



Mangrove Project

Developing knowledge-based approaches
to reconcile multiple demands



Mangrove ecosystems, communities and conflict: developing
knowledge-based approaches to reconciling multiple demands

Stakeholder workshop report, Thailand

March 2008



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BACKGROUND

Managing coastal resources involves understanding of complex systems containing both human and natural components. To manage these systems, institutions with divergent interests and expertise are called upon to work together. In Southeast Asia pressures on the coastal area is characterized by an increasing intensification of shrimp farms, expansion of aquaculture and conflicting interest in the management of coastal resources. In recent years impact of natural hazards has increased the vulnerability of coastal communities.



In this report, we summarise the outcome of the first stakeholder workshop in Nakhon Si Thammarat in the Gulf of Thailand.

OBJECTIVE:

- To review and discuss project problem definition from different stakeholder perspectives.
- To understand how different stakeholders are affected in different ways, and
- To understand what kind of solutions are presented and by whom?

PROCESS:

The stakeholder workshop is an opportunity for the project to critically reflect on our approach and how it is perceived by different stakeholders. The idea is to document the process of the interaction to better understand how different stakeholders perceive the issue and how they think it should be addressed. The process will guide the project in terms of linking people and research and provide ideas for how we plan the next steps and what is relevant for the analysis, through facilitated participatory group discussions.

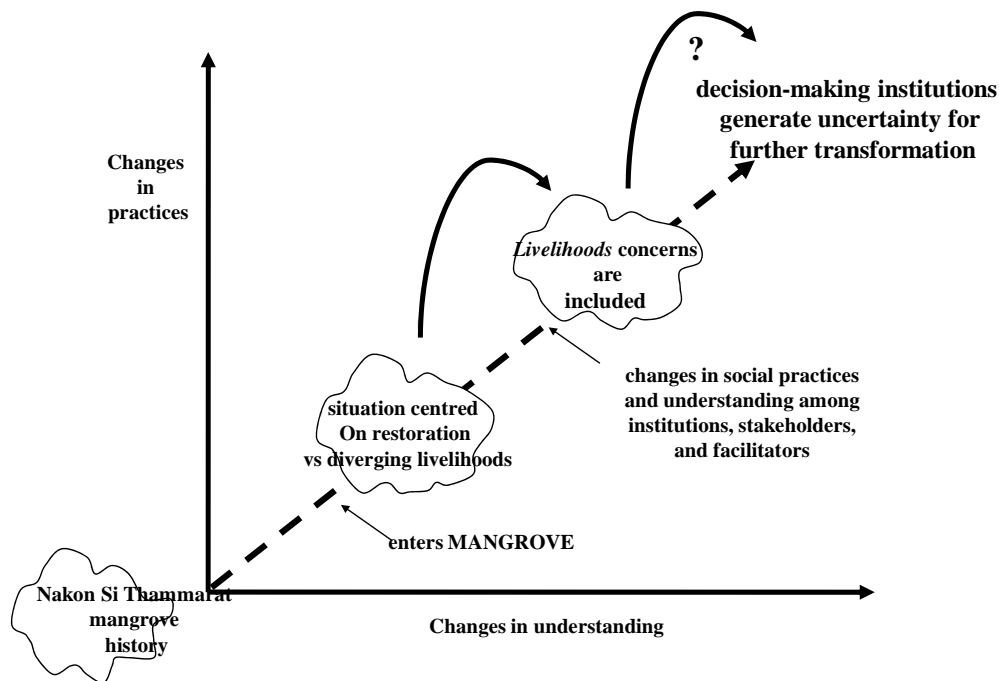
The description of the process below builds mostly on concrete insights from the Nakhon Si Thammarat case in Thailand.

The chosen cases in the Mangrove are situated within contexts in which the historical legacy is characterized by conflicting interests in terms of the management, governance and use of coastal resources. Situated within all cases are Mangroves which serve as arenas for discord but also in some

cases reconciliation. The MANGROVE project is about providing insights, tools, approaches and theory into operationalising mangroves in these contexts as important means for fostering the reconciliation.

In the series of stakeholder workshops and learning groups proposed as part of the MANGROVE project stakeholders will be provided platform to critical reflect upon the management, governance and use of coastal resources from both the stakeholder and the researcher's perspective. They will be able to develop, contest, deconstruct earlier, reconstruct new common visions and plans through a phase of scenario development. In short the MANGROVE will support a strategic action planning process.

The legacy of researcher interaction in the case contexts has been focussed on defining Mangroves as a hard system and thereby focussing primarily upon situations in which the normative assumption is that mangroves should be restored and re/planted in these systems. Underlying this research approach has been the bio-monitoring of the ecological services derived from the change in bio-physical status of Mangroves. With the inception of MANGROVE, researchers added a new layer to their research perspective, mangroves and the inter-connections to local livelihoods (see figure below).



