries resources by developing their own

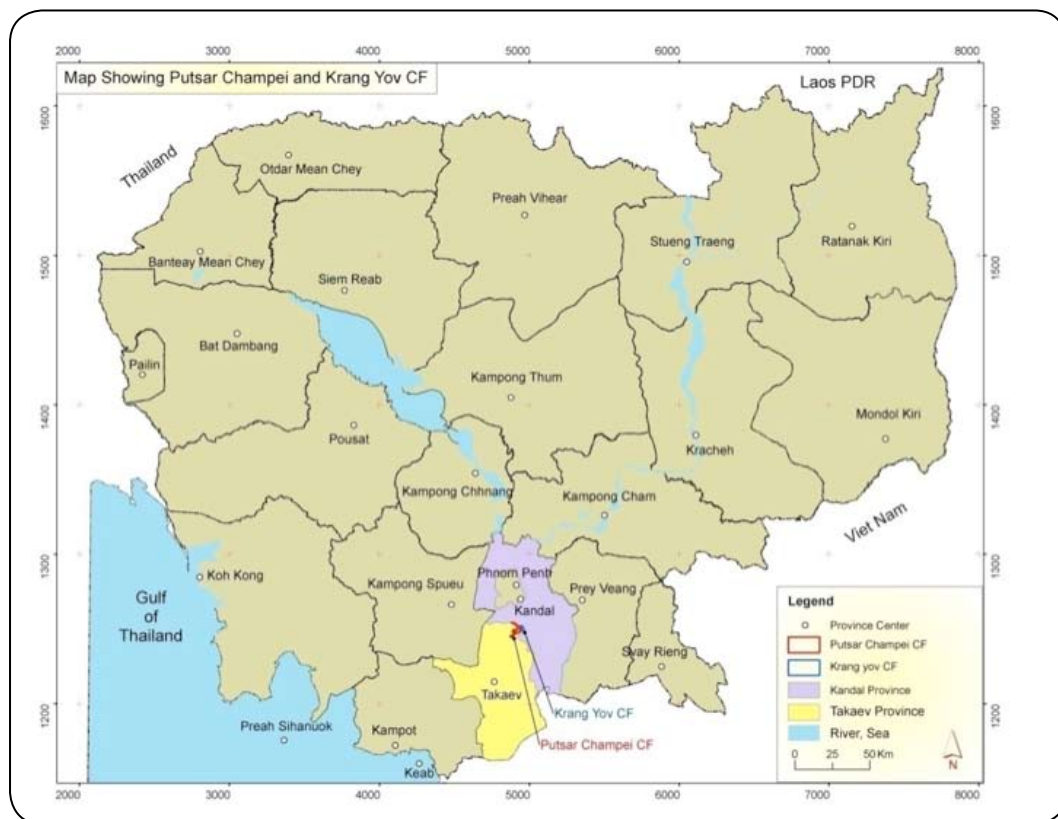
rules, regulations and management plans under a national framework for community fisheries management. The Fisheries Law provides a strong legal basis for Cambodian people to participate in and organise community fisheries in their area. Article 59 stipulates that: “All Cambodian citizens have the rights to form Community Fisheries in their own areas on a voluntary basis to take part in the sustainable management, conservation, development and use of fisheries resources.”

Community fisheries in Cambodia have been recognised as a suitable strategy for sustainable resource management and also have high potential to improve their members’ livelihoods, given that they provide the secure access rights and responsibilities needed to manage and sustainably exploit fisheries and other aquatic resources (CFDD 2003).

Profile of the study area

Geography and establishment of the community fisheries

Map 10.1: Map of location of Put Sar and Krang Yov Community Fisheries



Source: JICA, 2005.

The study area includes two community fisheries that share a common boundary: Put Sar in Takeo province and Krang Yov in Kandal province. The area is productive with regard to fishing because it contains lakes, streams and a flood plain to a total area of more than 3,000 ha during the wet season and about 500 ha during the dry season. The area was formerly Fishing Lot 2 of Kandal province before being released for public use as part of the government fisheries reform. Some was transferred to the local people in Takeo and some to those in Kandal (based on provincial boundaries).

At the beginning, there was an administrative and institutional vacuum, leading to relaxed controls over fishing. Many took advantage of this to deploy destructive and illegal fishing gear that facilitated quick returns on investment. The situation worsened as the opening-up encouraged a significant influx of new fishing. Many fishers took out loans to purchase new fishing gear and to expand the gear they already had in order to reap maximum benefits from the changes.

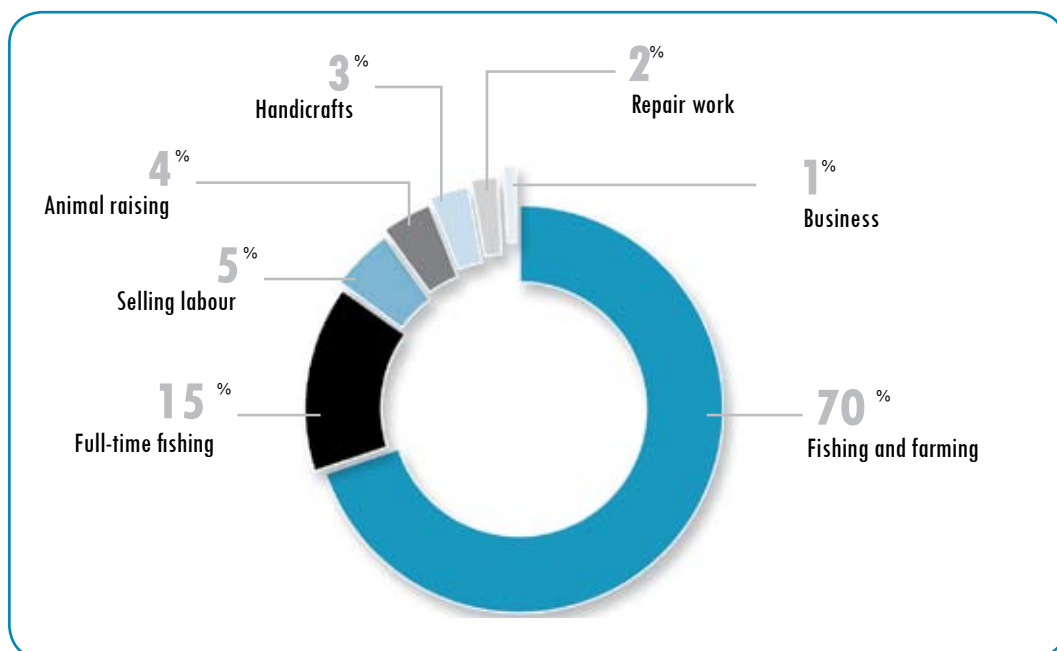
Local people felt that the establishment of community fisheries in the area was the best way to ensure better fisheries management. As such, in 2006, with the support and collaboration of the Fisheries Cantonments and local authorities, Put Sar and Champey Community Fisheries of Takeo province were established, combining 12 villages in one federation, and Krang Yov Community Fishery of Kandal province was set up, covering seven villages. Members of each community fishery can fish in the other, although members from Krang Yov access the fishing area of Put Sar and Champey more than those from Put Sar and Champey access Krang Yov.

Local livelihoods in the study area

Fishing and farming are the main sources of income and livelihoods across the study area. Farming is practised mainly during the wet season. According to FGDs using the Ten Seed Technique, approximately 70 percent of those in Put Sar and 55 percent of those in Champey are farmers and fishers, with only 15 percent in Put Sar and 30 percent in Champey being full-time fishers.⁴⁹ Most full-time fishers have a little land for housing but no land for agriculture; the decline in fishery resources is a major problem for these stakeholders. Aside from fishing and farming, other occupations, such as handicrafts, animal raising, labouring and small business, are also livelihood sources for some households. These households also fish during their free time.

⁽⁴⁹⁾ The research does not include data from Krang Yov because Krang Yov was not included in the original research plan. Conflict there began after the research started and it was then included in the plan.

Figure 10.1: Source of livelihoods in Put Sar Community Fishery, Takeo province, 2007



Source: PRA exercises.

The local people provided their own criteria for ranking households in their community fishery, in terms of wealth and income/expenditure (see Table 10.1). In Put Sar and Champey, the ranks are similar: 10 percent is classed as very poor and 10 percent as rich; 30 percent in Put Sar and 50 percent in Champey is classed as poor and 50 percent in Put Sar and 30 percent in Champey is classed as middle class. Wealth ranking by occupation indicates that, although most people are fishers, the very poor and the poor are likely to be more dependent on aquatic resources, because they have little or no land for agriculture (poor households own less than 0.5 ha and very poor households are mostly landless). These households have few alternatives, except for selling their labour. Meanwhile, rich households own more than 5 ha of land and middle class households own more than 2 ha. These households have more alternatives, such as rice milling, stocking rice and lending money.

Table 10.1: Wealth status in Put Sar and Champey Community Fisheries, Takeo province, 2007

	Put Sar	Champey
Rich	10%	10%
Middle class	50%	30%
Poor	30%	50%
Very poor	10%	10%

Source: PRA exercises.

Fishing activities and fishing conflict

Fishing activities in Put Sar, Champey and Krang Yov are not reserved exclusively for members.

“Fisheries resource users who are not the members of the community fisheries have the right to enter, leave, and use fisheries resources in the community fishing area, but must comply with the by-laws and internal regulations of the community fisheries, community fishing area management plan, and all other legal instruments that relate to fisheries.”

Article 14 of the Sub-Decree on Community Fisheries Management

Therefore, many people from other areas are able to come to fish in the two fishing areas.

