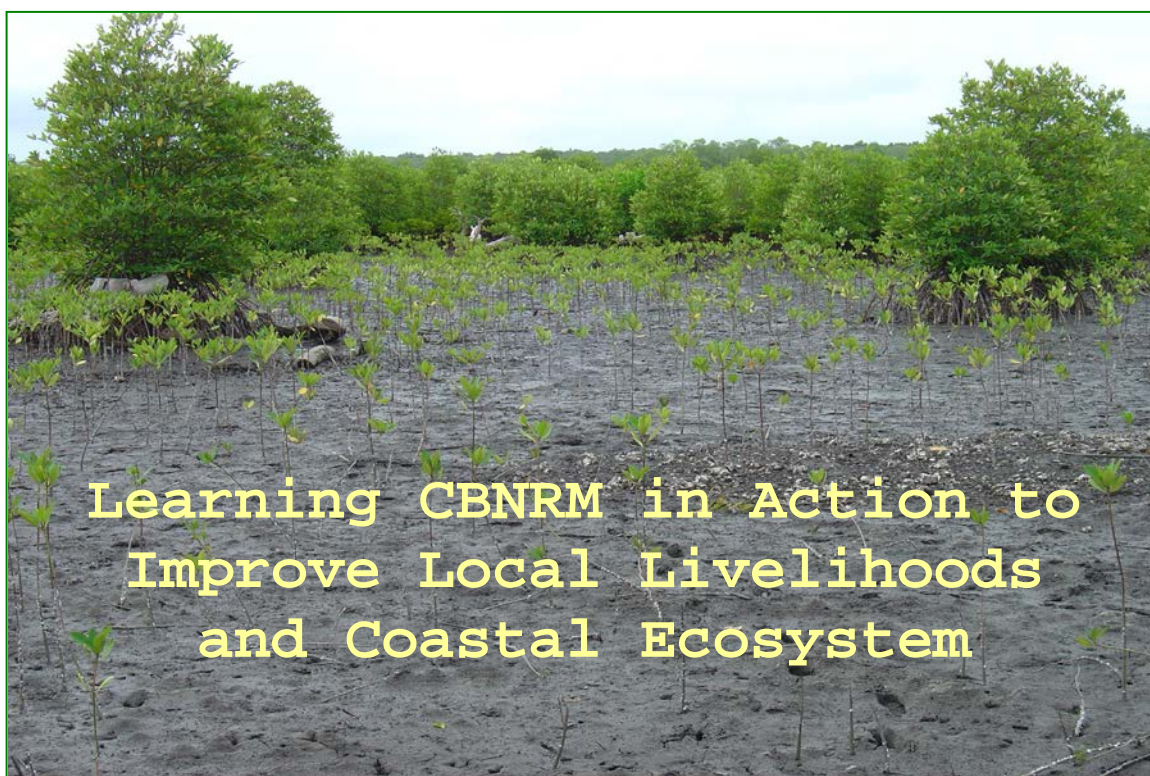




Ministry of Environment, Cambodia
and
International Development Research Center



Phase 2 Technical Report
On
Participatory Management of Mangrove Resources



**Learning CBNRM in Action to
Improve Local Livelihoods
and Coastal Ecosystem**

Written by:
**Kim Nong &
PMMR Research Team**

June 2004

Table of Contents

Acknowledgements	1
Acronyms	2
Executive Summary.....	7
Chapter 1: Main Research Activities and outcome of Participatory Management of Mangrove Resources Phase Two	10
1.1 Introduction	10
1.2 Goal and Objectives of PMMR	11
1.2.1 Project's Goal:.....	11
1.3 PMMR Project Partners.....	11
1.3.1 Who is a partner of PMMR?	11
1.4 3-Year Project's Strategic Plan.....	12
1.4.1 3-year strategic plan preparation	12
1.4.2 The semi-annual work-plan preparation.....	13
1.5 Summary of Main Project's Activity.....	13
1.6 The Main Outputs of Phase 2	20
1.7 Conclusion	25
Chapter 2: Research Methodology of PMMR: Using Participatory Research For Coastal Resources Management	27
2.1 Reflection of Participatory Research (PR)	27
2.2 What is PR mean in the Cambodia Context?	27
2.3 The Process of PR With PMMR.....	28
2.4 Participation.....	29
2.5 Typology of Participation.....	30
2.6 Benefits of Participatory Research	31
2.6.1 Increasing Capacity of Research Team	31
2.6.2 Local Community Empowerment	32
2.6.3 Spiritual and Behavioral Changes	32
2.7 Challenges and Difficulties of Using PR.....	33
2.8 Conclusion	33
2.9 References	34
Chapter 3: Community Organizing: Working to Create and Support Village Management Committee.....	35
3.1 Community Based Management in Cambodia.....	35
3.1.1 What Do We Mean By CBNRM in the Cambodia Context?.....	35
3.1.2 What is Community?	36
3.1.3 What is Community Organizing?	36
3.1.4 Do all villages need to be 'organized'?	37
3.2 Community Organizing to Create Village Management Committees.....	37
3.2.1 Village Management Structure, Facilitated by PMMR	37
3.2.2 Other Structures	37
3.3 Background to Learning Area	38
3.4 PMMR and community-based management	39
3.5 Thinking ThRough Community Level Resource Management	40
3.5.1 The Planning Process of CO.....	40
3.5.2 An Outline of CO Process	40
3.6 The VMC establishment in PKWS.....	43
3.6.1 Background to villages	43
3.6.2 How the VMCs were established	44

3.6.3 Main activities of the VMC	45
3.7 Differences between the Four VMCs	47
3.7.1 Structure Management:.....	47
3.7.2 VMCs working procedure:	47
3.7.3 Challenges of Resource Management:	48
3.8 Relation of CC, VMCs, and others technical departments	49
3.9 Impacts of having VMC	50
3.10 Potential of CO	52
3.11 Conclusion	53
3.12 References	54
Chapter 4: Livelihood Analysis: Enhancing Local Livelihoods through Action Research	55
4.1 Introduction	55
4.2 Household Livelihoods Activities	55
4.3 Role of men and women in livelihood activities	57
4.4 Livelihoods conditions	57
4.5 How to improve communities livelihoods.....	58
4.6 Livelihood Strategies in Community-Based Coastal Resources Management	59
4.6.1 Mangrove rehabilitation	59
4.6.2 Constraints of mangrove rehabilitation	62
4.6.3 Creating Action Plans for coastal resource protection	62
4.6.4 Waste Management	65
4.6.5 Crab trap protection	66
4.6.6 Sea-grass sanctuary conservation	66
4.6.7 Small scale aquaculture	68
4.6.8 Home gardening	71
4.6.9 Fresh water supply.....	73
4.7 Conclusion	74
4.8 References	75
Chapter 5: Learning, Acting, Reflecting, Refining: Facilitating Networks to Support CBNRM	76
5.1 Community Based Management in Cambodia.....	76
5.2 PMMR and Community Based Management.....	77
5.2.1 International and Regional partnerships:.....	80
5.2.2 National Networking	81
5.2.3 Community Partnerships	85
5.2.4 Stopping Charcoal Production: using the networks!	87
5.3 Conclusion	88
5.4 References	90
Appendices	91
APPENDIX A: Map of Peam Krosoap Wildlife Sanctuary	91
APPENDIX B: Reports distributed during the PMMR project - phase 2 (July 2000 to May 2004).....	92
6 Months Progress Report of PMMR	93
APPENDIX C: List of Main Training activities and Workshops during PMMR PROJECT PHASE 2 (July 2000- May 2004)	97
APPENDIX D: Capacity Building for Strategic Partners in Koh Kong Province Through Training and Workshop Organized by Research Team During Second Phase of PMMR.....	101
APPENDIX E: Details of Each VMC Map.....	103

Map of Koh Kang Village	103
Map of Koh Sralao Village.....	104
Map of Koh Kaptic Village	105
Map of Chouy Pros Village	106

List of Tables

Table 1: PMMR Project Team	11
Table 2: Advisory Group for PMMR	12
Table 3: Output of the Objective 1	21
Table 4: Output of the Objective 2	22
Table 5: Output of the Objective 3	23
Table 6: Output of the Objective 4	23
Table 7: Output of the Objective 5	24
Table 8: Typology of Participation in Development Program	30
Table 9: The Main Steps for the Process of Community Fisheries Management	41
Table 10: Household Livelihood Activities in Koh Sraloa (Note the total of percentage exceeds 100% because of the multiple activities per person).....	56
Table 11: What makes a “good” or “poor” livelihood?.....	57
Table 12: Result of the Mangrove Replanting in PKWS	59
Table 13: Creating Relationships with Strategic Government Officials	82
Table 14: What One VMC Does	86

List of Photos

Photo 1: Mangrove Ecosystem Destruction	21
Photo 2: All level stakeholders in discussion on Coastal Resources Management Issues..	21
Photo 3: Environmental Education by PMMR Team.....	22
Photo 4: Waste Management Activities in Community	22
Photo 5: Public Forum between High Ranking Officials and Local Community	25
Photo 6: PRA Tool: Resource Mapping	28
Photo 7: PRA Tool: Venn diagram	28
Photo 8: Community Guardhouse for Coastal Environmental Protection and Conservation	32
Photo 9: Election of Community Committees.....	37
Photo 10: Women Participation on CBNRM Planning and Management	44
Photo 11: Mangrove Replantation Activities	45
Photo 12: One Year Old Replanted Mangrove.....	45

Photo 13: Workshop Participants on Visioning of Coastal Resources.....	50
Photo 14: Fishing Activities	56
Photo 15: Crab Processing Activities	56
Photo 16: Increased Fishery Products Resulted from Mangrove Resources Protection and Conservation	61
Photo 17: Patrolling by the Community	62
Photo 18: Training Course on Small Aquaculture for Local Villagers	69
Photo 19: Pilot Crab Fattening	69
Photo 20: Home Gardening	72
Photo 21: Tank for Water Supply for Communities.....	74

List of Figures

Figure 1: Diagram of PMMR Networking for PR.....	29
Figure 2: Decentralization Structure and NRM for Cambodia.....	38
Figure 3: Adaptive Management: the Evolving Structure of PMMR	39
Figure 4: VMC's Map in PKWS.....	43
Figure 5: Why PMMR builds partnerships at different levels.....	79
Figure 6: Story for crab trap conflict.....	84
Figure 7: Story for mangrove logs	88

List of Boxes

Box 1: Example for Creating Workplan.....	13
Box 2: Common Tools in the Research.....	28
Box 3: Key Questions to Consider in Planning for CO.....	40
Box 4: Questions the Facilitator Must Consider	42
Box 5: Visioning of Community in Koh Kong	50
Box 6: The Main Purposes of Mangrove Replanting	61

ACKNOWLEDGEMENTS

The success of the phase-two Participatory Management of Mangrove Resources (PMMR) involved tremendous efforts, commitments made and supports given by both national and international institutions and people.

The International Development Research Center, Canada is firstly thanked for financial and technical supports, enabling the research team to work and achieve its goals.

Special thanks are due to Dr. Gary Newkirk for his continuous supports and visualizing the team with challenging questions and encouraging for “Learning-By-Doing”. The PMMR team sincerely thanks Dr. Brian Davy, Dr. Stephen Tyler and IDRC colleagues in both Singapore and Canada for their supportive roles in development and operations of PMMR in Cambodia. CBNRM project partners deserve to be acknowledged for their valuable advice and information exchanges for improved project implementations. Many thanks go to Ms. Melissa Marschke, Ph.D student, University of Manitoba, Canada for her own time providing the research project with consultation and advice to consolidate the PMMR team work.

The PMMR team would like to highly appreciate and thank the Ministry-of-Environment officials for their indirect but vital support and cooperation to ensure effective operations of the Project. They are His Excellency Dr. Mok Mareth, Minister of the Environment; His Excellency Thuk Kroeun Vutha, Undersecretary of State; His Excellency Khieu Muth, Director General, and Mr. Chay Samith, Department Director of Natural Conservation and Protection.

Many sincere thanks need to be expressed to provincial line department officials for their involvement in the Project and, especially the Governor of Koh Kong, His Excellency Yuth Phuthorng and Director of Provincial Cabinet, Mr. Un Chhaly for their generous support and cooperation with the PMMR team whenever required. The Project successes would be closely linked to direct field activities carried out by the heads and key stakeholders of local districts, communes, and villages.

Last but not least, we would like to especially acknowledge all of villagers inside and outside Peam Krosoap Wildlife Sanctuary (PKWS) for their hospitality, commitment and sharing of information and experiences. Without your full involvement, the Project would not be as successful.

Best wishes.

PMMR Research Team

ACRONYMS

CBCRM	Community-Based Coastal Resources Management
CBNRM	Community-Based Natural Resources Management
CBSL	Community-based Sustainable Livelihoods
CC	Commune Councils
CFDO	Community Fisheries Development Office
CFM	Community Fisheries Management
CIP	Commune Investment Plan
CO	Community Organizing
CP	Chrouy Pros
CRM	Coastal Resources Management
CZM	Coastal Zone Management
DFID	Department For international Development
ECZM	Environmental Coastal Zone Management
FAO	Food Agriculture Organization
ICZM	Integrated Coastal Zone Management
IDRC	International Development Research Centre, Canada
KK	Koh Kang
KKP	Koh Kapic
KSL	Koh Sralao
LeaRN	Learning and Research Networking
MAFF	Ministry of Agriculture Forestry and Fisheries
MoE	Ministry of Environment
NGOs	Non Government Organizations
NR	Natural Resources
NRM	Natural Resources Management
PAR	Participatory Action Research
PKWS	Peam Krasaop Wildlife Sanctuary
PME	Participatory Monitoring and Evaluation
PMMR	Participatory Management of Mangrove Resources
PMP	Participatory Management and Planning
PR	Participatory Research
PRA	Participatory Rural Appraisal
PRNP	Preah Sihanouk "Ream" National Park
RGC	Royal Government of Cambodia
VMC	Village Management Committee

EXECUTIVE SUMMARY

The second phase of PMMR, which was financially supported by IDRC and a number of projects in the region, concentrated on research and documentation of mangrove resource uses, socio-economic analysis, institutional and legal analysis, participatory management of coastal resource planning, coastal resource inventory and analysis and development of sustainable livelihood concepts.

To reach the key objectives of development of sustainable livelihood concepts, participatory mangrove resource management planning, coastal community resource management formulation, coastal environmental education and human resource development, PMMR team worked with communities as implementers and technical experts and policy advisors at international, national and provincial levels. However, most project activities have been the initiative of, and undertaken, by the team and local villagers who are involved in all protection and conservation measures.

The activities of PMMR include human resource trainings (all major project people), workshop, study tours, community natural resource protection establishment, environmental education and campaigns, mangrove forest replanting and maintenance, pilot project for livelihood improvement, meetings with government institutions and NGOs, and other involvements.

For effective project implementation, four main Village Management Committees (VMCs) have been organized, supported and endorsed by the provincial governor and Minister of the Environment. This process includes organizing people into community coastal resources management groups, formulating community by-laws, and capacity building on participatory research (PR). These VMCs in cooperation with local authorities and support from the research team, technical departments, communities and other relevant partners carry out or lead activities such as reducing of illegal activities, solving of fishing conflicts, managing wastes, replanting of mangroves, developing home gardening and small scale aquaculture, and various conflict resolution for their own communities.

Since PMMR is a research project, PR has been employed by project teams to convince local communities and government agencies to think and implement a simple change in their management system with support from outsiders. PR/PRA is recognized as a systematic process to help stakeholders, both government agency and local communities meet, discuss, analyze their situations, identify their issue/problems, develop priorities and prepare a course of action by involving people from different backgrounds and levels.

Through the PR approaches, PMMR team members have had opportunities to learn and write research project proposals, research strategy-planning and technical reports in consultation and collaboration with the villagers, government officials and project advisors. For local community, PR provided opportunity for local villagers to be involved in the public forum. They have changed their passive roles (depending on the government agencies for resource management or decision making) to participatory resource planning and management. For example, the local fishers tried to show the local government their right to participatory coastal resource conservation and protection with the recognition and support from the provincial governor and the minister of the environment.

PR also helps people to change their spirits and behaviors. People involved can learn and understand each other through participation. Sharing experience and knowledge from each other has made a lot of changes in their own organizations, i.e. more commitment of PMMR team to CBCRM. PMMR has managed to advise and train local villagers to develop interest in coastal resource management, to enhance local government support for the CBCRM initiative, and to convince decision makers to change the policy for CBNRM initiative in Cambodia.

The natural resources have declined in Cambodia due to increasing population, poor resource management, and unregulated use of natural resources. Community-based natural resource management (CBNRM) projects, managing of the natural resources by the local communities, playing a major role in solving coastal resource management issues, especially forestry and fisheries involve relevant stakeholders, who mostly belong to provincial and national technical departments.

To better involve people in sustainable natural resources management, community organizing (CO) sets up or strengthens a community group such as Village Management Committee (VMCs). CO is not just a technique for problem solving but also a way to improve income for people, strengthen local awareness, and enhance natural environment. Elected by the villagers, the VMC which is not officially part of the government is obliged to lead the process of the management of the resources in the community's managed areas. The development of CO in Cambodia in both community forestry and community fisheries varies, depending on geography of the area, ideas of the local community, local authority support of the conceptual basis of involvement between inside and outside organizations.

The PMMR team has worked in many villages, yet has focused particular attention on three villages (Koh Kang, Koh Sralao, and Koh Kapik) inside PKWS and one village named Chrouy Pros outside PKWS. Like others, these villages are surrounded by abundant mangrove resources. However, the conditions of these villages are slightly different from one to another.

Similarly, the structure and working conditions of the VMCs in each village are different due to their own decisions on how to run the committee within a general framework for resource management. With the facilitation and assistance by the PMMR team, the VMCs' main activities include resource protection, reducing of illegal activities, mangrove replanting, home gardening, community order development, drinking water supply, community protected areas, and waste management and so on. VMC activities have impacted on a number of things: enhancing community members' understanding of CBNRM, improving the coastal environment and livelihoods, building the capacity of resources users, and improving the relationships and cooperation among the stakeholders from local to international levels with expectation of sharing sustainable resource management and livelihoods. As a result, illegal activities have been reduced, and offenders have been educated and agreements made to stop their illegal activities.

One objective of community-based resource management is to improve the livelihoods of the people through coastal resource management. There are many livelihood activities found in the target villages, especially fishery activities but the capacity of income generation depends on knowledge, skills, experiences, capital, gender roles within the households, cultures or religious aspects.

The livelihood strategies and activities that PMMR has facilitated with local villagers include mangrove rehabilitation, patrolling, water supply, home gardening and small scale aquaculture experiments. Although local institutions, concerned agencies and project teams have tried several livelihood options, some proved to be successful while others were not. Lessons learned, however, will help the villagers and the PMMR team to work together to see what may work for the next projects.

To support CBNRM, PMMR has established partnerships at various scales: international partnerships, national partnerships, provincial partnerships, and community partnerships. The International partnerships provided someone to whom questions could be asked or to reflect on issues as CBNRM work unfolded while the role of national and provincial partnerships was to get high-level political support for natural resource management activities (in both law and official endorsement). Community partnerships ensured sustainable natural resource management in their local areas. When it comes to actually implementing CBNRM 'on the ground', it takes a team of people committed to problem solving and working consistently on issues with different partners.

CHAPTER 1: MAIN RESEARCH ACTIVITIES AND OUTCOME OF PARTICIPATORY MANAGEMENT OF MANGROVE RESOURCES PHASE TWO

Kim Nong, Nin Vanntha, and Khy An
May 2004

1.1 INTRODUCTION

In pursuit of its goal to promote the sustainable use of coastal resources through community-based management, the Participatory Management of Mangrove Resources (PMMR) Project has concentrated most of its work in Peam Krasoap Wildlife Sanctuary in the remote coastal area surrounding Koh Kong provincial town (see appendix A: Map of PKWS). With the local people the project has analyzed resource needs for their subsistence with the involvement of the environmental officials as well as the counterpart staff at the provincial Department of Environment, provincial Office of Fishery, provincial Department of Woman Affairs and provincial Department of Rural Development, with the financial assistance of IDRC. Project support has been provided to facilitate villagers to organize for resource management and to address their livelihood needs.

Within a large protected area of mangrove forest, PMMR implemented its first phase from December 1997 to June 2000, under the threatened environment of shrimp farm development and charcoal production made by local communities and some outsiders. In the second phase, the project has undertaken some survey research and some documentation such as mangrove resources use, socio-economic analysis, institutional and legal analysis, participatory management of coastal resource planning, coastal resource inventory and analysis, and development of the sustainable livelihood concept. Within this period, the project supported the local community with more initiatives as well as encouraged local authorities to pay attention to matters such as, sustainable livelihood alternatives, participatory environmental protection, mangrove resource protection and conservation to promote the livelihood security of communities and sustainability of coastal resources. Without community participation, in the co-management of coastal ecological protection, people will certainly meet serious poverty, particularly for those whose lives rely on the local resources. Therefore, restoration and protection of mangrove resources with the community based natural resources management (CBNRM) approach are considered indispensable for people's sustainable livelihoods.

With the attention and support of stakeholders at national, provincial and local levels and the recognition of the importance of mangrove resource management to improve local community livelihood, PMMR has carried out its mandate in the 2nd phase from July 2000 to May 2004 with the financial support of donors and other projects within the region. The key objective of this phase focused on development of the concepts of sustainable livelihoods, participatory mangrove resources management planning, coastal community resources management formulation, coastal environmental education and human resource development.

1.2 GOAL AND OBJECTIVES OF PMMR

1.2.1 PROJECT'S GOAL:

To establish a participatory research process appropriate to Cambodia that ensures a) community participation in establishing resource management options and b) livelihood security.

To achieve the goal above, the PMMR project has developed five specific objectives for implementation. These main objectives are:

Objective 1: To design and assess participatory planning and management strategies for PKWS and Koh Kapic Ramsar site, based on resource use patterns, institutional analysis and participatory resource assessments and mapping.

Objective 2: To evaluate forms of organization by which local people can participate in the management of PKWS.

Objective 3: To assess sustainable livelihood options for communities highly dependent on the mangrove ecosystem and to continue testing and diversifying options for food production and income generation.

Objective 4: To promote the participation of communities in the protection, conservation and monitoring of mangrove and fishery resources in PKWS through environmental education.

Objective 5: To build the capacity of the project research team, local people and relevant institutions to address issues of community-based coastal resource management and to strengthen local, national and international institutional linkages.

1.3 PMMR PROJECT PARTNERS

1.3.1 WHO IS A PARTNER OF PMMR?

As in the 1st phase, the project is diversified including national and provincial officials. Moreover, in this phase, the project's working group has increased its partners at both levels to gain more support. Many individuals have been involved in the project's program as implementers, technical support and policy advisors. The regular members of the working group of the project's activities are listed in the following table 1.

Table 1: PMMR Project Team

PMMR project team			
<i>National Level</i>			
1	Mr. Kim Nong	Project Leader	Ministry of Environment
2	Mr. Ouk Lykhim	Research team leader	Ministry of Environment
3	Mr. Nin Vanntha	Research Assistant	Ministry of Environment
4	Mrs. Chan Ratana	Member	Dept of Fisheries
<i>Provincial Level</i>			
5	Mr. Khy An	Field team leader	Provincial Department of Agriculture, Forestry and Fisheries
6	Mr. Chey Pichrathna	Field research coordinator	Provincial Department of Environment
7	Mr. Ven Virak	Member	Provincial Department of Environment

8	Mr. Som Chea	Member	Provincial Department of Rural Development
9	Ms. Sok Sotheavy	Member	Provincial Department of Women Affairs
10	Mr. Tan Thearith	Member	Provincial Department of Agriculture, Forestry and Fisheries

To drive the project implementation better, the working group of the project has regularly reported its activities to the ministry's management and its concerned institutions, both national and international. Support through comments and principles from a political platform and technical work has come from major advisors listed in Table 2.

Table 2: Advisory Group for PMMR

<i>National Level: Policy and Guideline Support</i>			
1	H.E Dr. Mok Mareth	Minister	Ministry of Environment
2	H.E. Theuk Kroeunvutha	Under secretary	Ministry of Environment
3	H.E Khieu Muth	General Director	Ministry of Environment
4	Mr. Chay Samith	Director of Department	Ministry of Environment
<i>Provincial Level: Comments and Recommendation Support</i>			
1	H.E Yuth Phuthong	Provincial governor	Koh Kong province
2	Mr. Un Chhaly	Chief of cabinet	Koh Kong province
3	Directors of Provincial technical departments		Koh Kong province
<i>International Level: Technical Research Support</i>			
1	Dr. Gary Newkirk	Advisor and coordinator	Dalhousie University, Canada
2	Dr. Brian Davy	Program Officer	IDRC, Canada
3	Ms. Melissa Marschke	Technical Advisor	Ph.D. Student, Canada

Advisors have supported the implementation process by encouraging the team. However, most project activities have been the initiative of and undertaken by the working group and local villagers, who are involved in all protection and conservation measures. Moreover, spiritual and financial support from other projects has been provided, particularly the CZM project (DANIDA), with its budget for community work activities.

1.4 3-YEAR PROJECT'S STRATEGIC PLAN

1.4.1 3-YEAR STRATEGIC PLAN PREPARATION

To effectively direct the 2nd phase implementation in conformity with the project goal and objectives, the project's working group formulated the 3-year strategic plan by dividing it into each year. This strategic plan is a basic guide to orient the project implementers and for follow-up and monitoring the project activity.

The project's working group conducted meetings to study the project goal and 5 objectives as well as the expected results for each objective in the project proposal. It was hard for the project's working group to prepare the 3-year strategic planning because they were not familiar with such long-term planning or with assessing the expectations of the implementation of project activities. Furthermore, from year to year the issues and the responses evolved continuously, which resulted in difficulty in identifying the best way to

implement activities. Therefore, to fulfill the objectives above, members of working group prepared semi-annually action plans to make it easier in following up and evaluating their activities and to deal with any unexpected matters in a timely way such as the needs of the local community.

1.4.2 THE SEMI-ANNUAL WORK-PLAN PREPARATION

The working group recruited 6 “helpers” to assist with questions needed to formulate the action plans. The “helpers” are: Why? What? How? Who? Where? When? These 6 key questions are essential for the working group and participants to understand what they have

to do, what not to do, as well as to determine the approach for implementation. Also, it’s useful for the team to follow up and monitor their activities such as what tasks are successfully done, when they have not reached the objective yet and what are obstacles and questions. With this consideration, the working group always uses this approach during implementation and with other approaches learned from its partners’ projects in community based natural resources management.

Box 1: Example for Creating Workplan

1. Why is this selected objective or activity prioritized?
2. What is the expected outcome from the objective and activity?
3. How will we achieve the objective and activity above?
4. Who will answer for the implementation and who is the target group to take part in carrying it out?
5. Where do we have to carry it out?
6. When do we have to implement this work?

1.5 SUMMARY OF MAIN PROJECT’S ACTIVITY

Within its 2nd mandate, the working group at national and local levels has directed all of its efforts to carry out the project’s program as formulated in the project document. Many activities involved with the project implementation process such as human resource training (members of working group, officials from concerned institution, and local community), opening training and workshop, study tour, community natural resource protection establishment, environmental education, mangrove forest replanting and maintenance, pilot project for livelihood improvement, meetings with government institutions and NGOs, and other involvements and so on. Among these activities we will illustrate only the main activities by semester by briefly listing them in the following tables with the exclusion of meetings, liaisons with government institutions and NGOs as well as with other PMMR project networking partners.

First 6 months Summary of Project Activities (July to December 2000)

Times	Main Summary Activities
July 00	<ul style="list-style-type: none"> ❑ Processing of MOU phase 2 project between MoE and IDRC; ❑ Finishing of the technical reports from phase 1 and distribution.
August 00	<ul style="list-style-type: none"> ❑ Establishing network support with government and NGO organizations ❑ Mini-workshop on learning of goals and objectives of phase 2 and preparing 3 year strategic plan;
September 00	<ul style="list-style-type: none"> ❑ Fieldwork: Training and workshop on the concept of small scale livelihood, NRM and community organizing; ❑ Discussing the methodology of CO and small scale livelihoods pilot project,

October 00	<ul style="list-style-type: none"> ❑ Studying and preparing draft community by-law on CRM in PKWS; ❑ PMMR team participated in national and international workshop related to the concept of natural resources management;
November 00	<ul style="list-style-type: none"> ❑ Mini-workshop on the planning and human resources profile; ❑ Fieldwork: creating representatives of VMC for CRM and discussing community by-law; ❑ Crab fattening training for villagers, CZM-Danida and PMMR;
December 00	<ul style="list-style-type: none"> ❑ Joining national and international workshops on community forestry and fisheries management; ❑ Advising of process on community by-law and livelihood pilot project.

For the first 6 months of phase 2, the PMMR project focused on strengthening of project implementation both in the office work and fieldwork. The process of Community Organizing (CO) in PKWS such as selecting key persons, drafting community by-laws and discussing management issues has interested and attracted participation of different stakeholders. Furthermore, the capacity building of the PMMR research team and local communities was addressed, especially build knowledge of the team in the concepts of participatory research, benefits of integrated coastal resources management, and the strategy for sustainable livelihoods. Beside these activities network building and cooperation with other community development partners were pursued, specifically with the Coastal Zone Management (CZM) Project, Danida to support a small-scale livelihood pilot project, and strengthening stakeholders and local institutions for the protection and conservation of resources in PKWS.

Second 6 months Summary of Project Activities (January to June 2001)

Times	Main Summary Activities
January 01	<ul style="list-style-type: none"> ❑ Project review and planning for next 6 months; and progress reports ❑ Fieldwork: discussing of the community organizing process; and strategy of small-scale pilot project on crab fattening
February 01	<ul style="list-style-type: none"> ❑ Fieldwork: review research activities with Dr. Gary Newkirk; ❑ Selected representatives of VMC for coastal resources management; ❑ Workshop on Environmental Law and Sub-decree on pollution and environmental impact assessment;
March 01	<ul style="list-style-type: none"> ❑ Facilitation of the trip for the delegation of Royal Government of Cambodia to Koh Kong; ❑ Study tour for PMMR team on CRM in Thailand (Danida-CZM); ❑ Fieldwork: strengthening fieldwork activities and market survey of fish prices;
April 01	<ul style="list-style-type: none"> ❑ Workshop on strategic plan for biodiversity management in Cambodia; ❑ Training on Community Fisheries Management for PMMR team;
May 01	<ul style="list-style-type: none"> ❑ Study tour for research team and representative of community on Mangrove Management and Mud-Crab Raising, Ream National Park and Can Gio Mangrove Biosphere Reserve, Vietnam; ❑ Fieldwork: review project activities with Dr. Gary Newkirk, and planning for next 6 months before team leader departs for training in Canada;

June 01	<ul style="list-style-type: none"> ❑ Workshop for local community in KSL on Participatory Community Fisheries Management; ❑ Discussing with local authority on boundary demarcation for VMC's management; ❑ Endorsement from local authority of community organizing in PKWS;
---------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

In the second 6 months, the PMMR Project focused on facilitation and communication of the process of community fisheries organizing in PKWS; small-scale livelihoods pilot project on mud-crab fattening and capacity building on sustainable coastal resources use. Note that an open forum among local communities and high government officers during the trip to PKWS has improved local power to be strongly involved in coastal resources management. The strong support by the Minister of Environment on the concept of community-based coastal resources management in the protected area has resulted in a decrease in illegal activities, and the situation of coastal resources has been improving step by step through the strong involvement of local villagers.