In order to understand the various stakeholders of the mangrove ecosystem and contribute to find ways of how to reconcile the multiple demands linked with the management of the mangrove ecosystem the project has chosen to use a tool called CATWOE.

CATWOE

In the 1960s Peter Checkland, a Systems Professor, developed a problem-solving methodology called Soft Systems Methodology (SSM), which sought to apply the systems principles of engineering to business problems. As part of this, Checkland recommended that before you define your problem, you

first identify all of the parties involved. By looking at how people and systems interact to affect the situation, you can more easily identify the key problems to solve.

He used the mnemonic CATWOE as a checklist for the people and elements that contribute to a change.

By focusing on one specific problem, you tend to stop looking for other problems. And that's when you risk missing something that's potentially more fundamental than the problem you first decided to investigate. This is where CATWOE can help you avoid making a serious mistake.

CATWOE is a tool that can guide the work under MANGROVE project forward to better understand the complex nature of the various actors and structures that directly or indirectly impact the work the project is outlines to address.¹

CATWOE ANALYSIS

Part of "problem expression" is identifying the situational elements and parties involved. Checkland uses the mnemonic CATWOE to describe the human activity and situation. What is CATWOE?

- **Customers** - (the victims or beneficiaries of transformation)
- **Actors** - the players (individuals, groups, institutions and agencies), who perform the transformation
- **Transformations** –the conversion of input to output. What are the transformations that generate a change? How are they achieved? How well are they performing?
- **World-view** - what is going on in the wider world that is influencing and shaping the "situation" and need for the system to adapt? ie what makes this transformation meaningful in context
- **Owners** – those who could stop the transformation
- **Environment** - the trends, events and demands of the political, legal, economic, social, demographic, technological, ethical, competitive, natural environments provide the context for the situation and specific problem arena.

NB: Actors, clients, owners etc may overlap.

CATWOE analysis helps in working out a "root definition" and expressing the domain of the problem. Avoid early conclusions about who and what is "important".

TRANSFORMATION

In the mangroves project the transformation can be characterized by the process of change generated through the implementation of the project. Under WP 1-8 a set of activities will be implemented to contribute to the overall objectives of the project. The stakeholder workshops with actors and clients will result in reiterations of the issue that the project is trying to address and new insights into the relevance of project activities and how to analyze the findings will emerge. Although the project activities have been decided in the project document the stakeholder workshop is an opportunity to get new insights on how the activities can contribute to effectively address the issue.

¹ See project input to CATWOE in Nakhon Si Thammarat in Annex.

The initial issue formulated in the project document for Thailand, Vietnam and Indonesia is: *to develop action plans to reconcile multiple demands placed on mangroves and adjacent coastal zones in Southeast Asia...New knowledge concerning the most effective approaches to action planning involving coastal communities and national institutions will be communicated to agencies responsible for coastal zone management and planning, to assist in developing codes of practice and policies that acknowledge and aim to reconcile the multiple demands placed on mangroves and adjacent coastal zones.* During the stakeholder workshop the participants including actors and clients of the system provided new insights into the issue formulation. In Thailand the villagers in the three villages that constitute the field site expressed concerns about conflicting policies in relation to the management of coastal areas. In the analysis section of the report the authors will provide some reflections on some of the macro issues that need to be considered in relation to the context specific outputs from the stakeholder workshop.

THE PROCESS VIEW

Using CATWOE in analysis discussions and drawing a rich picture encourages a process approach. Participants can test assertions, assumptions, positions and the integrity of data/information.

SSM targets existing systems. The focus is on investigation and definition of the existing features of the project and how these interact externally and internally with the system as a whole (hence "holism") and sub-processes. After problem examination and definition, SSM participants "should" be able to "see" the project

- differently and more fully
- differentiate levels and sub-problems of the whole.
- They will have researched "facts", positions and viewpoints at varying levels of detail
- They will have articulated many "problem" statements, some major and some trivial.
- They will have debated the evaluated assumptions about the trivial and the major

Post workshop, and on the basis of a critical review of the first iteration of CATWOE in Nakhon Si Thammarat, it is clear that underlying the restoration and replanting of mangroves in Nakhon Si Thammarat, are conflicts of interest.

MANGROVE STAKEHOLDER WORKSHOP – SUMMARY OF LEARNING- NAKHON SI THAMMARAT, 6 MARCH 2008

The stakeholder workshop was organized in Pak Phun Tambon Administration Organisation. The workshop was one day meeting including presentations and group discussions. Representatives from local media took great interest in the meeting and took the opportunity to interview project staff, government officials and local people.

Faculty of Fisheries at Kasetsart University represented the MANGROVES project and facilitated the group discussions.