Results from the PRA conducted in Put Sar and Champey show that several types of fishing gear are used, including gill nets, hook long lines, bamboo traps, cash nets, seine nets, etc. The most common are gill nets and hook long lines, which can be used all year round. It was observed that outsiders use these more than those who are resident inside the community fishery area. For example, in Put Sar and Champey, 60 to 70 percent of those who use gillnets and hook long lines, respectively, are outsiders (see Ttable 10.2).

Table 10.2: Fishing gear used by community fishery members and outsiders in Put Sar Community Fishery, Takeo province, 2007

	Used by members	Used by outsiders
Illegal fishing (electro fishing and mosquito nets)	30%	70%
Gill nets	35%	65%
Hook long lines	30%	70%
Cash nets	50%	50%
Seine nets	30%	70%
Bamboo traps	70%	30%

Source: PRA exercises.

Illegal and destructive fishing gear is also used in Put Sar, Champey and Krang Yov. Different methods include electro fishing, mosquito nets, poison, dynamite, etc. Among these, electro fishing and mosquito nets are the most commonly used in the study area. PRA results showed that about 70 to 80 percent of illegal fishing was carried out by outsiders (especially by people from Kandal province).

Illegal fishing became more intensive in Put Sar and Champey after the government released Fishing Lot 2 to the local community. People in the area knew that illegal fishing activities had a negative impact on their livelihoods but found it difficult to stop them. The community fishery committee carried out many prevention activities, but these were not particularly effective. Major problems were limited capacity among community members, lack of support from development partners and poor collaboration with local authorities.

Managing conflict through action research

Action research on combating illegal fishing focused on long-term solutions to address illegal fishing activities practised in Put Sar, Champey and Krang Yov, which could then be used as a model for replication in other areas. In this, two stages were considered: negotiation and collaboration with stakeholders and influencing illegal fishers.

Negotiation and collaboration

After carrying out planning (see earlier discussion on action research), community fishery committees agreed on several activities as part of the negotiation and collaboration stage. These included stakeholder and illegal fisher identification and networking at local level. First, key stakeholders related to fisheries management and dealing with illegal fishing activities were identified: the two Fisheries Cantonments, the two commune councils, the police of each commune, all relevant village chiefs and the two community fishery committees.

Photo 10.1: Stakeholder meeting in Put Sar Community Fishery, Takeo province



Photo by Put Sar Community Fishery Committee.

The role of each stakeholder was also clarified and agreed. The Fisheries Cantonments were to provide advice and to intervene as and when the committees needed it. Commune councils, village chiefs and the police were to provide support and permanent collaboration with the committees in terms of Fisheries Law dissemination, awareness raising and patrolling. Meanwhile, members of both community fisheries were to initiate and organise a campaign to raise awareness on the Fisheries Law, list all illegal fishers, report illegal fishing activities and request intervention and participate in patrolling.

In order to strengthen collaboration among the stakeholders, a community fisheries network was established, working at different levels. In each community fishery, a monthly committee meeting is organised to strengthen collaboration among villages, to discuss progress and challenges and to seek solutions to any problems. Any challenges that cannot be solved by the committee are reported to the commune council and/or the competent agency for intervention. The committees also participate in monthly commune council meetings in order to report progress and discuss challenges.

Since the fishing areas of the two community fisheries are connected, cross-province negotiation and collaboration are also carried out. Collaboration between the two committees is implemented through different means, for example using walkie talkies and telephones to transmit information on illegal fishing. When it is necessary for the committees to collaborate with the competent agencies of both provinces (for example when many illegal fishing activities occur in the area), both committees

make a joint request to the authorities of both provinces to intervene immediately to crack down on illegal fishing in the area. The committees hold frequent joint meetings to discuss issues related to both of them, for example when illegal fishers work across the boundaries of the community fisheries. Sometimes, the committees carry out joint patrols.

Influencing illegal fishers

Community fisheries then began to implement their action plans on illegal fishing, which included: formation of and training of facilitation teams, a dissemination campaign, collection of illegal fishing gear, law enforcement and alternative livelihood provision.

Formation of the facilitation teams

The facilitation teams are ad hoc mechanisms to coordinate the process of implementing the action plans on illegal fishing. Each community fishery formed its own team, made up of committee members, commune councillors, village chiefs, police and Fisheries Cantonment staff. The specific role of each member is clearly defined. Commune chiefs recognise and enable the facilitation team to conduct dissemination and to collect information from the people regarding fishing gear, both legal and illegal. Committee members and village chiefs identify villages and people who are targets for dissemination, invite people to join in and encourage people who commit illegal fishing to give up such practices. Competent fisheries officers provide resource persons to disseminate the Fisheries Law and intervene to combat illegal fishing activities when requested to do so by the community fisheries. Their counterparts at the Fisheries Administration (and in IDRC) provide backstopping in dissemination and other support if necessary.

Training the facilitation teams

Training focused on non-violent communication, as a vital tool in combating illegal fishing activities, and was delivered to both facilitation teams by officials from the CFDD. The training provided a good opportunity for the teams to learn and to apply their training in practice, and also to sit down and interact with each other (especially committee members, police and local authorities). Participants said that this was the first time that they had had the opportunity to face each other from their different positions of authority, and that this helped break down fear and obstacles to communication. The community fishery committees also received training on report writing and minute taking from the CFDD and the two local Community Fisheries Development Units.

Photo 10.2: Training on non-violent communication in Krang Yov Community Fishery, Kandal province



Photo by Ly Vuthy.

Dissemination campaign

Dissemination on the Fisheries Law, focusing on the prohibition of illegal fishing, was conducted in both community fisheries, in target villages identified by the facilitation teams. Put Sar and Champey dissemination covered 15 villages and Krang Yov dissemination covered 13 villages. The campaign included seven events in Takeo and seven events in Kandal. Some events combined two villages and some covered just one village, depending on the actual situation and the location.

During dissemination, illegal fishers were asked to express their opinions on fisheries issues in their village. They felt that fish stocks had declined because of the widespread occurrence of destructive activities over many years. They were aware that the use of electro fishing and mosquito nets harmed the resource but still continued to practise illegal fishing because everybody else was doing it too. Mr. Peam, 44 years old, voluntarily told about a hundred people that he had practised electro fishing for more than 10 years, because he had no other occupation, but that he was willing to give up such activities. This man was then offered a job as a patroller with the Fisheries Cantonment in Krang Yov. He asked other people to stop activities prohibited by the Fisheries Law too, saying that whenever he went electro fishing his wife was never at peace for fear that he might be captured.

Photo 10.3: Awareness raising in Krang Yov Community Fishery, Kandal province



Photo by Ly Vuthy.

Collecting illegal fishing gear

After the dissemination campaign, both facilitation teams operated a campaign to collect illegal fishing gear, to be handed over on a voluntary basis by illegal fishers. Village chiefs provided information on households using illegal fishing gear to the facilitation teams, which then negotiated with these households to give up their illegal fishing activities. As a result, 84 people in Put Sar and Champey and 70 people in Krang Yov voluntarily handed over their electro fishing gear to the facilitation teams. This campaign is ongoing.

Photo 10.4: Local people handing over electro fishing gear in Krang Yov Community Fishery, Kandal province



Photo by Ly Vuthy.

Alternative livelihoods

As mentioned earlier, fishing and farming are the main sources of livelihoods in both areas. Most illegal fishers are poor and have no alternative to illegal fishing activities. Some have no land for agriculture and some owe a great deal of money, making it hard for them to give up their activities without capital to start up a new pursuit. Nevertheless, illegal fishers are being convinced to give up these practices and to replace them by carrying out legal fishing.

In Put Sar, a microcredit self-help group has been formed with support from IDRC, to provide an opportunity for community fishery members to access some money to buy inputs for an alternative livelihood strategy. Beneficiaries are chosen based on criteria decided by the community fishery committee in consultation with its members. However, the scheme seems to limit inclusion of the poor, as loans are given to those who “have the ability to pay” as a way to counteract risk. A mechanism for the poor is very important, especially for those who have no land for agriculture and who have given up illegal fishing activities voluntarily.

Photo 10.5: Handicrafts of the savings group in Put Sar Community Fishery, Takeo province



Photo by Ly Vuthy.

Apart from this, there are possibilities for local people to carry out small-scale aquaculture, with CFDD assistance, given that there are existing inputs, techniques and markets.

Lessons learnt

Lessons drawn from the action research undertaken by the two community fishery committees, in collaboration with relevant authorities and agencies, are as follows.

- It is important to be aware of all aspects involved in illegal fishing (physical, social and economic). Law enforcement is not enough; it is vital to include strategies such as awareness raising, negotiation and promotion of alternative livelihoods.
- Solutions should be long term and also dynamic, so as to be flexible and adaptable to an ever-changing situation. Follow-up activities are therefore a necessary component.
- For example, some people have returned to illegal fishing activities, especially electro fishers in Krang Yov, who claim that other groups of illegal fishers have not stopped such practices so they cannot either. Further negotiation may be necessary to resolve this situation.
- Full collaboration among all stakeholders, including community fishery committees, local authorities and police, is key to success in dealing with illegal fishing activities.
- Negotiation does not mean compromise but entails convincing illegal fishers to give up their practices.

Conclusions

Overall, much progress has been achieved, especially after the intensive dissemination campaign, which led many illegal fishers to give up their illegal fishing activities. Despite some setbacks, illegal fishing has reduced in frequency and, ultimately, fish stocks in the area will increase.

The results of the action research indicate that negotiation with illegal fishers by community fisheries could result in long-term positive change, including in: relationships and communication among stakeholders; behaviour of illegal fishers; and livelihoods. However, patience will be necessary: such high levels of positive change take time.

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Section C:

Institutions and Innovations



Photo by: CFDD team.