Third 6 months Summary of Project Activities (July to December 2001)

Times	Main Summary Activities
July 01	<ul style="list-style-type: none"> ❑ Training on Case Study Writing for research team in Siem Reap Province, and Law of the Sea for project team leader in Canada; ❑ Fieldwork: mangrove replanting by local community in PKWS with support by governor of Koh Kong;
August 01	<ul style="list-style-type: none"> ❑ Sharing experience on CFM among coastal communities and up-land fisheries communities through training/workshop; co-organized by IDRC, Oxfam, MoE, and DoF; ❑ Fieldwork: facilitated on discussion of the fishing conflict at Chrouy Pros Bay;
September 01	<ul style="list-style-type: none"> ❑ Facilitation of the trip of Dr. Brian Davy and Dr. Gary Newkirk, IDRC to discuss with coastal communities and relevant government institution on CBCRM; ❑ Regional workshop on CBNRM among IDRC's partners, Thailand ❑ Fieldwork: social economic and environmental issues at Chrouy Pros Bay ❑ Coordination with local donors to support activities of VMC on CRM;
October 01	<ul style="list-style-type: none"> ❑ Project team leader went to Canada for sharing the PMMR's research experience to international communities at the Southeast Asian Student Conference on October 25th to 27th 2001, at the University of Victoria; ❑ Training on CFM for local community outside PKWS;
November 01	<ul style="list-style-type: none"> ❑ Fieldwork: strengthening local management plan for RM and livelihoods; ❑ Coordination with local authority to support VMC of CRM;
December 01	<ul style="list-style-type: none"> ❑ Fieldwork: select VMC for Chrouy Pros Community to be involved in coastal fisheries management at Chrouy Pros Bay; ❑ Support fieldwork for VMC on patrolling and capacity building on CRM; ❑ Establish team for the field manual writing on CFM;

During this third 6 months of phase 2 activities, the PMMR research team focused on creating the Community Fishery Management (CFM) Manual. The research team coordinated with other fisheries projects to share research experience and issues, before publishing the CFM field manual. In the field research, the concept of participatory community fisheries management has spread both inside and outside PKWS. Many activities have been taken on by the local community such as: mangrove replanting, community management orders, waste management, and participatory fisheries conflict resolution in the communities. Beside that, the PMMR team has participated at national and international workshops and conferences to share the research learning to both national and international communities regarding our understanding of the practice of CBNRM in Cambodia. These research results increased collaboration with other CBNRM projects, specifically with the Coastal Zone Management (CZM) Project DANIDA to support local activities for communities in coastal of Cambodia.

Fourth 6 months Summary of Project Activities (January to June 2002)

Times	Main Summary Activities
January 02	<ul style="list-style-type: none"> ❑ Coordination with other CBNRM partners for CFM field manual and CBNRM case study; ❑ Fieldwork: continues strengthening local community action-plan: marine sanctuary, patrolling; home gardening and managing of coastal resources; ❑ Complete the six month progress report from July to December 2001;
February 02	<ul style="list-style-type: none"> ❑ Fieldwork: review and advise local communities in PKWS for their activities and monitor project by Dr. Gary Newkirk; ❑ Sharing research experience at annual meeting at national level; ❑ Initiate process of CBNRM case study writing by research team;
March 02	<ul style="list-style-type: none"> ❑ Workshop on sustainable livelihood in the Philippines. ❑ Co-organized workshop with CFDO and Oxfam for using CFM field manual, and distribution;
April 02	<ul style="list-style-type: none"> ❑ CFM workshop report and final draft of case study; ❑ Facilitated a trip for other NGOs projects to learn from community in PKWS; ❑ Fieldwork: disseminated community by-law and strengthen their action plan;
May 02	<ul style="list-style-type: none"> ❑ Facilitated a visit for Dr. Gary Newkirk and Elmer Ferrer from LeaRN and exchange research methodology; ❑ Organized synthesis workshop on CBNRM case study writing; ❑ 3 person of PMMR team take study tour on SL project in the Philippines;
June 02	<ul style="list-style-type: none"> ❑ Evaluated 6 months project activities for the technical report and discussed next plan; ❑ Workshop for community at Chrouy Pros for sustainable fisheries management; ❑ Network with LeaRN in Philippines on capacity building;

During the fourth 6 months, PMMR continued its activities from the last 6 months and focused on capacity building and strengthening of field work of local people and

government staff who are involved with fisheries and environmental issues at the local levels, provincial level and national level. In addition, some PMMR research team members participated and learned more on the concept of sustainable livelihood work and CFM. The PMMR team has had good cooperation with other local projects, especially CZM Project to support livelihoods of local communities inside and outside PKWS through pilot project testing on home gardening, patrolling and marine sanctuary creating with the objective of conservation, protection and the sustainable use of the coastal resources. In addition, PMMR produced one thousand copies of the CFM field manual (English and Khmer versions) to distribute in Cambodia through 2 training courses in Phnom Penh and Kampong Cham Province for the fishery staffs, students and local NGOs who are working with and learning fisheries issues in Tonle Sap Great Lake, Mekong River and Coastal Area. We also are working with CBNRM Initiative project to make 3 Case studies on Livelihood of Local People in PKWS, Community Fisheries Management in Ream National Park, Sihanouk Ville and PKWS, Koh Kong Province, and Conflict of losing Mangrove Area inside and outside Ream National Park.

Fifth 6 months Summary of Project Activities (July to December 2002)

Times	Main Summary Activities
July 02	<ul style="list-style-type: none"> ❑ Facilitated students to learn from PMMR project for their thesis; ❑ 5 months study on sustainable community development by project leader in Canada and training for research team on training need assessment; ❑ Fieldwork: mangrove replanting by local community in PKWS;
August 02	<ul style="list-style-type: none"> ❑ Integrated workshop among provincial government and local communities on strengthening cooperation for NRM and improving local livelihoods strategy; ❑ Fieldwork: review and reflection of community's orders on CRM with both communities in PKWS and Ream National Park at Sihanouk Ville;
September 02	<ul style="list-style-type: none"> ❑ Review fieldworks with Dr. Gary Newkirk and strengthening IDRC networks meeting; ❑ Study VMC's action plan put into commune development plan;
October 02	<ul style="list-style-type: none"> ❑ Organized research lesson learned for national CBNRM workshop in Phnom Penh; ❑ Helping other NGO projects on the process of community organizing;
November 02	<ul style="list-style-type: none"> ❑ Co-organized workshop on CBNRM in Cambodia; ❑ Fieldwork: facilitated a trip for delegation of IDRC, Canada, and Environmental Justice Foundation, England to visit community at PKWS;
December 02	<ul style="list-style-type: none"> ❑ Fieldwork: enhancing VMCs at PKWS for discussing and taking action; ❑ Facilitated a trip for Minister of Environment to visit PKWS; ❑ Evaluation of six months project activities and semi annual report writing;

During this period, the main activity of PMMR research was with local communities in PKWS and Ream National Park. Both local communities are expressing a greater interest in enhancing coastal resources and improving sustainable livelihoods. The local government authorities are recognizing the importance of local communities in the initiative of CBCRM. Furthermore, the PMMR team spent more time for report writing and co-organizing CBCRM workshop with the CBNRM Initiative project. The field team

was busy facilitating among communities or between community and local authority for better understanding of coastal resources management. The challenge is to integrate learning and field experience into the final report. Focusing on the PMMR project's objectives, the PMMR team has many achievements towards the project goal, such as: strengthening participation in community's management plan, mangrove ecosystem rehabilitation and protection, initiative of sustainable livelihood development and capacity building for PMMR team, local communities and provincial governments.

Sixth 6 months Summary of Project Activities (January to June 2003)

Times	Main Summary Activities
January 03	<ul style="list-style-type: none"> ❑ Coordinated with other CBNRM partners to learn more of the CBNRM concept in Cambodia; ❑ Fieldwork: learning on Community Development Plan of Seila Program and mainstream the PMMR 's experience to this plan;
February 03	<ul style="list-style-type: none"> ❑ Integrated workshop on CRM for community inside and outside PKWS; ❑ The PMMR team discussed with Dr. Gary Newkirk the guideline of technical report for phase2;
March 03	<ul style="list-style-type: none"> ❑ Teaching PR method to provincial task force of CZM project; ❑ Sharing lessons learned and experience from coastal communities at PKWS to up land community fisheries; ❑ Training on PM&E for PMMR team and local communities at PKWS by LeARN;
April 03	<ul style="list-style-type: none"> ❑ Co-organized with DoF, Oxfam and WWF for CFM workshop; ❑ Discussed with PMMR team three year technical report writing;
May 03	<ul style="list-style-type: none"> ❑ Fieldwork: Provincial team strengthening VMCs action-plan; ❑ Cooperated with CZM project team to study the socio-economic issues on coast of Cambodia; ❑ PMMR team and representative of local communities involved in the draft sub-decree on community fisheries and fisheries law;
June 03	<ul style="list-style-type: none"> ❑ Workshop on SL planning in CBCRM, in the Philippines; ❑ Writing and requesting extension phase proposal to IDRC; ❑ Network meeting among IDRC team in Cambodia; ❑ Shared PMMR's experience and research lessons learned to other community development partners;

During the final six months of phase 2, the PMMR team focused both on planning (technical report and extension proposal) and sharing research results to community development partners. The main outputs include a draft guideline idea of technical report, research into the process of community fisheries management, and working the concept of CBNRM into the draft community fisheries and forestry sub-decree, fisheries law and protected area law. The research team worked closely with VMCs to strengthen their action plans and management of coastal resources and to consider sustainable development as the main priority for the research team and the VMCs. The research team tried to work with commune councils to show how the VMC's activities would contribute to the future commune development plans. These ideas have been put forward for consideration to the Seila Program under it's decentralization program for the RGC.

Summary Activities of the Extension Phase for PMMR (July 2003 to May 2004)

Times	Main Summary Activities
July 03	<ul style="list-style-type: none"> ❑ Fieldwork: community replanting mangrove with supported by governor of Koh Kong and facilitated by PMMR team; ❑ Facilitated a trip for IDRC evaluation group and Prof. Dr. Fikret Berker to visit community at PKWS; ❑ Cooperation with Mangrove Action Project in Thailand for the regional workshop in Koh Kong on "In the Hand of the Fishers " (IHOF);
August 03	<ul style="list-style-type: none"> ❑ Regional workshop on IHOF with sharing knowledge and experience on community fisheries management among local communities in the region; ❑ Reviewed and advised of the phase 2 technical report writing by Dr. Gary Newkirk ❑ Sustainable livelihoods workshop in Vietnam and sharing SL research work;
September 03	<ul style="list-style-type: none"> ❑ Continues phase 2 technical report writing; ❑ Workshop on Outcome Mapping by IDRC and with CBNRM Cambodian partners, and discuss some ideas for the new research proposal; ❑ Fieldwork: Strengthening community work-plan and initial works with the commune council on CRM;
October 03	<ul style="list-style-type: none"> ❑ Training on CBNRM case study writing for CBNRM Cambodian partners and small project proposal development and International Workshop on Biosphere reserve; ❑ Fieldwork: fishing ground survey and advising VMCs action-plan;
November 03	<ul style="list-style-type: none"> ❑ Discussed new research project for CBCRM in Cambodia with Dr. Gary Newkirk and review research result from phase 2; ❑ Facilitated on the PRA training for CFDO's staff; ❑ Presented the result of PMMR for Dr. Jean Lebel, of IDRC;
December 03	<ul style="list-style-type: none"> ❑ Training and workshop of PMMR team on Principle, criteria and Indicator of CBNRM and strengthening decentralization system in Cambodia by the projects; ❑ Fieldwork: VMCs at PKWS shared their experience on CRM for the NGO groups to visit their area;
January 04	<ul style="list-style-type: none"> ❑ Integration workshop on "Creating the Vision for Coastal Resources Management" for local community and stakeholders in Koh Kong; ❑ Fieldwork: facilitated a study tour for CFDO's staff to learn the research process of CBCRM from PKWS;
February 04	<ul style="list-style-type: none"> ❑ Drafting idea for the new project proposal on PMCR with Dr. Gary Newkirk and Dr. Brian Davy; ❑ Annual MoE meeting and develop the new strategy for Cambodia's Environment for 2004; ❑ Fieldwork: waste management activities by VMCs in KSL and began CBCRM concept with CC
March 04	<ul style="list-style-type: none"> ❑ Continue phase 2 technical report writing and synthesis research information, and paper for IASCP Conference 2004; ❑ Finalized the new project proposal with IDRC; ❑ Fieldwork: Review fishing ground with local communities and monitoring

	and evaluation with VMCs for their activities and consider for the next plan;
April 04	<ul style="list-style-type: none"> ❑ National workshop on Coastal Zone Management in Cambodia; ❑ Continue to finalize the phase 2 technical report; ❑ Draft guideline of CBNRM in Action case study;
May 04	<ul style="list-style-type: none"> ❑ Final of the phase 2 technical report; ❑ ToT training and case study writeshop on CBNRM in Action in the Philippines; ❑ Fieldwork: evaluating of research data on fishing activities with VMCs and local villagers.

During the extension phase, the PMMR team focused on finishing the research and developing the technical report of phase 2, and the paper of the lessons learned from the PMMR for the CBNRM partners. In addition to develop a new project proposal on “Participatory Management of Coastal Resources” in Koh Kong Province that focuses on the big scale issues for coastal environmental management and scale up CBCRM experience from PMMR into the policy of Royal Government of Cambodia on decentralization and poverty reduction. The field research also continued. The PMMR team is still working closely with all stakeholders, especially helping the VMCs to strengthen their action plan and build up facilitation skills for co-management of coastal resources for the future.

1.6 THE MAIN OUTPUTS OF PHASE 2

Project Output of the Phase 2: “Community-Based Mangrove Management” or with the local name “Participatory Management of Mangrove Resources” (PMMR).

The PMMR Project with continued support from IDRC for phase 2 (July 2000 to May 2004) has worked inside and outside PKWS to build better understanding of the local community of the issues of coastal resources management and sustainable livelihoods. In the second phase, the project developed five objectives for assisting local communities, government officers and research teams to be involved in resources management and applying the concept of CBNRM. There are several reports developed (See Appendix B: List of PMMR reports).

In the following tables for each of the project’s objectives, there is a list of expected outputs for comparison to the actual output from project activities. The PMMR Project team reviewed the actual outputs in December 2003 as part of participatory monitoring and evaluation. The tables below shed insight into what the phase two of PMMR was able to accomplish and each section is followed by a brief discussion of what would be appropriate to be continued in the future.

Table 3: Output of the Objective 1

Objective 1	Expected Outputs	Actual Outputs
To design and assess participatory planning and management strategies for PKWS and Koh Kaptic Ramsar site, based on resource use patterns, institutional analysis and participatory resource assessments, and mapping.	<ol style="list-style-type: none"> 1. Local people and local government officials have a better understanding of participatory planning for CBCRM; 2. Local people participate in the planning of PKWS along with local and national government officials; 3. Official agreement between government officers and local villagers regarding the role and responsibility of each in planning, managing and monitoring PKWS; 4. Management-plan for PKWS. 	<ul style="list-style-type: none"> • Many meetings, and workshops, were conducted among local communities and government agencies to discuss resource management issues and local management plans inside and outside PKWS. • Coastal stakeholders, especially fishers who depend on fisheries resources, have been involved in participatory management planning for coastal resources. Local and national officers supported this process. • The VMC of Koh Kang, Koh Sralao, and Chrouy Pros established committees and management plans (for each village) were endorsed (with strong cooperation by local villagers, and local governmental agencies) and implemented. • The cooperation on coastal resources protection between local villagers and government agencies has been scaled up.



Photo 1: Mangrove Ecosystem Destruction



Photo 2: All level stakeholders in discussion on Coastal Resources Management Issues

Although an actual management plan for all of PKWS was not created, Phase 2 of PMMR focused on the establishment of participatory action research with villagers, mostly inside PKWS but also outside PKWS. Through PMMR facilitation the fishers in several villages formed Village Management Committees (VMCs) which undertook to examine their local situation with respect to fisheries resources and livelihoods. Each created their own management plan and negotiated these plans among themselves and with local authorities and then revised and implemented these plans with local regulations. Simultaneously, support was sought from provincial officials (technical departments and the Governor).

Such support was garnered from lessons derived from individual meetings, field visits, exchanges and provincial level workshops.

Villagers and local officials now have enough experience with resource management issues that they are ready to discuss how to realistically manage larger areas of resources shared by several communes such as Chrouy Pros Bay.

Table 4: Output of the Objective 2

Objective 2	Expected Outputs	Actual Outputs
To evaluate forms of organization by which local people can participate in the management of PKWS.	<ol style="list-style-type: none"> 1. Assessments of organizational forms for formal and /or informal community groups or committees; 2. A means for people to participate in the planning of PKWS. 	<ul style="list-style-type: none"> • Four village management communities on coastal resources protection were organized with support by local authority (village, commune, district and governor) and technical departments who are concerned with that area. Other communities have been strengthened on co-management of coastal resources • Local authority and technical departments have recognized community management areas • Government of Cambodia has strong supported on the concept of CBNRM.



Photo 3: Environmental Education by PMMR Team



Photo 4: Waste Management Activities in Community

Village-level management, with support from relevant authorities, has been established within three villages in PKWS and one village outside PKWS. Each village has an elected management committee, and a management plan that is recognized by local authorities, the Provincial Governor and Minister of Environment.

Although experience within each village varies, this process illustrates how villagers are interested and able to actively engage in local resource management strategies. A key lesson is that this process takes time, especially if villagers are to be clear about their resource management plans and are able to update such plans. The facilitation process of

management planning takes time, as does the actual implementation of plans and re-visiting of ideas.

Villagers are able to carry out many activities on their own, but require further support in facilitating linkages to the provincial levels and in conflict-resolution.

Table 5: Output of the Objective 3

Objective 3	Expected Outputs	Actual Outputs
To assess sustainable livelihood options for communities highly dependent on the mangrove ecosystem and to continue testing and diversifying options for food production and income generation.	<ol style="list-style-type: none"> 1. Increased income of villagers in PKWS especially the former charcoal producers; 2. Improved subsistence (non-income livelihoods) of villagers; 3. Increased access to government agencies and NGO's to support infrastructure. 	<ul style="list-style-type: none"> • Most charcoal producers in PKWS have become good fishers and protectors of coastal environment, especially people in Koh Kang and Koh Sralao villages. • Mangrove resources in PKWS have been improving through rehabilitation and protection by local communities. • Schools, pagodas, and small public services have been supported by outside donors both government and private sectors. • Other alternative livelihoods have been increasing such as: animal raising, home gardening, small scale aquaculture, and water supplies.

Experimentation with various livelihood activities, such as crab fattening, home gardening and enhancing access to local water supplies were undertaken throughout this phase. A key strategy that PMMR supported villagers in is the ability to learn from their past experiences and build on their assets. Therefore, while there was some emphasis on actual activities implemented, there was also an emphasis on thinking of how to enhance household or community-level strategies, for example, through diversification or building social capital.

Given the challenges of understanding social capital in the Cambodian context, further research and support in this area would be recommended, as would strategies to enhance local assets.

Table 6: Output of the Objective 4

Objective 4	Expected Outputs	Actual Outputs
To promote the participation of communities in the protection, conservation and monitoring of	<ol style="list-style-type: none"> 1. Environmental education materials for coastal communities in Cambodia; 2. People aware of sub-decrees, laws and legal instruments on 	<ul style="list-style-type: none"> • The coastal environmental issues have received attention from local communities such as: waste, mangroves, sea grass and coral reef destruction, and water management.

mangrove and fishery resources in PKWS through environmental education.	protected areas and environmental management and clarity of land title and boundary demarcation procedures; 3. Improved understanding of the village environment.	<ul style="list-style-type: none"> • Many trainings, workshops, and study visits had been organized to help local communities and key stakeholder to participate on natural conservation and protection. • Many coastal people have more awareness of legislation and policies for natural resources management. • Some schools and villages in PKWS have developed waste management programs such as: Koh Kang, Koh Sralao, Chrouy Pros and Tuol Koki villages
-------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

As local-level resource management committees became established, and are more comfortable with their work, much of the environmental education activities were undertaken by committee members themselves. For example, annual mangrove replanting activities enabled school children and elders to work together on environmental protection activities. PMMR also facilitated a series of workshops, based on villagers requests, related to mangrove ecosystems.

From a policy perspective, provincial-level workshops strengthened provincial and local understandings of those policies related to resource management. Several villagers participated in national-level consultations and inputs related to drafting the *Fisheries Sub-decree for Community Fisheries*. Additionally, time was also spent exploring how informal policy, in the absence of formal policy, could be used to support local-level activities.

As villagers have become more confident in local resource management, other villages and government officials have become more interested and supportive of the process of resource management. Many study tours from other parts of Cambodia have been arranged with PMMR, to talk to government counterparts and villagers about their experience of resource management. Therefore, these experiences are in the process of being shared and scaled up (towards the end of Phase 2), through networking within the area, with other NGOs and government staff.

Extensive materials now exist within PMMR, and time needs to be given to thinking of how to organize these materials in different formats to engage wider audiences i.e. training manuals, posters, videos.

Table 7: Output of the Objective 5

Objective 5	Expected Outputs	Actual Outputs
To build the capacity of the project research team, local people and relevant institutions to address	<ol style="list-style-type: none"> 1. To increase the capacity of the PMMR team; 2. To increase the capacity of villagers, government staff 	<ul style="list-style-type: none"> • Most members of the PMMR research team have improved ability to lead work on coastal resources management.

issues of community-based coastal resource management and to strengthen local, national and international institutional linkages.	and related institutions involved in mangrove research and protected areas management; 3. To increase the capacity of government staff for research and planning at the provincial and national level	<ul style="list-style-type: none"> • Local people at PKWS and government officers are more aware of CRM. • Many coastal management plans have been developed with multiple stakeholder participation, especially with local villagers. • Government's Policy and legislation on natural resource management has been reformed through local community advocacy.
-----------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Although it is difficult to capture how capacity building has worked, it is clear from the amount of local-level organizations, provincial-level cooperation and national interest that capacity has been built through this research process (see appendix C and D). PMMR team members are more confident and able to express ideas surrounding CBNRM, and are often the leading advocates of this process (both nationally and provincially). An indicator of success is how many of PMMR team members are being offered jobs elsewhere, related to CBNRM type initiatives. (Two key people have jobs with national programs, one with Seila in Koh Kong another with the Danida supported CZM project. Two provincial team members are now working in other provinces with the CZM project.)



Photo 5: Public Forum between High Ranking Officials and Local Community

PMMR now needs to reflect of the iterative process that was undertaken, and to illustrate how this experience fits within the Cambodian context.

1.7 CONCLUSION

There are many positive changes in PKWS for the last five years in both coastal environment and capacity of human resources. These results are from strong participation by all stakeholders, especially local fishing communities in PKWS with the PMMR research team through the strong research philosophy of IDRC on CBNRM. Furthermore, the strong technical and financial support by IDRC and participation by local agencies are very important too.

In this phase, the PMMR research team has organized the four main Village Management Committees (three inside PKWS and one outside PKWS). This process included: creating/organizing people into community coastal resources management groups, formulating community by-laws and capacity building on PR in each community with help and facilitation by the PMMR research team. These VMCs have been supported and endorsed

by the Provincial Governor and Minister of Environment. Through their own community by-law and planning, the management plans for coastal resources development were established and implemented by local communities with cooperation from local authorities, PKWS's park ranger, and relevant provincial technical department. These VMCs try to work within their own village or research teams to share their perspective on coastal resource management with other communities, and with government agencies through their activities such as: reducing of illegal activities; solving of the fishing conflicts, managing waste, replanting of mangroves, developing of home gardening and small scale aquaculture, and various conflict resolution for their own community etc. Now these experiences have been recognized by relevant stakeholders, especially to support the policy reform of government Cambodia on decentralization system.

Enhancing and strengthening both knowledge and skills of CBNRM for local communities are still needed, because some principles of CBNRM such as: empowerment, equity, ecological soundness, sustainable development, respect for traditional knowledge and gender-fairness are still not deeply understood yet. Recently, some of PMMR team have been selected to work with big projects and programs to assist the implementer and decision maker to better understand the concept of CBNRM. Furthermore, the ideas of local communities who learned and worked with the PMMR have been mainstreamed to the commune development plans of the Seila Program such as: fishery community committee organizing, home gardening, mangrove protecting, water supply and sanitation education etc. This illustrates the research process that PMMR team tries to promote in order for all stakeholders to consider more of the real local community needs and sustainable development.

CHAPTER 2: RESEARCH METHODOLOGY OF PMMR: USING PARTICIPATORY RESEARCH FOR COASTAL RESOURCES MANAGEMENT

Kim Nong
March 2004

2.1 REFLECTION OF PARTICIPATORY RESEARCH (PR)

Participatory research (PR) methods have been introduced to Cambodia since 1990s. They have become increasingly widespread in many programs or projects, especially with rural community development in Cambodia such as: community forest management, community fisheries management, participatory land use planning, community water management, integrated agriculture development, rural infrastructure rehabilitation, primary health care and integrated environmental protection. PR provides a good research approach to environmental and social issues and help resolving of conflict resolution within the management systems.

2.2 WHAT IS PR MEAN IN THE CAMBODIA CONTEXT?

There are different forms and interpretations among the projects/programs during the development process of participatory research. PR has only recently been introduced to Cambodia, and there are only a small number of books and documents on PR that have been translated into Khmer. Most of them are in English. Sometimes, the translation is not very clear as to the use of the correct method or the understanding of the English literature. Many Cambodian research teams or field workers do not have good reading skills, especially with papers or books written in English. They are confused about the use of PR approaches, because they are still unaware of the theoretical and practical basis of participatory approaches or they do not have faith in it. In Cambodia generally, PR has been used by many project teams to convince local community and government agencies to think and implement a simple change in their management system with support by outsiders. There are many methodological and theoretical participatory approaches that have been introduced to Cambodia such as:

- ❑ Participatory Action Research (PAR)
- ❑ Participatory Rural Appraisal (PRA)
- ❑ Participatory Management and Planning (PM&P)
- ❑ Participatory Monitoring and Evaluation (PM&E)

Since authoritarian leadership is often practiced in Cambodian, a participatory model takes time to develop and to adapt to the Cambodian context. However, some team members widely recognize the benefits of taking this approach. One PMMR team member express:

“Participatory research is a bit like medicine: it depends on how the doctor administers this medicine. If a facilitator is good then the process will be effective, if the facilitator is not so strong then the process will not be so useful. PR offers unlimited chances to share in knowledge and is very flexible”

Source: Marschke and Nong in Lansdowne, page 10

Many tools of PRA have been used for CBCRM research program by PMMR research team as in the Box 2.

Through the experience of the PMMR project implementation, the PMMR research team has recognized that PR/PRA is a tool of systematic process to help stakeholders, both government agency and local community meet, discuss, analysis their situation, identify their issues/problems, development priorities, and prepare a course of action by involving people from different backgrounds and levels.

Box 2: Common Tools in the Research

- ☐ Communication skills
- ☐ Facilitation
- ☐ Semi-structure interview
- ☐ Group meeting
- ☐ Resources mapping
- ☐ Historical time line
- ☐ Problem tree
- ☐ Seasonal calendar
- ☐ Venn diagram
- ☐ Flow diagram
- ☐ Training
- ☐ Workshop
- ☐ Study tour
- ☐ Learning and sharing of need and etc...

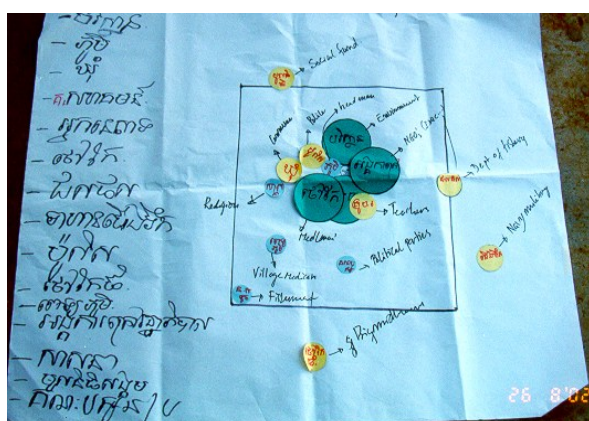


Photo 7: PRA Tool: Venn diagram



Photo 6: PRA Tool: Resource Mapping

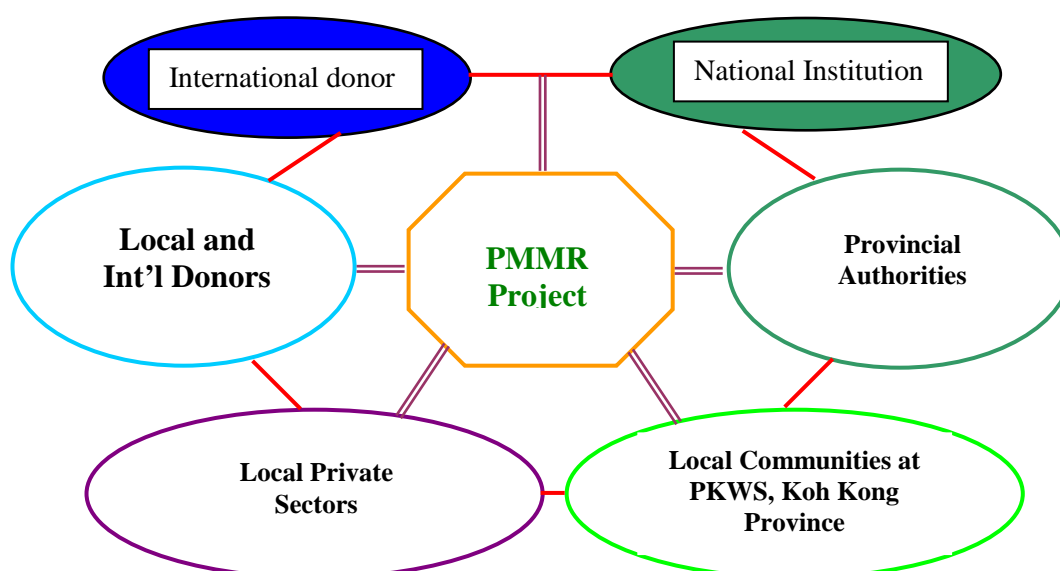
2.3 THE PROCESS OF PR WITH PMMR

At the beginning of the PMMR project, the PMMR research team took one year and half to understand the PR concepts. Lack of communication was the main issue, because the villagers were afraid of talking with the government officials, and most government officials thought local villagers had no experience and knowledge in natural resources management. PR is not easy to understand without learning and practicing. Capacity building was the main priority including providing the opportunity for the PMMR research team to participate in various national and international training workshops, with coordination and support by the project coordinator from the Coastal Resources Research Network, Dalhousie University, Canada and later CBCRM Learning and Research Network. After learning, the knowledge and skills were shared among people whom they work with, both communities and government officers. The PMMR research team needed to learn step by step to improve research knowledge and skills of a good field facilitator. Understanding PR includes adjusting both theoretical and practical aspect to the local context with strong consideration to empower local community participation in management planning of coastal resources.