Opening speech by Assoc. Prof. Prawit Suraniranat addressed the importance of coastal ecosystems, in particular mangrove systems, to life, as well as its function in protecting against disasters, for example: the 1962 heavy storm at Ban Laem Talumphuk, and the Tsunami in 2004; southern Thailand. With the numerous benefits mangrove systems provide, there are many different kinds of human actions to exploit mangrove resources. This leads to conflicts between these actions and raises sustainability issues. Therefore, there's a need for all involved parties to meet, discuss and find ways to sustainably use and manage mangroves systems.

SUMMARY OF MORNING GROUP DISCUSSIONS

Group 1 and 2 comprise of actors, group 3 and 4 are clients. The groups discussions were facilitated by Kasetsart University and based on a set of agreed questions prior to the meeting.

GROUP 1 (ACTORS)

- Who are involved in the mangrove enhancement activity?
- Are there other actors missing that should be included? Who? Why?
- What role do the different actors play?
- What is the relationship between the actors?
- What is the relationship between actors and clients?



It was found that most of the actors are government agencies. Their roles include control and management of the natural resources. There are relationships between different agencies. However, relationships between government agencies and local people can also be found through projects undertaken. The government agencies provide budget, techniques, information and knowledge from top level to villager level accordingly. In addition, if the development projects are undertaken by the TAO, the villagers will gain the most benefits except with regard to land rights and the use of mangrove resources.

Detailed information is described in the table below:

No.	Actors	Roles and responsibilities
1.	Department of Fisheries	- Increasing fauna species and release to the natural habitat

		<ul style="list-style-type: none"> - taking care of water system - setting up fishing season - monitor and evaluate water quality
2.	Department of Marine and Coastal Resources (DMCR)	<ul style="list-style-type: none"> - planting mangroves - promoting and restoring the marine and coastal resources management and conservation
3.	Royal Forestry Department	<ul style="list-style-type: none"> - issuing related laws and regulations
4.	The Office of Natural Resources and Environment, Nakhon Si Thammarat	<ul style="list-style-type: none"> - raising public conservation awareness - drafting the provincial environmental plan - responding to complaints on environmental issues
5.	Department of Lands	<ul style="list-style-type: none"> - issuing land right certificate
6.	Department of Environmental Quality Promotion	<ul style="list-style-type: none"> - disseminating information
7.	Private sector	<ul style="list-style-type: none"> - Disseminating information on environmental conservation - promoting and raising public awareness
8.	International organisations	Providing funds to support the mangrove conservation and management activities
9.	Religious organisations (both Buddhism and Muslim)	Spiritually educating community members and disseminating information
10.	Schools and students	Participating in mangroves planting activities
11.	Community conservation groups	Running conservation activities
12.	Community leaders	<ul style="list-style-type: none"> - Protecting natural resources and environment - promoting and raising public awareness

13.	PAO and TAO	Providing funds to support mangrove conservation and management activities, and tourism
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GROUP 2 (ACTORS)

- Who are involved in the mangrove enhancement activity?
- Are there other actors missing that should be included? Who? Why?
- What role do the different actors play?
- What is the relationship between the actors?
- What is the relationship between actors and clients?



Result from the group discussion is similar to the first group. Some additional actors were identified: state enterprises; the Royal Irrigation Department; youth clubs; police; the Office of the Royal Development Project Board; the Marine Department; municipality offices; and the media.

Roles and responsibilities of these additional actors are defined accordingly:

Actors	Roles and Responsibilities
State enterprises, Office of the Royal Development Project board, municipality office	Providing financial support and promoting the project
Royal Irrigation Department, Marine Department	Developing and solving the problems occurred from construction of infrastructure and water transport
Police	Supporting the protection and disseminating information on related laws and regulation
Youth clubs, conservation groups	Campaigning and raising public awareness on conservation, setting up good examples

Media	Disseminating information through news stories and promoting pieces
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The relationships between actors are based upon their roles and responsibilities. For example, The Office of Natural Resources and Environment, Office of National Parks, Office of Lands, Royal Forestry Department and Department of Fisheries are responsible for setting up policies and plans as well as ensuring budget allocations; international organizations will provide funding support and conduct research; and private agencies would provide funding support and build leadership capacity.

It was suggested that those relevant organizations should be more closely linked and work with each other in order to enhance the effectiveness and achievement of the integrated restoration and conservation goals.

Group 2 described the relationship between actors and clients into both negative and positive terms.

Positives:

- a. Community can use the natural resources in a sustainable manner
- b. Local people have more income which will help bring them up to a better living standard
- c. Improved management of environment and natural resources
- d. Increased area for natural disaster protection
- e. Reduced resettlement
- f. Reduced conflict between community and government agencies
- g. Greater knowledge and innovation

Negatives:

- h. Conflicts between local people and government
- i. Exploitation of natural resources by state enterprises and communities
- j. Misunderstanding between community, government and private sector
- k. Concerns of local people towards the land diversion policy, eg increased protected forest areas
- l. Unfair budget allocation in community
- m. Conservation undertaken against natural ways.

