COMMUNITY BASED MANAGEMENT OF FLOODED FOREST RESOURCES IN SIEM REAP PROVINCE, CAMBODIA

PURPOSE

This case study examines how a community based management approach can help address unsustainable development practices such as illegal fishing and deforestation in Cambodia's Tonle Sap Great Lake. Emphasis is be given to the need to include local communities in natural resource planning and decision making if sustainable management strategies are to be development and implemented. Particular attention will be given to mechanisms available at the community level to promote sustainable resource use and ways that government can support community based management efforts.

ETP COURSE TOPIC COVERAGE:

- SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL AWARENESS
- ENVIRONMENTAL SCIENCE IN THE MRB
- DISTURBANCES TO AQUATIC ECOSYSTEMS IN THE MRB
- INTEGRATED RESOURCE AND ENVIRONMENTAL MANAGEMENT (IREM) CONCEPTS AND BENEFITS
- DEVELOPING EFFECTIVE IREM IN THE MRB
- IREM PRACTICAL TOOLS FOR IMPLEMENTATION

ISSUES

Specific issues highlighted by this case study are:

1. Over-exploitation of natural resources is likely to occur in situations where there is open access to the resource
2. Broad stakeholder involvement of all interested parties is fundamental in integrated management to identify mechanisms to resolve resource use conflicts
3. Effective community participation is a necessary condition for successful implementation of natural resource management initiatives
4. Close cooperation between government lines agencies, researchers and scientist, and local communities is important in developing best management practices

LEARNING OBJECTIVES

On completion of this case study, participants will be able to:

- Identify natural resources in the Thnorl Dach flooded forest area and discuss present human uses of these resources
- Provide examples of specific threats to the sustainability of natural resources at Thnorl Dach including direct and indirect impacts of human activities

- List stakeholders in the management of the Thnorl Dach flooded forest and potential and actual conflicts of interest between resource users
- Describe ongoing management initiatives and the authorities and/or institutions responsible for implementation
- Discuss the objectives of the community management project at Thnorl Dach and whether these objectives have been successfully achieved
- Give an example of how social and cultural value systems must be understood if community management initiatives are to be successfully implemented
- Identify advantages and disadvantages of community involvement in natural resource management

PROJECT SUMMARY

Introduction and Background

Siem Reap province is located in northwestern Cambodia about 320 km from Phnom Penh. The province covers an area of 10,299 km^2 and has a population about 695,485, composed of 127,086 households distributed among 14 districts, 108 communes and 923 villages. The province is bordered on the south by the Tonle Sap or Great Lake, to the east by Kampong Thom province, to the west by Banthey Meanchey province, and to the north by Thailand. Three main geographical regions can be distinguished in Siem Reap province namely:

1. The upland region, which is located to the north of Highway 6;
2. The lowland region, which is located to the south of Highway 6; and
3. The foreshore region around the Great Lake which is inundated annually as the flow in the Tonle Sap reverses resulting in fivefold expansion of the lake surface

Siem Reap province is best known for it cultural artifacts at the Angkor Wat temple complex which attracts many tourists, scenery in the Phnom Kulen or Kulen mountains, the floating villages of the Great Lake, and other natural resources such as flooded forests and wetland habitats around the lake which support significant fish and bird populations.

The natural resources of Siem Reap province have been long been utilized by local communities and outsiders without consideration for the sustainability of harvesting and other land use practices. The observed unsustainable management practices can be attributed in part to the open access nature of the province's resources which are perceived either as being public property or belonging to adjacent villages. Over-utilization of resources is particularly acute in the southern part of the province in inundated areas surrounding the Great Lake. Notwithstanding efforts by local authorities and non government organizations (NGOs) to better manage the fisheries, wetlands and flooded forest resources of the Lake, unsustainable resource use continues largely unabated.

Unsustainable Community Resource Use Practices in the Great Lake

Examples of unsustainable uses of agricultural, fisheries and forestry resources in the Great Lake's inundated forests are characterized below.