2.4 PARTICIPATION

Participation is the key word for the whole development project. Many of Cambodia's coastal projects have been adapted to the area, such as: ICZM, ECZM, CBSL, as well as PMMR. PMMR aimed at join management and cooperation by indirect and direct stakeholders from the local to the national levels, in all the activities that have been introduced in coastal areas. Participation offers a chance for dialogue and cooperation among local communities, business interests, non-government organizations (NGOs) and government agencies. For example: the PMMR team plays as important role to facilitate with partnership at different levels (See Figure 1): local villagers, local authorities, provincial technical departments, national institutions and international partners to learn and discuss local livelihood issues within the sustainable coastal resources management for the nation and the world.

Figure 1: Diagram of PMMR Networking for PR



In the recent past management of most natural resource areas by government authorities have failed to curtail overexploitation and destruction of the resources. At present, the Royal Government of Cambodia (RGC) has been changing its policy to provide support for the concept of CBNRM and as a consequence is giving control to those who are directly using these resources. However, there are problems affecting coastal resources that the local community cannot control, because of pressure from outside forces. For example: global markets, pollution, new technology development, outside resource users and the limited community's awareness.

In Cambodia, most CBCRM projects are initiated and facilitated by outsiders (NGOs and government officials). Projects that have achieved the greatest success are those that showed the greatest appreciation for the knowledge within the community. As a result of PMMR Phase I, we know that the local communities know their area best, and have evolved their own systems of management in, for example, fisheries; mangrove forestry, water, and other resources. So the local community is a primary stakeholder to involve in the projects or programs that are introduced by outsiders. In the project of PMMR, most of the research team live and work in Koh Kong town not so far from project site, and local

villagers in PKWS are the main action partners within CBCRM development. It is very important to build ground level participation in order to ensure self-mobilization in the future. Through working and learning together, both members of PMMR and villagers have become comfortable with the participatory approaches such as: learning about different issues, hearing about different opinions and perspectives, creating dialogue, solving problems and exchanging ideas on sustainable coastal resources management etc.

2.5 TYPOLOGY OF PARTICIPATION

A typology of participation is very important to help community practitioners better understand their position in sustainable of community-based coastal resources development. There are positive aspects having outsiders involved in the role of local management planning. They can provide excellent support in terms of research skills, financing, legal support, access to information and power holders etc. All stakeholders need to identify their interests in particular activities or issues for participation. For example, fishing is an activity that is of interest to fishers, because this is how they earn their living. Government and NGOs have an interest in fishing because they want to ensure that fishers have enough food and good livelihood.

In order to assess the effectiveness of various forms of participatory development, we should have a better understanding of what degree of participation of the project and program occurs through our work. The table below shows different types of participation that clarify our thinking on where we are.

Table 8: Typology of Participation in Development Program

Typology	Components of each type
1- Passive participation	People participate by being told what is going to happen, or has already happened. It is a unilateral announcement by the administration or project management, without listening to people's responses. The information being shared belongs only to external professionals.
2- Participation in information giving	People participate by answering questions posed by extractive researchers using questionnaire surveys or similar approaches. People do not have the opportunity to influence proceedings, as the findings of the research are neither shared nor checked for accuracy.
3- Participation by consultation	People participate by being consulted, and external agents listen to views. These external agents define both problems and solutions, and may modify these in the light of people's responses. Such a consultative process does not concede any share in decision making, and professionals are under no obligation to take on board people's views.
4- Participation for material incentives	People participate by providing resources; for example, labor, in return for food, cash or other material incentives. Much on-farm research falls into this category, as farmers provide the fields but are not involved in the experimentation or process of learning.
5- Functional participation	People participate by forming groups to meet predetermined objectives related to the project, which can involve the development or promotion of externally initiated social organization. Such involvement usually occurs not at early stages of project cycles or planning but after major decisions have been made. These institutions tend to be dependent on external initiators and facilitators, but may become self-reliant.
6- Interactive participation	People participate in joint analysis, which leads to action plans and the formation of new local institutions or the strengthening of existing ones.

	It tends to involve interdisciplinary methodologies that seek multiple perspectives and make use of systematic and structured learning processes. These groups take control over local decisions, and so people have a stake in maintaining structures or practices.
7- Self-mobilization	People participate by taking initiatives independent of external institutions to change systems. They develop contracts with external institutions for resources and technical advice they need, but retain control over how resources are used. Such self-initiated mobilization and collective action may or may not challenge existing inequitable distributions of wealth and power.

Source: Pretty, et.al, in Newkirk, G.J, Ira, G.C., Gonsalve, J.F., and Caminade, J.R.,
Participatory Methods in CBCRM, 1998, Volume 1, Page 46.

The table above lays out clearly the degrees of participation, so that we can compare with it the type of participation in projects or programs that we have been working with. In Cambodia, we have observed that almost all of government and university projects/programs in Cambodia use participation approaches in typology 1 to 3; local and international NGOs who are working in Cambodia's rural areas use typology 3 to 6; and most of these types depend on the mission and mandate of each organization. We have difficult to see any community development project falling in the typology number 7.

PMMR has tried from the beginning of project to build capacity of the local community as well as local government agencies to better understand the concept of participation through trainings, workshops, study tours and learning-by-doing. Of course, time to convince them and develop self-mobilization. As documented by PMMR, the villagers in PKWS have made their own plans to come up with real activities such as patrolling, mangrove replanting, waste cleaning, conflict resolution, village infrastructure development and to try alternative livelihoods through leadership of their Village Management Committees with facilitating by the PMMR team and support by local authorities. In Cambodia, it is still difficult to assist a local community to self-mobilization, because in the rural area, most local government and local community have low skills, and need more help and advice for their development and management inter of natural resources management.

2.6 BENEFITS OF PARTICIPATORY RESEARCH

2.6.1 INCREASING CAPACITY OF RESEARCH TEAM

PR was understood through meetings, training, observations and workshops of many problems/issues of coastal resources management. PMMR team members have had opportunities to learn and write research project proposals, research strategy-planning, and technical reports through consultation and facilitation with the villagers, government officers, and project advisors. During project implementation, each research team member has improved knowledge step by step by working on PR to help local community, government agencies and themselves for changing their attitude within field experience "learning by doing" in CBCRM.

The PMMR team can be clear understand through the result of multi-purpose workshop, data collection, monitoring and evaluation, that were used in many ways of research activities to support positive change. Using a PR approach can help villagers to form new structures such as the village management committees (VMC) that have potential for conflict resolution and sustainable use of coastal resources. For example VMCs of Koh

Sralao, Koh Kang and Chrouy Pros have lead their villagers in mangrove replanting, school building, and stopping illegal fishing in their areas. The research team was effective through the use of multi-purpose workshops and participatory data collection, monitoring and evaluation, that were used in many of the research activities to support positive change.

2.6.2 LOCAL COMMUNITY EMPOWERMENT

PR has provided opportunity for local villagers to be involved in the public forum. At the beginning of the PMMR project, local community members in PKWS hesitated to on share knowledge and experiences with their development partners, especially with the government institutions. They lacked the comfort to participate in decision-making on coastal resources management, because they always thought the obligation for resource management belonged only to government agencies. However, when the local villagers participated in the trainings, workshops, study tours and other groups meeting that were held by PMMR, they developed an understanding of their role and obligations, both men and women, in participatory resources management.

The local fishers in PKWS have tried to do something, to show local government their right to participatory coastal resources conservation and protection such as: 1- organize a group for conservation and protection of coastal resources; 2- be involved with local government agencies to stop illegal activities in their area; 3- provide ideas or comments in training-workshops and public meetings on their right to access of coastal resources; 4- participate in public forum on forestry and fisheries reform; 5- enhance their participatory capacity through learning by doing; etc. These efforts have been recognized by government, especially the provincial governor of Koh Kong and the Minister of Environment. At present, many natural areas have been provided to local communities in co-management with the government agencies. For example: PKWS is one protected area for which MoE is responsible. Now some part of this areas has been divided for VMCs in Koh Kang, Koh Sralao and Koh Kapic in joint management with the PKWS park rangers.



Photo 8: Community Guardhouse for Coastal Environmental Protection and Conservation

2.6.3 SPIRITUAL AND BEHAVIORAL CHANGES

PR includes effective methods for spiritual and behavioral change of people. For example, people now believe that through taking care of the environment i.e., mangrove replanting or patrolling, the environment will help to take care of their household and livelihood. There is a belief that in doing a good thing, something good can happen in return. This belief, in turn, can shift how one behaves i.e., taking part in mangrove replanting or helping out your neighbour when their fishing gear is stolen.

Using PR is not only to learn from one side, but also we can learn and understand from each other through participation. The PMMR team has learned a lot from the villagers in PKWS and local government institutions related to using and managing coastal resources,

and these people have been learned so much of the concept of CBCRM from the PMMR team. Sharing experience and knowledge from each other by using PR has been made a lot of change to their own organizations. PMMR team became strong in their commitment to CBCRM and played the important role as facilitator, mediator, arbitrator and instructor to help local stakeholder on NRM. It has been working hard at the commune, provincial and national levels, as well as with international partners to support CBCRM's works in Cambodia. PMMR has advised and trained local villagers in PKWS to develop interest in coastal resources management; enhanced local government support for the CBCRM initiative in coastal area; and convinced decision makers to change the policy for CBNRM initiative in Cambodia. Furthermore, PR assisted field practitioners to meet their objectives of helping villagers and local government within sustainable development.

2.7 CHALLENGES AND DIFFICULTIES OF USING PR

The methods and theories of PR have been used and adopted within many programs/projects for community development in Cambodia. However, the knowledge of using PR is still limited for Cambodian field workers, and this work is often imposed by international donors and consultants. Many Cambodian practitioners are confused about how to use PR in the development of communities and their organizations. In PMMR's work, we observed that some PMMR members learn quickly and some members are not so familiar with PR, especially those who have low understanding of English and are not trying to learn. Of course, most of theories of PR have been produced in English, but there are some Khmer books that have been translated by PMMR such as; PRA, Participatory Methods in CBCRM, Field Manual on Community Fishery Management, and other field work reports.

PR was a new approach for the PMMR team. Sometimes the research team was not quite sure how to better facilitate and analyze when they got many ideas and data from participants. For example, during a workshop talking about making fines for illegal activities, both government agencies and local community could not agree with each other. The government official said there is no law to support the local community to make fines, and the local community said that they should have some right to make small fines during a joint patrol for stopping of illegal activities in their community area. It was difficult to facilitate between the real situations that happen and inadequate laws used by government agencies. Moreover, some government agencies are not so familiar with PR and have difficulty establishing rapport with the community.

As we know, there are different definitions of PR. However, in implementation it is very challenging and is not always easy to adapt PR to other research approaches. At the beginning of using PR tools such as Resources Mapping, Seasonal Calendar, Venn Diagrams, and Problem Tree etc, participants found it easy to understand the diversity and complexity related to local livelihood issues and coastal resources management. But they found it difficult to deepen their understanding of what will change by using PR, because although one issue may be solved, other new issues arise and many people have different and divergent interests.

2.8 CONCLUSION

Using the PR process has helped the PMMR research team better understand the real situation of any issue and conflict that happen among interested people in using coastal resources. This understanding will help the research team as well as the local community

and government agencies in establishing mechanisms and strategies to involve them in resources management. PR is also improving capacity of all participants to better consider working and enhancing their environment and livelihoods. Furthermore, PR helps empower local organizations to develop their own management plans, agree to existing strategic plans and implementation with supporting policy of government. An important point in using PR is not only to bring all stakeholders to have input into their management plans, but also to understand the benefits of the integration of their decision making into natural resources management and legal framework.

2.9 REFERENCES

- Brzeski, V.J., Granham, J., and Newkirk, G.F., (1999) “ Participatory Research and CBCRM: In Context” CoRR, Dalhousie University and IDRC, Canada, in Cornwallis and Halifax, NS.
- IIRR (The International Institute of Rural Reconstruction), (1998), Participatory Methods in Community-Based Coastal Resources Management- volume 1 introduction papers, volume 2 and 3 tools and methods, IIRR, IDRC, CIDA.
- Kim Nong, Nin, V. and Vann, M., (1998) first annual report " Participatory Management of Mangrove Forest Resources Project" MoE/IDRC
- Lansdowne. H., Dearden.P., Neilson. W., (2002) “Communities in Southeast Asia” Challenges and Responses, University of Victoria, Victoria, British Columbia, Canada.

CHAPTER 3: COMMUNITY ORGANIZING: WORKING TO CREATE AND SUPPORT VILLAGE MANAGEMENT COMMITTEES

Kim Nong, Ouk Ly Khim, Khy An

March 2004

3.1 COMMUNITY BASED MANAGEMENT IN CAMBODIA

Cambodia was once rich in natural resources but these natural resources have been heavily degraded by over twenty years of civil war, particularly since the country adopted a free-market economy in the 1990s. The main factors affecting resource declines include increasing population, poor resource management and unregulated use of natural resources. Although resources continue to decline rapidly, 85 % of rural Cambodians remain reliant on forestry and fishery resources for their livelihoods (McKenney and Tola 2002). One way that the Royal Government of Cambodia (RGC) seeks to address these problems, with the technical and financial support of the international community, is through adopting natural resource management (NRM) programs. Community based natural resource management (CBNRM) is one such program¹.

The concept of CBNRM was initiated through NGOs, and has been practiced in rural areas throughout Asia (Argawal and Gibson 1999; Li 2002). The initial ideas for community organizing and community development in Cambodia have been introduced by non governmental organizations (NGOs) who are working with local villagers on issues of community's livelihood and natural resources management. There are many rural development pilot projects implemented at different places of Cambodia, and many such projects may involve forestry and/or fisheries management issues. The Participatory Management of Mangrove Resources (PMMR) is one research project that uses a participatory approach to help coastal communities to solve coastal resources management issues, especially in mangrove resources management in Peam Krasaop Wildlife Sanctuary (PKWS), Koh Kong Province (both forestry and fisheries).

This paper will reflect PMMRs insights into CBNRM within the Cambodian context, and on local experiences in working on resource management with village management committees (VMCs). Furthermore, an analysis of what VMCs are able to carryout at the village-level, and the implications of these experiences for CBNRM in Cambodia will be shared.

3.1.1 WHAT DO WE MEAN BY CBNRM IN THE CAMBODIA CONTEXT?

Though it is called CBNRM, in the practical procedure it is more likely to be a co-management approach (sharing of responsibilities between government agencies and local communities, with government agencies playing a strong role in this process) (Marschke and Nong, 2003). Since in most of such projects, the communities do not take all the tasks by themselves, but rather involve others sectors such as technical departments, local

¹ Although not within the scope of this paper, there are several streams of NRM emerging in Cambodia including: (a) conservation agendas i.e., animals before people; (b) a participatory land use management i.e., combining land management with resource planning; decentralization i.e., including resource management within governance; community forestry and fisheries i.e., granting communities rights to manage specific areas.

authorities are extremely important in terms of enforcement, conflict resolutions and so on. Still, this process within Cambodia is widely known as CBNRM.

CBNRM refers to managing of the natural resources by the local communities with the involvement of relevant stakeholders, who mostly belong to provincial and national technical departments. The key element of CBNRM here is that the communities are organized (a process known as community organizing) into some structure i.e. having groups, group leaders and committee with the community regulations, approved by local authorities and relevant institutions.

To better understand what CBNRM means in the Cambodian context, the following words need to be understood: community and community organizing.

3.1.2 WHAT IS COMMUNITY?

According to the Dictionary of Collins, community means “all the people who live in a particular area or place”. While this simplistic notion of community is critiqued in the literature (see, for example, Agrawal & Gibson, 1999), often donors do think that community refers to the entire village: with such assumptions comes the notion that everyone is nicely participating in an activity! Yet, in Cambodia, when government officials or villagers use or hear the word community, most people think that it is a group of the people who have been organized or supported by development projects or programs. As for the villagers not involved with the community development projects or programs, they are not considered as part of the community. Thus, in Cambodia, “community” has come to mean a special group of the people interested to do something with organizing and supported by programs of NGOs or government agencies. For example, in Cambodia community refers to such things as: the community forestry, the community fisheries, the community land use planning, and the community protected area, where these communities have been supported by government and NGOs. Community, in this sense, may refer to a committee in a village (not necessarily the administrative boundary of a village or commune).

3.1.3 WHAT IS COMMUNITY ORGANIZING?

Community organizing (CO) is the process of setting up or strengthening a village structure, which is called a Village Management Committee (VMC)². The objective of CO is to strengthen existing community structures or to create institutions to better involve people in sustainable natural resources management. Furthermore, CO can help change people who are powerless into people who are powerful. Of course, the local villagers have little experience and thus skills for decision-making regarding their resources. In the past, they had no chance to participate with government agencies, because the government officers always thought that the local community has no capacity to make decisions on resources management and to work with government officials. Lack of participation by the local community has threatened natural resources, especially forests and fisheries resources.

In the PMMR experience, CO is not just a technique for problem solving but also a way to improve income for people, strengthen local awareness, and enhance natural environment.

² The PMMR team calls the structure of CO as the VMC, but many people in Cambodia call this the community committee.

Communities are enabled to consider their problems on economic, political, and social needs, and initiate conflict resolution within a natural resources management framework. In many places in rural areas of Cambodia, CO develops leadership to manage natural resources using support from external institutions.

3.1.4 DO ALL VILLAGES NEED TO BE ‘ORGANIZED’?

This paper will focus on PMMR experience of CO i.e. helping to establish resource management institutions. However, there were other villages in PKWS that felt they already had an active presence in resource management, and did not require further ‘organizing or committees’. These villages (two in PMMRs experience) were villages that held strong local traditions and whose mangrove forests still surrounded their villages. Thus, PMMR gave support to village and commune leaders, upon request, and kept in touch with these two villages but played a less active role here. This is not the topic of this paper, but is mentioned here to alert the reader that CO is not believed to be necessary, or appropriate, for every village!

3.2 COMMUNITY ORGANIZING TO CREATE VILLAGE MANAGEMENT COMMITTEES

3.2.1 VILLAGE MANAGEMENT STRUCTURE, FACILITATED BY PMMR

The village management committee structure, which is not officially part of the government, is likely created under the facilitation of the project practitioners through community elections. Elected by the villagers, the VMC committee is obligated to lead the process of the management of the resources in the community's managed areas. There are also other Committees formed by various NGOs with regard to health care, maintaining the dams, or agriculture for example.



Photo 9: Election of Community Committees

3.2.2 OTHER STRUCTURES

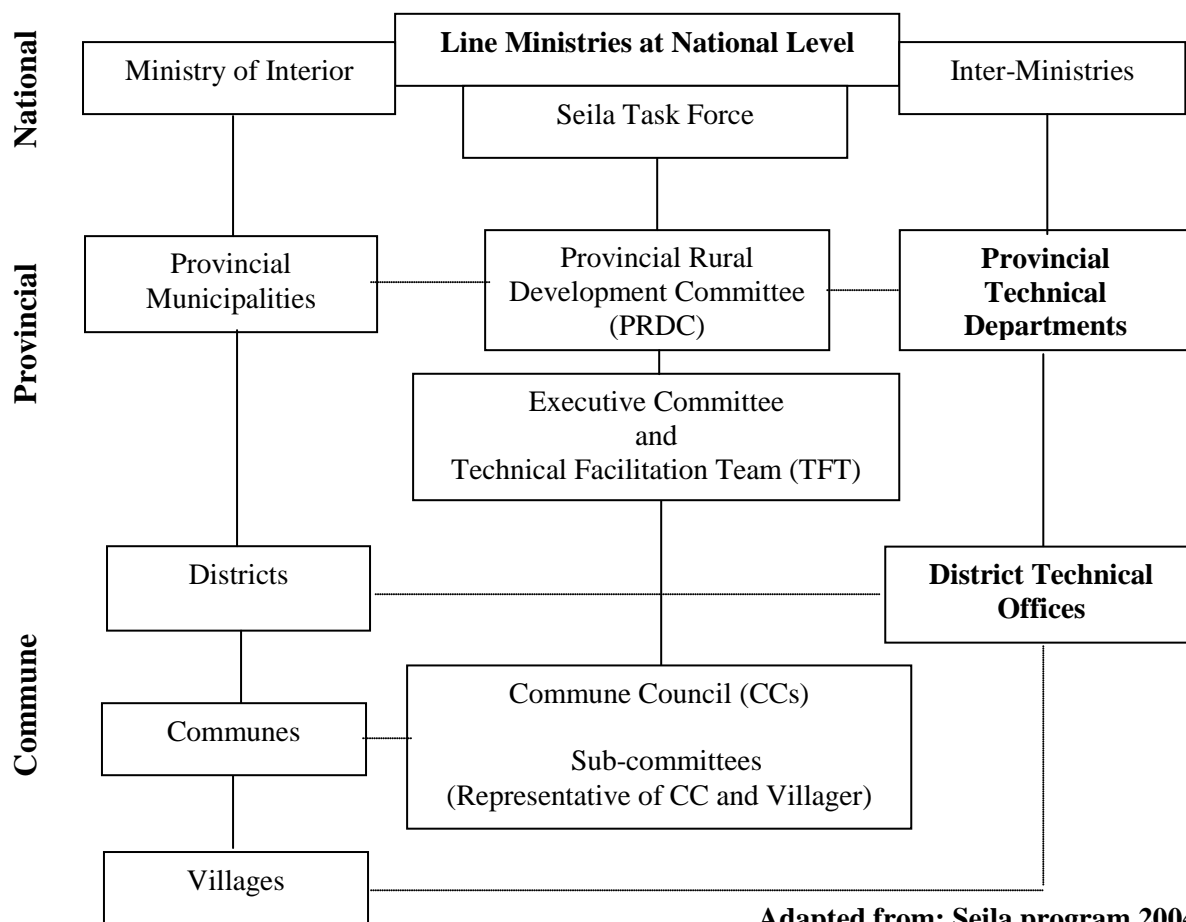
A governance structure that has emerged since PMMR began working with VMCs, is the newly created Commune Councils (CC, local government administrative body) that were recently (2002) elected by the people in each commune.

Prior to the CC elections, many Cambodian provinces were part of an experiment with decentralization where provincial level, district level, commune level and village level committees were formed around different issues including resource management. However, in Koh Kong province this program was not implemented. Only in 2003, after the commune council elections, did Koh Kong become a pilot province for decentralization. However, activities within this program are just beginning.

PMMR recognizes the RGC decentralization policy, known as the Seila program, and is able to link village-level work within this structure (so not to create parallel planning

systems). See Figure 1 for an overview of how decentralized policy works in Cambodia (keeping in mind that this process is just beginning in Koh Kong province).

Figure 2: Decentralization Structure and NRM for Cambodia



Adapted from: Seila program 2004

Worth noting in this decentralization structure is the absence of village level committees, except in the form of sub-committees under the commune councils. The commune council has a broad mandate, including a ‘motherhood’ clause (a general value based statement with no measurable indicators) with regards to natural resource management. It is within these sub-committee structures that any village-level committee created prior to the 2002 commune elections will have to be aligned.

3.3 BACKGROUND TO LEARNING AREA

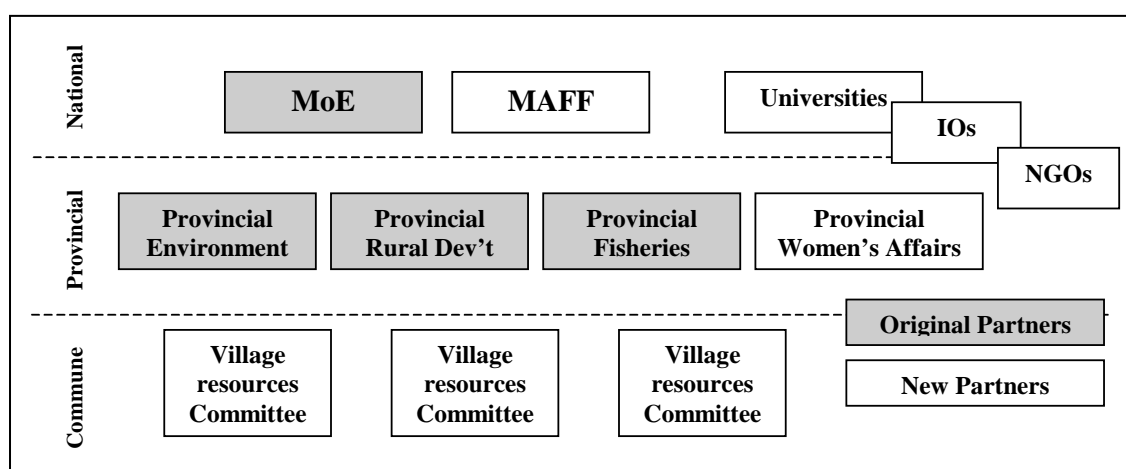
In PKWS area there are three districts, in which there are 6 communes and 12 villages and a population of over 10,000 people (PMMR 2000). These coastal communities are dependent upon the rich resources found in this wildlife sanctuary. Most villagers come from different places in Cambodia and they migrated to the area since 1983, mostly in the mid 1990s. Many came because of the rich coastal resources found in the area and the lure of high profits. However, abundant resource extraction activities threatened the sustainability of people's livelihoods: destructive fishing gear, extensive mangrove cutting for charcoal production and areas cut for shrimp pond culture serve as examples of unsustainability. Moreover, the international markets (Thailand and Vietnamese) provided additional pressures on such resources. Such activities threaten the ecosystem, biodiversity and the communities living standard.

In the past, people have traditionally not been interested in resource protection because of strong management from technical departments and low population pressures. However, as natural resources have become further degraded, coupled with population increases and limited opportunities for middle persons and villagers to make high profits from illegal resource extraction activities, people have shifted their thinking and have become more interested in management and protection measures. That is, local villagers recognize if there are to be any livelihood opportunities for their children, they need to do something now to ensure enough resources.

3.4 PMMR AND COMMUNITY-BASED MANAGEMENT

The Village Management Committees in PKWS were created under the facilitation of the PMMR project. PMMR, funded by the Canada's International Development Research Centre (IDRC), has worked in PKWS, Koh Kong province since late 1997. Based at the Ministry of Environment (MoE), the project team began with technical staff from the MoE at the national level, and staff from technical line departments in the province such as: Department of Environment (DoE), Department of Rural Development (DRD), Department of Agriculture Forestry and Fishery (DAFF). As the project evolved, staff from the national level, Department of Fisheries along with partnerships with university and other NGOs were formed, along with adding additional staff to the provincial team i.e., Department of Women's Affairs and creating community level resource management committees (see figure 3).

Figure 3: Adaptive Management: the Evolving Structure of PMMR



Source: Marschke and Nong 2003

Within its mandate, the team has begun to understand the uses of natural resources and also the management system in the area. Emphasis has been on building of trust and capacity of the resource users, local authorities, technical sectors, and others relevant stakeholders. Regarding capacity building, the PMMR project has arranged a series of workshops, study tours inside and outside the country for the key villagers, local authorities and the PMMR team members. Although each workshop and study tour had a slightly different objective, the aim always centered around learning about coastal resources and linking livelihood activities with resource management. Learning from these training/workshops and study tours, the community members expressed an interest in working with the PMMR team and concerned government agencies to come up with a community management strategy that

would work in this area. The procedures were then processed starting with CO, followed by the development of community action plans and implementation.

3.5 THINKING THROUGH COMMUNITY LEVEL RESOURCE MANAGEMENT

3.5.1 THE PLANNING PROCESS OF CO

When PMMR began this CO process in PKWS, meetings were held to discuss the CO approach. Both the PMMR team and villagers had little idea how to start the CO process. To understand the CO process, the PMMR project arranged a series of workshops and study tours in and outside the country for the key villagers and the PMMR team members. Inside the country, study tours were conducted to similar projects of community based natural resources management, such as Community Fisheries at Ream National Park, Sihanouk Ville and Community Forestry, FAO Project in Siem Reap province. Trips outside of Cambodia were held to see the participation of local community in coastal zone management in Thailand and Sri Lanka. These study tours provided challenges for the participants to exchange ideas and learn experiences from one another. Learning from training/workshops and study tours, the community members expressed an interest in working with the PMMR team and concerned government agencies to come up a community management strategy that would work in this area.

Both national and provincial team held discussions looking at some potential strategies towards community establishment. Among the villages in PKWS, Koh Sralao and Koh Kang, where most of the villagers are fishers using small scale fishing gears, were targeted for the Community Organizing work based on their discussions and requests for PMMR to help them facilitate this process. Many questions emerged, and it was clear that the team itself was not sure how the CO work would unfold. See box 1 for list of key questions to be considered.

Box 3: Key Questions to Consider in Planning for CO

- ❑ What is the villagers concepts / ideas for protecting their fishing grounds?
- ❑ Are the identified fishing grounds to be co-managed more or less free from interruptions by outsiders?
- ❑ Should the boundary for the community managed area follow an administrative boundary or a natural physical boundary?
- ❑ What are the steps in establishing community fishing areas?
- ❑ Who is involved in the process of community regulation development?
- ❑ How does one gain official recognition of community regulations from local authorities and technical departments?
- ❑ What will community by-law look like? For example, will fining be included, what sizes of gear will be restricted?