GROUP 3 (CLIENTS)

- Who are the beneficiaries and victims of mangrove enhancement?
- Are there other clients missing that should be included? Who? Why?
- What are the differences and similarities of interests between clients?
- What is the relationship between the clients?
- What is the relationship between actors and clients?

This group classified clients into 3 sub-groups: 1) fishermen 2) aquaculture farmers and 3) middle men (traders). The group found that impacts on fishermen and aquaculture farmers were both negative and positive, while impacts to the middlemen and traders were only positive.

1) Fishermen

- a. Positive impacts: various species of marine life use mangrove forest as their habitat. Therefore the fishermen can harvest from this. The credit is given to Department of Fisheries, Royal Forestry Department and DMCR
- b. Negative impacts: local villagers can't use wood from mangrove forests to make fishing gears. They believe that the effects are from the implementation of policies by the Department of Lands, Royal Forestry Department and DMCR.



2) Aquaculture farmers

- a. Positive impacts: marine species numbers increased, which is directly beneficial for farmers. In this case, credits are given for Department of Lands, Royal Forestry Department, DMCR and Department of Fisheries
- b. Negative impacts: branches and leaves of mangroves fall into aquaculture ponds, leading to water pollution and spread of diseases, especially for shrimps. This causes the death of shrimps and other species in the ponds. In addition, after the villagers agreed to join the mangrove plantation project initiated by government, it's found that some equipment is not allowed to be used in order to solve sedimentation problem with the shrimp ponds. Some farmers have stopped doing their business. These problems are attributed to the actions of Department of Lands, Royal Forestry Department, and DMCR.

3) Middlemen

- a. Positive impacts: mangrove conservation and restoration enhanced increasing number of marine products caught by fishermen. The more products fishermen sell to middlemen, the more profits middlemen gain.

Recommendations

1. Department of Fisheries and TAO should provide support to fish cage farming.

2. Department of Lands and DMCR should work together in order to help villagers get land certificates.
3. Department of Fisheries should continually release more marine species in to natural habitats.
4. TAO, Department of Lands, DMCR and Royal Forestry Department should work together on community forest establishment. Local communities will play actor roles to restore and conserve mangrove.

GROUP 4 CLIENTS

- Who are the beneficiaries and victims of mangrove enhancement?
- Are there other clients missing that should be included? Who? Why?
- What are the differences and similarities of interests between clients?
- What is the relationship between the clients?
- What is the relationship between actors and clients?

Clients of this group include representative of fishermen, fishermen and aquaculture farmers, mangrove planters, mangrove products buyers.

Benefits gained from the mangrove are as follows:

- Increased habitat for marine fishes and animal
- Increased area for aquaculture farming
- Increased mangrove products
- Improved soil erosion protection
- Recreational opportunities
- creation of jobs for local people



People at different level are connected to each other, from the mangrove planters to mangroves products buyers and consumers on the other end. In that sense the community level is also linked with the global level.

The communities rely on services provided by government agencies. They have specific expectations of: the Royal Forestry Department; the Department of Fisheries; TAO; PAO; educational institutions. Other non-governmental institutions that were mentioned were: international organizations; religious institutions;

and the media.

The participants viewed the institutions above as having responsibilities to promote planting of more mangroves; increase marine species numbers; promote mangrove plantation and conservation, provide information; and provide funding support.

AFTERNOON SESSION

Participants were divided into three groups reflecting the three field site villages of the project. Government and non-government participants were divided to participate in the three groups.

The discussion includes following guiding questions:

- Who are the beneficiaries of mangrove conservation and restoration?
- How should we conserve and restore the mangrove forests (e.g. site selection, species selection, beneficiary, implementors, monitoring and evaluation, funding)?



GROUP 1: MOO 4, BAN KONG KHONG, TAMBON EAST PAK PHANANG, PAK PHANANG, NAKHON SI THAMMARAT



Project title: Ecotourism

Justification:

- 1, the area accommodated an abundant mangrove forest
- 2, marine species conservation
- 3, income generation from tourism

Location: Moo 4, Tambon East Pak Phanang

Beneficiaries: villagers and community

Negative impacts: none

Impacts on nature and environment: water and air pollution reduction, habitat for marine species and soil erosion protection

Implementing body: villagers

Monitoring and evaluation: village Head Assistant

Funders: 50% from PAO and provincial government, 40% from private sector and international organizations, and 10% from TAO

Project duration: 5 years

GROUP 2 MOO 9, BAN PAKNAM PAK PHAYA, TAMBON TA SAK, MUANG, NAKHON SI THAMMARAT

Project title: Community Forest of Moo 9, Ban Paknam Pak Phaya



Positive impacts:

1. The younger generation can harvest from community forest
2. Reduced conflict among villagers regarding the use of community forests and its products
3. Villagers can make use of the wood in mangrove forest
4. Protection from coastal erosion
5. Nursing the young marine species and maintain balance of ecosystem

Negative impacts: those who possess the land without permission might lose their benefits if the area is designated to be community forest

Project duration: 5 years

Project site: it will cover the area of 500 rai (100 rai/year) of new coastal area in Paknam Pak Phaya River Mouth, Moo 9. Presently, this area is devastated by coastal erosion. Land owners who do not have legal permission will be requested to donate some land for the project.