Section C:

INSTITUTIONS AND INNOVATIONS

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Researchers as change agents

By: Kate Grace Frieson

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Chapter 11

Institutions and innovations: Researchers as change agents

Kate Grace Frieson⁵⁰

In undertaking what is called action research, there is an intention to make positive change, usually at the community level and for the purpose of more socially just and grassroots-based development. While much of the writing on this has endeavoured to understand the central role of the community in the cyclical process of problem identification, action planning, implementation of activities and reflection and monitoring, the role of the researchers in this process, most particularly government-based researchers, is also worthy of attention.

In this final section of the book, the aim is to reflect briefly on the critical importance of national government researchers in creating new knowledge pathways connecting their institutions with local-level communities, and their potential as agents of positive change within both.

The nascent research culture in context

The Cambodian research context is at a nascent stage of development (Chamnan and Ford 2004; Kwok et al 2010). The concept of independent research carried out by research professionals, either in tertiary institutions or in government agencies, as valid and crucial to national development has not yet caught hold in Cambodia. University research capacity across public and private accredited institutions is either still weak or nonexistent; no clear research policy and institutions for tenure exist in most universities; and the pedagogical methodology remains almost wholly one of rote learning of subjects that are not standardised to any sophisticated level comparable with regional institutions in Southeast Asia (Kwok et al 2010).

The absence of a research culture in Cambodia stems in large measure from the complete destruction of the university system and the near complete decimation

⁽⁵⁰⁾ Research Advisor, Development Research Support Team (DReST), The Learning Institute.

of intellectual stores during the 1970s under the Khmer Rouge regime. However, even before and after the murderous revolution, problem-driven applied research in the sciences and social sciences has not featured as a central objective in any government development of the tertiary education sector (Ayres 2000; Chamnan and Ford 2004; Kwok et al 2010).

If we understand research as “critical and creative investigations undertaken on a systematic and rigorous basis, with the aim of extending knowledge or solving particular practical or theoretical problems” (Harman 2006), what is the potential for action researchers based in government institutions to galvanise a research culture and production of knowledge?

Further, as Carden (2009) states, if the aim of development research is to “improve the lives of people in developing countries,” what role can ministry-based researchers play in connecting the evidence of this improvement to public policy? This is a particularly important question in that it defines the core future role of government researchers, particularly if “public policy is an indispensable instrument for converting new knowledge into better lives and better futures” (ibid).

How can the results of the research presented in this book, including the governance dilemmas of resource management, insecure tenure rights and continuing conflicts over scarce resources by multiple users at multiple scales, serve the formulation of public policy?

There are at least four pathways for this to happen:

1. Reporting research results up to secretariat of state and ministerial level and requesting internal dissemination of results in ministry-led workshops
2. Writing policy briefs with active support from technical committees and national-level technical working groups on working on natural resource management and environmental protection
3. Presenting results in national and international research conferences and publications to galvanise public attention and draw interest from policymakers
4. Organising study tours of research sites for policymakers within government ministries with research results and indicative policy implications abstracted in written form for discussion purposes

It is interesting to note that, of the four pathways to influence policy in the context of this research programme, the last two have been the ones undertaken with ease and some accomplishment. The first two have required more robust actions within institutions and have proved more arduous. One reason for this is that research papers and study tours were already integral parts of programme planning, with

budget provisions already made. This meant that they were within sight from the very beginning of the research process, with intensive capacity development playing a strong role in ensuring completion.

Making research results known and understood within governmental institutions is by far the more difficult, partly because of the slow-moving nature of the bureaucracy. There is also reluctance on the part of policymakers to hear “bad news” and take action on politically sensitive issues, such as government agencies’ collusion in illegal land grabbing of community-demarcated natural resource protected areas, illegal deforestation and the vexing issue of land and tenure disputes involving local authorities that is centre stage in Cambodia’s current development context.

That said, this book, which has drawn heavily on action-based research on natural resource management by government research teams working in collaborative arrangements with local communities, is evidence that the potential exists. Not only that, it may in the long term influence policy through the grassroots level, in that the research results bring positive change to the lives of community members who have engaged in it.

Dual roles and multiple expectations of government researchers

The notion of researchers based in ministries as agents of change is related to their dual role – as national-level representatives of national machineries who go to the field and as field researchers engaged in action research with local communities and local authorities. The researchers wear at least two hats and must switch between them as they come in and out of the field.

This is unlike standard academic researchers, who are not part of a government institution with policies, programmes and budgets to make real change in people’s lives. Academic researchers are sometimes linked to non-governmental organisations (NGOs) and work to positively impact community initiatives or to influence government agencies through collaborative research arrangements. But they are not expected, nor do they necessarily expect themselves, to bring about tangible changes in the way people live as a result of their research. For government researchers, there is an implicit expectation that the research should bring about such change. This is an expectation that community representatives have of their national counterparts and also that the government researchers have of themselves.

In some cases, this has been very effective. For example, in the long-running Ministry of Environment research programme, Participatory Management of Coastal Resources (PMCR) (July 2004 to December 2010), team leader Kim Nong has identified the national research team as a group of catalytic actors engaged in

defining resource management challenges and taking actions to deal with them: “the PMCR research team is a key actor to engage local community and stakeholders to identify their own key challenges and issues using participatory rural appraisal [PRA] tools” (PMCR 2009).

“I see my role as helping a community to galvanise itself, finding time and resources to help it organise community management functions. We also are instrumental in connecting the community with other important stakeholders such as the commune councils and the district- and provincial-level technical departments of the Ministry of Environment. We are national level and so therefore we have the authority to call for and organise meetings of all these stakeholders. We can find relevant NGOs to assist the community in its basic livelihood projects such as the women’s savings groups or crab banks. We have that ability and we take it seriously. That is why we have had success in ensuring the mangroves along the coasts of Cambodia are protected by the community members themselves. We are their back-up.”

Reflection session with Kim Nong in 2009 (DReST 2009a).

All the research projects have resulted in positive change at some levels, but one that critically galvanised responses from the local level was the Community Fisheries Development Department (CFDD) research on Improving Rural Livelihoods through Community Fisheries Management. In this, the spectre of illegal fishing rose up first on the community’s list of priority problems, with most of it being conducted by members of community fisheries who shared the water resource but were situated administratively in an adjacent province. This entailed complex negotiations by the lead researcher of the team, whose role in the Fisheries Administration as the deputy director of the CFDD was strategically beneficial for organising meetings with provincial authorities, including commune councillors, police, fisheries rangers and technical staff at the provincial departments.

“I am called all times of the day and night by the community representatives to intervene and do something.”

Ly Vuthy, CFDD team leader, in meetings with the author on the real-time impact of the Improving Rural Livelihoods through Community Fisheries Management research.

Fisheries Administration policymakers supported the research team leader in undertaking interventions during the research, leading to very positive outcomes with regard to collaborative arrangements between the two previously hostile community fishery associations. This was followed up by genuine bonhomie, generated by a mixed study tour during the end phase of the research project which gathered community fishery leaders and members from four different sites within the research project. The week following the study tour, Ly Vuthy was asked by the community in which the illegal fishing was rampant to facilitate collaborative information campaigns across the two community fishing areas. Representatives from both areas were seen together in a united front in a procession of cars, motor-

cycles and bicycles, bearing placards on the peaceful resolution of conflict and promoting conservation and sustainable approaches to fishing for greater community benefits.⁵¹

Duality of research roles and expectations

The dual role is a complex one, as each part of it brings different sets of expectations and requires different competencies. Expectations sit on both sides: with national-level researchers and with stakeholders and community members who are collaborative members of the research programme.

Expectations that national ministry researchers have of themselves include: to effectively interact with local communities and gain their trust; to carry out their methodologies, problem assessment and data analysis; and to complete the research to high quality standards as is expected of them. This set of expectations must be understood as sitting within the wider web of capacity building in the context of a research culture that is weak and not well understood by most ministries and government personnel. Many researchers have said that their research is not particularly valued by their senior managers in the ministries, and that there is little understanding of what research is and how it can help policies and approaches to managing resources.

There is also the set of expectations at the grassroots level that the ministry researchers will “solve our problems” and “find us jobs and project funds.” These expectations are fairly normative and are not unique to the Cambodian context, as government representatives are correctly presumed to have connections to power and authority that can bring benefits to local communities. However, these expectations do underscore again the nascent understanding of the role of research in exploring problems systematically with tested methodologies and uncertain outcomes.

One of the benefits of action research protocols is that there is an anticipated outcome of change that is to the advantage of the community and “makes lives better.” However, if the levels and depth of change do not meet the expectations of the national researchers and/or the community and other stakeholders involved, this not only puts a brake on the agency effect of the research but also can stymie momentum for policy change.

⁽⁵¹⁾ The author joined this study tour and saw firsthand the cross learning taking place as community fishery representatives asked each other questions about approaches to community management and what was needed to solve important problems such as illegal fishing, poor governance, lack of support from local officials and lack of community trust. The outcome of the study tour was communicated to the author by Ly Vuthy in June 2010.

This dual role provides opportunities to bring grassroots issues up through the multiple governance structures. This then provides scope for researchers to work as catalysts for change, inside their ministries, in communities where they are working – as advocates and supporters of communities facing serious challenges – and as national-level advocates using research results as evidence to persuade policymakers to take note. This is not easy, however, and requires strategic thinking on what is politically feasible at any given time. This book is part of this process of creating a pathway to ensure that research results get channelled back into ministry information systems to influence policy in favour of community-based solutions to natural resource management.

Researchers engaged in long-term processes

A final element to note in examining the agency role of ministry researchers in the field of community natural resource management relates to the quality of the research itself. Change needed to improve the lives of community members is dependent in the end on the quality of the research that is produced, as this serves as the “case” or evidence base to persuade policymakers to rethink approaches, design new programmes of action and monitor programme impacts on the livelihoods of the citizenry.

It is vital in this respect to view research as a long-term process, one that should engage national teams of researchers with research institutes that are fully functioning and capable of supporting multivariate and problem-oriented research projects over several years.