With good facilitation by the PMMR research team, and learning from other experiences, four communities were established with strong support by the Provincial Governor and the Minister of Environment (official recognition in the form of signed maps and community bi-laws).

3.5.2 AN OUTLINE OF CO PROCESS

There is a lot of debate between government officials and NGOs officials regarding the development of the model for CO. Most government agencies have no experience in community organizing. During earlier trainings held by PMMR and other partner organizations i.e. in 2001 and 2002 many participants requested that one model be developed for Cambodia. However, based on discussions among participants with

experience in CO in Cambodia, it was concluded that it would be difficult to make a comprehensive model for CO because the people in each area have different interests and situations. A similar process, however, could be developed within the different ecosystems i.e., coastal zone, Tonle Sap Great Lake, and Mekong River fishery. Ironically, while such a flexible approach towards community fisheries management was initially agreed upon, as the movement in community fisheries has grown, the Department of Fisheries is intent on introducing a step by step process for the entire country.

There are different approaches in the development process of CO in Cambodia in both community forestry and community fisheries. It depends on geography of the area, ideas of the local community, local authority³ support and the conceptual basis of involving between inside and outside organization. Generally, the PMMR team found that local NGOs/donor supported projects and government institutions use different approaches to CO. Table 5 below shows an outline of the process for community fisheries organizing support by local NGOs and government sectors.

Table 9: The Main Steps for the Process of Community Fisheries Management

	DONOR⁴ SUPPORTED ACTIVITIES	GOVERNMENT ACTIVITIES
1	Clearly Identify Objectives and Working Area <ul style="list-style-type: none"> Understanding area background using PRA with community Area selection and ground-work, including cooperation with concerned Institutions. 	Clearly Identify Objectives and Working Area <ul style="list-style-type: none"> Understanding background area by secondary data collection Selecting working area
2	Time Discussing NRM with Key Persons <ul style="list-style-type: none"> Using PR/PRA tools Participatory study of ecological and environmental initiative (trainings; workshops; study tours on CBNRM) Participatory decision making approach 	No Ground Work
3	Establish the Process of CFM <ul style="list-style-type: none"> General objective identification; Seeking support from provincial authorities / relevant technical departments; Identify key persons in target villages; Holding a general training/workshops; Identification NRM target area; Community organization formation. i.e. holding elections, forming village management committees (VMC). 	Establish the Process of CFM <ul style="list-style-type: none"> General objective identification; Identification of key persons in the target villages; Community organization formation. i.e. holding elections, forming village management committees (VMC);
4	Community Regulation Development <ul style="list-style-type: none"> Community By-Law development i.e. developing management guidelines with VMC over time; 	Community Regulation Development <ul style="list-style-type: none"> Community By-Law development i.e. dev'g management guidelines;

³ Local authority refers to the Ministry of Interior (see Table One) and the administrative levels falling under this. For example, the Governor falls within this line structure as do the police.

⁴ Donor, in this case, refers to donor agencies i.e. the IDRC or DANIDA and to NGOs i.e. WWF or Oxfam.

	<ul style="list-style-type: none"> ▪ Getting approval by government agencies. 	<ul style="list-style-type: none"> ▪ Get approval by government agencies
5	Education and Implementation <ul style="list-style-type: none"> ▪ Boundary demarcation; ▪ Support for work (dissemination of regulations, implementation) ▪ Participatory Monitoring & Evaluation 	Education and Implementation <ul style="list-style-type: none"> ▪ No action

Source: Community Fisheries Manual Training, Kompong Cham and Phnom Penh 2002 (Oxfam GB/America; WWF; IDRC (PMMR, CFDO); PMMR experience.

There are different strategies to develop the CO process and while it is not necessary to follow these steps in sequence, the important points are:

1. *How does every community worker understand the meaning of community organization?*
2. *How can community organization support the local community's vision and conflict resolution in their own community?*

Local community capacity building is a central point and necessary for the execution of the CO process. The community development worker or field facilitator must understand well any issues and factors that affect villagers' participation in the CO process.

Box 4: Questions the Facilitator Must Consider

- ☐ Are local villagers interested in CO? Why? Why not?
- ☐ What does CO mean to them?
- ☐ If the local villagers are interested, what does the facilitator need to do with them? If not, what does the facilitator do with them?

At present, based on the policy of the RGC all technical departments have been instructed (especially MoE and MAFF) that responsibility for NRM must include local villagers and local NGOs. Until the middle of 2003 MoE and MAFF have organized:

- 329 Fisheries Communities with 20 CF in Coastal Areas (Thouk 2004)
- 237 Forestry Communities (McKinney & Tola 2002)
- 17 Natural Protected Area Communities (both fisheries and forestry)

Among of these communities, there are some communities that have strong organizations for participation in natural resources management, especially the communities that have been supported by NGOs. This is because some NGOs are able to spend extensive time working with a committee to really develop and support their needs in resource management. The enabling conditions that help local community to have a strong commitment to the process of CO are:

- There is capacity (having skills/knowledge and an interest in building on such skills / knowledge) in place for the local community.
- Field workers have good skills and methods to help the local community.
- Good cooperation exists between field workers and representatives of local villagers. There is enough opportunity for the local community and stakeholders to be involved in participatory research, especially for planning, decision-making, monitoring and evaluation.
- A good plan to help the local community for self-management on NR.
- Sufficient financial support for the planning process for CO.
- Exchange of ideas between local community and field workers.
- Policy support for CO by RGC.

Most local communities that were supported by government agencies lack organizational strength and effectiveness. There are many reasons for this including:

- A lack of capacity within the community.
- Government staff lack knowledge and skills in participatory approaches and use top down approaches inappropriate for working with people.
- Insufficient funding for the process to help CO due to limited budget.
- Natural conservation and protection not specified.

3.6 THE VMC ESTABLISHMENT IN PKWS

Peam Krasaop Wildlife Sanctuary is one of Cambodia's 23 protected areas, and was officially established by the Creation and Designation of Protected Areas Royal Decree dated November 1st, 1993. It covers an area of 23,750 hectares, including an important mangrove ecosystem. The PMMR team is mainly working within three communes of PKWS: Peam Krasaop (PK), Koh Kapic (KK) and Chrouy Pros (CP). In each commune there are a number of villages. Around 10 000 people live within this area, and PMMR has been active in working at village, commune, district and provincial level to raise awareness and activities around coastal resource management.

Figure 4: VMC's Map in PKWS

3.6.1 BACKGROUND TO VILLAGES

The PMMR team has worked in many villages, yet have focused particular attention on four: Koh Kang , Koh Sralao , and Koh Kapic villages inside PKWS, and one other village named Chrouy Pros outside the protected area (See Appendix D: Details of each VMC map). Among of these villages, KK and KSL were the initial focus for PMMR on community-based management work, since they were seen to be more dependent on the natural resources and more willing to participate in such work compared to others villages. Like others, these villages are surrounded by abundant mangroves, but more critically is the presence of immigrants from other provinces, nearly all of whom are the former charcoal producers or laborers.



Koh Sralao (KSL): is a traditional fishing village. People who have lived in this area for a long time refer to themselves as Koh Kong – Thai, since older residents also speak Thai. Many residents escaped to Thailand during the Khmer Rouge, and only a few original villagers returning in the 1980's. Large numbers of outsiders came into this village to earn the money by destroying the mangrove forest during the 1990s: many outsiders have remained in the village, and have now turned to fishing activities.

Koh Kang (KK): is a small island that had no inhabitants until the late 1980s when it was used as a place for charcoal kilns, and then shrimp farming from in early 1990s. Almost all of the kilns and the shrimp farms were owned by middlepersons from the Koh Kong town. Most of the immigrants initially sold their labor to kilns or shrimp farms. During 1998 when the kilns were destroyed by the Department of Environment, and the shrimp farming collapsed some people returned to their home village, but most stayed and adapted by becoming fishers.

Koh Kapic (KKP): is another fishing island where the central commune office is located. Some people who live in this village are government officials at the district level, while others are fishers who use trawler and pushing net (medium scale) fishing. There is a tension between these fishers and small-scale fishers from KSL and CP villages, especially at fishing area of Chouy Pros Bay.

Chrouy Pros (CP): is a community outside the PKWS that was not initially a focus of the PMMR's mandate, but it is an important fishing village and neighbor to KSL. Most villagers in CP fish at Koh Kong Bay because this Bay has played an important role in supporting local community livelihoods. Due to the impacts of PMMR's work in PKWS, in 2001, the fisher folk in this commune requested the project team to help them in organizing the community for ensuring sustainable use of fisheries resources in Chouy Pros Bay.

3.6.2 HOW THE VMCs WERE ESTABLISHED

Although the PMMR team has worked with these communities since late 1997, the first community organizing process only started in 2000 in KSL and KK villages. The procedures started by conducting meetings and training workshops with key villagers. The training workshop provided them the opportunities to understand the concept of CBNRM, coastal resources management issues, and possibility of establishing fisheries co-management in the area. After the training, the key informants in the villages were identified (12 people in KK and 25 people in KSL), and then there was a selection of a temporary village management committee from these key informants (3 persons in each village). The main purpose of having the temporary village management committees were to work with PMMR team to interact with villagers and develop community-by laws (local level resource management guidelines created by the villagers).



Photo 10: Women Participation on CBNRM Planning and Management

With facilitation by PMMR team, community by-laws were established in each village, and villagers created an elected Village Management Committee (VMC). The KK committee has 3 members, while the KSL committee has 7 members.

Unlike the above villages, the creation of VMCs in CP and KKP were different as there was no temporary village management committees. Instead the community by-laws were drafted by holding workshops and an election for the resource management committees took place.

3.6.3 MAIN ACTIVITIES OF THE VMC

After the VMCs were elected, members had to develop community action plans for fisheries resources management and livelihood issues with facilitation and assistance by the PMMR team. These action plans included:

- **Protection/prevention of illegal activities:** Protection of natural resources is mainly addressed by making a patrolling system and through constructing community checkpoints. The patrolling system is different between the three communities in terms of the arrangement (around five people take part in patrolling).

In KK, the patrolling was arranged in a rotational basis amongst all of the community members. While in KSL, this responsibility rotated only between group leaders, the VMC's members, and some other active fisher folk. Furthermore, both communities have asked the environmental park rangers from the PKWS to participate in this patrolling activity. When a serious situation occurs, the commune police have been asked for help, more frequently in the case of KSL. This, most likely, is because of better cooperation between the VMC and other stakeholders in protection/prevention activities.

In CP, the patrol activities are always joint with the commune police, because it is situated outside the protected area (PKWS), and illegal fishing boats are plentiful. Furthermore, the fishery staffs that are responsible for this area are sometimes involved in problem resolution, but sometimes the VMC does not agree with their decisions.

In KKP, it has been more challenging to establish regular patrolling; in part, because they do not have equipment, and are only starting to become interested in patrolling as they learn the experiences of other villages.

- **Mangrove replanting:** Mangrove replanting has been implemented every year from 1998 to 2003 covering over 70 hectares of degraded areas in PKWS. In 1998, the PMMR project cooperated with the Department of Environment in selecting 40 charcoal producers to plant 2 hectares of mangrove. In 1999, the project worked with the commune chief of Peam Krasaop, and village chief of KSL to select poorer households to plant the mangrove in the abandoned shrimp farm and near PKS commune. In 2000, the project worked with the selected households in KSL replanting 2 hectares. Later the VMCs have led this activity in KK and KSL with strong participation by both male and female villagers. From 2001 to 2003, LKS replanted 54 hectare of mangrove, while KK replanted 15 hectare, and KKP replanted 1.5 hectare. In comparison to 1998, the mangrove condition in PKWS has greatly improved by natural re-growing and in some part by local replanting effort.



Photo 11: Mangrove Replantation Activities



Photo 12: One Year Old Replanted Mangrove

- **Home gardening:** Small home gardens were established with an average area of 4 X 2 m in order to reduce family expenses for spices and vegetables. The PMMR project had cooperated with the Danida Coastal Zone Management (CZM) Project (1997 – 2006, working with PMMR as one of their pilot sites) to support small grants for selecting villagers to grow vegetables with facilitation, and monitoring by the VMCs. Initially, the project engaged 25 families in KSL and 15 families in KK. These activities have had good progress in KSL, but less so in KK, because lack of fresh water in dry season. However this small livelihood project has developed ideas of the local community to think more about generating income and becoming self-sufficient.
- **Community "Order"**⁵: Communities have expressed that one of the causes for their poverty is the loss of their fishing gears (traps, gill nets). This gear is lost when they are laid down in water for catching fishes or crabs. It was reported by the fishers that gear is stolen and collected by trawlers or push netters. In order to reduce the problem of stolen traps both KK and KSL have developed community internal orders for enforcement within their communities. Because almost all the fishers in the villages use traps, the VMCs started with crab traps first. These traps were painted with a different color according to the group fishers belong to. If a member of one group is found to have traps identified as belonging to another group then he or she receives a warning, and upon the second offense they are fined. KSL has already applied this order for some offenders.
- **Drinking water supply:** this project initiated by the VMC, is implementing in KK with small grant support by PMMR and the Danida-funded Coastal Zone Management (CZM) projects. This small island, surrounded by salt water, is always flooded during high tide, especially from November to January and no source of fresh water is available on this island. The villagers have to keep water from the rain, but this amount is insufficient. Consequently, most villagers have to buy water from a middleperson at a price of 25 to 30 Thai Baht per 200 litres; a few families have used their own boats to get fresh water from other villages. The cost for the water is high for poor villagers. The VMC had formed a committee responsible for managing this project. As well, they developed a community "order" to manage the project with reduce the cost of water buying.
- **Community protected areas** for sea grass protection and conservation of grouper species (*Epinephelus tautina* and *Epinephelus awoara* sp). Since 1998 most of the local fisher folk settling around Chrouy Pros Bay catch juvenile grouper using hand push nets and a few use motorized-boat push nets and seine nets. These practices collect hundreds of grouper juveniles and destroy sea grass. Although the communities now understand that these methods will cause difficult lives in the future, an immediate measure to completely stop these activities remains a challenge. Communities have established action plans that are expected to help reduce this problem. Informal discussions with three VMCs has shown that action is needed to solve conflicts between fisher folk using different types of gear in the area, conserve sea grass and grouper species, and to improve livelihood. In June 2002, conditions were developed through a workshop by different stakeholders to establish a sanctuary, evaluate its results and consider next steps.
- **Waste management:** Before the PMMR project, villagers were not concerned about solid waste issues. But now people are willing to initiate the management of waste. In

⁵ Community Order is a type of regulation developed by communities with no need to seek approval/signature from concerned government authorities.

KK and KSL, communities now clean their villages once per month with the participation of community members and school children. This activity continues in KK and KSL, but other communities are slower to adopt such practices.

3.7 DIFFERENCES BETWEEN THE FOUR VMCS

Even though these VMCs were each created under the facilitation of the PMMR project, they are a bit different from one another in terms of structure and working procedures. This is because each village made their own decisions on how to run the committees (within a general framework for resource management). That is, there are unique characteristics (sometimes subtle) to each village management committee, and the following section will explore such differences.

3.7.1 STRUCTURE MANAGEMENT:

In terms of numbers of individuals initially elected to the VMCs, 3 persons were elected within KK, 7 persons were elected within KSL, 7 person within CP, and 7 persons within KKP. Each VMCs includes one women (women were encouraged to run for election, although a quota-system was not introduced by the facilitators). The numbers of elected members varied between villages because it was left to each village to decide how many people they felt would be needed to work on resource management issues. .

After one year the member of VMC in KK increased up to 7 people, and KSL to 9 people, with request by the community members due to the amount of work these communities engaged in.

The VMCs in CP and KKP were established one and two years later respectively. These villages were able to see how the first VMCs functioned in the initial villages, and wanted to form their own committees in a similar manner.

3.7.2 VMCs WORKING PROCEDURE:

The procedure used by these VMCs, have different characteristics.

- **KK:** The head of the VMC is a vice village chief. He has more opportunities to engage with villagers; consequently, it is not difficult for him to mobilize villagers to take part in community activities. Furthermore, in most cases VMC members work well together; for instance they developed a Community Order for drinking water management, and sometimes they share responsibilities among themselves for patrolling. The weakness of this VMC is its top down approach, for example when rice was to be distributed to the villagers and the Governor could not attend the event the head of the VMC asked the others VMC members to refrain from distributing the rice until he returned to the village (since he is about to leave for a one week fishing trip).
- **KSL:** Compared to the others villages, this VMC are very strong. Its members show strong commitment, and the head of the VMC always provides opportunities to his members to do things. Furthermore, two of the 9 VMC members are women who are very active. The head of the VMC is a middleman who arrived in the village in the early 1990s, earned his living as a worker for narcotic plantation, and then scaled up to other livelihood activities including as a middleman a couple years later. Most people in the village say he is kind and helpful, which has lead

him to be not only the head of VMC, but also a deputy chief of the commune council and a head of the pagoda committee. Problems occurred when a few committee members declared that they want to leave the committee, but the problem was resolved through the facilitation, communication and discussions among their committee members. Most community activities are now proudly moving forward under the leadership of the VMC. The regular VMC meeting schedule is set, by members who can often facilitate the discussions themselves. Some extra meetings are also held according to needs. Initiatives are always coming from the VMC rather than outsiders. For example, the VMC had developed “Community Order” for the community's protected area (the sea grass sanctuary), and waste management action in their village though support by community member.

- CP: The VMC is a little different than the others, because none of its 7 members are from the local government authority nor middlemen. They are all the activists who used to be involved in mobilizing the local fisher folk to act against the illegal activities operating in the fishing areas. This VMC is not so functional in terms of sharing responsibility, organizing themselves, preparing good work-plans and implementation. Yet, this is likely due to its recent creation and the fact that its members do not have much experience regarding the concept of CBNRM. The other weak point of this VMC and community members, who are almost all small-scale fishers, is their eagerness to immediately eliminate all of the illegal activities. They require capacity building for improved communication and cooperation with their partners, especially with local authorities and technical departments. This VMC has had unsuccessful work in the past that has made its member tired. Yet the management situation is improving with help from the PMMR team and members of the KSL committee.

This VMC is now supported by the commune chief and has the cooperation of local police when they go to patrol.

- KKP: This VMC was just established in 2003 and does not yet have strong activities, except mangrove replanting and meetings supported by PMMR. While establishing this VMC, it was difficult to find people who were interested in becoming its members since most fishers fish in the shallow water using: trawlers and pushing nets, which are illegal according to law but are supported by local authorities. Fishers are nervous about switching fishing activities, for example, to use legal mesh sizes and gear, and know it will take a lot of work to undertake fisheries management in this village.

However, after meetings with other VMCs, the villagers better understand the concept of participation in coastal resources management and are starting to see the benefits of such involvement. An elected group of 7 volunteers active in fisheries issues have become the VMC. Now these members need help from PMMR research team, in capacity building on the concept of CBNRM and sustainable livelihoods.

3.7.3 CHALLENGES OF RESOURCE MANAGEMENT:

Since political parties are active in the villages, the VMCs become members of a political party. Some members of the VMCs joined the campaigns for commune council and national assembly elections in 2002 and 2003 respectively. Yet the game of party politics

has made VMC and villagers distrust each other in term of natural resources management and other village development activities.

Some issues have occurred in their villages through lack of communication. The backing of illegal activities by powerful people may contribute to the difficulty of constructing close relations between the VMC and stakeholders, particularly the armed forces (Police and Navy) in the area. Aside from this, the VMC itself still does not always have the communication or negotiation skills to create good relationships with other stakeholders. Most of VMC's members complained that the local governments did not care enough about resources management, but they backed illegal activities. Therefore, these VMCs do not enjoy the full support of villagers (who may see the VMC as a political party rather than recognizing that their mandate is to focus on resources), and they are often challenged about their activities by the community.

There were a number of meetings between VMCs and local villagers, often facilitated by the PMMR team. Different strategies were used for these discussions including in small groups, as individuals, and also meetings with all key actors in the community. The situation has improved and is now more functional. Although, the main activities of the VMCs are moving forwards, not all villagers or competent institutions participate fully in term of the coastal resources management. Poverty of local people in this area is a key issue, and many people are small-scale fishers that face pressure from many factors. Most fishers in the area are able to fish only in shallow water, and it is difficult to fish in the rainy season, when freshwater flows increase, fish move to deeper water, and face pressure from outside fishing boats. So, VMCs and fishers request that PMMR research team continue to assist them until decentralization policy of the Royal Government of Cambodia is in place.

3.8 RELATION OF CC, VMCS, AND OTHERS TECHNICAL DEPARTMENTS

The commune councils (CC) were formed last March 2002. In the law dated March 19, 2001 on "Commune/Sangkat Administrative Management", the CC has many more duties (compared to the former law) according to the government policy on decentralization. The CC's challenge is to handle development and poverty alleviation in their commune. The CC is now in the process of preparing commune development plans, after taking part in a two-day training course facilitated by the Provincial Facilitation Team, under the Siela Excom (see figure 1).

Each Commune Council, working with the Planning and Budgeting Sub-Committee, prepares an annual Commune Investment Plan (CIP). This process enables the commune to prioritize issues, and potentially access government and donor funds to support development in their area. The discussions with the CC in PKWS shows that the villagers' needs include: schools, safe drinking water, hospitals, roads, dams, and dredging Koh Kapic stream. Although resource management planning, such as mangrove replanting, were part of the CIP they were not ranked as priority issues. This is not surprising, the desires of local people are seldom exclusively ecological or NRM in nature. Like people everywhere, residents in coastal communities desires practical services such as

health, education, infrastructure, etc. Even though KSL residents consider NRM important, they will still have such desires.

As mentioned the CC is responsible for a wide range of tasks regarding the development of the commune, while the VMCs can focus on one area, resource management. As well, provincial technical institutions work towards their mandate, i.e. the fishery department focuses on the development of the fisheries sectors including tax collection and monitoring on gear types, while the environment department concentrates more on conservation and protection rather than development or generating government revenue. Since each organization has own agenda, the combination of different interests is very important, in order to accomplish resource management within any village. Recently, the PMMR organized a workshop on “Creating a Vision of Coastal Resources Co-Management” in PKWS and Chrouy Pros Bay to assist stakeholders in coastal community to work together in term of cooperation and sustainable development.



Photo 13: Workshop Participants on Visioning of Coastal Resources.

Box 5: Visioning of Community in Koh Kong

Stakeholders (local communities; village, commune and district authorities; armed forces; relevant technical departments) in Koh Kong province recognize that coastal resources are degraded through illegal fishing activities, over-fishing, 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 amongst all stakeholders (including 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. This will not only serve an ecological purpose, but also benefit the social-economical environment of rural communities. Eco-tourism may be one other way to improve coastal livelihoods.

Source: Vision On PMCR in Koh Kong Province, January 14-16, 2004

3.9 IMPACTS OF HAVING VMC

The formation of VMCs is ideally aimed at the organizing communities with more of a focus on natural resources management. These communities are not, yet, officially supported by the law (a sub decree on community fisheries management is nearly signed,). However, there is an informal policy of support from local authorities and technical departments. This is because they realize that there are many positive changes, and the condition of the coastal resources have more improved since the VMCs are in place.

The VMC activities have impacted on a numbers of things since it was formed: enhancing community members' understanding of CBNRM, improving the coastal environment and livelihoods, building the capacity of resources users, and improving the relationship and cooperation among stakeholders from local to international levels within expectation of sharing sustainable resources management and livelihoods.

CBNRM concept goes into practice: Before the PMMR project was implemented in the PKWS areas, local communities thought that the tasks of coastal resources management were the responsibility of government officers. Yet, after the concept of CBNRM was introduced through training workshops and study tours, communities are willing to participate in the conservation and protection of natural resources. The VMC's members have started discussing the effects of participatory protection of resources and finding ways to improve participatory NRM. The activities have made local villagers and stakeholders change their knowledge and attitude in term of participatory mangrove resources management. For example, some community members joined in patrolling, mangrove replanting, and some report illegal activities to the VMCs.

Resources management system improved: As mentioned above, the resources in the areas were severely depleted due to improper uses and the limited management. The VMCs have worked hard mobilizing within the communities, disseminating by-laws and regulations, and other relevant government documents, preparing action plans, sharing patrols, and seeking support from local authorities and concerned departments to provide technical advise and help solve the problems (when they catch illegal fishing gears). In the community managed areas patrolling activities have been conducted by communities with the rangers or local police outside PKWS. Illegal activities were reduced, and offenders were educated and agreements made to stop their illegal activities.

Relationship and cooperation: VMCs pay attention to building relationships, and seeking support and cooperation from local authorities and concerned stakeholders. With no policy support for community fisheries management, it is hard for the VMC to convince local villagers and concerned government officer to join in their activities. However, these difficulties are overcome when they (the communities, local and concerned authorities) understand each other, and there is friendship between one another. Although VMCs are not directly under the government bodies, it is better that the VMCs have to go to them (the government agencies) first rather than waiting. The dialogues have taken place in more informal ways. These are the key factors to make the relation become closer so that co-operation develops. Secondly, the VMCs regularly reported to the commune police, commune council, and government staff regarding whatever they were doing. In comparison to when they were first created, the VMCs now have more support from stakeholders. For instance, the commune police of KSL and CP who before made excuses not to help the communities are now active in joint action when requested by the communities.

Improvement within the VMCs: The VMCs needed assistance from the project team during their formation in terms of organizing community works, facilitating VMC meetings, developing community action plans and so on. The VMCs' capacity have been growing steadily day-by-day; for instances, now they can perform tasks themselves such as

holding the discussions among VMC members or group leaders, organizing patrols with rangers, seeking help from the commune police when necessary, initiating and developing a Community Order. As the VMCs get stronger, they help local government authorities. The head of KSL expressed that now with the establishment of the VMC it is easier as villagers are more organized, conflicts have been reduced, and villager's livelihood activities are shifting towards sustainable ways.

3.10 POTENTIAL OF CO

CO is a process by which a community empowers itself by working to identify its needs and to resolve its problems in a collective manner (IIRR 1998). For example: after community organizing, the VMCs of Koh Kang, Koh Sralao, Koh Kapic and Chrouy Pros have created their own action plans. These action plans include (a) patrolling, (b) environmental education, (c) mangrove replanting, (d) home gardening, and (e) village sanitation. Additionally, these activities are helping the VMCs to work on conflict-resolution within their village, and between villages. As a result, the coastal resources of PKWS are felt by local people and by provincial government staff to be improving, especially mangrove forests, fisheries, and birds.

This paper has focused on the creation and activities of four local-level resource management institutions, facilitated by the PMMR project, yet in fact PMMR used two methods to support community-based management in PKWS, Koh Kong Province.

- ❑ The first method was to support and strengthen local management systems (commune and village management system by government structure in Figure 1) where there was stronger local knowledge and people were already engaged in resource management activities. Here, it was felt that new institutions did not need to be created, given the strong leadership on resource management. Rather supporting these leaders through involvement in workshops and regional activities was felt to be more appropriate.
- ❑ Second the PMMR team spent a lot of time to work with four villages where there was less vision related to resource management. It was requested by these villages to organize management systems (call CO or VMC), which are mainly intended to establish fisheries and coastal resources management for their respective villages.

This paper illustrates how community-based management looks in one area of coastal Cambodia. Although guidelines are now needed to help with community-based management throughout the country, it is important that such guidelines are broad enough to allow villages to find the best means in addressing their problems (which may or may not involve the creation of a village management institution). In some cases village chiefs can be supported, in other cases village management committees can be created. That is, there are benefits to working through an elected resource management committee i.e., greater representation of villagers and joint decision making just as there are benefits to working through a village headperson i.e., working within traditional village-based institutions, which continue to carry significant weight. Each 'system' has its merits: only this paper focused more on the creation of VMCs.

3.11 CONCLUSION

Community-based natural resource management is a new concept to Cambodia; however, with rapid coastal resource declines (and declines throughout the country), the RGC has placed efforts to promote the integration of these resources. A positive sign of this effort are policy reforms taking place within the forestry and fisheries sector to support local initiative of natural resources management, a community forestry sub-decree has been passed, and a community fisheries sub-decree is close to approval. These policy ‘reforms’ help both PMMR project and the VMC’s move forward with high expectations from the local community, now knowing that formal policy will eventually support the VMC work. Instead of community-based management, PMMR’s work has been facilitating a process that is more appropriately termed co-management, to bring all stakeholders into the process, including fisher communities, technical institutions, and local authorities.

Possible actions, and a result of creating VMCs, are that most villages in PKWS are able to control and manage their own resources, and participate in improving the coastal environment. The villagers start understanding that mangrove forests are crucial habitats for fish and their daily livelihoods. The members of the VMCs are active working with their fellow villagers and the PMMR team to share their responsibility on coastal resources management. Furthermore, they work with other stakeholders under direct and indirect facilitation by PMMR to develop their village by building the schools and pagoda, mangrove restoration, villager health care and etc.

CBNRM experiences are being mainstreamed into the commune council planning process through the decentralization policy of the RGC. Positive experiences from the ground level of fieldwork (in Koh Kong but also in other parts of Cambodia) are taking place for the community development under the Seila program and other projects. The VMC’s activities on natural resources and environment management in particular are consideration favorably by decision makers at all levels.

However, local community participation in the management needs more time and skills for helping them achieve self-responsibility in the future for sustainable natural resources management. Furthermore, the technical and financial support from outsiders is still needed for strengthening the participation of all stakeholders for the long-term benefit of sustainable development. A key lesson from PMMR’s work is that each VMC will look a little different as each context varies, and that facilitation with VMC committees, which can come from provincial level government or NGO staff, is an important part of addressing and solving resource management issues.

3.12 REFERENCES

- Agrawal, A., and Gibson, C., (1999), Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation, World Development 27(4): 629-649.
- Chey Pichrathna, Som Chea, Suy thea, and Leng Somath (2002), Community-Based Coastal Resources Management Case Study from Preah Sihanouk “Ream” National Park and Peam Krasaop Wildlife Sanctuary, Kingdom of Cambodia.
- IIRR (The International Institute of Rural Reconstruction), (1998), Participatory Methods in Community-Based Coastal Resources Management- volume 1 introduction papers, volume 2 and 3 tools and methods, IIRR, IDRC, CIDA.
- Li, T.M., (2002), Engaging Simplification: Community-Based Resource Management, Market Processes and State Agendas in Upland Southeast Asia, World Development 30(2): 265-283.
- Marschke, M. (2003). From Planning to Action: What can resources management committees do “on the ground”, Cambodia Development Review, (7)3: 7-10,12.
- Marschke, M. and Nong, K. (2003). Adaptive Co-management: lessons from coastal Cambodia. Canadian Journal of Development Studies (24)3: 369-383.
- McKenney, B., and Prom Tola., (2002) Natural Resources and Rural Livelihoods in Cambodia, A baseline assessment. Working Paper 23. Cambodia Development Resource Institute.
- Thouk, N. 2004. Opening Speech for Reviewing CFDO Activities. Phnom Penh, Cambodia: Department of Fisheries. January 8th.