Implementation process involves:

1. Consultation
2. Setting up the Community forest committee
3. Educating and providing relevant information to villagers regarding mangrove forest ecosystems, community forests, benefits from mangrove forests etc.
4. Planting mangroves by villagers, with support from government agencies and the private sector
5. Awareness raising
6. Campaigning on mangrove forest plantation and conservation
7. Promoting ecotourism, for which the community will play a more important role than authorities and private sector

Monitoring and evaluation will be conducted by the community forest committee and villagers, in cooperation with DMCR, TAO and PAO.

Funders: partially from TAO, and from provincial government

Recommendations: Royal Forestry Department and DMCR should provide technical support on related forestry law and regulations.

GROUP 3: MOO 9, BAN TALAT PHARUE HAT, TAMBON PAK PHUN, MUANG, NAKHON SI THAMMARAT

Project Title: Restoration of the new land for community forest establishment

Key issues found:

1. Group members comprise representatives from villagers from Ban Talat Parue Hat, local authorities, and educational institutions
2. Areas of interest are mangrove forest conservation and restoration, and mangrove plantation in a new mudflat zone.
3. Problematic issues are complicated managing system and unclear roles and responsibilities within several relevant agencies. This leads to confusion on coordination, authorization, laws and funders.
4. Confusion between the ability to use the community forest resources and forest laws. The new coastal zone is considered a protected area by law. This requires lawyers to justify.



Additional key points (refer to flip chart)

1. Villagers are direct beneficiary of mangrove plantation
2. From environment view, the mangrove forest will help increase the amount of marine species and protect coastal erosion.
3. Mangrove forest will help absorb pollution from community and human activities
4. The site to be selected should be a new mudflat zone where nobody possess and do the activities in such zone
5. Mangrove species must be selected based upon the need of community uses.
6. Negative impacts of mangrove forest are for instance creating obstacle for fishing gears landing, or transportation of boats
7. Implementing bodies are community (60%) and educational institution (40%). Other local authorizes are required to provide guidance and information.

8. Monitoring and evaluation will be conducted mainly by community in cooperation with local authorities
9. Key financial supporter is TAO. Additional funds may be obtained from other agencies
10. Project site covers 1,000 rai
11. Project duration is 1 year. Planting season is during April-June.

FORUM DISCUSSION

Thirawat Detkongkaew, Head Forest Resources Management Coordination Centre, Nakhon Si Thammarat, Royal Forestry Department, said that villagers get confuse on roles and responsibilities of the authorities. Villagers are more familiar with former system of the Royal Forestry Department which is viewed as a body to protect mangrove forest. Currently, Former Royal Forestry Department is divided into 4 agencies: Royal Forestry Department, DMCR, Department of National parks, Wildlife and Plants and Provincial Office of Natural Resources and Environment. He added that the Royal Forestry Department has small budget. Therefore it's better to request for funding support from the Provincial Office of Natural Resources and Environment.

Sitthipong Thongkaew from the Provincial Office of Natural Resources and Environment added that community can submit project proposals to his office. Then his office will add them into their 4 year environment plan and submit this plan to get funding support from PAO afterwards.

Regarding the unclear issue of land area which is a proposed site for the project on community forest of Moo 9, Ban Paknam Pak Phaya, Thirawat Detkongkaew asked villagers to send a letter to his office. Then the officers will be assigned to check the area and see whether it's against the law if that site is designated as the community forest.



CONCLUDING REMARKS

Dr Viroj Theerathanathorn commented that it's good to include religious bodies (temple and mosques), home and school while discussing broader management issues. Regarding land concession, he suggested that this problem must be solved at the national level.



He also added that it's necessary to have good understanding on natural resources conservation. In the dictionary, it defines "conservation" as to keep, but in fact it's about using natural resources smartly and sustainably.

In addition, the media is also one important stakeholder especially in helping on information dissemination and raising the awareness. Therefore, it's necessary to keep contact and make connection with media.

In order to get support from private sector and local authorities, they must be invited to participate in the project as appropriate. Strengthen relationship with them in both formal and informal ways are recommended.