The Rural Livelihoods and Natural Resources (RLNR) Development Research Programme, supported by the International Development Research Centre (IDRC), was housed in The Learning Institute and brought research teams from the ministries together with those in The Learning Institute in one joint programme. But, with the programme’s end, will the initiatives by the ministry researchers end also? We anticipate not and hope to collaborate again in new programme arrangements with the same objectives: to develop and complete quality development research that will catalyse communities to cooperate with each other and with other stakeholders; to strengthen resolve and commitment to undertake research; and to disseminate results at all levels that show the importance of research in helping government agencies undertake successful development programmes.

Change through improved research quality and connections to communities

The following list represents the most germane accomplishments with regard to building quality standards into the RLNR programme through outreach to the respective partners. This list was part of the final report to the research funder (DReST 2009b):⁵²

- Learning to frame problems within theoretical and conceptual parameters
- Designing and testing PRA and other qualitative methodologies that respond to the needs of research questions
- Undertaking diagnostic studies in consultation with communities
- Through study of community social and economic contexts, deepening the overall analytical texture of the action research and identifying significant opportunities and constraints for sustainable resource management
- Identifying and focusing on vulnerable members of the community in relationship with community resource managers
- Addressing conflict management, community partnerships across boundaries, mapping of protected areas, better understanding of income earnings from natural resources such as resin, malva nuts, rattan, fish farming, etc

Conclusion

Government institutions that support research are vital in Cambodia, as they enable cross-sectoral learning, bring in results from the lived experience of Cambodians and help bridge the divide between rural citizens and their government representatives. Quality of research is dependent on the resources invested in building the community of researchers, both within established research institutions such as universities and also within research components in government ministries. It is our collective desire that the research culture that is steadily being developed through opportunities such as those created by the RLNR programme will continue to thrive and flourish. Cambodian communities living in poverty deserve more and better research in order to make positive changes longer lasting and more sustainable.

⁽⁵²⁾ A very similar list came out of the June 2010 final learning and sharing workshop, in which the five research teams through a consultative process determined the positive change outcomes. The final report on this workshop will be posted on The Learning Institute website by September 2010: www.learninginstitute.org.

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Chapter 12

Institutionalising research innovations: The Institute for Forest and Wildlife Research and Development

Sokh Heng⁵³

Background

The Institute for Forest and Wildlife Research and Development of Cambodia is one of six departments under the Forestry Administration in the Ministry of Agriculture, Forestry and Fisheries. It is responsible for capacity building and research activities in the forestry sector.

The institute's formation was part of a larger restructuring in 2004, when the former Department of Forest and Wildlife was renamed the Forestry Administration. The Forestry Administration is responsible for managing a large part of the country's forest resources.

“The Forestry Administration is a government authority under the Ministry of Agriculture, Forestry and Fisheries in managing forests and forest resources according to the National Forestry Sector Policy and the Forestry Law. The Forestry Administration has a unique management and organization structure for the whole country in vertical line, which divided into central, inspectorate, cantonment, division, and triage forestry administration levels.”

Official statement of the Forestry Administration: www.forestry.gov.kh/index-Eng.htm.

Research in the context of National Forest Programme development

The Forestry Administration and stakeholders in the Cambodian forestry sector have recently finished a lengthy collaborative process to develop a 20-year National Forest Programme (2010-2029) as a significant step towards sustainable forest management. In this process, a task force was established in late 2007, made up of representatives of the Forestry Administration, relevant government agencies,

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development partners, non-governmental organisations (NGOs) and the private sector, with the main task of promoting sustainable forest management through the development of the National Forest Programme. The government, represented by the Forestry Administration, took the leading role in the process. The programme was finalised in March 2010 and its implementation is set to start in late 2010.

The National Forest Programme aims to meet local, national and global needs by providing a strategic, coherent, transparent and effective framework to plan, manage, use, protect and regenerate forest resources in a sustainable manner for the benefit of present and future generations. It was structured as a Framework Document with six specific programmes attached: Forest Demarcation; National Forest Management and Conservation; Forest Law Enforcement and Governance; Community Forestry; Capacity Building and Research; and Sustainable Forest Financing.

Programme 5, on Capacity Building and Research, is where the Institute for Forest and Wildlife Research and Development fits in. This programme has identified the following priority areas for the next 20 years:

- Human resource development
- Educational and institutional development
- Forestry extension and public awareness
- Data analysis and interpretation
- Research capacity development
- Coordination among players

The rationale for these priority areas is explained by the National Forest Programme:

“Without relevant, competent and committed capacity-building in the sector, there is little chance that the National Forest Programme vision can be met in practice. It is therefore crucial that stakeholders associated with, and/or involved in forest management, possess the necessary capacity to fulfil their respective tasks and contribute towards achieving the common goals stated in the NFP. This Capacity Building and Research Development Programme will contribute to the NFP vision by addressing capacity-building needs at different levels. Furthermore, the programme will enhance forestry research capacities and strengthen applied research to support the implementation of forest policies, plans and programmes.”

Forestry Administration (2010).

Urgent need to strengthen the role of forest research in Cambodia

Forestry research in Cambodia is limited, and is not coordinated with government programmes or policies or with priority areas established by local communities. As such, research on forestry sector themes currently does not assist the government's efforts to implement sustainable forest management.

Like many government institutions, the Forestry Administration does not have capable educated staff with the skills and support they require to undertake basic forestry research. Cambodia's universities and technical schools are poorly equipped and do not have a research culture that can produce graduates to staff the Forestry Administration's research institute.

Table 12.1: Staff of the Institute for Forest and Wildlife Research and Development

Education							Total	Grand total
PhD	Masters	Diploma	College	Technician	No skill	Female	Male	
2	9	25	1	3	3	5	38	43

Source: Generated by author.

However, forest-related research is carried out in Cambodia, usually by independent research institutes or by academics from abroad supported by international donors and organisations. The research produced is rarely known about by Forestry Administration staff and has not been used during the formulation of the new forest policies. This is because there are no mechanisms in place for sharing information and for collaboration between academic researchers and their professional affiliations and the Institute for Forest and Wildlife Research and Development.

This needs to change so that interaction with a broad range of researchers undertaking scientific and social science research on themes and areas relevant to the Institute for Forest and Wildlife Research and Development can become the norm. One way is for the institute to host monthly research seminars for a broad range of scholars and researchers, both within the Forestry Administration and outside in academia and other research institutions.

A relatively new positive development in this direction has been the creation of the Cambodia Development Research Forum (CDRF), which is co-managed by the Cambodia Development Resource Institute (CDRI) and The Learning Institute, both non-governmental in nature. This forum organises an annual symposium on different development themes for the presentation of research by researchers from the government, academia, NGOs and the private sector. It is anticipated that, with time and capacity in place, the Institute for Forest and Wildlife Research and Development will participate actively in this symposium.

There is a strong national need to improve collaboration and coordination between research organisations and government authorities when developing new strategies to implement sustainable forest management, alleviate poverty and ensure environmental protection and economic development. The National Forest Programme also notes an urgent need to ratchet up the quality of the two tertiary government universities that work in relevant sectors:

“A highly critical factor in sustaining these [research programme] activities is to secure financing to upgrade forest education, to ensure the availability of suitably qualified recruits. Prek Leap Agricultural School and the Royal University of Agriculture, as the main centres of forest education, need to be fully re-oriented towards equipping future forest managers with skills and capacities necessary to meet the practical, complex and analytical challenges of participatory and sustainable forest management. Such an undertaking has been overlooked for decades and requires a long-term perspective, necessary cultural and learning change within the two institutions, in addition to upgrading curricula and teaching methods and capacity.”

Forestry Administration (2010).

The current dearth of high quality research based at the relevant universities will be a main constraint to overcome if the Institute for Forest and Wildlife Research Development is to develop and thrive in the near future.

Capacity for growth

The Institute for Forest and Wildlife Research Development currently lacks staff with sufficient experience in forestry research to apply for research funds, and has few staff members with sufficient qualifications to function as research scientists. As a result, little coordinated forestry research has been conducted by the Forestry Administration, and basic forest information is not readily available. As such, it is necessary to actively strengthen forest research activities in order to implement the National Forest Programme.

In the forest management planning and monitoring process, the forestry sector needs to collect relevant data using appropriate scientific and social science methodologies. More crucial, however, is that such data are utilised through sound analysis and interpretation. Results need to be articulated to managers and decision makers, both within and outside the Forestry Administration, to improve management, planning and monitoring of forest resource developments over time. Furthermore, protocols for transparency and information sharing need to be developed, as do efficient communication strategies to inform and support policymakers, NGOs, local forest managers and other stakeholders, as well as to publicise research information and extension materials and make them available to relevant stakeholders.

The National Forest Programme has the following specific objectives to achieve in relation to research capacity development (Forestry Administration 2010):

- Research programmes supporting the National Forest Programme by the Forestry Administration, universities and other Cambodian research institutions designed, implemented, completed and ongoing
- Research communication strategy implemented
- Research documents, policy briefs, statistics and practical manuals published
- Joint forestry research projects/programmes with national and international organisations
- Presentation of new research results at national and international workshops/conferences
- Involvement of Forestry Administration staff and independent research organisations in lectures for MSc Forestry and Environment students
- Incorporation of ethical practices into research activities

Box 12.1: Objectives of the Institute for Forest and Wildlife Research Development

The National Forest Programme also introduces the “Forest and Wildlife Research Development Institute.” It notes that basic forestry research will mainly be conducted by the Forestry Administration, which will continue its ongoing efforts through the institute. The institute will, over time, be sufficiently staffed with new graduates and technicians. Systems to ensure that competitive packages are available to researchers will be established to attract skilled researchers and research managers who can design, manage and implement projects and to continuously take advantage of national and international funds. This will enable the institute to:

- Conduct applied research, related to optimisation of local and national forest management, including prediction and modelling of scenarios
- Establish and maintain pilot research areas, e.g. in forest concession areas to conduct silvicultural trials and pilot new sustainable forest management models, in collaboration with relevant partners
- Conduct extension research programmes, in collaboration with relevant development partners, to develop efficient ways to provide assistance to forest management plans and plantation activities with local people
- Liaise with development partners and international forest research organisations to explore funding opportunities and new training opportunities
- Liaise with relevant national and international research organisations regarding support for trainings at national and local levels
- Design and implement individual training plans for researchers and research assistants
- Offer on-the-job training and support to research managers, researchers and research assistants

Future focus of research and funding support needs

According to the National Forest Programme, the Institute for Forest and Wildlife Research and Development must have sufficient funds from the national budget and from international donor sources to fund quality programmes, including the funds required to employ researchers and support staff.