Agriculture

Due to the rapid increase in population and low income levels in Siem Reap province, increases in rice production on the existing agricultural land have been insufficient to support local communities. Farmers have responded by clearing the inundated forest to increase the land available to plant dry rice and/or mung bean crops. To date, approximately 400 hectares of flooded forest on the northern shore of the lake have been converted to dry land rice growing. At present, there is no management system in place to regulate encroachment into flooded forest for agricultural purposes.

Fisheries

Anecdotal evidence by local fishers from Prek Sramoach village indicates that fish production has decreased from 10 kg per day to 3 kg per day over the last two years. This decrease in fish productivity has been attributed to the increasing use of illegal fishing practices by fishers (e.g., catching fish during the spawning season, electro-fishing, large-scale seine netting) and to the destruction of flooded forest which provides important spawning and rearing habitat for fish.

Although the existing management system permits local communities to levy fines (i.e., with the money collected remaining within the community) for the use of illegal fishing gear and fishing in closed season, poor enforcement has allowed these unsustainable practices to continue.

Forestry

Current levels of logging for export to other countries and collection of wood for local use are not considered sustainable. Moreover, when combined with the destruction of flooded forest for conversion to agriculture, they have seriously reduced forest cover around the Great Lake. Logging activity is subject to regulation – although illegal logging is widespread – but nobody is responsible for controlling collection of firewood and other domestic uses.

Example Sustainable Management Initiative in the Great Lake

To address concerns about unsustainable natural resource use in the Great Lake, Cambodian government agencies, international donors and NGOs have been promoting community management models to alter resource use practices. In this section we look at the work being undertaken at the Thnorl Dach community forest project.

Thnorl Dach is located in the southern region of Siem Reap province and is situation in the Sonikum district, which consists of 5 villages, namely Trav Kiet, Prek Sror Mouch, Thnorl Dach, Kuk Russey Choeung and Sror Mor Thom (Figure 1). The Khnorl Dach area covers an area of 2, 660 ha comprising:

- Dry rice agriculture (417 ha)
- Inundated forest (830 ha)
- Prek Sror Mouch Lake (500 ha)
- Lotus cover (125 ha)
- Grassland (789 ha)

The community based management project at Khnorl Dach was initiated by the United Nations Food and Agriculture Organization (FAO). Issues examined by the project concern the sustainable utilization of natural resources and conservation and rehabilitation of inundated forest around the Great Lake. Key findings are: (i) the natural resources were being destroyed or depleted because the people utilizing the resources do not understand how they should be managed; and (ii) local communities have done little in response because they do not feel responsible for the resources and have not been involved in decision making about how the resources are allocated and managed. For example, although local communities are responsible for enforcement of fines for illegal fishing, they have never been consulted about the activity and corresponding regulations. Compounding the problem of lack of responsibility by local communities is the open access to flooded forest by people from neighbouring areas who do not directly suffer the consequences of resource depletion. Local communities are also hampered by a lack of proper understanding of ecosystem functions and how natural resources response to pressure from human activities. Although scientific research is being undertaken to improve understanding of the Great Lake's natural resources, this information has generally not been properly disseminated to the local stakeholders.

Steps taken as part of the Khnorl Dach project to address these issues are described below.

Adopting a Community Management Model

A participatory assessment and development evaluation process has been adopted as an analytical framework for the Thnorl Dach project. The community model being applied provides for multi-level stakeholder involvement by local people who use the natural resources within the project area. Importantly, this administration structure has been approved by the local authorities, such as the leader of the commune, the chief of the district, and the provincial governor and all government agencies responsible for natural resource management. Core goals and objectives in establishing this community model are to: (i) conserve and manage the areas natural resources through local community participation the benefit of rural people and communities; and (ii) ensure that the project benefits flow to the community to improve the livelihoods of local people.