Regarding the cage fish farming, even if we ask local authorities to release more fishes into the wild but we do not set clear fishing regulation, a number of fish caught will never be enough for everyone. In addition, the fish released must be from the farm not from the market. Community should also invite fish traders to join the activities in order to learn from them on marketing aspects.

Viroj agreed that the destruction of mangrove forest leads to reduction of villagers' income and global warming. He added more information on global warming that it is caused by human activities which create more CO₂ to the atmosphere. The best way to reduce impacts of global warming is to grow more trees and restore the forest.

He also commented on the project proposed by each community group. For the Ban Kong Khong which is focusing on ecotourism, he addressed the purpose of ecotourism that is to make tourists happy, appreciate the nature and environment, and learn from the place they visit. In addition, he mentioned that if we turn forest into touristic site, then forest will no longer be forest. But if we keep forest as it is, then it will be a place where tourists can appreciate its beauty in the long run.

Ban Talat Pharue Hat proposed a project on establishment of community forest in the new mudflat zone. Viroj emphasized villagers concern on the right to use such forest. It's not clear whether villagers will have that right or not, even if they can establish the community forest.

For Ban Paknam Pak Phaya which proposed project on coastal erosion protection and have the idea to invite representatives of local authority and intellectual in the village to participate; Viroj suggested to group to find root cause of coastal erosion in the area. In the past, the area was all mangrove forest. Later it was turn to be shrimp farming but was not successful at the end. Therefore, it protect the soil erosion, we need to re-plant the mangroves first. However, it should be done altogether with silvo fishery in order to help villagers to earn some income for their living.

ANALYSIS – NEXT STEPS

Based on the outcomes of stakeholder workshop, a pragmatic course for MANGROVE would be to: make the replanting and restoration activities more efficient by situating it within a strategic participatory action planning process exploring opportunities for local people to be more actively involved.

A strategic action planning process in this case would be defined as a platform by which the restoration and replanting activity could be shaped and managed through the reconciliation of the multiple interests (represented different livelihood regimes) in the system. The reconciliation at the local scale would include planning issues such as site selection for replanting and restoration, species composition of restored/replanted forests, user rights to restored and replanted mangroves and management regimes of restored and replanted mangroves. The reconciliation at an institutional and policy scale would include for example, that the appropriate mechanisms were in place to ensure that user rights were upheld and management regimes were feasible and efficient. Previous work on community based management of mangroves and rehabilitation of mangroves have been conducted in Southern part of Thailand both on the west coast and the east coast. (Boromthanasart et al 2006). Yadfon a non-governmental organization has worked with local communities regaining their access to mangrove ecosystems and developing their own management systems resulting in improved local livelihoods and biodiversity of the area (Suutari A <http://www.ecotippingpoints.org/ETP-Stories/indepth/thailandmangrove.html>) .

In a publication on coastal management in Pak Phanang a description of how well intended government policies end up diminish the anticipated outcome by not being aware of plans outlined by different government departments. An example of contradictory policies is illustrated by an example from west Pak Phanang where an effort to boost rice production was supported by a large scale irrigation project referred to as Bang Thuat irrigation project. At the same time the Provincial Electricity Authority and High Way Department subsidized electrical power and roads to help shrimp farmers (Boromthanasart et al 1991). When six shrimp farmers entered the area to establish shrimp ponds a conflict between the rice farmers and the shrimp farmers developed. Adding to the confusion the department of Forestry were at the same time involved in planting mangroves sometimes in the same areas that were explored by shrimp farmers to clear and construct shrimp farms (Boromthanasart et al 1991).

Given the unclear institutional division in the management of coastal shore in Nakhon Si Thammarat the government is encouraged to conduct a participatory zoning of coastal resources and its management.

Growing out of this process, preliminary recommendations for the Nakhon Si Thammarat site would be to proceed with research that supports the identification of appropriate sites for replanting/restoration and identification of appropriate composites of species. This identification should be undertaken in such a way that it is outcome a reconciliation of (1) the environmental services promoted by the researchers (2) the livelihood interests promoted by both local people and different levels of governance and (3) the reduction of climate change intensified hazards promoted nationally. This research would be nested in additional stakeholder workshops facilitated by using research outcomes (socio-technical objects) to facilitate stakeholder dialogues connected to these issues. A clear policy in relation to management of coastal areas and mangroves also has to be developed before any action can be taken. Furthermore, the opportunity for community management of mangroves needs to be addressed. At the moment national legislation prohibits any use or cutting of natural or planted mangroves. The workshop highlighted the fact that community groups would like to be involved in the management of coastal resources as well as the planning for zoning of the area. Through the Thai constitution communities should be consulted in the planning process. The experience shows that to what extent that is actually followed on the ground varies very much from area to area. In order to initiate a planning process for

rehabilitation of mangroves one also need to consider some of the macro level issues linked with agriculture and water management as well as economic development projects in the area. At the moment previous research conducted by the Coastal Resources Institute Prince of Songkla University (CORIN) indicate that the flow changes in the Phakanang river has an impact on the adjacent coastal ecosystem. Whilst providing input for coastal resource management one has to consider the role of macro issues to ensure a long-term sustainability. Unless micro level change is supported by macro level change it is difficult to ensure a long-term sustainable solution. In the case of Nakhon Si Thammarat