Primary areas are listed in the National Forest Programme (see Forestry Administration 2010 for details):

- Forest resource management and conservation
- Forest law enforcement and governance
- National community forestry
- Climate change
- Financing

However, mechanisms for identification of future research needs and their prioritisation are required. The Institute for Forest and Wildlife Research and Development has a very long list of research to be carried out, in the context of a huge lack of funding resources. For the past two decades, the government budget for research activities has been very limited. Operations and research activities are carried out mostly using external funding resources. This situation will continue in the foreseeable future.

Funding from the International Development Research Centre (IDRC) has been one of the main sources of support for forestry research in Cambodia. The funds, even though they are small compared with actual needs, have produced good results and impacts on livelihoods and forest management in the country. For instance, IDRC supported the Strengthening the National Community Forestry Programme to Support Community Livelihoods: Constraints, Opportunities and Development Support project from its setup in February 2007 by the Forestry Administration. This project was implemented in Damnak Neakta Thmor Pun Community Forest in Sreh Knong commune, Chhumkiri district, Kampot province, and in Trapaing Rong Community Forest in Chey commune, Kampong Svay district, Kampong Thom province. It aimed to obtain experiences in relation to the improvement of local community livelihoods and management capacities of community forestry members. As planned, the project was terminated in June 2010. One of its notable achievements has been the publication of field guides on livelihood interventions and strengthening of local institutions in community forestry.

Future support would continue to fill the funding gap and play a very important role in the development of research skills and knowledge, contributing a great deal towards poverty reduction and sustainable forest management in Cambodia.

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Chapter 13

Coastal transitions, traumas and trials: Case studies from small-scale fishers and resource conflicts⁵⁴

Kate Grace Frieson,⁵⁵ Ly Vuthy,⁵⁶ Cheam Pe A⁵⁷ and Kim Nong⁵⁸

Introduction

This chapter engages in the debate about the contours of large and transformative changes in coastal Southeast Asia. Marschke and Bush (2010), in “Transformations in the Coasts and Fisheries of Southeast Asia,” characterise these transformations by defining their four most relevant aspects: 1) overfishing, resource management and coastal livelihood challenges; 2) conflicts over resources; 3) Southeast Asia’s “blue revolution”; and 4) economic and cultural transitions.⁵⁹ A fifth aspect, innovation, is added to the list for its contribution towards plausible solutions to less desirable impacts of the transformations in coastal Southeast Asia.

This chapter contributes to the debate with respect to the coasts and fisheries of Cambodia, through the lens of single-aspect resource conflicts, which nevertheless

⁽⁵⁴⁾ This chapter was originally prepared as a response to Marschke and Bush (2010). It was presented at a panel discussion organised by Melissa Marschke and Simon Bush entitled Transformation Found in the Coasts and Fisheries of Southeast Asia, for a conference called Revisiting Agrarian Transformations in Southeast Asia: Empirical, Theoretical and Applied Perspectives, which took place on 13-15 May 2010 in Chiang Mai, Thailand. It has been amended for the purposes of inclusion in this book.

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⁽⁵⁸⁾ Team Leader, Participatory Management of Coastal Resources (PMCR), Ministry of Environment.

⁽⁵⁹⁾ “Blue revolution” refers to “farming the sea” via modern aquaculture methods to produce food sources from coastal areas and also other waterways. It is viewed by proponents as one way to tackle reduced wild fish stocks and still meet human demands for fish consumption (Quarto 1998).

bleed over into other aspects. The rationale for this choice among the four aspects is that natural resource conflicts are:

- The meta-narrative of natural resource management in Cambodia
- A neat intersection point with the common pool resource conceptual research framework (Ostrom 1990; Introduction to this book)
- An entry point for interrogating the (mythical?) co-dependency between resource depletion and poverty (Berkes 1989; Marschke and Bush 2010)

Illuminating four distinct but interrelated aspects provides the opportunity for multidisciplinary reflections. This is a welcome niche for those of us who are crossing multiple ecological, geographical, politico-administrative and socioeconomic boundaries in our research work and in our social science perspectives and discussions with each other.

Conceptual and theoretical contributions

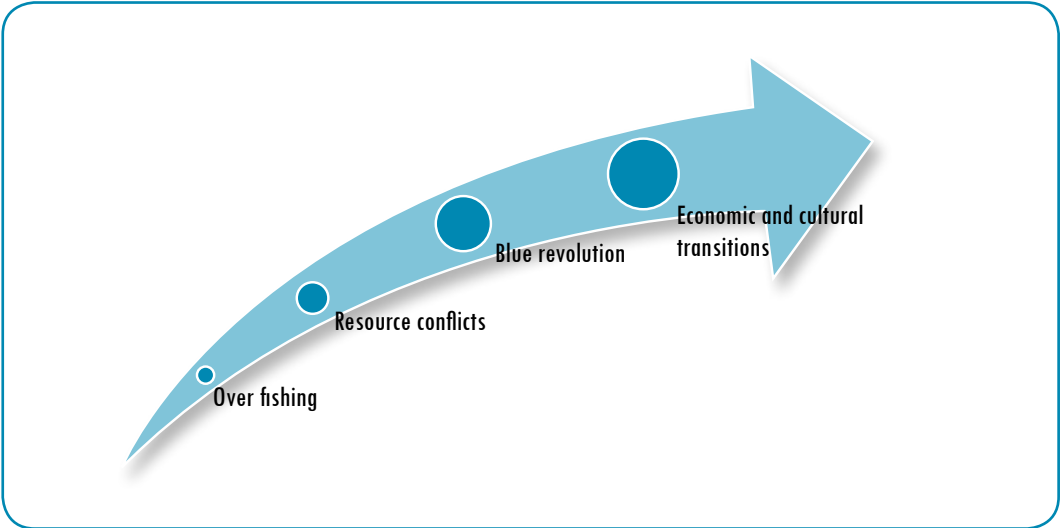
This chapter is premised on the thesis that pressures on coastal ecosystems in Southeast Asia are reaching breaking point as a result of the four aspects of transformation, either as single phenomena operating alone in site-specific cases or as multiple aspects conflating in various combinations, yielding sustainable, and therefore transformative, impacts on human societies and the natural world they inhabit.

How do these four aspects operate as parts of a theoretical puzzle, and how are they then linked together conceptually and empirically? In what combinations do the four aspects most powerfully drive transformation? Or are these aspects to be understood as piled up chronologically over time, in this way making impacts on coasts and fisheries in Southeast Asia? Marschke and Bush may well agree that the four aspects have organic relationships with each other rather than working as discrete phenomena.

Conceptually, the four aspects fit well together as mutually reinforcing in some combinations (e.g. overfishing and conflicts over resources) or as interdependent phenomena (e.g. Southeast Asia's blue revolution and economic and cultural transitions).

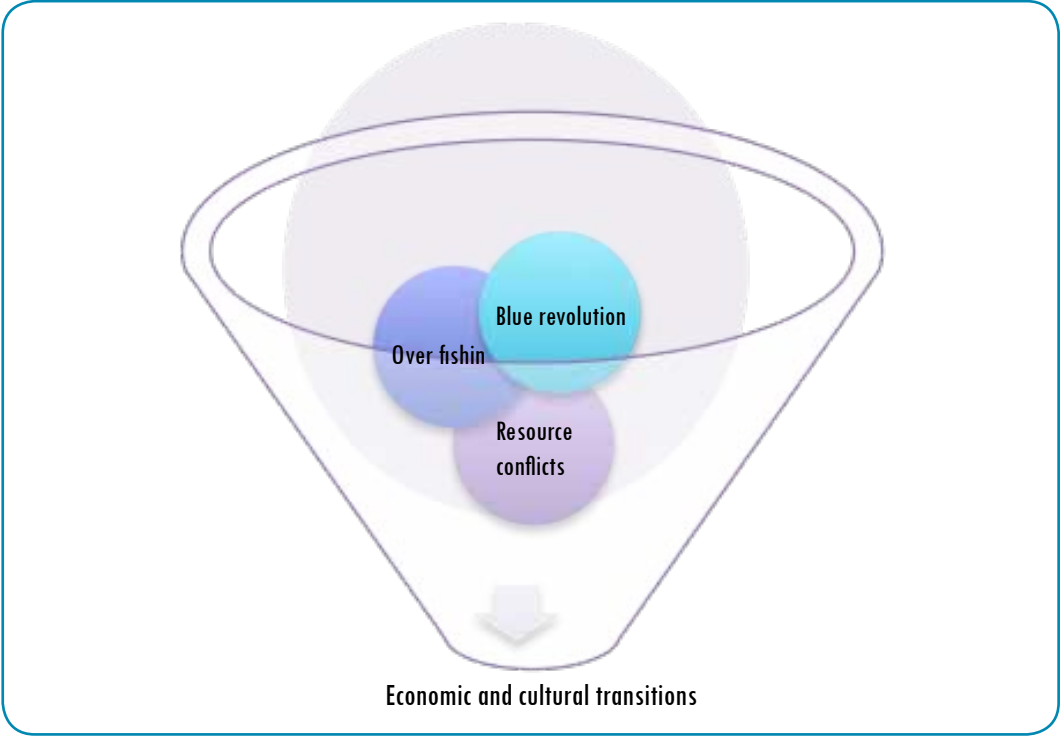
This chapter develops theoretical modelling to obtain an understanding of the present and future complexity of human and ecological transformations in Southeast Asia. Two possible models for discussion purposes feature below. On the left, the four aspects are on a chronological trajectory towards transformations in the coasts and fisheries of Southeast Asia. On the right, the aspects are shown as part of an organic mix leading towards transformation.