CHAPTER 4: LIVELIHOOD ANALYSIS: ENHANCING LOCAL LIVELIHOODS THROUGH ACTION RESEARCH

Khy An, Kim Nong

May 2004

4.1 INTRODUCTION

One of the reasons that Participatory Management of Mangrove Resources (PMMR) has supported community organizing in Peam Krasaop Wildlife Sanctuary (PKWS) is to encourage local institutions to find ways to enhance their own livelihoods, given that these communities are dependent on coastal resources for their livelihoods. Hence, a balance between protection and exploitation of resources needs to be found. After Village Management Committees (VMCs) were organized in some villages at PKWS (Koh Kang, Koh Sralao, Chrouy Pros and Koh Kaptic villages), local communities in these areas became actively involved in community-based resources management to improve their livelihoods through coastal resources management.

The focus this paper is to explore livelihoods in PKWS. Livelihoods are examined, including the diversity of livelihoods found in PKWS and what local people consider to be good and poor livelihoods. Then, the different livelihood strategies that community members have tried, often with support from PMMR, are highlighted. Specifically, mangrove replanting, patrolling activities, home gardening and small-scale aquaculture are analyzed in depth.

4.2 HOUSEHOLD LIVELIHOODS ACTIVITIES

Generally livelihood diversity of local communities depend on existing natural resources in the area. In PKWS, Koh Kong Province such resources include fisheries and mangrove resources. However, livelihood activities in coastal area are sensitive to market demands, in this case because of the proximity to Thai market demands. Some households may have one or two specific livelihood options i.e. crab traps or gill net fishing while others have a broader range of livelihood options i.e. specialized fishing gear, middle person, farming. This depends on knowledge, skill, experiences, money, capital, human capital, gender roles within the household, cultural or religious aspects.

Households practice different livelihood activities within this area, including:

- ❑ The open sea fishing livelihoods
- ❑ The mangrove and sea-grass ecosystem fishing
- ❑ Honey collection or mangrove mushroom collection in mangrove forest.
- ❑ Aquaculture in mangrove ecosystem.
- ❑ Fisheries product processing (crab meat, shrimp paste, dry fish and shrimp)
- ❑ Making and repairing of fishing gear (e.g., crab gill nets, fish gill nets, crab traps).
- ❑ Fisheries product middlemen/small-scale fisheries trader
- ❑ Selling of labor for crab meat collection, fishing gear repairing, farming, construction, secondary upland forest collection;
- ❑ Animal raising like as pig, chicken, duck, etc
- ❑ Upland farming, rice fields and home gardening
- ❑ Selling of fresh water
- ❑ Shop seller at home

- ❑ Small food shop sellers
- ❑ Coffee shop
- ❑ Distill alcohol (white wine)
- ❑ Cake maker
- ❑ Weaving thatch (for roof construction)
- ❑ School teacher
- ❑ Midwife or nurse
- ❑ Hair cutter
- ❑ Collecting of non-timber forestry production (e.g. sandal woods, pole, vine)
- ❑ Government official (e.g. village chief, commune chief, Park ranger, police, military)
- ❑ And other occupation such as: boat construction, carpenter, and mechanic.

Generally, the local communities in PKWS derive their income from different livelihood activities depending on season, skills, relationships, and capital. However, most people living at this area are dependent on coastal fisheries. For example, Marschke (2003) found that among household livelihood activities, 75% of households were involved with fishing activities and fish processing. Please see more detail in the table below.

Table 10: Household Livelihood Activities in Koh Sraloa (Note the total of percentage exceeds 100% because of the multiple activities per person)

Livelihood Activities		%
❑	Fishing Activities	75%
❑	Fish Processing Activities	75%
❑	Gathering and Collecting	64%
❑	Animal Raising and Aquaculture	64%
❑	Fish buyer and Seller	12%
❑	Moneylender	7%
❑	Middleperson (Fish buyer and Moneylender)	7%
❑	Hire labourers	41%
❑	Hands-on Person	33%
❑	Stay at home	36%
❑	Government Employee	20%
❑	Local Care	0%
❑	Selling	30%
❑	Karaoke Shop	3%
❑	Pagoda	3%
❑	Other livelihood Activities	26%

Source: Marschke, 2003



Photo 14: Fishing Activities



Photo 15: Crab Processing Activities

4.3 ROLE OF MEN AND WOMEN IN LIVELIHOOD ACTIVITIES

In the real situation, men and women some times can be involved in different livelihood activities. Usually work where men dominate includes work needing more physical effort ,such as fishing far away from home and offshore fishing, fishing labor, secondary production of upland forest collection, and fisheries business that is far from home. Based on our fisheries survey in 10 villages we found that there are 3,021 of man fishers and 317 woman fishers (PMMR,2004).

However, women and children are more involved with certain work such as: house work child care, shop seller, animal raising, home gardening, fisheries product processing(crab meat processing, shrimp paste processing), repairing or making fishing gear (gill net, crab trap or net) , and some other work not so far away from home. Women and children are more involved especially with simple fishing gear or hand fishing in the mangrove ecosystem or in sea-grass ecosystem such as: collecting oysters, mangrove snails, mangrove crabs and small grouper fish. These kinds of fishing need less physical power and spend less money and are very common for very poor fishers.

4.4 LIVELIHOODS CONDITIONS

In this study we divided livelihood conditions of local people into two different classes: good livelihoods (rich and medium) and poor livelihoods. (This is not a systematic system for dividing households, it just compares livelihoods within the local community). According to PMMR's general survey in the PKWS area and the results of a sustainable livelihood workshop in Koh Sralao village (Marschke, 2002) it was revealed that there are several factors related to livelihoods such as alternative livelihoods, social, and capital (money, owner property, and human resources), illiteracy (knowledge, skill), and power.

Villagers were asked to reflect upon what makes someone's livelihood 'good' and upon what makes someone's livelihood poor. The following list summarizes their thoughts:

Table 11: What makes a “good” or “poor” livelihood?

GOOD LIVELIHOODS	POOR LIVELIHOODS
<ul style="list-style-type: none"><input type="checkbox"/> Have more livelihood options.<input type="checkbox"/> Have literacy, knowledge, experiences, and skill to deal with their livelihoods.<input type="checkbox"/> Have enough work force to generate income.<input type="checkbox"/> Have inheritance or occupation from his/her parents.<input type="checkbox"/> Have financial support from their relative or other sources.<input type="checkbox"/> Have more properties,<input type="checkbox"/> Have few children.<input type="checkbox"/> Have good financial management skills and save income.<input type="checkbox"/> Have good relationship in their community or society.<input type="checkbox"/> Healthy family (less sick).<input type="checkbox"/> No gambling or less drinking (alcohol).	<ul style="list-style-type: none"><input type="checkbox"/> Have limited livelihood options.<input type="checkbox"/> Illiteracy, low knowledge, experiences, and skill to deal with their livelihoods.<input type="checkbox"/> Lack of work force to generate income.<input type="checkbox"/> No inheritance or occupation from his/her parents.<input type="checkbox"/> No investment capital for occupation.<input type="checkbox"/> No property owned.<input type="checkbox"/> Have more children.<input type="checkbox"/> No or poor strategy for managing and saving income.<input type="checkbox"/> Poor relationships in their community or society.<input type="checkbox"/> No peace in the family (conflict, unhealthy).<input type="checkbox"/> More gambling or drinking (alcohol).<input type="checkbox"/> Thief steals fishing gear (crap trap and

<input type="checkbox"/> Less fishing gear stolen. <input type="checkbox"/> No debt.	crap gillnets). <input type="checkbox"/> They are in debt with middle persons.
-----------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------

Source: PMMR, 2003

4.5 HOW TO IMPROVE COMMUNITIES LIVELIHOODS

Livelihoods are complex things and not easy. As mentioned in the table above, the good livelihood should deal with many things that can help both family and community. In PKWS, most local communities depend on fisheries activities, but this is mainly only in the dry season (Oct to May). In other months it is often difficult for community livelihoods because during the rainy season there are less fishing activities and limited alternative sources of income. One approach has been to discuss with communities and technical departments to find appropriate secondary activities that can help communities during the rainy season.

To solve this problem there needs to be a broader understanding of things that are involved and influence community livelihoods. Most of these things have been mentioned above. Thus to help communities to have good strategy of sustainable livelihoods, the researchers should understand sustainable livelihoods framework: human capital, natural capital, financial capital, social capital and physical capital (DFID 1999). It is hard for PMMR team to help a local community to understand the SL framework, since it is a general framework but it is a useful framework to guide researchers, to help ask better questions with local people. To build local community awareness around

In raining season the main fishing activities are mangrove snails collection and mangrove mud crab fishing but some fishers deal with green mullet fishing and a few fishers do fresh water lobster fishing and fresh water fish fishing. Some fishers (around 15 to 20 families) migrate far away from home to fish in Koh Sdach archipelago islands (2 hours away by boat). For other fishers they cannot migrate fishing far away from home, because (i) poor fishing equipments with small boat, (ii) lack of skill and experience for open sea fishing. Some people involved with upland secondary forest collection (vine and pole) or finding honeybee (Mr. Korng Dom, VMC of Koh Srolao communities 2003).

livelihood issues, the PMMR research team has developed simpler methods with using a PR approach to help them reflect by themselves on their daily life (see report of Sustainable Livelihood in Koh Sralao, Marschke 2002). For example: many tools of PRA have been used to help local community to understand their daily activity and to help them think for their future. The most useful tools that PMMR has used include: Daily Activities, Resources Mapping, Seasonal Calendar, Venn Diagram, Flow Diagram, Personal Story Telling, etc.

Building local community awareness and assisting them in understanding their livelihood issues are very important for improving local livelihood, because knowledge can help local communities to change their strategy for supporting their daily living.

For example:

Sovanna is a chief of VMC in Koh Sralao, He also is a fishermen and middleperson for fish buying in the village too. During the rainy season, he always complains that he has low income from fishing activities. After learning the concept of sustainable livelihood from PMMR, now he tries to do farming in another province during the rainy season, and come back for fishing activities at his village in dry season (Sovanna 2003).

As for other villagers, they think that they came to PKWS to live temporarily and find income only, after having enough money, they planned to leave this area to their home town. But now they have decided to live in the area and be more involved with coastal resources management for their livelihoods and that of their children (Koh Kang fisher 2004).

This is the early experience of PMMR that has been helping local community in PKWS to think the long-term perspective for their living. However, the capacity building for local community to understand the concept of SL is not enough, the local community needs other help from outsider both financial and technical support for their activities. Based on this, the PMMR worked hard to communicate with other donors both NGOs and government sectors for get support, and to distribute the field research learning to them for helping local community on sustainable development. There is no single or simple way to improve the livelihood of local communities, but the researchers or facilitators need to use flexible methods that can help local community easily learn and adapt, especially to enhance local knowledge and skills rather than bring high technology for their learning (see experience of the report on Crab Fattening Trails, PMMR-2003).

4.6 LIVELIHOOD STRATEGIES IN COMMUNITY-BASED COASTAL RESOURCES MANAGEMENT

This section examines, in detail, livelihood strategies and activities that PMMR has facilitated with local villagers which include: mangrove rehabilitation, patrolling, water supply, home gardening and small scale aquaculture experiments.

I did not really think that resource management would improve our livelihoods, but we are now able to solve some problems... We feel that our coastal resources are improving a little bit as a result of our work (VMC and fisher 2003)

4.6.1 MANGROVE REHABILITATION

Since the mandate of the PMMR project in PKWS started in 1998, PMMR has supported mangrove replanting in different areas in PKWS such as in Peam Krasaop, Koh Kang, Koh Sralao, and Koh Kapic villages. This activity was an opportunity to help local fishers and local authorities participate in conservation and protection of coastal resources. Building on the awareness of stakeholders, mangrove rehabilitation has been recognized as important activities to support local livelihood and coastal environment. Through understanding this importance, now the Governor of Koh Kong province has supported the contribution of rice every year since 2001 to encourage local community to participate in mangrove replanting and protecting the coastal resources.

Table 12: Result of the Mangrove Replanting in PKWS

Date	Location	Participants	Growing Area	Supported by
July 1998	Peam Krasaop Village	40 people People who make charcoal in PKWS and led by Provincial Environmental Department	2 ha	PMMR

June & August 1999	Peam Krasaop & Koh Sralao Villages	8 families Poorer families in village and assisted by chief of commune and village	7 ha	PMMR
June 2000	Koh Sralao Village	20 people Villagers led by chief of village	2 ha	PMMR
July 2001	Koh Sralao & Koh Kang Villages	363 people VMC members, school children, representative of village, commune and district and provincial departments, PMMR team and PKWS rangers. This activities led by VMCs and facilitated by PMMR team	10 ha	PMMR and Governor of Koh Kong
July 2002	Koh Sralao; Koh Kang & Koh Kapi Villages	371 people VMC members, school children, representative of village, commune council and district and provincial departments, PMMR team, PKWS rangers, and local police. This activities led by VMCs and facilitated by PMMR team	43.5 ha	PMMR and Governor of Koh Kong
July 2003	Koh Sralao & Koh Kang Villages	324 people VMC members, school children, representative of village, commune council and district and provincial departments, PMMR team, PKWS rangers, and local police. . This activities led by VMCs and facilitated by PMMR team	17 ha	PMMR and Governor of Koh Kong
Total Area of Mangrove Replanting is: 81.5 Hectares				

Source: PMMR 2004.

Even though, some community members at PKWS are not involved in mangrove replanting, they have the perception that *"the mangrove protection is important"*. Mangrove replanting is necessary for some areas in PKWS where mangroves were heavily destroyed and they don't have the capacity to re-grow naturally. The mangrove replanting is also one strategy to convince local community and relevant stakeholders to participate in mangrove forest management and to link to community sustainable livelihoods, because most fishers in PKWS depend on the mangrove eco-system.

We know that the resource management committee will help us. They have taught us about mangrove replanting and about protecting our resources. There are more crabs this year near the mangroves, and we now understand the relationship between mangroves and a healthier fishery (a fisher 2003).

Although there are no baseline data to supplement villagers' perceptions of increased resources, what is important, at this point, is that villagers believe in this work (Marshke 2003).

Village management committees have created 'action plans' to support their mangrove replanting activities. Workshops and subsequent discussions with villagers found that rehabilitation of the degraded areas was the first activity that can be undertaken by the communities: mangrove replanting was a priority. Therefore, the community members who have a benefit from mangrove forest via the different occupations were involved in

mangrove replanting such as fishers, former mangrove charcoal producers, shop sellers, middlemen, and local authorities as well. To encourage the community to participate in mangrove replanting rice was used to support those who participated.

In mangrove replanting, mangrove species are selected based on geographical condition, background of mangrove replanting areas, available species, species that are easy to replant and grow fast, and whether a species can provide benefits to the communities (economic and biological, ecological value). Time for mangrove replanting is also a factor because mangrove seeds or propagules need to be available. Usually, mangrove replanting in PKWS takes place from the second half of May to first half of August for the selected species. The mangrove species for replanting in PKWS are mainly *Rhizophora apiculata* and *Rhizophora mucronata* with some small amount of *Ceriops decandra*. *Ceriops decandra* species that was replanted during 1999 in an abandoned shrimp farm in Koh Sralao now are mature and have started to flower.

Box 6: The Main Purposes of Mangrove Replanting

- To make community friendly with nature.
- To make community consider mangrove as their own property.
- To convince mangrove cutting people to participate in mangrove protection.
- To improve mangrove ecosystem in the degraded areas.
- To improve biodiversity in mangrove areas especially for fisheries resources that can support community's livelihood, and small-scale fisheries.
- To educate the communities in understanding the importance of a lucrative mangrove forest resource for sustaining their livelihoods as a source income.
- To raise awareness of communities in the participatory mangrove protection.
- To provide knowledge of mangrove replanting and managing to the community.

PMMR field observations in the mangrove replanting areas reveal that conditions of mangrove replanting areas are improving step by step. Soil condition is improving now as it becomes softer or muddy and keeps moisture during low tide even though the soil is exposed to sunlight for a long time. Some mangrove fauna species such as crab, snail, and clam that had decreased or disappeared before, are now coming back to live in the mangrove replanting areas. We also see that some women fishers group of mangrove snail collector were collecting mangrove snail in this area and discovered some trace of mangrove mud crab traps fishing in this area also.

From this evidence, we can evaluate that a mangrove ecosystem now is under improvement and a community can get a benefit from a small-scale mangrove fishing activity. In the near future, the community can harvest some fire wood from this areas based on a technical methods such as thinning the mangrove trees where they are too dense or using the lopping methods of cutting some mangrove branches off. The rest of the mangrove trees can keep growing in order that big trees can be preserved to support



Photo 16: Increased Fishery Products Resulted from Mangrove Resources Protection and Conservation

community livelihoods as environmental protection, biodiversity or fisheries conservation, eco-tourism, and local consumption.

4.6.2 CONSTRAINTS OF MANGROVE REHABILITATION

The result from the replanting has had some problems in site selection, mangrove seedling protection and maintenance. These problems resulted in unsuccessful planting in some places, especially for the first replanting. There are some factors threatening mangrove seedling: natural factor, biological factor and human factor. In term of natural and biological factors, at the beginning of mangrove replanting in Peam Krasoap village was a wrong site selection for replanting. This area is exposed to strong winds or typhoon from the open sea during the raining season most of the seedling were killed by being covered with sand transported from the sea during a typhoon. At the same location the water in the inner part is quite deep and most seedling were killed by both natural factors such as high waves during strong winds, heavy barnacle attachment surrounding seedling or the crabs eating the bark of the seedling trunk.

For human factor, in the Koh Kang area the fisher from outside fish in the mangrove replanting area and their boat propellers cut and destroy the mangrove seedlings. For protection of new mangrove replanting signboards were used in replanting areas to prohibit fishing activities in mangrove replanting areas, but the outsider fishers usually ignored the signs. The local community does not want conflict with all of those fishers, because sometimes violence arises. It is possible to work effectively by cooperating with the environmental checkpoint staff on mangrove seedling protection. The local community also needs all those outside fishers who are getting benefit from mangrove ecosystem to participate in a mangrove protection. They often proposed PMMR team to educate outsider fishers on an understanding and respect of what the community in PKWS tries hard to do on coastal resources management and also need to engage all the outside fishers to join and support in mangrove protection for common use and sustainable use for next generation.

4.6.3 CREATING ACTION PLANS FOR COASTAL RESOURCE PROTECTION

Knowledge and experience from the above activities has stimulated the communities to start thinking about an improvement of their quality of life as it is linked to natural resources ecosystem and sustainable management. They have identified the problems and issues to be addressed and the appropriate objectives to achieve their goal. Several alternative strategies are arising in the community action plans. Mostly the community members focus as first priority on resources management with



Photo 17: Patrolling by the Community

patrolling activities as an urgent solution to protect their coastal resources. One member of community said "no one knows about illegal activities better than the communities themselves" (Veng 2000). When the local community is involved in coastal resources management, the illegal activities are reduced, especially the charcoal production in PKWS. They know the "what, where, when, how and who" about the illegal activities,

because these things always happen in their community areas. Thus, the communities believe and trust in themselves to effectively participate in the coastal resource protection.

The complicated geography of PKWS is covered by a large mangrove forest with several streams and many creeks linked to each other in the estuaries making it complex and difficult for the community to protect against the illegal activities. Zoning within their own community area is one strategy that has been used by Koh Kang and Koh Sralao with recognition by government agencies, especially Minister of Environment and Provincial governor (see community's map in the attachment). The purpose of zoning is to make it easier for community patrollers set up more detailed action plans to protect against illegal activities.

However, for simplifying patrol work the communities needed to create their own guardhouses in a spot that is near where the illegal activities are usually happening or in a spot where the illegal fishers always pass. The communities mentioned that a guardhouse could be used to guard or to control the illegal activities or for the patrol team to relax and stay during their working time. Moreover, the guardhouse can serve as a educating place for the illegal persons, relaxing place for fishers, and also solving place for fishing conflict.

The PMMR project negotiated with DANIDA Coastal Zone Management Project to provide financial support for community guardhouse construction as a part of sustainable livelihoods support. Three guardhouses were constructed with two guardhouses located in Koh Sralao community and the third one in Koh Kang community area. Engine boats, binoculars, cameras, radio transmitters, and fuel were also provided to support community-patrolling work too.

Communities manage patrolling works

According to the community by-law and internal order, they have procedures regarding patrolling work such as, organizing the patrol groups, setting up monthly work plans, and preparing patrolling sheet.

- ❑ **Patrol group organizing:** In terms of patrol group organizing, each community is organized into several sub-groups depending on the actual group structure organized in the community (see Community organizing structure). Each sub-group has a duty to respond to patrol work mentioned in the monthly work plan. Each time of patrolling has at least one Village Management Committee member to lead the team and the members of the patrolling team come from a group or deputy group leader and community member to join. Patrolling groups have 4 to 5 people each time of patrol. In some cases the patrol group needs to cooperate with other relevance institutions in term of solving illegal activities dealing with offender, especially with environmental ranger, chief of commune, fisheries staff and local police.
- ❑ **Patrolling monthly work plan:** Usually, according to a community schedule of patrolling activities each month has six to eight times for operation. To strengthen the patrolling, community has organized a routine plan for 2 to 3 persons in each time. In some cases the patrolling activities may be more or less than actually planned depending on the information the committee gets from a community member who has seen and informed them about an illegal activity in the

community area. The patrol committee then immediately calls for a patrol team to go to stop this illegal activity and catch the illegal persons and solve it based on a community by-law. According to the by-law the offender is educated and contracted at the first offense, at second time and so on the person is fined based on the scope of the illegal action. The illegal equipment is some times also confiscated or destroyed if that equipment has been considered a danger to natural resources.

- ❑ **Preparing patrolling sheet:** To strengthen and to monitor patrol work for effective community by-law implementation, documentation is considered important. The community has prepared some documents for patrol activities. There are an actually illegal activities reported, offender contract letter, patrol report, and a table of illegal activities census. All these documents can be used as evidence to show the scope of illegal activities and community by-law enforcement on offenders. To report to relevant institutions for help or for awareness. To keep as community file to follow up and evaluate on patrolling activities and use it to improve or build up new work plans in community.

Result and issues in Patrolling

Actually, VMCs are playing a very important role and becoming actively involved in community development activities. The patrol work is a new experience for communities and it is still not work smoothly by the community alone, and they are still need support from other community development projects/programs.

Usually, for good results the patrol activities by local communities are always in collaboration with people from local institutions who are involved in resources management in the communities area. For example, the experiences of Koh Sralao and Koh Kang communities are always cooperated with park rangers or local police in their patrolling activities. One case that happened with VMC of Chrouy Pros involved violence between illegal fishers from outside and community patrolling group.

"The VMC in Chrouy Pros was patrolling, and they saw a fisher using a trawler within their community fishery area. They tried to stop the boat, but the boat returned to their village. The offender gathered his relationships to fight with the VMC patrol group. They were bigger than the VMC so the VMC retreated. They called PMMR, to help facilitate this issue. So, PMMR facilitated a meeting between the offender, local authorities and both VMCs in each village to understand the issue. Then, the Commune Chief suggested that in order to patrol the police needed to be involved in patrolling issues to ensure that no violence happens while patrolling" (PMMR 2002).

So, the wisdom, good relationship, understanding, and transparency with each other are considered as most important in cooperation for patrol works, without these it could not achieve its goal.

In terms of patrol work, some community members are not so much involved or try to ignore participation. It is difficult for the community to share rotation turns to stay permanently in the guardhouse. They sometimes complained that they do not have time to be involved so much with patrol work and they must spend more time in fishing to support their subsistence livelihood. Another reason, some community members are not yet clear themselves on the role and responsibility, and benefit from community work. Furthermore, some illegal persons are not afraid of the community and do not respect community by-law. The community by-law is not strong enough to enforce smoothly and

effectively, because until now there is no law to support community's power and right in natural resources management.

However, as a real result of community patrolling it has been shown that the illegal activities are significantly decreased, especially in Koh Sralao and Koh Kang community areas. Until now, the communities have arrested and stopped many cases of illegal activities such as mangrove cutting, charcoal kilns, bird trapping, dynamite fishing, push net fishing, coastal circle net fishing, and have educated these illegal people. Furthermore, the VMCs are trying to work out most issues step by step, because their capacity, knowledge and experience are still young and inadequate. So, they still need both financial and technical support, until they are self-confident in coastal resources management.

4.6.4 WASTE MANAGEMENT

Waste is one issue that affects local community livelihood. Most households in PKWS are careless on waste management and all the garbage is thrown into the water or scattered somewhere else in the villages. Poor waste management system and lack of hygiene in the villages lead to some diseases that affect villager's health by transmission via mosquito, housefly, mouse, and cockroach. Malaria, diarrhea, fever, cold, etc always occur in their villages. Generally, environmental contamination from waste pollution within the villages has strongly affected community's livelihood, because the local community need spend a lot of money and time to take care of their family and they face loss of income. One woman just moved to live in the Koh Sralao village told the PMMR team that:

"Since my family moved from Nam Voun (Located in Eastern part of Koh Sraloa) to live in Koh Sraloa village, I feel that my children usually get sick so much such as malaria, fever, and cold. We spent a lot of money for health of our children. It could be due to a polluted environment in the village. If compare to the place that my family lived before; my children looked more healthy and no sick. At Nam Voun the environment is fresher than here (Veng Somsak's wife, 2002)".

PMMR team has played the important role as a facilitator and trainer to build local capacity for waste management in their village. Much training and many workshops have been conducted in their community providing both formal and informal education. Recently, waste management training was organized again in the Koh Sralao villager with participation by VMC members, chief of village, local police, environmental ranger, villager teachers and school children from other villagers within the PKWS (see waste management report-2004).

After holding several trainings/workshops related to environmental management, communities have taken disciplinary measure for environmental cleaning in the villages. Now, village environmental cleaning becomes part of the monthly work plan for the community, especially for Koh Kang and Koh Sralao villages. Most local communities have been impressed by the lead of their VMC. Children are major stakeholders too within participation on waste management, especially for school children that have their program for one day per week for cleaning the village and school areas.

To encourage of this work, a PMMR team also participated with Koh Sralao and Koh Kang communities a few times during an Environmental Day's in 1999, 2000, and 2002 as a demonstration to show the community about the practice of waste management. Recently, in a review of a whole village, garbage still remains somewhere, but it is better

than before. Even though, some villagers still do not pay attention or are careless about waste management, but this an old habit or community's custom that need to be addressed by educating and reducing step by step. It takes time to convince a community to have a good system of waste management and needs some more facilitating and training on waste management to community and a strong community order in place.

4.6.5 CRAB TRAP PROTECTION⁶

Generally, small-scale fishers in Cambodia have similar issues: declining of natural resources and losing fishing gear. Stolen fishing gear is becoming a complicated issue at the community level, and one of the pressures that affect community livelihood. It costs so much money for fishing gear. Most of local fishers have borrowed money from a middleperson to buy their fishing equipment, and they need to pay back by selling fisheries production to the middleperson who has given them a loan. If their fishing gear were stolen or destroyed by a chance, a debt will be more trouble to them.

In Koh Sralao, for example, crab traps were constantly being stolen, mostly by outside fishers but sometimes by villagers themselves with those using the same fishing grounds. After several brainstorming sessions, the Village Management Committee (VMC) decided to devise a system to enable villagers to recognize their own crab traps more easily, and established the internal order. The villager's internal order provides that a punishment would be strict for someone who steals fishing gear. The punishment is based on an actually scope of fishing gear stolen, i.e. in case of crab trap will be fined 500 Thai Bahts per trap (approximately US \$11.5) and one piece of gill net (around 250 to 300 meters) will be fined 5,000 Thai Bahts. Finally, an internal order on fishing gear protection and crab trap painting was implemented, and some people were fined for crab traps stealing. Based on practice experience the paint mark is a good strategy to remember by trap owner (Group leader 2003). Both the fine and painting mark could make a thief afraid to steal and has reduced crab trap loss. A VMC member further explains:

After many discussions we had an idea. Each group [of the eight that the village is divided into] has to mark their crab traps with the same color. Individual owners then, using this color, have a specific sign i.e. slash marks in certain directions indicates whose traps these are. So far, painting the crab traps has been a good solution for cutting down the stealing of crab traps. People that are caught with the wrong color traps are fined. Or, they are asked to give back new traps. We cannot solve all the problems, but this is helping our community a lot (Marschke, 2003).

In general, villagers are happy with this solution. One fisher commented, “I have had less traps stolen than last year. I now can sleep in the village at night, and am not afraid to leave my traps”. This solution is providing some security for fishers, and villagers are working together to watch out for boats that they do not recognize. Although crab traps do continue to get stolen, villagers felt that there was a decrease in theft and a better chance of recovery of stolen crab traps. This is one example of the type of local problem-solving initiatives engaged in by VMC for supporting local livelihood activities (Marschke, 2003).

4.6.6 SEA-GRASS SANCTUARY CONSERVATION

Sea-grass beds in Koh Kong Bay are considered as a productive coastal resource to support coastal community fisheries and coastal ecosystem. Most the coastal people who are living inside and outside a PKWS area are getting direct and indirect benefit from this area

⁶ Much of this section is sourced and adapted from Marschke, M. 2003.

through fisheries production. Especially the fishers from Koh Sralao and Chrouy Pros villages have a good income with seasonal small grouper fishing in the sea-grass bed. As a result of poor management and unclear responsibility of local government institutions, the sea-grass meadow at the Koh Kong Bay has been degraded and this has led to a drastic decline of fisheries production, especially grouper fish. These problems include over fishing, using inappropriate fishing gear (destructive fishing gears, i.e. motorized push net, hand push net, coastal seine net) and inappropriate fishing methods (catching very small grouper fish, and pollution from fishing activities). Furthermore, a high market demand for coastal aquaculture in Thailand is leading to a high pressure on fishing of fingerling and juvenile grouper fishes from 1997 till now and millions of grouper fish are harvested from sea-grass bed in each year (grouper fishers in Koh Sralao 2003).