Underlying the reconciliation of the above issues through the research process will be an integrated analysis of the systems of user rights and management regimes required to ensure that the restoration and replanting process is both efficient and sustainable in the long term. Another important aspect to consider is the role of Pak Phanang River and the management of the river and the basin in relation to the coastal resources. Deforestation in the upper watershed had an impact on the water flow in the river causing flooding further downstream. Since the area was identified as a highly productive rice cultivating area the government invested in an extensive irrigation system with an extensive system of canals. (Boromthanarat 2006 chapter 3). With the expansion of shrimp farms and reduction of water flow from the river saltwater started to intrude and even entered as far as to the irrigation khlongs. To prevent salt water intrusion and to store freshwater a water gate was constructed. The impact of the water gate are multifold (Louis Lebel et al 2004), (Pipop Prabnarong Janjira Kaewrat 2006). The main concern of the Watergate for the mangrove ecosystem is the accelerated rate of sediment deposition and the decreased flow of water. Udomluck Thampanya (2006) has documented the sedimentation process posing a risk if escalating to fill the entire bay.

Reconciliation connected to this will also be supported through issue based CATWOES mediated through stakeholder meetings. Most important in this regard will be the final stakeholder workshop in which a number of different scenarios pertaining to site selection, species composition, user rights and management regimes will be deliberated over.

ATTACHMENT

List of participants

1. Villager representatives and village head from
 - a. Moo 4, Ban Kong Khong, Tambon East Pak Phanang, Pak Phanang, Nakhon Si Thammarat
 - b. Moo 9, Ban Talat Pharue Hat, Tambon Pak Phun, Muang, Nakhon Si Thammarat
 - c. Moo 9, Ban Paknam Pak Phaya, Tambon Ta Sak, Muang, Nakhon Si Thammarat
2. Local authorities
 - a. DMCR
 - b. Royal Forestry Department
 - c. Department of National Park, Wildlife and Plants
 - d. Department of Lands

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| 3. Ms Kanokwan Paiboonliskul | Walai Lak University |
| 4. Ms Wanchai Khieo-orn | Ta Sak TAO |
| 5. Mr Boonrit Bookmas | Rajabhat Nakhon Si Thammarat University |
| 6. Mr Sitthipong Thongkaew | Office of Provincial Natural Resources and Environment |
| 7. Mr Sawad Samakpong | Local Research for Development Association |
| 8. Mr WAchira Kongthep | DMCR |
| 9. Mr Teerasak Jaidamrong | World Vision Foundation |
| 10 Mr Thanavuth Thawornprom | Pak Phun TAO |
| 11. Chote Khiendong | Department of Fisheries |

Group 2

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|----------------------------|---|
| 1. Mr Thikhmporn Horhum | World Vision Foundation |
| 2. Mr A-morn Masikamas | DMCR |
| 3. Mr Suriya Chankaew | Rajabhat Nakhon Si Thammarat University |
| 4. Mr Chavalit Kongthong | Mangrove Conservation Group of Ban Kong Khong |
| 5. Mr Sawetchatr Boonmung | Department of Natural Park, Wildlife and Plants |
| 6. Ms Jatuporn Horhum | World Vision Foundation |
| 7. Mr Prapatpong Petchrat | Department of Fisheries |
| 8. Mr Parichet Chaipanurak | Pak Phun TAO |
| 9. Ms Juthamas Sirirat | Walai Lak University |

Group 3

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|---------------------------------|----------------------|
| 1. Ms Jintana Vichaiyuth | Ban Paknam Pak Phaya |
| 2. Ms Vijiitsilp Thongsonja | Ban Talat Pharue Hat |
| 3. Ms Juntima Jaraskul | Walai Lak University |
| 4. Mr Surachai Danwattananusorn | PPP |
| 5. Mr Suthin Choomuang | Ban Kong Khong |
| 6. Mr Somkid Vichiernsawang | Ban Paknam Pak Phaya |

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| 7. Ms Chompoo Nantavong | Ban Kong Khong |
| 8. Mr Saweang Toh-yee (village head) | Department of Provincial Administration |
| 9. Mr Sophon Meekham | Ban Kong Khong |
| 10. Mr Aa-Mad Deedet | Ban Talat Pharue Hat |
| 11. Ms Saowapa Chong-Orn | Ban Paknam Pak Phaya |
| 12 Mr Toy Kong-iead | Ban Kong Khong |