Figure 13.1: Trajectory model to transformation



Source: Generated by research team/authors.

Figure 13.2: Vortex model of transformation



Source: Generated by research team/authors.

The trajectory model looks at the aspects in a rather simplistic fashion. This is fine in theory but does not reflect the complex reality of coastal and fishery developments located within Southeast Asia's rapid economic growth and connection to global markets. But there is predictive logic to the order of the aspects when applied to Cambodia, which is only more recently entering into the global trade in coastal products and services, and when we consider that population and poverty pressures are mounting up in unprecedented manner (Biddulph 2004; CDRI 2007; Ministry of Planning and UNDP 2007). This is having impacts on fisher folks and coastal inhabitants dependent on natural resources for sustenance and livelihoods. Clear patterns are emerging from our qualitative research and participatory rural appraisal (PRA) exercises, showing that food insecurity obtains for several months of the year among coastal dwellers and fisher folks in the poor and very poor wealth categories,⁶⁰ which account for 40 to 60 percent of the population in the research sites (CFDD 2008; 2009; PMCR 2008a). A recent national economic survey of the impact of the food and financial crises indicated that fisher folks are sinking faster into poverty and debt than other agriculture-dependent subsistence family farmers (Chan 2009).

The vortex model of transformation puts three aspects together while isolating the fourth as an outcome rather than including it as part of the mix. This is because social and economic transitions are happening regardless of whether overfishing, resource management and livelihood challenges, resource conflicts and the blue revolution are occurring, although admittedly these aspects do intensify the types of social and economic transitions that take place and their impacts.

Another question relates to whether these four aspects representational of coastal and fisheries transformations in Southeast Asia are themselves necessary and sufficient conditions for transformative change to occur, or whether other critical elements are missing. Finally, is there consensus or should we aim for a moderate amount of agreement on what we mean by transformation in the coasts and fisheries of Southeast Asia for this modelling of aspects to develop further? While this response engages in a limited way in the conceptual mapping of the Marschke and Bush paper, space limitations have led us to focus on one transformational aspect only – resource conflicts – using cases from Cambodia.

⁽⁶⁰⁾ Villagers determined wealth categories themselves using PRA tools which allowed them to define and name their poverty relative to others in their community. These tools were designed for use with the livelihood assets framework (see Ashley and Carney 1999) and were employed by the research teams across the research sites in 2007-2010, with the exception of the first case study site in Kampot. Full data tables, methodologies, statistics and analysis are available on request.

A troika of case studies

This chapter has been generated through partnership between government researchers in the Fisheries Administration and in the Ministry of Environment and researchers at The Learning Institute, a local and politically independent non-governmental organisation (NGO) based in Cambodia. We illustrate resource conflicts using three cases that arose during a three-year programme of development research linking fisheries and coastal natural resource management to livelihood constraints and opportunities.⁶¹ The studies are: 1) a mangrove land grab in Kampot; 2) sand mining Koh Kong; and 3) seaweed farming in Kampot.

The research is particularly engaged with small-scale community fishery organisations and resource management challenges. Of these, conflict is by far the most immediately threatening, at times arising out of the blue and throwing a wrench in the longer-term trust and capacity building within community fishery management collectives in Cambodia. These disputes and conflicts often flare up with anonymous large-scale industries which hire front men and women to “represent” their interests to local officials and community villagers. They are typically in “eco” tourism, extractive industries (sand mining) and medium-scale agri-business (seaweed).

We also interact with the fifth aspect, innovations, by charting the pioneering advocacy of grassroots community fishery organisations, spurred on in sub rosa fashion by senior government researchers who are also policymakers and environmental experts in the Ministry of Environment and in the Fisheries Administration of the Ministry of Agriculture, Forestry and Fisheries. Working behind the scenes does not shine the spotlight on this role, which is politically delicate.

The coastal terrain of the case studies

Coastal areas of Cambodia lie in the southwest of the country, abutting the sea waters called the Gulf of Siam or Thailand (depending on the map source). They cover four provinces – Kampot, Kep, Koh Kong and Preah Sihanouk – and 435km of coastline.

⁶¹) Improving Rural Livelihoods through Community Fisheries Management in the Fisheries Administration, based at two inland fisheries research sites and at the coastal site of Kampot; and the Ministry of Environment’s PMCR, based in Koh Kong. The Learning Institute co-managed the research programme with research team leaders, providing technical support and overall theoretical and analytical guidance. See www.learninginstitute.org for an overview of the cross-sectoral, multidisciplinary development research programme funded by Canada’s International Development Research Centre (IDRC). Also see the Ministry of Environment’s www.pmcrcambodia.com and its newly produced documentary film *Clear as Mud: Mangrove Conservation and Community in Cambodia*.

Map 13.1: Political map of Cambodia



Source: www.angkor-wat-net.com/images/cambodia-map-english.gif.

Map 13.2: Coastal zone provinces: Koh Kong and Kampot



Source: www.czmcam.org/dataregions.aspx?c=1&zone=0.

According to Suy and Leng (2009), Cambodia's exclusive economic zone from the shoreline to 200 nautical miles out is 55,600km². Also of note is the extensive mapping of protected areas along Cambodia's coastlines, many of which were established in 1993 during the United Nations Transitional Authority in Cambodia (UNTAC) era.

The analytical terrain of the case studies: Transitions, traumas and trials

Transitions rather than transformations

In this chapter, we diverge from Marschke and Bush slightly by arguing that, in the case of Cambodia, transitions is a more suitable concept than transformations to describe the current state of change and impacts in coasts and fisheries. There are two reasons for this. First, some but not all coastal and fishery resources appear to be depleted but not disappearing, although data are scarce and not so reliable, and no comparable scientifically established baselines exist (PMCR 2008a; CFDD 2008; 2009). Second, community empowerment in natural resource management in fisheries and coastal protected areas is on the rise in Cambodia, spurred on by decentralisation processes and government-sanctioned and supported community-based approaches to natural resource management (Brereton 2006; Flam 2008; Leonardo and Spyckerelle 2003; PMCR 2008a; The Learning Institute 2009). This has meant that community-organised actions against illegal encroachments on community-demarcated fisheries and coastal zones operate as a kind of emergency brake on what would otherwise amount to large-scale extractive industries, including capital-intensive “eco” tourism all over the coastal areas of Cambodia.

Traumas

A second overlay to the conflict over resources is traumas in the sense of sustained and deepening poverty that is having serious negative impacts on the sustainable livelihoods and the mental and physical wellbeing of coastal dwellers. Our research from the three sites, based on poverty and wealth ranking, livelihoods analysis, income-expenditure ratios and asset assessments, indicates that the incidence and depth of poverty is on the rise for coastal communities. There are, as always in such situations, desperate attempts to find livelihood alternatives, which do not always work out. Food insecurity and high debt ratios for fisher folks are rising (Chan 2009; CFDD 2009; PMCR 2008). This is illustrated in the case study on seaweed in Kampot.

Trials

Finally, we raise the issue of trials, in its dual meaning. This is because:

- In spite of sound and internationally recognised success at rehabilitating a vast and destroyed mangrove ecosystem into an official wildlife sanctuary, the sand mining business in Cambodia, lucrative and tied to international markets, is threatening to unbalance this ecosystem and spur downturns in the livelihoods of the poorest coastal dwellers.
- The outcome of this conflict between a sand mining giant and community organisations is not yet clear. Can this case receive a fair environmental impact assessment? Will the community be consulted as environmental resource practitioners/witnesses and be able to contribute to any impact investigations? This is illustrated in Case Study 3 on sand mining in Koh Kong near Peam Krasaop Wildlife Sanctuary.

Case 1: Kampot mangrove land grab

This case study of an attempted land grab of some 70 ha of community fishery mangroves is an illustration of a trend that began in the early 1990s of wholesale clearing of the mangroves for various purposes: charcoal production; ecotourism development and agri-business (Kim et al 2008).

This particular conflict took place between January and June 2008, between representatives and members of Lok and Kampong Sammaki Community Fisheries, which were managing 70 ha of mangrove coast in the southern district of Kampong Tralach in Kampot province. Lok and Kampong Sammaki Community Fisheries were both legally registered with the Fisheries Administration of the Ministry of Agriculture, Forestry and Fisheries and had marked the boundaries of their respective community-managed coastal areas, primarily mangroves.

The land grabbers were five local families, said to have been backed by powerful but hidden economic interests with designs on the mangrove area to develop for some sort of ecotourism project.

Some 300 to 400 community members from all coastal areas of Cambodia came to the support of the local community fisheries in their public and peaceful demonstration. This was marked by marches and placards stating “Mangroves are our life.” An NGO supported the community fisheries in building the numbers to protest against the land grab. The objective of the demonstration was written on another placard: “We appeal to the authorities to stop the handover of the mangroves to private investors.”

Fisheries Administration officials from the capital Phnom Penh spent several weeks

with the communities, assisting them to collect relevant evidence and supporting their claim to protest against the land grab, as it was clear that the disputed lands had been authorised as community fisheries and therefore were protected from outside interventions.