In order to sustain community livelihood from grouper fishing as well as coastal environment protection, the PMMR project with local communities have discussed an approach to preserve this sea-grass area. Training and workshop are a key strategy to working at the community level with participation by local government institutions (chief of commune, local police, navy, fisheries and environmental staffs). The main objectives of these training/workshop are:

- 1. To increase local communities' awareness as well as other stakeholders' on CBCRM for sustainable livelihoods;*
- 2. To identify strategic management plans for sea-grass beds and juvenile grouper in the Koh Kong Bay, and;*
- 3. To enhance collaboration between local community, local authorities and technical departments on coastal environment conservation and protection.*

PRA tools have been used to identify resource mapping, fish species and habitat, fishing gears, stakeholders and conflict of resources uses. As a result from the discussion in the workshop at Chrouy Pros village on June 2002 with facilitation by PMMR team, local communities and local authorities agreed to establish small restrict area in the Koh Kong Bay near the Koh Sralao village which had internal order including:

1. 100 hectares of sea-grass test as a marine sanctuary for sea-grass protection and conservation of grouper fish and other aquatic fauna. All kinds of fishing are strictly prohibited to operate in this sanctuary.
2. Banning the use of motorized push nets to catch grouper fish, accept only hand push nets for grouper fishing.
3. A hand push netter must have a mesh size larger than 1.5 cm.
4. Fishers or middlemen are allowed to catch or to buy grouper fish that are larger than 5cm in total body length size.

Sea-grass bed protection as a marine sanctuary is very new experience for the community (PMMR report 2002). The establishing of sea-grass sanctuary was used as a pilot project to demonstrate to the community a fisheries resource management in sea-grass area to sustain a coastal community livelihood. Wooden poles were used to mark the sanctuary boundary. With participation of the Koh Sralao community, the ecological condition of this area has been enhanced step by step including both aquatic fauna and sea-grass flora; more small grouper fishes are living safely in this area without disturbances from fishing (Koh Sralao community 2003).

However, poverty and market pressure are affecting grouper fishers and sea-grass area management. Even though, some measures, as mentioned above, have been taken, the results from this activity are still not satisfactory. Encroachment of fishing into this sanctuary has occurred again by some fishers with support by powerful persons. One member of VMC has said "*it is hard for us to implement the community internal order, because we don't have enough power and right supported by law*" (A fisher, 2004).

At the present time in Cambodia, poverty and economic pressures make it difficult for the community to solve the issue that involve support by powerful people. Thus, the capacity building and the strengthening of community power and rights for coastal resources protection are still needed. The experience from the sea-grass sanctuary conservation has helped the local community to understand and realize what they learned from training/workshop and from their field practice. In addition, most of the local fishers still believe that no sea-grass will mean less fish in the community area. This fact has been stimulating all local fishers to continue working together again and finding a suitable approach for them to sustain coastal livelihoods in the future.

4.6.7 SMALL SCALE AQUACULTURE

Small-scale aquaculture is considered as an alternative source of income for coastal communities and it could help reduce over fishing and degradation of coastal resources. In addition, after anti-mangrove charcoal measures had been taken, many poor charcoal producers were facing unemployment. Thus, in a very hard situation these former charcoal producers switched their livelihood to small-scale fishing. To enhance this new livelihood the PMMR project tried to seek some appropriate alternative livelihood such as small-scale aquaculture.

Generally, it is rare for people living in PKWS area to be involved with small-scale aquaculture and most of the community livelihoods are based on fishing or mangrove charcoal production. The degradation of mangrove forest in PKWS area and drastic fisheries production decline became a complicated problem that influenced coastal community livelihoods. However, switching from charcoal production to another occupation is not easy, because they lack either skills and experience or money for carrying a new occupation such as fishing and aquaculture.

Looking at the geography of PKWS covered by mangrove forest with a large estuary linked to several streams and creeks to connect between upland and coastal area it is possible to support coastal aquaculture development. Some wild seeds for supporting culture species are available in this area such as grouper fish, mullet fish, green mussel, mangrove mud crab, shrimp, etc.

To help coastal community livelihoods, firstly the PMMR project tried to conduct some small-scale aquaculture pilot projects with some key persons of the communities to demonstrate to the community before applying this knowledge and experience by involving the local community.

For building up a concept of coastal aquaculture within the PMMR team and local community a training course on coastal aquaculture was organized by PMMR project facilitated by a local aquaculture technician and held in Koh Sralao village in 2000. After that, one international aquaculture technician from DANIDA project had a group meeting with PMMR team and community members to give some general advice on crab fattening methods. During 2001, PMMR project organized a study tour on crab fattening to southern Vietnam. The participants from this study tour were PMMR team, the key persons from PKWS community, and other persons who were involved with DANIDA/CZM project. This study tour was a part of small-scale aquaculture capacity building for all these key persons on knowledge of mangrove mud crab fattening.



Photo 18: Training Course on Small Aquaculture for Local Villagers



Photo 19: Pilot Crab Fattening

Aquaculture pilot projects

Grouper and snapper fish culture

As a first test, PMMR project tried grouper and snapper fish cage culture with Veng Somsak's family in Koh Sralao. The fish seeds for culture were bought from fishermen. There were several reasons that led us to choose grouper and snapper fishes. Firstly these species had good market value especially grouper fish had high market price either in Phnom Penh or Thailand. Secondly they were available in Koh Sralao area and thirdly PMMR project wanted to help fishers to get more profit from selling a big fish rather than a small fish size (in general, fishers catch a fingerling or juvenile of grouper fish and sell them directly to Thailand to supply aquaculture).

But this culture was not successful due to several factors. The cages design was not good and the cage location was too close to a village (to protect the fish from being stolen). Because of polluted water, parasites became a problem especially those attached on the fish gills and fish body. Shallow water during a low tide led to water temperature too hot to grow fish. Low salinity water in this area during the rainy season was not a favorable condition for growing the above fish species. These fishes are carnivorous species and ate so much trash fish that Veng could not catch enough trash fish to feed them. At that time, it cost too much money to buy trash fish for feeding. Market constraints in Thailand during the harvest time meant the price was quite cheap and it was not enough to cover the expenditures. However, it was a first time for Veng dealing with aquaculture. A lack of experience is considered as a main issue of grouper and snapper culture .

Green mussel culture

Another pilot project was carried out by PMMR project in 1999 in Koh Kang with the environmental checkpoint staff. The purpose of this was to test two different systems of pole and raft mussel culture. Usually green mussel culture in this area uses mangrove poles (species *Phoenix paludosa*) for culturing. Because mussel culture needs to cut so many poles, the project wanted to reduce using poles for culture and tried raft culture with a nylon rope to compare with pole culture. The results showed that mussel production in pole culture is better than raft culture.

However, the mussel production depends so much on Thai market and the price always fluctuates. It is a risk for the community to be involved with mussel culture because some times they have good benefit but some times they will loose. If there is not a market demand in Thailand the mussel cannot be harvested and most of the green mussels will be killed by fresh water during the raining season. Before 1998 most of the mussel meat production was used as fresh food to supply local shrimp farms.

Crab fattening

In these last few years a lot of fishers in the coastal area catch small size mangrove mud crabs (*Scylla sp.*) especially from the mangroves in PKWS to export to support aquaculture in Southern Vietnam. Exporting this small crab to Vietnam gives little benefit to Cambodian fishers. It was thought that crab fattening could improve the community income especially for the poor fishers. It also can help the community to relate livelihood to coastal resources management and help the community consider the potential of small-scale aquaculture and to better understand the market system.

This pilot project tested crab fattening in two different locations within a mangrove area of Koh Kang and Koh Sralao. The system of culture was floating cages divided into small compartments. The mud crab seeds were bought from the crab fishers.

Results of crab fattening showed a loss of money, because of the crabs growing slowly. The small crabs were bought at a high price while the crab production sold was at a low price.

There are some weak points for this method of crab fattening:

Experience and technical knowledge of the PMMR team and community are still limited.

- ❑ Inappropriate crab cage design.
- ❑ Fishers were not able to suggest changes to the technical expert.
- ❑ Market constraint, crabs harvested at Chinese New Year in Cambodia and Vietnamese New Year resulted in limited buying crabs by middlemen.
- ❑ A lack of experience on mud crab seed species selection.

Many of the fishers are not interested in small-scale aquaculture. They are always thinking that it wastes a lot of time to be involved with this work and they can get only a small profit from small-scale aquaculture compared to fishing. In spite of the unsuccessful small-scale aquaculture testing, both the PMMR team and the communities have learnt something from these failures and can consider ways to improve it.

Some recommendation on small scale aquaculture

Recently, most of communities only have limited experience with aquaculture. An option is to consider more capacity building on small-scale aquaculture. If people have good knowledge or good skill on small-scale aquaculture it could stimulate their interest in aquaculture. One other main point is to explain to the community that small-scale aquaculture is only one of the alternatives or livelihood options (as secondary income) and not as the only source of income. Thus, women and children might be encouraged to be involved in small-scale aquaculture. However, this will require careful consideration of the appropriate species and appropriate technology. A survey on aquaculture market flow should also be helpful for small-scale aquaculture development. Aquaculture may be restricted to appropriate times such as seasonally or it may need to consider the time of the market demand.

For green mussel cultures it is possible to help the community with knowledge on mussel meat drying and processing. It might reduce some risk for mussel production when there is no market in Thailand for fresh mussels. On the other hand, mussel culture production can be a food supply for other aquaculture species (i.e. grouper, snapper and mud crab) or can be used as food for poor families. However, green mussel culture in Koh Kang area used so much mangrove palm tree species *Phoenix paludosa* that it has resulted in degradation of this species. So, another appropriate system of mussel culture instead of this pole culture should be tried.

Cage culture is only suitable for big size crab fattening (short time culture), because fattened big crabs have good market value while fattened small crabs do not. Therefore ponds and pens are appropriate for a long time culture period with a small crab size (crab grow out) because in ponds and pen systems the bottom can be remained salty during the raining season. Pen culture can be used in mangrove areas, but it needs good zoning and management before we can apply it to the community.

Moreover, other domestic coastal aquatic fauna can also be considered in small-scale aquaculture such as mullet fish, milkfish and shrimp.

To develop aquaculture to support community livelihoods, the market for aquaculture production is important. Basically fisheries production in Koh Kong has three markets: local market (in Koh Kong), other areas in Cambodia and export (to Thailand or to Vietnam). It must have clear data or information on markets related to different kinds of fisheries products (quality, species, and season) in different market areas. For instance, Southern Vietnam needs small mangrove mud crabs for supplying aquaculture; Thailand needs small grouper for supplying aquaculture and needs market size groupers, snappers, crabs and other high quality commercial fisheries species; while local markets will take species such as blood cockle, mackerel fish, and other medium and low quality fisheries products.

4.6.8 HOME GARDENING

Home gardening is not popular in PKWS area and it is not a high priority for the community, but it can serve as a supplement for the household. Usually people who live in PKWS area import either vegetables or spice plants (chili, lemon grass, ginger, lemon...) from Thailand or some other part of Cambodia for their kitchen. Home gardening could help the community save some small amount of household daily expenditure.

The PMMR project focused on both communities Koh Kang and Koh Sralao by selecting some families to test home gardening with this pilot project. In Koh Kang 15 families were selected and 25 families in Koh Sralao joined in the home gardening project with financial and technical supported by PMMR. The project purposes are: as a partial alleviation of daily kitchen expenditure, to enhance women and children to participate to improve income sources of families, as well as to make an interesting, experience on home gardening. Some types of vegetable for home gardening included: lemon grass, chili pepper, water spinach, herbs, and scallion. The results from this project showed that:

- ❑ The non-gardening households generally spent an extra 15,000 Riels per month on spice plants for kitchen compared to home gardening households.
- ❑ In Koh Kang 5 families (33.33%) and in Koh Sralao 20 families (80%) had good gardens.
- ❑ In Koh Kang 8 families (53.33%) and in Koh Sralao 5 families (20%) had satisfactory gardens.
- ❑ There were only 2 families with unsatisfactory gardens (13.33%) in Koh Kang.

Some successful gardeners are still going well, but some stopped when there was no more support from PMMR project. Maybe they need some more help from PMMR project such as budget management or education.

The main reasons why Koh Sralao community had better results were considered to be: Firstly based on geographical location of both villages, Koh Sralao has a more favorable land base and sufficient source of fresh water for gardening. Secondly in Koh Sralao there are permanent household members to take care of garden work. Thirdly in Koh Sralao there are more interested persons. Fourth skill and technical advocacy on home gardening was better in Koh Sralao. And fifthly it may relate to seasonality and geographical adaptation of different crops.

Bioorganic fertilizer or compost from waste such as fish by-products (low value fish, crab's shell from crab meat processing) is good for garden fertilization. This process could contribute to fishing waste clean up to keep a good environment in a village as well.

In Koh Kang, home gardening is probably not a good livelihood project. Gardening would be hard work, due to a lack of land and fresh water. However, it could work only in the raining season with some settled households and with specific crops.



Photo 20: Home Gardening

According to the PMMR team most failures in home gardeners were due to carelessness and disinterest in gardening of the households because they think it was not necessary for their livelihood. General all these people are poor families. The successful home gardeners were mostly from medium income families and they have different alternative incomes. The successful gardeners are always interested in gardening, probably they think even a small amount money saved from gardening is important for their livelihood (Per. communication with Rathna and Theavy 2003). From the home gardening project, the

successful home gardeners became a good lesson, which was imitated by neighbor households who were not supported by PMMR project to try themselves with home gardening (See detail in Annual progress report, July 2001-June 2002).

In order to make the community more interested in home gardening, it might help to explain more to them how they can benefit from gardening (i.e. for kitchen supply, save money, plants fresh and safe from insecticide or chemical contaminations), provide an appropriate technique and material, and encourage women and children to be more involved in gardening. The successful home gardeners possible use as community resource persons to advise and to share their experiences with other community members. It needs to deeply explain things such as: making a comparison of how much money household gardeners can save from gardening, even small amount of money is important. Showing alternative income (different sources of income) can help make livelihoods better.

4.6.9 FRESH WATER SUPPLY

People living in PKWS use freshwater from both rain and wells. Fresh water supply is one of the main issues of the coastal community in PKWS. Some villages of this area are located on small islands or low land, which is surrounded by saline water and are sometimes submerged during high tide and people need to buy or to get freshwater from another area, especially during the dry season, i.e. Koh Kang village, Pream Krasaop, Lam Dam, and Koh Kapic. Most of these villages have no fresh water source in the village, which makes life difficult for them. A lack of fresh water source causes problems such as: expenditure for fresh water used and some diseases in the villages. More diseases occur in the dry season than the raining season because of a lack of freshwater and poor hygiene in using freshwater. According to PMMR reports most diseases in Koh Sralao occur during the dry season (PMMR report on a workshop of the Koh Sralao community livelihoods 23-25 August 2002). Similarly, Koh Kang village also claimed that most diseases occur in the dry season, due to a very hot climate and insufficiency of freshwater supply (Personal com. with Koh Kang community 2003).

They use freshwater for drinking, in the kitchen, bathing, laundry, animals, gardening, fishing produce cleaning, house cleaning etc. In the dry season people need to use more freshwater than in the raining season, because the weather is too hot and they also need more for fishing activities (i.e. for fishing produce cleaning or processing). Freshwater use can be high or low depending on people's livelihood activities or living condition. A PMMR survey on freshwater use in PKWS area showed that freshwater used for each person ranges from 13.33 to 75 liters per day. Normally, the average price of freshwater sold in PKWS is 30 Bahts per 200 liters. So a rough estimate for freshwater expenditure per person ranges approximately from 61 to 341 Bahts per month.

Some people need to buy water only in dry season and some people need to buy water in both the dry or raining season. Most medium income people have enough water containers or barrels for storage of rainwater for use, so they buy water only in dry season. Poor people do not have enough containers or barrels for storage of rainwater and they need to buy water in both the dry and raining season. However, sometimes poor people do not have water for use and they cannot buy water on time as needed, because there is no water seller at that time.

Knowing all the above freshwater supply problems, the PMMR project discussed with Koh Kang community to solve freshwater supply problem. The objectives were:

- ❑ To reduce money expended on freshwater use
- ❑ To find a strategy for permanent storage of freshwater in the village that can help poor people in urgent need when they cannot buy from a water seller.
- ❑ To help poor people who have not enough money to buy freshwater.
- ❑ To find some income from freshwater supply for supporting community works.

As a result of discussions, the community asked PMMR to support two big plastic containers each of 5,000 liters in volume for storage of rainwater for selling within the community at a reasonable price. The price of this community water is cheaper than the water seller, i.e. for community: one barrel of water of 30 liters is 2 Bahts and one container of water of 200 liters is 15 Bahts; for water seller: the same 30 liters is 5 Bahts and 200 liters is 25 Bahts.



Photo 21: Tank for Water Supply for Communities

In order to ensure good management and respond on freshwater supply within the community, they have organized a water supply committee of seven people, of which two persons are directly responsible for water container maintenance and water selling and the other 5 persons are from VMC members and a general manager to monitor and control all freshwater supply activities. The two persons get 20% of total income from selling water, and a rest of the income (80%) is used for routine stocking of water for selling and use for the common works of the community.

Until now, this community freshwater supply has helped Koh Kang community especially the poor people who have not enough water containers for storage. For poor people it is now easy to buy water in the village at a cheap price at any time either day or night.

However, freshwater transportation from outside the village for storage in the community containers remains a problem, especially during the dry season. It is due to a community lack of engine boat for freshwater transportation. Some community members also accuse the community freshwater seller of sometimes being partisan in delivery, but it may be only personal conflict within households.

Comment on freshwater supply:

- ❑ To educate the community on hygiene of storage and use of freshwater to protect from disease.
- ❑ To help community on supporting with some water containers.

4.7 CONCLUSION

Livelihoods in PKWS are dynamic and complex: it is not easy to enhance local livelihood strategies unless people themselves are actively involved in learning and strategizing around their livelihood options. Extensive work in the villages illustrates how some strategies can work, whether it is shifting markets for water supply i.e., shifting the middleperson chain or engaging in patrolling activities. Annual mangrove replanting activities, for example, can raise environmental awareness along with enhancing the

environment. Experiments with home gardening and small-scale aquaculture illustrate that small-scale projects may work for some households i.e., those interested in putting the time and effort to learn, and may not work for other households. There will never be an easy solution to enhance livelihoods: perhaps the best strategy then is to encourage reflection, action and experimentation as villagers and PMMR team members work together to learn and see what may work.

4.8 REFERENCES

- IIRR (The International Institute of Rural Reconstruction), (1998), Participatory Methods in Community-Based Coastal Resources Management- volume 1 introduction papers, volume 2 and 3 tools and methods, IIRR, IDRC, CIDA.
- Marschke, M., (2003), From Planning to Action: What can resources management committees do "on the ground", *Cambodian Development Review*, (7)3:7-10,12.
- Marschke, M., (2002), "Sustainable Livelihoods in Context: Learning with Coastal Fishers", Koh Sralao, Koh Kong.
- Ashley, C. and Carney, D., (1999) Department of International Development (DFID): *Sustainable livelihoods: Lessons from early experience*
- PMMR 2000. Case study on Smashed Livelihoods: Life as a Charcoal Producer in PKWS.
- PMMR 2002. Participatory management of mangrove resources (PMMR) project: Annual progress report, year II phase II, July 2001-June 2002, *PMMR/IDRC and Ministry of Environment Phnom Penh*.
- PMMR 2002. A case study. In: finding sustainable livelihoods, from Pream Krasaop Wildlife Sanctuary (PKWS) Koh Kohg Province, *PMMR/IDRC and Ministry of Environment Phnom Penh*.
- PMMR 2003. Workshop report. In Integrated Coastal Zone Management Planning of Chrouy Pros Community Fisheries, Koh Kong District, hold in 17 February 2003, *PMMR project/IDRC and Ministry of Environment Phnom Penh*.

CHAPTER 5: LEARNING, ACTING, REFLECTING, REFINING: FACILITATING NETWORKS TO SUPPORT CBNRM

Kim Nong, PMMR Cambodia
Melissa Marschke, University of Manitoba
April 2004

5.1 COMMUNITY BASED MANAGEMENT IN CAMBODIA

In part as a response to declining access to natural resources, community-based management (also known as community fisheries, community forestry or community based natural resource management (CBNRM)) has emerged in Cambodia. Although approaches can vary, communities are establishing management plans and areas often with support from non-governmental organizations (NGOs) or government institutions. In 2002, for instance, there were an estimated 162 community fishery sites and 237 community forestry sites in Cambodia (McKenney and Prom 2002). Many of the community forestry and fishery sites in Cambodia have an elected resource management committee (also known as a community fisheries or forestry committee) that is responsible for guiding resource management activities. How community based management unfolds, at a village or commune level (lowest administrative units), varies across provinces and varies between projects and government agencies.

Much of the initial community based work⁷, which began in the 1990s, was ‘experimental’ as community members and NGOs and/or government facilitators worked on understanding just what resource management could look like ‘on the ground’. Most of these village-level institutions were created in a policy vacuum, being recognized informally through appropriate signatures (from village headperson to the provincial Governor) and in some cases technical departments at a provincial or national level. These initial experiences, therefore, have contributed to the proliferation of community based management processes (or parts of these processes at least) now found across Cambodia, for example, through government decentralization programs, land management programs and community forestry and fisheries programs. Additionally, conservation NGOs have added ‘community based management’ into their conservation work i.e., Wild Aid, WWF, CI, FFI.

Community based management work in Ratanakiri (IDRC/UNDP/SIDA supported), for example, has informed much of the approach towards mainstreaming natural resource management within Cambodia’s decentralization program. Procedures for mainstreaming resource management within Commune Councils began piloting in 2003 in 40 Communes in three provinces (Pursat, Siem Reap and Kratie) (Seila 2002). Other experiences have fed into policy creation⁸ supporting community forestry and community fisheries i.e., the

⁷ There are several projects that have been working on CBNRM since the 1990s i.e. PLG, Ratanakiri; FAO-Tonle Sap; GTZ, Kampong Thom; IDRC, Koh Kong.

⁸ A number of legal mechanisms now support community involvement in resource management. For example, according to the Law on Management and Administration of the Commune, Commune Councils have a broad clause related to good governance and managing the use of available resources (article 41) and to protect and conserve the environment, natural resources and national cultural heritage (article 43) although Commune Councils have no authority over forests (article 45). Community forestry, therefore, can take place (according to the Community Forestry Sub-Decree), with approvals from the Ministry of Forestry (control remains highly centralized at this point). The community fisheries sub-decree is drafted, and is waiting for final approval.

Participatory Management of Natural Resources in the Tonle Sap project (FAO funding) significantly influenced the fisheries reform (Evans 2002). While some notion of community based management appears to be accepted, it is unclear if organizations (government institutions and NGOs) recognize the nuances and dedication needed from partners to ensure that such approaches unfold in a meaningful way.

CBNRM work has expanded across Cambodia; however, there is little analysis or synthesis of existing experiences. Therefore, it is hard to get a sense of what really takes place 'on the ground' with regards to CBNRM work once plans are finished, maps are made and approved. What issues are resource management committees solving and what support do they require in doing so? Rock (2004) comments that the community based management approach taken by government institutions generally leaves little initiative with a village, undermines the role of the Commune Council and provides limited management responsibilities and tenure security to communities. The trend in community forestry, for example, is to give degraded or disturbed forests for communities with the aim of protecting and regenerating resources. Valuable forestry, or for that matter fishery, resources are rarely allocated: in many cases, poor resource allocations do not enhance local livelihoods (Rock 2004). While CBNRM programs may make sense to endorse (in theory), it is more challenging to understand what it really takes to enhance livelihoods, solve conflicts or increase access to resources for the rural poor.

This is why the approaches taken, and lessons learned, by older community based management projects are worth closer examination. This paper follows upon the case presented by Marschke and Nong (2003) where it is argued that both 'bottom-up and 'top-down' strategies are needed to successfully bridge knowledge gaps and bring different players together to support CBNRM processes. Specifically, this paper examines the role that one project team, Participatory Management of Mangrove Resources (PMMR), has taken in creating partnerships to support CBNRM. Partnerships in this case occur at various scales: international partnerships; national partnerships; provincial partnerships; and community partnerships. This paper highlights the role of such partnerships, including an analysis of why such networks are key to facilitating CBNRM. Field 'stories' relating to stolen fishing gear, water conflicts and charcoal production shed insights into these processes. Unless adequate networking mechanisms and facilitation support are built into CBNRM processes, community management plans and maps alone will do little to enhance local situations or engage critical provincial and national actors.

5.2 PMMR AND COMMUNITY BASED MANAGEMENT

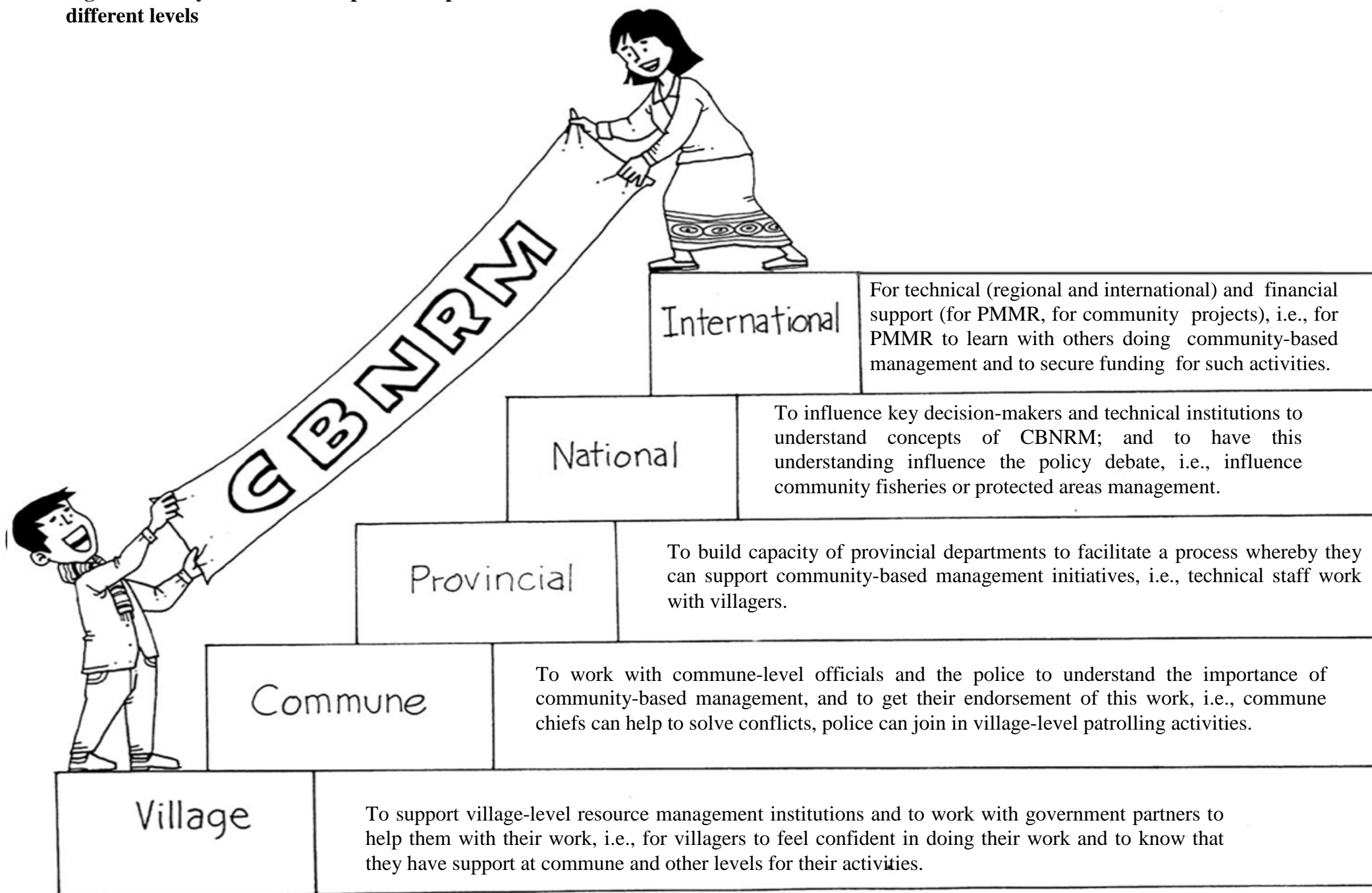
PMMR is an interdisciplinary research team at the national and provincial levels, and includes elected resource management committees at the village level. PMMR, funded by Canada's International Development Research Centre (IDRC), has worked in Peam Krasaop Wildlife Sanctuary (PKWS), Koh Kong province since late 1997. Based in the Ministry of Environment (MoE), the project team began with technical staff from the MoE at the national level, and staff from technical line departments in Koh Kong province: Department of Environment, Department of Rural Development, Department of Agriculture Forestry and Fishery. As the project evolved, additional staff from the national level i.e., Department of Fisheries along with partnerships with university and other NGOs were formed. Additionally, staff were added onto the provincial team i.e., Department of

Women's Affairs and over time village level resource management committees were elected and brought into the PMMR structure (see figure 3).

PMMR's main focus is to research how local level resource management institutions can engage in resource management and how local livelihoods can be enhanced. In adapting an action research approach, much of PMMRs learning comes from working directly with villages on resource management issues, and in networking with partners to better understand CBNRM processes.

PMMR has taken in creating relationships to support CBNRM. Relationships, in this case, occur at various scales (international, national, provincial, and community) and take place in various forms, i.e., through partnerships, through networks, and through facilitation by PMMR (see figure 4).

Figure 5: Why PMMR builds partnerships at different levels



5.2.1 INTERNATIONAL AND REGIONAL PARTNERSHIPS:

PMMR began in 1997, a time when only a few donors were working on community based management in Cambodia; local community based management movements did not exist at this time. Much of the initial emphasis of earlier projects was community forestry, and PMMR did not quite fit into this dialogue, given that the team was working in flooded forest communities with in-migrants in a protected area! Initially, therefore, a national-international dialogue was critical as national level staff wrapped their head around CBNRM concepts and international staff wrapped their heads around the particulars of the Cambodian context. Networking with other IDRC partners, therefore, was an important first step in PMMR learning about what community based management may look like, and for learning specific skills related to researching resource management issues i.e., participatory research skills, analytical skills.

Project advisors, visiting from Canada or living in Cambodia, have held multiple roles with the PMMR team: friend, facilitator, trainer, questioner, skeptic. Essential to this national – international dialogue, from PMMRs perspective, was that there was someone that questions could be asked to, or issues reflected with, as CBNRM work unfolded. Although initially Advisors played a critical role in helping to shape the project, with time this shifted into PMMR taking the lead position. The role of project advisors evolved over time and is now seen to challenge, in a supportive context, PMMR team members and to help them reflect and learn more from their experiences.