Basic principles of the community management model being applied at Thnorl Dach are:

- All Cambodian people who live in or close to the project area have the right to participate in management of the area's natural resources
- A community must be managed by a committee that is established through free, direct and fair elections by the members of that community
- A community must establish their own statutes and regulations that are agreed upon by local authorities and responsible government agencies

Promulgating New Management Regulations

The first stage in adopting new regulations for the project area was the designation of Khnorl Dach as a pilot research station unit by the Cambodian Ministry of Agriculture, Forestry and Fisheries in January 1997. A rapid rural assessment (RRA) was then undertaken to provide a better understanding of the project area's history, socio-economic situation of the people, and natural resources. Based on the results of this assessment, the project was discussed with the local people, local authorities and other authorities to determine how best to proceed in adopting management regulations compatible with a community based management approach.

After the project's aims were agreed to by all parties, a workshop was organized to identify regulations and mapping needs and to develop a management plan. Regulations dealt with: project objectives, geography, management structure, roles and responsibilities, general provisions on the use of natural resources, budget, and penalties and fines. These regulations were subsequently approved by the Department of Fisheries in August 1999.

Implementation and Joint Action

Community initiatives currently being undertaken at Thnorl Dach with funding provided by international donors (e.g., FAO, Belgium) include: (i) replanting of flooded forests; and (ii) a study of which kinds of fishing gear are not sustainable.

Priority issues which the community will target in the future are:

- Reduction of illegal fishing through more stringent regulation of electro-fishing and harvesting during the spawning season
- Reducing the clearance of inundated forest for agriculture use
- Reducing the number of brick kilns fuelled by wood collected in the inundated forest
- Education of local people to teach them how to better protect their natural resources

SITE VISIT METHODOLOGY

Course participants will visit Thnorl Dach to learn more about the instigation, adoption and implementation of a community based management strategy. Observation of the inundated forest and interviews with community representatives are expected to provide an enhanced understanding of the critical need to conserve and manage natural resources of the Great Lake in a sustainable manner.
The expected duration of the case study site visit is one day.

Participants will be organized into small working groups with each group being assigned a specific interview target and question focus as summarized in the following table:

INTERVIEWEE	FOCUS
Local Fishers	Fishing practices such as electrofishing and out-of-season fishing Fishing success and declines in catches Habitat conservation measures Knowledge of ecosystem function Open access to fishery Income generated by fishing
Fire Wood Collectors and Farmers	Firewood collection practices and areas targeted Extent of forest clearing for agriculture Income generated by farming Knowledge of impacts to fish habitat
Village Chief	Traditional resource management practices Existing management regime in village Regulations and fines Enforcement Relations with neighbouring villages Cooperation with local authorities and resource management agencies
Donor (e.g., FAO), Cambodian Fisheries and Forestry Representatives	Background to Khnorl Dach project Resources at risk in project area Stakeholders in use and management of the areas resources Conflicts between resource users Information available to stakeholders about resources

On completion of the site visit, the small groups will be asked to present their findings to the class with emphasis on the practical lessons learned by course participants which reinforce sustainable development and IREM theory taught in the course.

TAKE HOME MESSAGES

Anticipated lessons learned by the course participants in completing the case study and site visit might include:

1. Importance of offering local communities, whose livelihood is affected by management regulations, the opportunity to assume a central role in deciding how best to manage natural resources. Without the involvement of all stakeholders, management initiatives are unlikely to be successful. Clear

delineation of management responsibilities among responsible authorities, management agencies and local community leaders is critical to the success of cooperative management initiatives.

2. Benefits of managing resources in a sustainable manner must be retained by communities. Recognizing that the root of many unsustainable resource use practices is poverty, measures to increase income levels (e.g., alternative sources of income) should be put in place to compensate local people and reinforce behavior changes.
3. Resource management strategies for open-access resources must empower local communities to restrict access (e.g., property rights) if conservation objectives are to be achieved. In the absence of such regulatory barriers, neighbouring communities are free to utilize resources in an unsustainable manner without suffering the direct consequences of such actions.
4. Education of local populations is necessary to create awareness of the need for sustainable resource management and to determine the best management practices. Research is need better understand natural resources and the effects of human activities. Broad dissemination of research results to stakeholders such as local communities should be a high priority in support of management efforts.