The Ministry of Agriculture, Forestry and Fisheries and the Ministry of the Interior were tasked by the Prime Minister's Office to investigate the conflict and to make recommendations related to its resolution. The investigation determined that the alleged official letter signed by the Prime Minister and authorising these five families to take ownership of the disputed land was not legitimate. It also found that the community representatives did not understand how to write a complaint with convincing evidence, given capacity limitations. Further, the provincial governor was implicated in the deal, along with several other provincial-level government officials (Fisheries Administration 2008).

As such, the outcome of the investigation favoured the claim by the community fisheries that the land grab was illegal. The Prime Minister issued a new official letter to annul the previous order that had given the land to the five families.

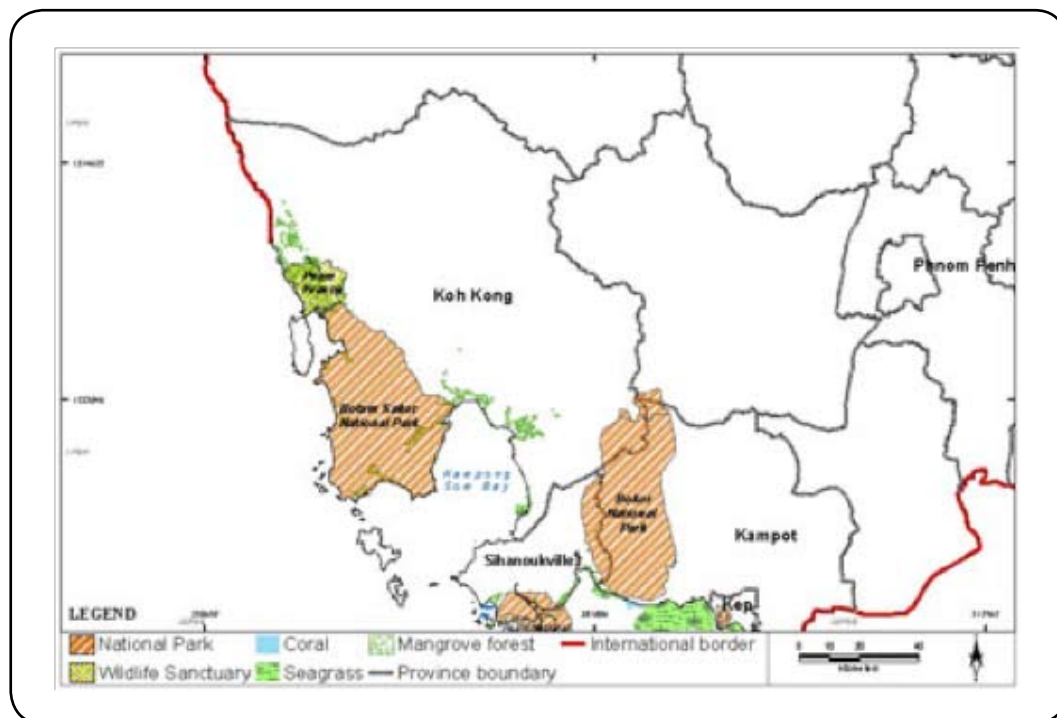
This relatively small victory, by the first-ever organised demonstration by community fisheries in Kampot, protesting against what amounted to an illegal land grab of community mangroves and coastal resources, is a watershed event in Cambodia. However, its significance for future scenarios cannot be clearly assessed, either as a deterrent to foxy (fishy?) investors or as an inspiration to community organisations in more politically difficult circumstances (e.g. community forestry organisations). That said, it is possible to note that a significant deterrent to sustainable resource conflict resolution in Cambodia is the absence of an independent judicial system.

Case 2: Sand mining in Koh Kong

Sand mining off the coast of Koh Kong province began in 2008, according to local accounts. The mining equipment is based offshore, just outside the demarcated borders of the Peam Krasaop Wildlife Sanctuary in Chrouy Pros Bay. The sanctuary is an important mangrove area, resuscitated over a period of 10 years through the work of the PMCR project, based in the Ministry of Environment, in collaboration with local protected area communities on three islands off the mainland: Koh Kapic, Koh Sralao and Peam Krasaop.⁶² Map 13.3 shows the national parks and wildlife sanctuaries, with Peam Krasaop on the upper west side of Koh Kong province.

⁽⁶²⁾ Coastal resource management under this project is defined as: "the responsible and broad-based management of the land, water, forest and biological resource base needed to sustain productivity and prevent degradation of potential productivity; involves stakeholders at different levels of authority often with conflicting interests in collective action." See Kim et al (2008).

Map 13.3: Map of main coastal protected areas and wildlife sanctuaries in Koh Kong province



Source: www.czmcam.org/dataregionsDef.aspx?c=1&zone=7®id=4.

Sand mining is a relatively new source of resource extraction in Cambodia. It is carried out in the Mekong River close to Phnom Penh for use in filling up bogs and wet rice lands so developers can build suburbs and gated communities for wealthy Cambodians and expatriates. The Prime Minister ordered a halt to sand mining in the Mekong River in late 2009 after local villagers raised concerns about environmental destruction, including declining fish stocks. However, no such order extended to the coastal areas.

PMCR researchers were told by the Peam Krasaop community organisations in the mangrove protected areas that, since the sand mining began in early 2008, they had noticed a 50 percent decline in crab stocks. It was not clear if there was a connection between the decrease in stocks and the sand mining, but the gut feeling of the fisher folks was that there was, as the sound and disturbance from the machines could be heard by humans.

In March 2008, a fieldtrip to the research site by researchers of the Ministry of Environment and The Learning Institute coincided with the organisation of a letter of protest by Peam Krasaop community protected area representatives, with 1,000 thumbprints from their members. The letter was submitted to the provincial governor.

As in the Kampot case, the Ministry of Environment then proceeded to order an investigation of the impact of the sand mining and to gather the views of the community on ways forward. The PMCR team leader led the investigation, along with colleagues from the Ministry of Water Resources and Meteorology and from the Ministry of Land Management, Urban Planning and Construction.

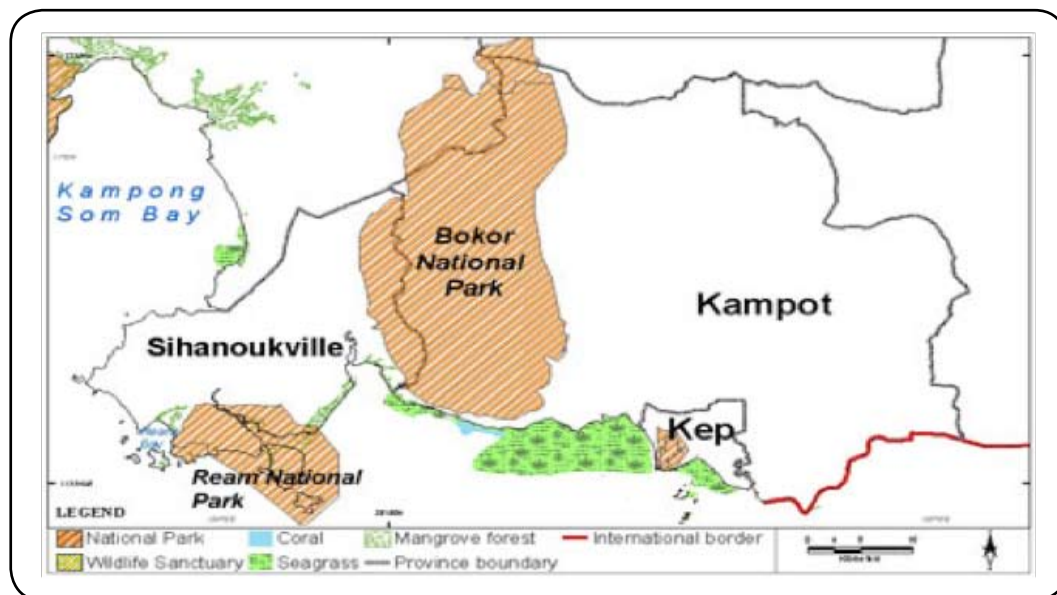
The investigation concluded that a scientific environmental impact assessment was required in order to fully scope any environmental harm impacting on the Peam Krasaop Wildlife Sanctuary and on livelihoods as a result. It was also determined that the owner of the sand mining firm, based in Koh Kong, was the Prime Minister's number one bodyguard and therefore untouchable by provincial authorities.

The lucrative sand mining industry and high demand from neighbouring countries like Singapore mean that this case is complex and that the request by the Ministry of Environment for a transparent and independent environmental impact assessment may take some time to process. The scientific requirements are also large and complex. Jana Brock, a biology research intern from Dalhousie University conducting research on sea grass in Chrouy Pros Bay in 2005-2006, spoke of the challenges: "There is no literature on the tidal heave of Chrouy Pros Bay, no nutrient availability study of the area, no discussion of the light requirements of sea grass in this specific area" (in Kim et al 2008). A dearth of hard scientific studies of Cambodian coasts and fisheries in general makes any attempt to conduct an environmental impact assessment challenging indeed (Ly Vuthy, Kim Nong, personal communications).

Case 3: Seaweed farming in Kampot

The third case study does not come out of our research work but rather is an example of agri-business gone awry as a result of a complexity of factors, not least of which is the poor management of the common pool resources of the seaweed boundary areas. Its importance for transitions, traumas and trials cannot be understated: more research is needed to grapple with the long-term socioeconomic and natural environmental impacts of this new type of agri-business in Cambodia.

Map 13.4: Map of the site of seaweed farming near a sea grass area in Kampot province



Source: www.czmcam.org/dataregionsDet.aspx?c=1&zone=7®id=3.