Networking, within Asia and in Canada

“My first trip to Canada, learning with other students, was really hard. I had been so excited to have the opportunity to learn from others. But, I found it really hard to follow the ideas or to share very much even though I had a lot of field experiences. I really had to make an effort, to speak and to get people to listen to me” (Ouk Li Khim, national PMMR counterpart)

Networking, in the region and through international study experiences (several staff have participated in university-level courses in Canada), always seem like a good idea. Many Cambodians, like people anywhere, believe that if they just have the chance to learn more it will all come together. Comments such as “we need more training” or “we need to build our capacity” are common, especially when embarking on a research project that demands an analysis of complicated situations. However, training, study tours and courses alone are not enough. It takes continuous practice, reflection, perhaps more training and then refinement before experiences can be synthesized and learned from.

At times cooperation with regional IDRC partners has felt forced, like something that PMMR was obliged to participate in; at other times, PMMR was excited by the opportunities that this brought. English skills, while decent, are not fluent for any team members and it takes serious effort to respond to emails, read documents, search the web or contribute to discussions. Regional experiences do take away from local level work; on the other hand, it can provide the ‘spark’ that helps people really get what they are doing. Over time, however, PMMR began to appreciate the value of such networks and the potential that such learning brought. “Sometimes I need to hear outside ideas, even if I don’t fully understand them, to consider if these may help me in my work,” notes An, a provincial team member.

Overtime PMMR became more sophisticated in ensuring that they could benefit from such exchanges. For example, when PMMR wanted to initiate a reflection session with local level institutions they contacted LeaRN, a Filipino CBNRM networking project, to design an approach that would enable PMMR to learn more about participatory monitoring and evaluation approaches. PMMR knew that they did not have the time to design an in-depth training; for LeaRN fellows it was an excellent chance to learn a new context, and to adapt their skills. After LeaRN facilitated a training session in Phnom Penh, PMMR was able to adapt these lessons to then facilitate an appropriate village-level reflection session (with back stopping from LeaRN). Such a networking approach, that enables both partners to learn, results in greater appreciation for context and differences. Moreover, it builds a pool of resource people in the region that can contact each other, long after projects end, to work issues through.

In August 2003 PMMR hosted a workshop in Koh Kong for fishers from Thailand, Sri Lanka and Cambodia. While fishers from Cambodia had participated in such exchanges it was the first time that this network came together in Cambodia. PMMR, in collaboration with local level resource management institutions, hosted this workshop. The emphasis was on fishers learning with each other. One fisher from Siem Reap province that attend this Koh Kong provincial workshop aptly noted, “we are linked into the world, and donors now have money for the environment. While sometimes this is a new way of thinking for us, if we think about our homes and what we do, it makes sense that we have to take care of the fish and the forest. I am just very sorry that those with power do not see the importance of this” (Marschke 2004).

Exchanges help broaden views of complicated issues: of government officials, of community members, of international ‘experts’. Moreover, PMMR was able to secure additional funds from this networking experience to enable one village to develop a waste management program.

5.2.2 NATIONAL NETWORKING

Since Cambodia is a hierarchical context, having high-level political support for natural resource management activities is essential. That is, one needs a policy environment that is both formal (laws) and informal (official endorsement). Take, for example, the ‘fisheries reform’. In October 2000, PM Hun Sen visited the provinces and heard about conflicts between fishers and the fishing lot owners: he immediately announced the release of 8,000 ha from the 84,000 ha under commercial fishing lots in Siem Reap province. By February 2001 the government agreed to release a total of 536,000 ha from the fishing lot systems for local community management (56% of the entire area under commercial fishing lots in Cambodia) (Evans 2002). Although no law was in place to support such a reform, the PM wields enough power to mandate such a change. On the other hand, it is perceived by many government officials that villagers have ‘low capacity’ or ‘limited skills and experiences for resource management’. The challenge, therefore, is how to break down such perceptions while getting higher-level officials to support CBNRM processes. PMMR has had to consider how to present CBNRM concepts, especially for those persons who can make decisions to support (or for that matter not support) community involvement in natural resource management.

Networking With Government Institutions: national and provincial partnerships

Certainly one direct benefit from extensive networking (meetings, study tours, field visits, workshops, drinking sessions) with different institutions is strong support from national and provincial government institutions for PMMRs CBNRM work. For instance, higher officials are willing to give their support to village-level resource management activities, even though there is no legal framework to mandate such things. That is, each local level resource management institution, known as a village management committee (VMC) has created a management plan, which includes rules and regulations along with an area to manage. These plans are recognized by appropriate technical institutions and by the Provincial Governor; additionally, those villages within PKWS are endorsed by the Minister of Environment. When dealing with resource issues, it helps the VMCs to know that they have support for their work i.e. whether to stop illegal activities or to try different village-level initiatives.

PMMR has had a significant influence within the Ministry of Environment and within Koh Kong province to enhance these decision makers understanding of CBNRM concepts. In the two phases of the project (1997 to 2004), PMMR organized a series of workshops and strategic field visits with national and provincial government officers whose mandate is to develop coastal resources and local livelihoods. This strategy, which involved consistently bringing key decision makers to the field and facilitating an exchange between villagers and government officials, is outlined in the following table:

Partnerships: enhancing a movement

IDRC partnerships:

Dalhousie University, Canada; LeaRN CBNRM Networking Project, the Philippines; Tam Giang Lagoon Project, Hue, Vietnam; IDRC, Ottawa, Canada; Coady Institute, Antigonish, Canada

Regional partnerships:

Songkla University, Thailand; Mangrove Action Project, Thailand; Can Gio Mangrove Reserve, Department of Forestry, Ho Chi Minh City, Vietnam; UNEP

National partnerships (NGO / Gov't):

CBNRM Case Study Writing and Networking Initiative; CBNRM Network (IDRC projects, quarterly meetings); Oxfam America; Oxfam GB; CFDO, DoF; CCU, MoE.

Strategic Koh Kong Partnerships:

Coastal Zone Management, Danida; Seila NREM Mainstreaming, Koh Kong; AFSC, Koh Kong.

Table 13: Creating Relationships with Strategic Government Officials

YEAR	PMMR OBJECTIVE(S)	ACTION(S) FACILITATED
1997	To introduce the Minister and Provincial Governor to mangrove fishing communities.	<input type="checkbox"/> PMMR organized a field visit for Minister of Environment and Provincial Governor to see the mangroves, and better understand the livelihood situation of several villages in PKWS; PMMR objectives for fieldwork were expressed at this point. Output: Key stakeholders began considering coastal environmental issues and the role of resource management by government institutions.
1999	To provide a forum to discuss mangrove conservation issues; To invite high officials to see mangrove degradation in PKWS (this happened during the	<input type="checkbox"/> PMMR invited representatives from MoE, and the Provincial Governor of Koh Kong to participate in a workshop discussing coastal resource management, from the perspective of provincial government officials. <input type="checkbox"/> Organized a field visit, especially to show the recently degraded mangroves near Koh Kapic village. Output: <ul style="list-style-type: none"> More government officials agreed to stop getting money from the

	1998 election period).	<p>destruction of coastal resources, and to participate in the conservation and protection of mangrove resources.</p> <ul style="list-style-type: none"> One District Chief, heavily involved in resource extraction, was removed from his position by the Provincial Governor.
2000	To facilitate a field visit with the Minister and the Canadian Ambassador to get endorsement for community based management.	<p>□ Since it was challenging for PMMR to get support for community based management, another strategy was to get 'top-down' support. Hence, PMMR invited the Minister of Environment and the Canadian Ambassador to visit the project site.</p> <p>Output: PMMR's work was supported by key officials, which helped get more support from local authorities and provincial technical departments. This meant that local communities gained more power and rights to be involved in the CBNRM.</p>
2001	To show decision makers of government officers of the process CBNRM in PKWS; To set up open forum between high officer government and local communities	<p>□ PMMR facilitated high delegation of government officials (Minister of Environment; Minister of Fisheries; Member of the National Assembly; representatives from USAID) to learn from the local community in PKWS about mangrove resource management.</p> <p>□ The enable villagers to share their issues surrounding community based management with high officials, including where more support was needed, and to allow for an exchange of ideas.</p> <p>Output: CBNRM was more understood as a concept by key officials within RGC; much of the legal framework has since been reformed to support local communities in natural resource management.</p>
2002	To monitor the local community's involvement on NRM, To spread out idea development of local community to donors.	<p>□ PMMR team and the VMCs organized a field trip for members of the Ministry of Environment, and the Provincial Governor, to show their results. This trip shows the high officer government to understand of community's need for their community development.</p> <p>Output: Provincial governor support rice every year to local community for mangrove replanting. Many generous people start to invest for the local community such as: school, pagoda, well, and village's clinic etc.</p>
2003	---	<p>□ Election time, not strategic to bring Minister as then work is seen as too political</p>

While PMMR has hosted multiple workshops and study tours, written reports and papers, and encouraged villagers to speak in multiple venues, undoubtedly the annual televised field visit from the Minister of Environment, and a host of other high ranking officials, has significantly promoted the work of these communities (see Table One for details). These visits, combined with annual mangrove replanting activities, are the two events that seem to stick in people's minds (villagers, and others).

Initially PMMR supported villagers to plant mangroves in exchange for rice. After several years, the Provincial Governor began supporting this activity himself. It appears that support for mangrove replanting continues to grow. This year (2004) a National Assembly member has pledged his support for the communities to replant mangroves in exchange for rice. As Sok Net commented: "did you hear that Tia Bun [National Assembly Member] will support our mangrove replanting? He will provide 15 T of rice for us, and 5 T for Koh Kapić [neighbouring village]. I'm really pleased." Net, although not a member of the VMC, participates annually in mangrove replanting activities. She was quite proud that a high ranking official would support her community. Hopefully such support will continue!

While the indirect spin-offs of enhanced awareness of community based management generally benefits villagers, or at least the VMC, sometimes additional attention can lead to conflicts between VMC members or the community. For example, the Ministry of Environment, unbeknownst to PMMR, issued a certificate of dedication to key villagers working on community based management in various protected areas. The Provincial

Director of Environment nominated one VMC member from Koh Sralao, and he was given this certificate. Other villagers were angry, because they felt that the entire committee worked on community based management and that one person should not be singled out, unless it was the VMC Chief. The Provincial Director of Environment never thought to ask PMMR, or the VMC members for that matter, and did not consider the internal ramifications of what was seen to be a nice gesture. PMMR, therefore, held group sessions with government officials encouraging them to think about the implications of their actions and with all VMC members so that people would not have bad feelings around one person being singled out, rather feel proud that someone in their village was recognized.

Local Authority Cooperation

In Cambodia, the term local authority refers to various administrative units that carry out various government functions. Thus, provincial, district, commune and village level administrative units all fall under the Ministry of Interior. Any community based management initiative requires both support and participation by local authorities, especially endorsement for such activities at the village and commune level (commune powers increased with the 2002 elections). If civil society movements emerge without local support there may be conflict: PMMR has taken the approach to involve local authorities wherever possible to help to ensure smooth operations at the village level. This provides the village level institutions with a line of communication, besides PMMR, when they wish to solve their conflicts.

However, the following story indicates the challenges of getting local institutions i.e. police and the VMC to cooperate together to solve resource management conflicts:

Dom was acting as the temporary head of Koh Sralao's village management committee (VMC), since the VMC head was temporarily searching out livelihood opportunities in another province. Whilst known to be passionate and not that clever, Dom's commitment to environmental protection is known amongst villagers. Stolen fishing gear is one of the biggest challenges fishers face, and sometimes the VMC is asked to help solve such theft.



Figure 6: Story for crab trap conflict

Sareun, a crab fisher from Koh Sralao, came across 40 empty crab traps near his fishing ground. No one claimed these traps during the time he was out fishing, so he decided to take the crab traps. When he returned to the village, he went to talk to Dom. They decided that most likely someone had started to steal these traps, and had then left them behind. So, they agreed to leave 3 traps at Dom's house, and the rest with Sareun, and to let villagers know that some crab traps had been found. They documented what they were doing (thumb printing the paper), to make it clear that Sareun had not stolen these traps.

A month went by, and no one claimed the traps. So, Sareun decided to sell the traps to someone in a neighbouring village, known as Po (this exchange took place at a communal fishing ground, Chrouy Pros Bay, used by both villages). A few weeks later, a fisher from Koh Sralao saw the crab traps and claimed them as his. Ha, the original trap owner, was

quite upset that someone from a neighbouring village had his traps and went to the police. The police then hauled Po in for questioning!

Sareun quickly called Dom, the VMC chief, to explain to the police what had happened. However, the police dismissed Dom saying that this was a matter for the police to handle and that he should not be involved. The police thought that the fisher, Po, had stolen the traps and should be fined. After an intense exchange of words between the police and Dom, Dom realized that he needed some help to negotiate this situation. So, he called to Rathana, a PMMR provincial facilitator, to help solve this conflict.

Rathana met with the police and Dom to help them find a solution. Since the police are meant to cooperate with the VMC on issues relating to natural resource management, Rathana encouraged each side to explain their story. Solving fishing gear theft is complicated, since gear often exchanges many hands. Eventually a solution was found. The original crab trap owner, Ha, got his crab traps back; and Po got half his money back from Sareun. It was not a perfect solution but this was seen as fair. More importantly, it was agreed that in the future the VMC had to work directly with the police, and to notify the police when stolen gear were found.

Stolen fishing gear is a constant issue within fishing villages: sometimes the police are in on this; sometimes villagers steal from each other; sometimes the VMC makes mistakes in how they handle a situation. PMMR, as facilitators, are an important backstopping option for villagers to turn too. Smaller conflicts generally can be solved, but sometimes require outside facilitation to ensure this. Adequate support needs to be lent to these VMCs to help them solve their issues related to resource management; if not, CBNRM process will fall apart.

5.2.3 COMMUNITY PARTNERSHIPS

Although PMMR was always welcomed into the villages, since the team is composed of provincial and national staff, and Khmer culture demands deference to those with higher authorities, this relationship has changed from one of formality (or perhaps even co-opted) to cooperation. Villagers initially agreed to anything that PMMR suggested, even if they never planned to undertake an activity or felt something to not be appropriate. For example, villagers agreed to do monthly garbage cleanups but never followed through unless PMMR came to the village. After five years of thinking about waste management issues, however, one village has now devised their own waste management system, and is in the process of trailing this! Over the years villagers became more comfortable in expressing their views and in connecting with the team, at the provincial office or even in Phnom Penh. Meanwhile, PMMR realized that there was much to learn from villagers, and that each field visit would bring some new learning or insight into their reality. It took years of field visits, trainings, exchanges and trying out different activities for the current approach to emerge.

Until now four VMCs were elected by villagers i.e., four village level resource management committees have been created. These committees, to varying degrees, play a role in helping villagers with livelihood issues and coastal environmental protection. Importantly, they work together to not only identify and prioritize their problems but to try out different solutions. The VMCs engage in multiple activities including: (a) mangrove replanting activities; (b) stopping illegal fishing and hunting; (c) strategies to prevent the loss of fishing gear; (d) waste management activities; (e) conflict resolution within a community; and (f) village infrastructure development (school; pagoda; bridge; road). The

table below highlights key characteristics of the Koh Sralao village management committee.

Table 14: What One VMC Does

	Koh Sralao Village
Year established	2000
Legal status	Informal – management plan and management area supported by agreements with Provincial Governor and Minister of Environment.
Management issues addressed	Illegal fishing, from within and outside their community; mangrove cutting and charcoal production; stealing of fishing gear; declining resources; waste management; and other community issues.
Examples of management strategies	Solving theft through innovative solutions (painting crab traps, patrolling); supporting local schoolteachers.
Reasons for villagers' support	Key villagers are involved in the committee; strong leadership that is respected; people believe that this committee is working on behalf of village, and see good results; village leaders openly support committee.

Adapted from: Marschke, 2003

Some VMCs appear to be able to run activities on their own, using PMMR to help with conflict resolution or for financial support; others struggle in carrying out activities or finding solutions and require greater facilitation input from PMMR. Committee members all volunteer their time: some may initially join thinking it will enhance their ‘power’ in the village, or for other reasons, however, those that remain engaged believe in what they are doing. “I want to help my community, we are really poor. We know that when the mangroves increase, it will help the poor fishers a lot, especially in the rainy season,” comments Wayne Som Sak. Contrary to popular opinion, villager can engage in sophisticated strategies to enhance their livelihoods when they believe in what they are doing.

PMMR finds itself often acting as an anchor, backstopping potentially sticky situations. The following experience again highlights the need for facilitation, to ensure situations do not become explosive.

Water is an issue in Koh Kang village: there is no ground water supply on this tiny mangrove island, and fresh water is brought by boat from a middleperson from an upland area. With support from PMMR, the VMC decided to build two water holding tanks in the village. A contract was made with the middleperson to sell water at a slightly reduced cost (the middleperson could pump a lot of water into one tank, saving him water delivery time). Each tank was placed at opposite ends of the village, with the caretaker of the holding tanks getting access to free water supply. Two poorer households, active in the VMC, were chosen.

This system has been in place for several years now. However, there have been several internal squabbles within the village that PMMR has helped to ‘negotiate’. For example, several people complained to PMMR that the woman only sold water to members of the opposing political party. These people, interestingly, were connected to the village chief and the ruling political party and this happened around national election time (July 2003).

PMMR facilitators felt that this was related to politics, and suggested that only with a group discussion, including everyone, could this problem be addressed and solved.

PMMR went to the village to learn more. The woman was quite upset and wanted to meet the people that accused her of not selling water. PMMR suggested to both parties to not cause conflicts. Then, a meeting was called to remind people that VMC work was not political, that it was meant to help the entire village. Interestingly, the villagers that had complained privately were not willing to bring this issue up with the entire VMC. While PMMR has monitored the situation since, everyone seems clear that politics cannot be brought into this water selling and no more complaints have been heard.

Having additional water storage tanks built in the village, and water subsequently being sold at a reduced price, has helped to ease life in Koh Kang. Those villagers that cannot afford water tanks can access water at a reduced price; those villagers that have water tanks can get their water pumped directly at a slightly higher cost. As with any resource management system, internal conflicts will ensue. As noted by Sick (2002), successful management occurs “not because there is an absence of diversity, conflict, and power struggles, but through established mechanisms for negotiation and resolution” (12).

Since PMMR, as a project, is only temporary, it is critical to find ways to encourage conflict resolution mechanisms. For now, PMMR serving as a moderator offers a valuable learning experience to team members and to those involved in resource management i.e., villagers or local authorities. An important lesson is that each situation needs monitoring. Most community based management work ignores the influence of local politics: while it is important that CBNRM initiatives are politically neutral, it is equally important to be aware of local politics and the implications that resource management decisions may have (both intended and unintended outcomes). Most importantly, since PMMR is composed of government officials in different technical departments, the idea that technical departments can help to support local institutions is being fostered.

5.2. 4 STOPPING CHARCOAL PRODUCTION: USING THE NETWORKS!

Stopping illegal charcoal production is an on-going battle, for villagers and provincial officers alike. In the 1990s, many villagers came to the area to produce charcoal. Mangrove wood burns well, producing a high quality charcoal. Charcoal was then sold to Thailand. This system was complicated, with middlepersons reaping most of the benefits and poorer persons cutting the mangrove trees and producing the charcoal. Various government supported crackdowns began in the mid-1990s, with the most significant crackdown happening in 1999. By this point, it was clear to villagers that producing charcoal was not a secure option for them, and most people switched to fishing.

Therefore, when VMCs in the area began producing their resource management plans, stopping illegal activities, which includes charcoal production, was included. Each community tried to make their plan for coastal resources protection and conservation, especially to stop illegal activities in their demarcated community area such as: mangrove cutting, charcoal producing, illegal fishing, bird hunting, with good cooperation with government agencies who have responsible in that area. Before establishing the VMCs, local communities were afraid to stop illegal activities, especially illegal activities supported by power persons (those with guns, money and influence). However, the following situation (detailed below) shows the growing confidence of the VMC in their resource management work.

In May 2002 the VMC in Koh Sralao arrested one boat carrying mangrove logs. This boat did not have permission to cut trees from the VMC: according to the regulations, mangrove trees may be cut for house construction by villagers only with permission from the VMC. However, the boat owner was related to the provincial police commander. So, after the VMC



Figure 7: Story for mangrove logs

confiscated his logs, he called the provincial police. The provincial police called to PMMR, at the provincial level. PMMR reminded the police that they Provincial Governor had signed the management plans of the VMC, and that the VMC was stopping illegal activities. PMMR asked the police to work with the VMC to solve this issue; at the same time, PMMR reminded the VMC that they had the right to solve this conflict. The VMC was able to negotiate with the boat owner to pay a fine and sign an agreement saying he would no longer carry out illegal activities in the area. A definite first considering that the boat owner had connections to the provincial police, an organization far more powerful than the VMC!

Although the VMC needed the support of PMMR, especially to remind them that they had the right to stop this activity, it was up to them to negotiate how to solve this problem. Without the signature of the governor, and the facilitation support from PMMR, it is debatable if this could have worked. There are many issues within CBNRM development, but the capacity building and cooperating for relevant stakeholders on coastal resources management is a key priority before taking any activities on CBNRM program. Sometimes including multiple stakeholders can feel exhausting but, generally, the support will prove useful over time. The successful mangrove resources protection in PKWS comes from strong cooperation and participation among interested stakeholders, directly and indirectly supporting CBNRM.

5.3 CONCLUSION

Most CBNRM projects with secure funding are driven by international consultants i.e., how many Cambodian team leaders can be found on such projects, with assistance from Cambodian counterparts. At the same time, government institutions are adopting CBNRM approaches from a policy perspective at least (at this point field implementation remains limited). Although there has been little research analyzing the usefulness or sustainability of any of these approaches, it seems that few projects are able to adapt themselves to really support community needs. “We have made so many plans, but our forests continue to be cleared and our fish are less and less,” complained one villager from Pursat (Marschke 2004). When project plans are made in Phnom Penh (as is generally the case), this does not ensure that a local community is driving the process or solving their own conflicts, since this is ‘messy’ and most often cannot be planned for. Thus, much so-called community based development is not so helpful to a local community: it is a short-term development but not sustainable development.

Supporting community based management processes takes active facilitation and extensive networking to ensure that support is in place for this work. PMMR's experience shows how critical it is to engage actors from national, provincial and local levels. There is a role

for donors and international consultants to play in these processes, just as there is a role for high-level officials. Indeed, such backing and political support are a key ingredient for successful community based management since project counterparts also need to know their work is supported! Yet, when it comes to actually implementing CBNRM ‘on the ground’, it takes a team of people committed to problem solving and working consistently on issues with different partners. Most importantly it takes villagers who are willing to take risks and dedicate their time to resource management activities.

It is challenging to pinpoint the exact reasons for PMMRs relative success in garnering support for its community based management work; however, that this research project is self-directed by a team of dedicated Khmer and designed to encourage learning-by-doing through bringing multiple stakeholders together certainly helps. Although limited funds may be a hindrance for some, it is seen as an asset in this case since partnerships that work do not take much money, even in Cambodia where corruption can be rife! What key is taking the time to bring partners on board, and consistently repeating messages and sharing lessons. Trust building takes time: partnerships do develop, especially when working towards something.

Coastal resource management is complex, requiring stakeholders to strongly cooperate together in learning and in sharing their interests with each other. This is a long-term process, and is challenging to negotiate in a context where short-term needs are also pressing and immediate. Thus, it is important to work on facilitating short-term solutions i.e., solving fishing gear theft and longer-term solutions i.e., creating lasting conflict resolution mechanisms. CBNRM processes take a combination of understanding the depth behind a CBNRM approach i.e., some theory with developing some context specific strategies. Facilitation, and networking to support these processes, will help villagers and decision makers understand each others needs and work towards more realistic community based strategies.

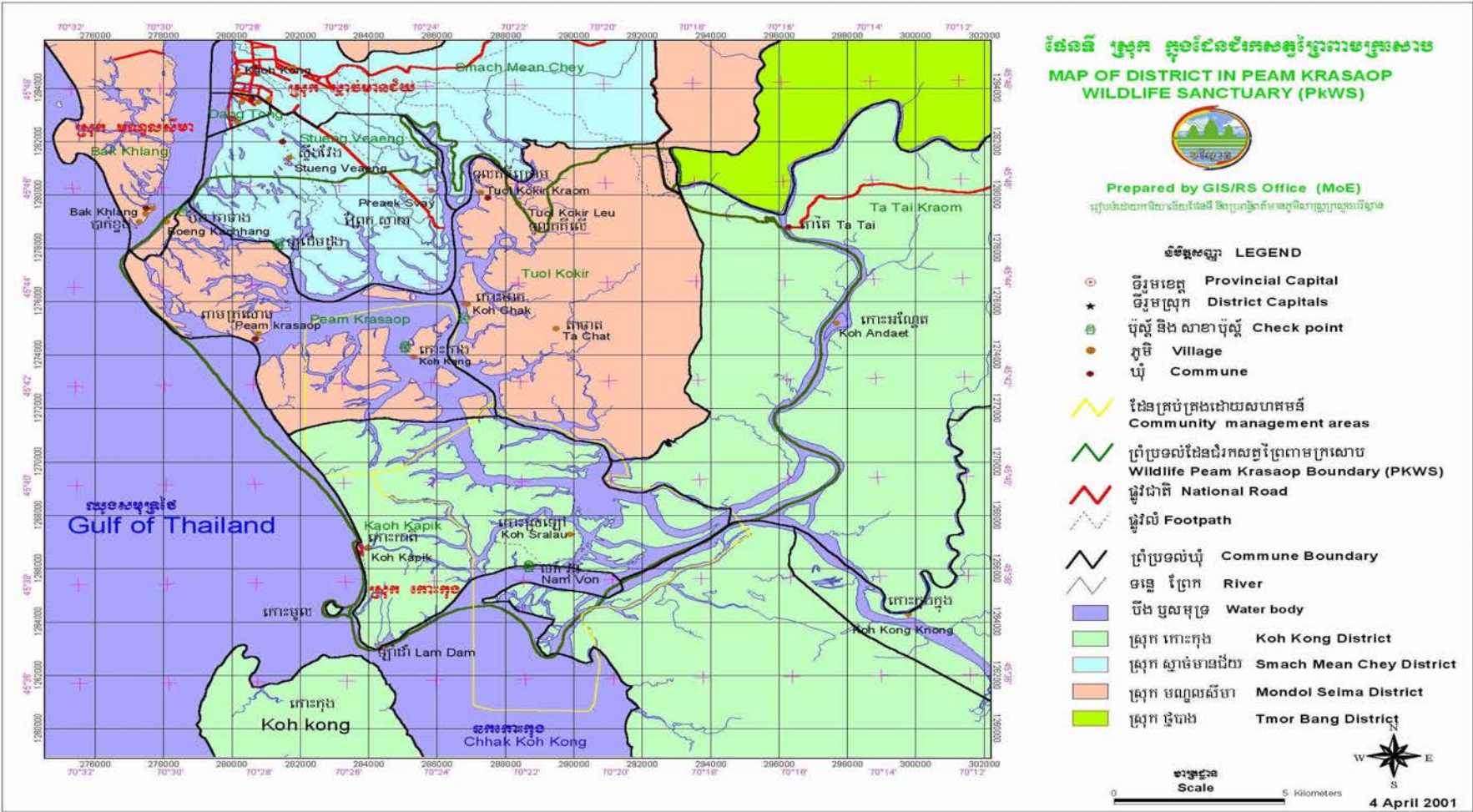
Although local many authorities may have low technical skills regarding natural resource management, they know their local situation well i.e., a local police officer living in a village. Provincial technical departments, on the other hand, are mandated to help local authorities with resource management i.e., resource protection, community fisheries. PMMR members come from provincial departments, and tend to have higher skills from their extensive fieldwork than others in their departments. The intention of PMMR, therefore, is to continue building capacity and support for natural resource management, within technical institutions and within local authorities, so that village level institutions can be adequately understood and appropriately supported. Working with a project that helps to facilitate learning and thinking is an important aspect of CBNRM. What we mean is that trainings on project planning and implementation are not so critical. What is critical is helping people to solve their own problems and to think more. This is a subtle difference: we are advocating for a flexible approach that is responsive rather than project document driven.

5.4 REFERENCES

- Evans, P. (2002). Fishing Disarmed, Community Fisheries in Cambodia, SAMUDRA, March: 6-12.
- Marschke, M. (2003). From Planning to Action: What can resources management committees do “on the ground”, Cambodia Development Review, (7)3: 7-10,12.
- Marschke, M. and Nong, K. (2003). Adaptive Co-management: lessons from coastal Cambodia. Canadian Journal of Development Studies, (24)3: 369-383.
- Marschke, M. (2004). Analysis: mainstreaming NREM into Commune Councils and PLUP tools. Technical Report for Seila. Phnom Penh, Cambodia: Cambodia Development Council.
- McKenney, B., and Prom Tola., (2002). Natural Resources and Rural Livelihoods in Cambodia, A baseline assessment. Working Paper 23. Cambodia Development Resource Institute.
- PMMR. (2002). Participatory Management of Mangrove Resources Report, July 2001 – June 2002. Annual Progress Report for IDRC. Phnom Penh, Cambodia: Ministry of Environment.
- Rock, F. (2004). The Promotion of Sustainable Natural Resources Management within the Rural Development Program (RDP) Community-Based Rural Development Program in Kampong Thom and Kampot. Concept Paper GTZ.
- Seila Task Force. (2002). Seila Natural Resource and Environment Mainstreaming Strategy, 2002 – 2005. Phnom Penh, Cambodia: Cambodia Development Council.
- Sick, D. (2002). Managing Environmental Processes Across Boundaries: A Review of the Literature on Institutions and Resource Management. Accessed April 30 2004 URL: http://web.idrc.ca/uploads/user-S/10378201220MEPfinal_Nov_-2002.pdf.