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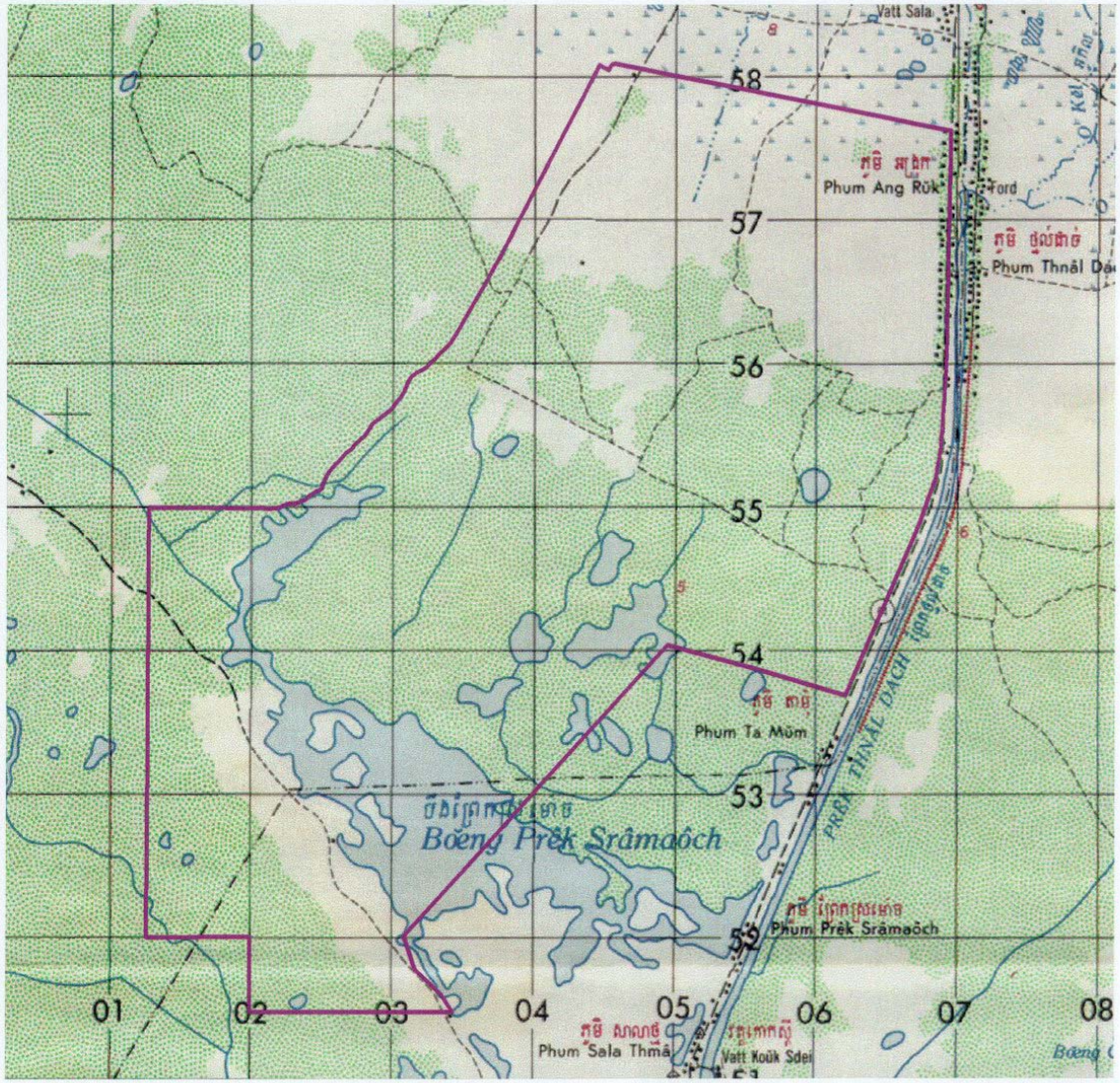
FIGURES



THNAL DACH
Community Forestry
2,147 ha

LEGEND

Community forest boundary

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W
E
S

0 1000 2000 Meters

FAO-SR
GIS Unit
2000