Kampot is the site with the most sea grass in Cambodia and is also the area where sea weed farming has been piloted. At stake here are the livelihoods of very poor fisher folks and of medium well-off fishers who have gone into an economic enterprise with mostly Malay investors with expertise in seaweed farming, with an export market to Japan.

Seaweed farming began in Cambodia some five years ago in Kampot, with fishers and government officials agreeing on coastal areas appropriate for the enterprise. Technical expertise was brought in and the seaweed farming took off in earnest. However, because of the lucrative nature of the endeavour and because of some misunderstandings among the community fisheries and the private companies over access and entitlement to profits, conflicts rapidly arose and soon the seaweed areas were under dispute.

Seaweed production has mostly been curtailed, as companies have lost their investment and their trust in local communities to manage the areas and detail their yields honestly. The environmental impacts of seaweed farming have yet to be studied in Cambodia, but experience from neighbouring countries shows that profits may be undermined by long-term damage to the environment and that conflicts arise unless clear common pool use guidelines are agreed and respected by all parties.

Case study comparison: Transitions, traumas and trials in coasts and fisheries

What can we learn from a comparative analysis of the three case studies?

Table 13.1: Comparative aspects of three case studies: Transitions, traumas and trials

1. Mangroves in Kampot	2. Sand mining in Koh Kong	3. Seaweed in Kampot
Transitions: Conflict narrative impacts		
Good news: Community fisheries won lands back but bad news – it came as a result of an executive order from the Prime Minister rather than through a judicial process	Bad news: Community and Ministry of Environment unable to compete with power players	Mixed news: “Tragedy of the commons” dilemma
Traumas: Human and natural resource outcomes		
<ul style="list-style-type: none"> • 70 ha of mangrove under community fishery management saved • Mangroves important for fish and other aquatic species to thrive 	No official statistics; “guestimate” = millions of cubic tons of sand mined (exported to Singapore); crab population reduced in 2008 by 50 percent in coastal protected areas*	Unclear impact; impact of seaweed growth on rice lands remains to be seen
Trials: Empowerment scenarios		
<ul style="list-style-type: none"> • Grassroots demonstration mobilised around “Mercy for Mangroves” • Unprecedented in Cambodian coastal communities history • Spurred by poverty and democratic opening up of space (limited; subject to change; poverty worsening) 	<ul style="list-style-type: none"> • Peam Krasaop Wildlife Community Federation members organised complaints procedure • Ministry of Environment with two other ministries tasked with investigation of possible negative impacts to environment and livelihoods • Report recommended scientifically based study to determine correlations (if any) between decline of crab stocks and sand mining and other eco damage to sanctuary 	<ul style="list-style-type: none"> • Trade-off between fisher folks and community; “win-win scenario” dissolved when common pool resource principles of use were not respected • Land use change from rice lands to shrimp farming and seaweed farming is controversial • Conflicts likely to rise as sparse land area is (re) claimed by different users

*Note: *This statistic comes from PMCR field research data using PRA tools based on the UK Department for International Development (DFID) livelihood assets framework (Ashley and Carney 1999); Ravi Jayakaran's (2002) Ten Seed Technique to explore income-expenditure ratios; livelihoods and uncertainty analysis; and PMCR (2008b).*

Source: Generated by research team/authors.

Table 13.1 applies the concepts of transitions, traumas and trials to the three case studies in the search for patterns or lessons.

Transitions: Conflict narratives

For transitions, or what we call conflict narratives, we can see that the Kampot land grab was a good news community-based natural resource management story, in that the community successfully reclaimed land that was in the process of being illegally grabbed by a group of powerfully connected individuals. But the case was won through the intervention of the Prime Minister, thereby diluting its good news impact: it did not go through an independent judicial system that generated outcomes for both parties to the conflict.

The second and third case studies are judged to be bad news and mixed news stories. In the former, sand mining continues unabated, with little indication that its impacts on the fragile ecosystem of Peam Krasaop Wildlife Sanctuary and on the community federation on the islands in Chrouy Pros Bay will be investigated with scientific rigour and in a transparent and accountable manner as the community residents wish. We can still hope, though. The seaweed farming case is more fluid, and there are sure to be more such cases in Cambodia as the economy becomes more open to foreign direct investment, given great global demand for seaweed, especially from Japan and Korea.

Traumas: Human and natural resource outcomes

Looking at the yield of traumas from the case studies – in view of deepening poverty, the relationship between resource stock declines and worsened poverty and outcomes for coastal ecosystems – the results are not specific, nor are the indications clear enough to be able to say with any certainty that one trend or another is taking place.

Fish statistics in Cambodia are unreliable, as they are guesses by technical fisheries staff at provincial and district levels based on observed fish caught and sold in local markets. Statistics exist and are computed and tabulated every year for the main species of fish, but no scientifically rigorous methods are used. As such, it is still too early for the Ministry of Agriculture, Forestry and Fisheries to say with clear certainty that overall fish stocks are declining, or whether only certain species are declining, and what influence this has, if recorded, on the total statistics collected every year.

What we do know is that poverty is wider and deeper in coastal areas (and in other parts of Cambodia) among those who depend on coastal natural resources supplemented by rice farming (Chan 2009; Ministry of Planning and UNDP 2007).

The case studies are small and insignificant as indicators of deepening poverty but they do speak to the livelihood needs of fishers and coastal inhabitants of Cambodia and the new types of pressures they are facing. Clearly, more research, social scientific and scientific, needs to properly chart and assess these traumas.

Trials: Empowerment scenarios

The case studies do not capture all the trials that coastal and fishery systems are facing in Cambodia but they do suggest that a “breaking point” has been reached, because ordinary poor folk are making their voices heard, their thumbprints seen and their demands listed at many levels of government and in civil society. The Kampot mangrove grab case and the sand mining near Peam Krasaop Wildlife Sanctuary demonstrate this: communities organised themselves to take action through peaceful demonstrations, requests for official investigations into alleged damages and lodging of complaints with government offices. This is a healthy expression of empowerment on at least three levels: 1) safeguarding Cambodia’s precious coastal resources; 2) allowing social space for the innovative democratising process of decentralisation to continue to develop; and 3) asking for the accountability and transparency that Cambodia’s government says it is committed to giving.

Innovations and lessons for export to Southeast Asia

This chapter has argued that transitions rather than transformations are occurring on the coasts and in the fisheries of Cambodia: coastal resources are depleting but not disappearing; community organisations are mobilised but not backed by an independent judicial system; and political and natural resource management interconnections are fluid and have not yet reached their conclusion, which would make for transformative change.

The main lesson from the case studies is that, when local communities organise themselves, it is not enough to gain the attention of those wielding power to influence outcomes. What is necessary are horizontal alliances across NGOs working with communities, as in the Kampot case, buttressed by vertical alliances and support from government authorities at all levels. This is why the Kampot case was a good news story in the end, and why the sand mining and seaweed farming cases have not yet been resolved in favour of sustainable resource management.

A second lesson is that political action to counter and/or deter large-scale natural resource conflicts between powerful commercial brokers encroaching on and grabbing areas legally recognised as under management by coastal community fisheries and community protected areas is a welcome innovation in Cambodia.

Conclusion

Transitions may yet evolve into transformations in the coasts and fisheries of Cambodia if the current trends, illustrated by the three case studies, continue unabated and take hold as a permanent marker of coastal development.

The food crisis of 2008 also stimulated land use changes in Cambodia, as agro-industry investors from the Middle East and elsewhere converged on the country to bargain for large landholdings on which to grow food crops for export to their countries. Coastal areas have not yet been the focus of such demand, but they could well be in the future as available arable lands dwindle.

The case studies are not meant to convey gloom but to illustrate that economic and ecological pressures are ever present on the coasts and in the fisheries of Cambodia. This will likely continue because, although Cambodia's economic development prospects are positive in many respects, its governance systems are generally weak and its judicial system cannot be used to resolve resource conflicts with "equality of arms" to parties in dispute.

Cambodia has made several positive and sustainable coastal resource management gains with the support and backing of the Ministry of Environment and the Fisheries Administration of the Ministry of Agriculture, Forestry and Fisheries. Alongside these will be the challenges of other mangrove grabs for coastal development projects, continued sand mining for export to Singapore and other foreign markets and seaweed farming for export to Japan and other markets. The ecologically damaging trends are well in place, but it is not possible at this point to predict how far they will go and what "breaking point" they will reach.

What our brief case studies show is that Cambodia's fisher folks and coastal dwellers not only have begun to feel the squeeze on their livelihoods and natural resources but also have taken steps to voice their concerns through legitimate means available to them.

What the future holds for the sustainability of their livelihoods and for the coasts and fisheries of Cambodia remains to be seen. How will coastal agro-industries, if they take root in Cambodia, contribute to solving or exacerbating the natural management challenges of the blue revolution that is underway?

We also voice concern about how ongoing threats to the sustainable management of mangroves in protected areas and under community fishery management, from land grabs, sand mining and seaweed farming, will not only affect the livelihoods of Cambodia's subsistence coastal dwellers but also impact on the climate change risks that Cambodia is already facing (EEPSEA 2008).

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This publication stems from three years of sustained research by partners in the Cambodia Rural Livelihoods and Natural Resources Development Research Programme (RLNR), an initiative supported by the International Development Research Centre (IDRC) (www.idrc.ca), contributing to building capacity to implement new policies relating to natural resource management. The programme develops practices and institutional innovations that allow local people to benefit more from improved natural resource management. The programme was guided by a Research Coordination Committee (RCC) consisting of the project leaders of each of the five research teams, based in the Ministry of Agriculture, Forestry and Fisheries (Fisheries and Forestry Administrations), the Ministry of Environment and The Learning Institute. The Development Research Support Team (DReST) is the coordinating body and research support arm of the programme.

Full details of RLNR's activities and publications can be found with the following website

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