APPENDICES

APPENDIX A: MAP OF PEAM KROSOAP WILDLIFE SANCTUARY



APPENDIX B: REPORTS DISTRIBUTED DURING THE PMMR PROJECT - PHASE 2 (JULY 2000 TO MAY 2004)

Year	Title of Reports	Abstracts
2004	Training report on Environmental Education and Waste Management. Koh Sralao village, March 18, 2004 (Khmer and English version).	This report refers to the introduction, objectives, expectations, methods and activities and participants, of waste management in Koh Sralao. Four topics were presented and discussed with the local community during this training course: <i>What is the environment? What is Waste? Pollution; and Waste Management.</i> The methods used were icebreakers, presentations, brainstorming, group discussions, questions and answers etc.
	Report on Solid Waste Management in Koh Sralao Community, Koh Kong Province. May 2004 (Khmer and English Version).	This report mentions the background of Koh Sralao village as well as objectives, expectations, approaches, participants, strategic plans and implementation, constraints and conclusions in the waste management process. It also describes why Koh Sralao Community was interested in the project, how the Community gets financial support, and who participates in the project. The strategic plans and implementation process were developed through discussing solid waste management, preparing a Clean-Up Day, and training on environmental education and waste management within the village.
	Report of Workshop on Creating a Vision of Coastal Co- Management in PKWS and Chrouy Pros bay, Koh Kong province, 14 - 16 January 2004 (English and Khmer version)	The report gives an introduction to the workshop and describes the objectives and participatory methods used for the workshop. The meaning of workshop title (Vision, Participatory Management of Coastal Resources) is interpreted by participant groups which are made up of representatives from VMC, Communes, Provincial technical departments, local police, navy, and local NGOs. Each participant group identified key issues in relation to the coastal resources management, and overlaps of jurisdiction of the roles and functions of all levels of stakeholders. In addition, official roles and activities are discussed along with what the groups would like to do in the future and what is needed for the collaboration of each group. The report then details a brainstorming session by the participants to create the vision. The report also includes presentations from organizations which are also working on projects in Koh Kong such as the SEILA Program, CZM project, WildAid, Partners For Development (PFD), and PMMR .
2003	Report on the Regional Workshop on the Hands of the Fishers (IHOF) 11-14 August 2003 (English)	The report documents the proceedings of the eighth regional workshop on IHOF held in Koh Kong, Cambodia. It outlines the list of participants, and the sharing of experiences among the regional fisher community. The report also includes questions and answers of all participants on coastal fishery management. In addition it shows participant observations from a field trip to PKWS. The workshop resulted in participants agreeing to develop their own community action plan for coastal environmental management with some funding support from the Mangrove Action Project, and to strengthen networks among fishery communities in the region.

	Report of Workshop on Participatory Monitoring and Evaluation (PM&E) 16-18 March 2003; (English and Khmer version)	The report shows the workshop was designed to increase the PMMR team and PKWS community capacity to use PM&E through 1) situation assessment, 2) creation of objectives, 3) development planning, 4) implementation, and 5) monitoring and evaluation. The major PM&E concept is to provide local communities the ability to reflect on the activities they have undertaken and learn from their successes and failures. The report indicates the use of PM&E on issues such as the process of community organizing, mangrove replanting, patrolling of coastal resources undertaking home gardening and crab fattening . The report shows that the use of PM&E will help local communities and the PMMR research team to monitor and evaluate their own work in the future.
	Report on Livelihood Pilot Project in PKWS: Crab Fattening Trails May 2003 (English)	This report shows the experience of PMMR team collaboration with the CZM project to support a crab fattening pilot project for local communities in Koh Kang and Koh Sralao. It also explores outside ideas to support alternative livelihood initiatives for the local community in PKWS and the successes and failures of the project.
	Report of Workshop on Integrated Management Plan of Coastal Zone Chrouy Pros Community Fishery, Koh Kong district, 17 February 2003; (English and Khmer version)	This report shows the performances and outputs of three communities undertaking coastal resource management up to now in Chrouy Pros Bay (Koh Sralao, Koh Kapic and Chrouy Pros communities). It shows the activities that the communities have done such as: patrolling for and suppression of illegal boats, and collaboration with park rangers and commune administrative police in dealing with illegal fishing. This resulted in a reduction of about 50% in illegal fishing. The report provides a list of remaining problems identified by the community on coastal resources management and suggests strategies for the community to resolve the problems through strong cooperation among stakeholders.
2002	6 Months Progress Report of PMMR July - December 2002 (English)	This report shows the progress of the PMMR project from July - December 2002. It focuses on the main PMMR project activities which are: 1) enhancing VMCs of Koh Kang, Koh Sralao and Chrouy Pros, 2) the process of community organising in PKWS, 3) strengthening VMC in Ream National Park, 4) networking with Cambodia's CBNRM partners, 5) supporting mangrove replanting, and 6) initiatives for sustainable livelihood development in CBCRM. It also includes some reports in the appendices on 1- Community-Bylaw and structure of the VMCs; 2- Approaches to Sustainable Livelihoods for Small-Scale Fisher folk; 3- Home Gardening Pilot Project in Koh Kang and Koh Sralao; and 4- Mangrove Replanting by local communities.

	<p>Annual Progress Report of PMMR July 2001- June 2002 (English)</p>	<p>This report has two parts. The first part contains a 6 month progress report from January - June 2002 and the second part contains a 6 month progress report from July- December 2001. The key activities from Jan-Jun 2002 are focused on:</p> <ol style="list-style-type: none"> 1) Continued strengthening of capacity and implementation of management plans for coastal resources for Koh Kang and Koh Sralao villages and the PMMR Research Team; 2) Support patrolling equipments to local communities for coastal resources management participation; 3) Cross Institutions Capacity building to National levels, Provincial levels and Local Levels on The Basis Concept and Process of Community Fisheries Management (CFM) through training courses and distribution of Community Fisheries Management Field Manual; 4) Facilitates among stakeholders, especially local authorities and fisheries Provincial Department to support Community Fisheries in Chroy Pros; 5) Pilot testing on Marine Sanctuary in Koh Kong Bay for fisheries and sea grass conservation and protection; 6) Sustainable Livelihood pilot testing on home gardening and village cleaning; 7) Propagated Community Fisheries by-law regulation to local people in Koh Kang, Koh Sralao villages and other fishermen who are get income from PKWS and; 8) CBCRM Case study writing in PKWS and Ream National Park; <p>The key activities from Jul-Dec 2001 are focused on:</p> <ol style="list-style-type: none"> 1- Facilitation of the process of community organizing (CO) in Koh Kang and Koh Sralao villages, PKWS and initiate CO work at Chrouy Pros Commune including: <ul style="list-style-type: none"> • Preparing community by-law in Koh Kang, Koh Sralau and Chrouy Pros; • Advising of Community's patrolling workplan; • Supporting Community's mangrove replanting, and • Home gardening testing in Koh Kang and Koh Sralau villages 2- Research on fishing gear in PKWS especially Trawler and coastal bag nets; 3- Produce training Manual: Community Fisheries management tools books; 4- Enhancing capacity building of PMMR research team and local people by training workshops and field-work; 5- Strengthening cooperation with other projects to support community work-plan on coastal resources protection and livelihood support.
--	----------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	Case study On: Community-Based Coastal Resources Management. From Preah Sihanouk Ream National Park in Kompong Som Province and Peam Krasaop Wildlife Sanctuary in Koh Kong Province. PMMR 2002 (English and Khmer version)	This case study is part of a series of ten case studies focusing on both fisheries and forestry issues developed in four main geographical areas of Cambodia: Uplands (Ratanakiri and Mondulakiri Provinces), Lowlands (Pursat and Kompong Chhnang Provinces), Mekong/Tonle Sap (Stung Treng and Siem Reap Provinces) and Coastal Areas (Koh Kong and Kompong Som Provinces). This case study describes the comparison of coastal resources management between local communities in Ream National Park and PKWS. It is also shows the experiences of both communities on the process of community organizing, development of community-bylaws, community management plans and actual implementation for coastal resources management.
	Case study On: Finding Sustainable Livelihoods. From local community in PKWS. PMMR 2002 (English and Khmer version)	This case study is part of the above case study with focus on PMMR project activities which have helped some villagers within the PKWS community to shift from unsustainable livelihood practices towards exploring more sustainable alternative livelihoods. This case study describes the strategies to support family livelihoods, factors contributing to the hardship of livelihoods and initiatives of alternative livelihoods strategies through the CBCRM concept.
	Report on Sustainable Livelihoods in Context: Learning with Coastal Fishers. Koh Sralao village, Koh Kong, Rainy Season, 2002 (Khmer and English version)	This report shows the workshop was designed to understand: 1- what the word livelihood means to community members, 2- the different livelihood strategies that households engage in, 3- factors that help and hinder livelihoods and to think about coping and adapting strategies. The report also shows how the workshop helped local communities to strongly consider their future within the meaning of sustainable livelihoods.
	Field Manual on Community Fisheries Management 2000 (Khmer and English)	This field manual has been produced to help practitioners who are working and helping fisher communities. This field manual has 9 parts that describe participatory methods to enhance local communities on fisheries resources management. Part One: introduction and expectation check; Part Two: An illustration of a fisheries community; Part Three: the common use of fisheries resources; Part Four: community fisheries management; Part Five: participation and community fisheries management; Part Six: participatory resource management planning; Part Seven: consideration in community fisheries management; Part Eight: tools for participatory resource management planning; Part Nine: training synthesis. In addition the manual has some games and exercises to use for the ice breakers and energizers in the training and workshop activities.
	Report of Workshop on Strategy to improve collaboration between concerned institutions and the community, 9 September 2002; (Khmer and English)	This report demonstrates activities and outputs of the PMMR project, participatory research for coastal resources management, activities and output on coastal resources management by the local communities, and strategic plans for strengthening collaboration among stakeholders on resources management. It also shows the strong support to PMMR activity by provincial technical departments and the provincial governor on CBCRM in PKWS.
	Report of Training on Grouper Fishing in Chrouy Pros Bay, 20 –21 June 2002; (Khmer and English version)	This report shows the strategy and methodology for managing small Grouper in Chouy Pros Bay. The report describes a case study in the Philippines, resource mapping in Chrouy Pros Bay, sustainable Grouper fishing, participatory planning for Grouper fishing, stakeholder analysis, identification of problems, and identification of the objective, strategy and activity for Grouper juvenile protection and conservation in Chrouy Pros Bay.

	Report of Training on Participatory Management of Community Fishery, April, 2002; (Khmer)	This report describes how to provide facilitation skills to community development practitioners, the role of facilitators that closely work with fish folk and how to collaborate with institutions and local authorities to focus on fishery community management. There are 8 chapters and many tables which include the opening speech, the introduction of participants, an illustration of a fishery community, common uses of fishery resources, case studies of community fishery management in Cambodia, participation and management of community fisheries, methodologies on participatory resource management planning, and comments and recommendations for the community fisheries management in Cambodia.
2001	Training Report on Facilitation for Community Fisheries Management. 23-26 August 2001	This report shows the experiences of community fisheries management from different locations in Cambodia (Tonle Sap region, Mekong River region and Coastal region), and strong collaboration between PMMR with other partners in country and regionally to develop a field manual on fisheries management. It also teaches participants some methodologies and skills to help local communities on fisheries management.
	Study tour report on Crab Fattening in pond, and Mangrove Management in Can Gio Mangrove Biosphere, Viet Nam, 5-9 May 2001; (Khmer and English)	This report shows the study visit of the PMMR research team and coastal community development partners to the Mangrove Biosphere Reserve in Can Gio, Vietnam. The report shows the Vietnam experience of crab fattening in ponds, methods of mangrove replanting, and management strategies for mangrove areas.
	Annual Progress Report of PMMR July 2000- June 2001 (English) August 2001	The report demonstrates the PMMR team activities undertaken during the year from July 2000 - June 2001. The main activities are focused on: 1/ The process of community organizing; 2/ pilot project on crab fattening; 3/ market survey of fish prices; 4/ resource mapping and community boundary demarcation; 5/ mangrove replanting; 6/ networking and collaboration with CBNRM partners, and concept of community fisheries management. The report also includes appendices as follows: lessons learned on the process of community organizing, pilot crab fattening trails, study tour of PMMR team to Vietnam, and high government officers visit to local communities in PKWS which was lead by the Minister of Environment.

APPENDIX C: LIST OF MAIN TRAINING ACTIVITIES AND WORKSHOPS DURING PMMR PROJECT PHASE 2 (JULY 2000-MAY 2004)

Year	Activities (Workshops, Trainings and Study Tours)
2004 In Country	<ul style="list-style-type: none"> 3 day Workshop on <i>Visions on Participatory Management of Coastal Resources</i> in Koh Kong conducted from 14-16 January 2004 and attended by 48 people from the Ministry of Environment, and provincial line institutions such as district governor, deputy governor, navy, land police, commune police, commune chiefs, commune deputy chiefs, village chiefs, coastal community representatives as well as representatives of CZM/Danida, Koh Kong Seila programs, WildAid and Partners for Development. A one day Workshop on <i>Environmental Education and Solid Waste Management</i> conducted on 18 June in Koh Sralao with participation from village chiefs, school students, teachers, patrollers, and committee members from various communities such as Koh Kapi and Lam dam.
Oversea	<ul style="list-style-type: none"> Project team leader attended 10 day regional case study writeshop on <i>CBNRM in Action</i> from 17 to 25 May 2004 in Tagaytay City, Philippines with supported by IDRC.
2003 In Country	<ul style="list-style-type: none"> A one day workshop on <i>Integrated Coastal Management Planning</i> conducted on 17 February 2003 in Chhoy Pros fishery community, Koh Kong. The workshop was attended by the public, chiefs of villages and communes and had a total of 27 participants. A training course was conducted on <i>Participatory Monitoring and Evaluation</i> from 16-18 March 2003 and attended by the four communities within the PKWS, including village and commune chiefs and had a total of 26 participants. In cooperation with DoF, Oxfam GB, OxfamAmerica and WWF, the PMMR Project arranged two <i>Fishery Community Management Plan</i> Workshops. The first Workshop was carried out in the Department of Fisheries Phnom Penh from 26-28 March and the second in Kampong Cham province for three days on 01-03 March. Both workshops were attended by 64 fishery officials and representatives of fishery community projects and organizations throughout Cambodia. With collaboration from Ms Melissa and Becky (WWF), the PMMR Project Leader organized a 6 day workshop on <i>Sustainable Livelihoods</i> in Mondulkiri. A four day regional workshop on <i>In the Hand of the Fishers</i> was conducted with cooperation from Mangrove Action Project (MAP) in Thailand from 11-14 August in Koh Kong with the 48 participants from Thailand, Sri Lanka, Burma, Indonesia, Canada, and WWF Oxfam and coastal and Tonle Sap communities.
Overseas	<ul style="list-style-type: none"> Two PMMR project member attended <i>Sustainable Livelihoods</i> Seminar, CBNRM for 7 days in the Philippines.
2002 In Country	<ul style="list-style-type: none"> Two training courses on <i>Participatory Management of Fishery Communities</i> were conducted for three days each. The first course was organized in Department of Fisheries Phnom Penh on 19-21 March and the second on 26-28 March in

	<p>Kampong Cham and they were attended by 34 fishery officials from coastal provinces/municipalities, upper and lower Mekong River, Tonle Sap Lake and 26 environmental officials, and representatives of NGOs working with the fishery communities.</p> <ul style="list-style-type: none"> ▪ In collaboration with WWF/CBNRM Initiative, Oxfam and IDRC, the Project organized a five day workshop on <i>Reviews and Reflections of Case Studies</i> from 21-25 May in Koh Kong Province and was attended by 56 people from the PMMR Project, and CBNRM-related projects. ▪ The PMMR Project conducted a two day workshop on <i>Grouper Fishing in Chrouy Pros Bay</i> on 20-21 June, attended by 30 participants from provincial cabinet, departments of environment, women affairs, agriculture, district office of agriculture, police stations in Koh Kong, navy base in Chrouy Pros Bay, fishing districts, commune police station, commune councils, and communities of Koh Sralao, Chrouy Pros and grouper merchants. ▪ A one day workshop on <i>Strategy to Improve Collaboration between Concerned Institutions and Fishing Communities</i> was held on 09 September 2002 in the meeting hall of Koh Kong province. This workshop was attended by directors of provincial departments, provincial and district governors, district policemen, chiefs of communes and communities. ▪ A three day workshop on <i>Sustainable Livelihoods</i> was held in Koh Sralao village, Koh Kong from 13-15 September 2002, and attended by 20 people. ▪ In collaboration with CBNRM Initiative, Oxfam, CFOD, Concern Worldwide, PLG Ratanakiri, CFRP and IDRC, a four day workshop on <i>Integrated Natural Resource Management</i> was conducted from 13-16 November, 2002 with the participation from 129 people from natural resource management projects, provincial departments and line ministries. ▪ Three days were spent (22-24 November) for the <i>field trip</i> in PKWS area by Dr. Stephen Tyler, accompanied by H.E Thuk Kroeun Vutha, Undersecretary of State of Ministry of Environment.
Overseas	<ul style="list-style-type: none"> ▪ The Project Staff attended <i>CNCRM Workshop</i> conducted in the Philippines from 04-06 March. ▪ The Project Staff attended a four day workshop on the <i>Development of Regional Action Plan Aimed to Strengthening and Improving the Effectiveness of Network of Marine Reserve in Southeast Asia</i> in Thailand from 08-11 May. ▪ The PMMR team members joined a 5 day <i>study tour</i> to the Philippines on 26-31 May 2002 to study <i>integrated community planning and exchange experiences</i>. ▪ With the financial assistance from IDRC, the project team leader attended 5 month diploma training course on <i>Sustainable Community Development</i> in Coasdy Institute, N.S. Canada
2001 In Country	<ul style="list-style-type: none"> ▪ IDRC, DANIDA and Provincial Department of Environment jointly organized a workshop in Koh Kong <i>on the dissemination of law on environmental protection and natural resource management, sub-decrees on Solid and Liquid Waste Management, Smoke and Sound Pollution, Environmental Impact Assessment, Coastal Environment Protection and Community Establishments</i> in PKWS. This two day workshop (11-12 February 2001) was attended by 160

	<p>participants from the 8 districts and technical departments in Koh Kong. The workshop was also attended by handicraft people, businessmen, company representatives and villagers from the PKWS.</p> <ul style="list-style-type: none"> ▪ A four day training course on <i>Participatory Management of Community Fishery</i> was held from 23-26 April 2001 in Sihanouk Ville and attended by 18 people from PKWS, Ream National Park, AFSC project and fishery officials of Sihanouk Ville. ▪ The Project leader attended a four day workshop on <i>Cambodia Biodiversity</i> from 13-16 June 2001 in Phnom Penh. This workshop was organized by Cambodia Biodiversity Project with cooperation from UNDP. ▪ A three day workshop on <i>Fishery Community Management</i> was held from 11-13 June 2001 in Koh Sralao Village for participants from Koh Sralao and Koh Kang villages. ▪ Two meetings were held on <i>discussions of draft community by-law</i> in Chrouy Pros commune. The first meeting was held from 10-11 November 2001 and attended by 27 people to discuss and improve some articles of the draft community by-law. The second one was held on 23 December 2001 and was attended by 140 people to vote for the community committee and submit the draft community by-law to the local authorities at all levels and concerned institutions for official endorsement. ▪ The some project team members attended a 12 day training course on <i>CBNRM Case Study Writing</i> in July 2001 in Siem Reap was organized by WWF, CBNRM Initiative and Oxfam.
Oversea	<ul style="list-style-type: none"> ▪ Project team leader studies on <i>Law of the Sea</i> at Dalhousie University, Halifax, Canada, May 28 to August 3, 2001 ▪ Project team leader attended international conference on <i>Community-Based Natural Resources Management</i> in Victoria University, and presented the PMMR research project to IDRC and CIDA in Canada, 22 October to 3 November 2001
	<ul style="list-style-type: none"> ▪ One project team attended the regional workshop on <i>Marine Protected Areas</i> at Saba Province, Malaysia, 7- 13 October, 2001
	<ul style="list-style-type: none"> ▪ Field project team leader attended one month the international training course on <i>Community-based Resources Management</i> at Coady Institute, N.S. Canada, November 2001.
2000 In Country	<ul style="list-style-type: none"> ▪ A study tour on <i>Community-Based Natural Resource Management</i> was organized to Ream National Park in Sihanouk Ville and FAO project in Siem Reap in May 2000, attended by PMMR team and 10 villagers from PKWS. ▪ A two day workshop on <i>Sustainable Fishing, Family-Scale Fishing, Environmental Education and Community Organizing for Natural Resource Management</i> was held from 23-24 September in Koh Sralao village, Koh Kong province and attended by 48 participants. ▪ The project team members attended a 2 day workshop on <i>issue finding and agreement on fishing activities in Kampong Som Bay</i> from 12-13 October 2000 in Sihanouk Ville, which was organized by AFSC. ▪ A workshop on <i>Biodiversity and Biodiversity Strategies</i>, which was held on 28 October 2000 and was attended by 50

	people. This workshop was organized by Biodiversity Capacity Building in Cambodia, Ministry of Environment.
	<ul style="list-style-type: none"> ▪ In cooperation with DANIDA, the Project organized a training course on <i>Crab Fattening</i> for two days on 23-24 November 2000 in Koh Sralao village, Koh Kong province with 31 participants.
Overseas	<ul style="list-style-type: none"> ▪ The project team attended in a 12 day workshop and study tour in the Philippines on <i>Festival Workshop 2000</i> from 12 July to 04 August 2000.

APPENDIX D: CAPACITY BUILDING FOR STRATEGIC PARTNERS IN KOH KONG PROVINCE THROUGH TRAINING AND WORKSHOP WHICH ORGANIZED BY RESEARCH TEAM DURING SECOND PHASE OF PMMR

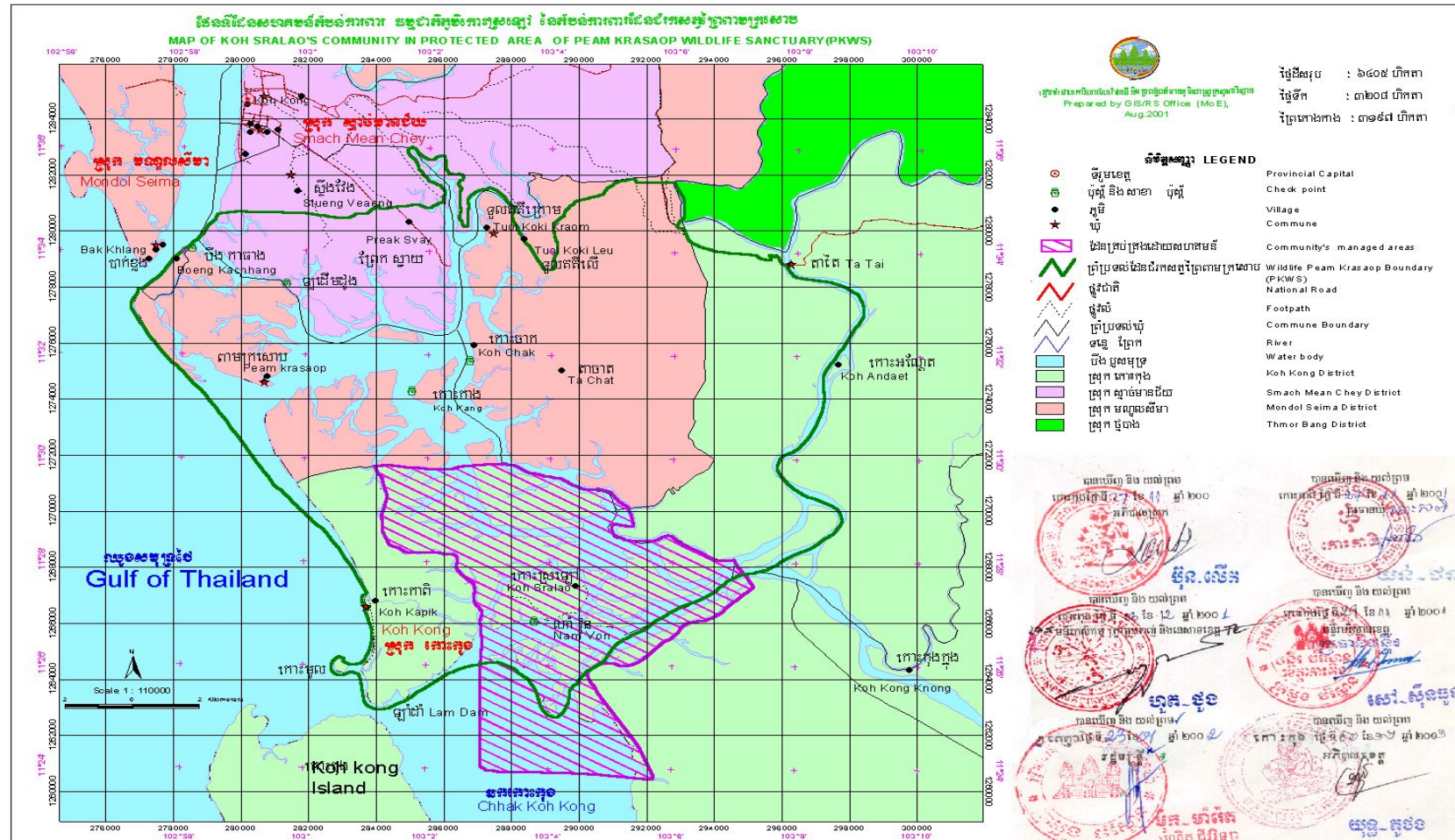
No	Training / Workshop	Facilitator/Resource Persons		Participants				Total
		National	International	National Level	Provincial Levels	District and Commune level	Village or Community level	
1	Training on Environmental Education, Small Scale Aquaculture and Sustainable Fishing in PKWS, Koh Sralao Village 23-24 September 2000	07				05	43	55
2	Training on Crab Fattening, Koh Sralao Village 23-24 November 2000	03	03		06		25	37
3	Training on Environmental Law, Koh Kong town 6-7 February 2001	07		02	24	23	95	151
4	Training on Community Fisheries Management, Koh Sralao Village, 11-13 June 2001	08	01			04	22	35
5	Training on Fisheries Resources Management by Local Communities, Chrouy Pros Village 19-21 October 2001	07			08	08	15	38
6	Workshop on Reflection of Case Study Writing, Koh Kong Town, 21-25 May 2002	03	04	04	45			56
7	Workshop on Fishing Issues for Small Grouper Species in Chrouy Pros Bay, Chrouy Pros 20-21 June 2002	05			06	08	15	34
8	Workshop on Enhancing of Strategy and Collaboration Among Relevant Government Institution with Local Communities, Koh Kong Town 09 August 2002	03			18	10	05	36
9	Training on Sustainable Livelihoods, Koh Sralao Village 23-25 August 2002	08	01				20	29
10	Workshop on Integrated Management Plan of Coastal Resources by Local Communities in	07	02			05	18	32

	Chrouy Pros Bay , Chrouy Pros Village 17 February 2003							
11	Training on Participatory Monitoring and Evaluation , Koh Sralao Village 16-18 March 2003	04	03	04	07	04	30	52
12	Workshop on In The Hands of The Fishers , Koh Kong Town, 11-15 August 2003	06	02	05	15	02	28	58
13	Workshop on Visioning of Coastal Resources Management , Koh Kong Town 14-16 January 2004	05	02	04	15	18	13	57

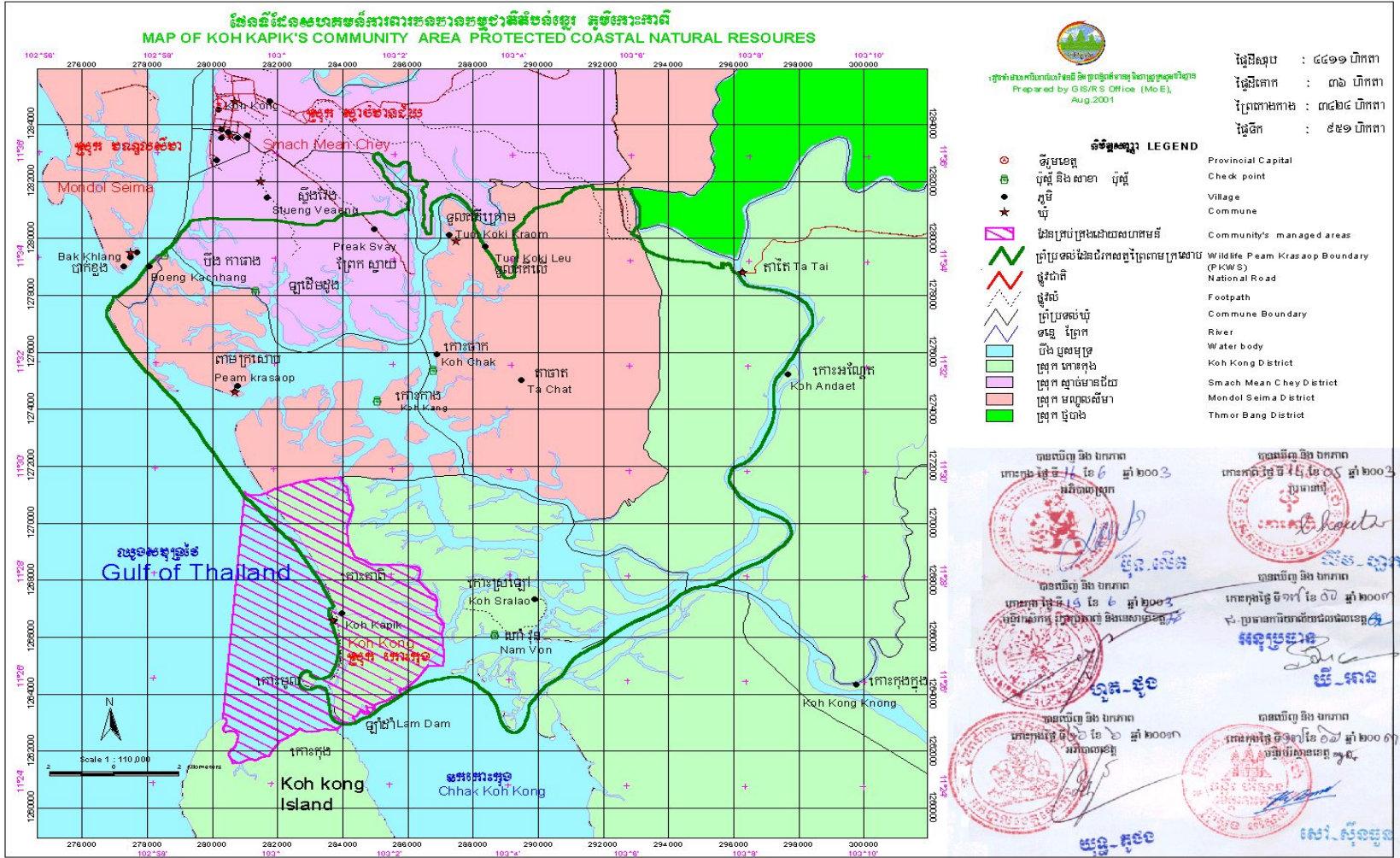
MAP OF KOH KANG VILLAGE



MAP OF KOH SRALAO VILLAGE



MAP OF KOH KAPIC VILLAGE



MAP OF CHOUY PROS VILLAGE