Group 4

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|--|---|
| 1. Mr Thanwit Tavornphrom (village head) | Department of Provincial Administration |
| 2. Mr Sompong Nantavong | Ban Kong Khong |
| 3. Ms Yuree Vaewwanjit | Ban Talat Pharue Hat |
| 4. Mr Boonlerd Panthong | Department of Provincial Administration |
| 5. Ms Yupin Pantavong | Ban Kong Khong |
| 6. Mr Kreemas Kongthong | Ban Kong Khong |
| 7. Mr Srisak Nantavong | Ban Kong Khong |
| 8 Ms Suvimol Iempeng | Walai Lak University |
| 9. Mr Prayad Sena | Department of Provincial Administration |

AFTERNOON SESSION

Group 1

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|------------------------------|-------------------------|
| 1. Mr Suthin Choomuang | Ban Kong Khong |
| 2. Mr A-morn Masikamas | DMCR |
| 3. Mr WAchira Kongthep | DMCR |
| 4. Chote Khiendong | Department of Fisheries |
| 5. Ms Yupin Pantavong | Ban Kong Khong |
| 6. Ms Kanokwan Paiboonliskul | Walai Lak University |
| 7. Mr Toy Kong-iead | Ban Kong Khong |

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| 8. Ms Chompoo Nantavong | Ban Kong Khong |
| 9. Mr Srisak Nantavong | Ban Kong Khong |
| 10. Mr Kreemas Kongthong | Ban Kong Khong |
| 11. Mr Sophon Meekham | Ban Kong Khong |
| 12. Mr Teerasak Jaidamrong | World Vision Foundation |
| 13. Mr Sitthipong Thongkaew | Office of Provincial Natural Resources and Environment |
| 14. Mr Chavalit Kongthong | Mangrove Conservation Group of Ban Kong Khong |
| 15. Mr Sompong Nantavong | Ban Kong Khong |

Group 2

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|--------------------------------------|--|
| 1. Mr Somkid Vichiernsawang | Ban Paknam Pak Phaya |
| 2. Ms Wanchai Khieo-orn | Ta Sak TAO |
| 3. Mr Surachai Danwattananusorn | PPP |
| 4. Ms Saowapa Chong-Orn | Ban Paknam Pak Phaya |
| 5. Mr Somchai Kao-len | DMCR |
| 6. Mr Saweang Toh-yee (village head) | Department of Provincial Administration |
| 7. Mr Prapatpong Petchrat | Department of Fisheries |
| 8. Ms Jintana Vichaiyuth | Ban Paknam Pak Phaya |
| 9. Ms Jatuporn Horhum | World Vision Foundation |
| 10. Mr Sawad Samakpong | Local Research for Development Association |
| 11. Mr Suriya Chankaew | Rajabhat Nakhon Si Thammarat University |
| 12. Mr Boonlerd Panthong | Department of Provincial Administration |
| 13. Ms Juthamas Sirirat | Walai Lak University |
| 14. Mr Chamnan Chanvong | Department of Lands |

Group 3

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|--|---|
| 1. Ms Vijitsilp Thongsonja | Ban Talat Pharue Hat |
| 2. Ms Juntima Jaraskul | Walai Lak University |
| 3. Mr Thanavuth Thawornprom | Pak Phun TAO |
| 4. Mr Sawetchatr Boonmung | Department of Natural Park, Wildlife and Plants |
| 5. Mr Thanwit Tavornphrom (village head) | Department of Provincial Administration |
| 6. Mr Boonrit Bookmas | Rajabhat Nakhon Si Thammarat University |

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|-----------------------------|---|
| 7. Mr Prayad Sena | Department of Provincial Administration |
| 8. Mr Parichet Chaipanurak | Pak Phun TAO |
| 9. Ms Suvimol Iempeng | Walai Lak University |
| 10. Ms Yuree Vaewwanjit | Ban Talat Pharue Hat |
| 11. Mr Aa-Mad Deedet | Ban Talat Pharue Hat |
| 12. Mr Thirawat Detkongkaew | Royal Forestry Department |

ANNEX

CATWOE-THAILAND

CATWOE Workshop
20 September 2007

Client/ Customer

(Direct benefit)

- Local communities
 - Fishers
 - Shrimp farmers*
 - Mangrove collector (bee, herb, etc.)
 - Mangrove plantation- wage earner
- Middlemen

Actors

- Local communities (the same as Client) – direct resource uses
- Local authority:
 - TAOs (Tambon/Subdistrict Administrative Offices)
 - PAO (Provincial Administrative Offices)
- Local/ Central government offices
 - Department of Marine and Coastal Resources,
 - Royal Forestry Department,
 - Department of Fishery
 - Department of Marine and National Park
 - Etc.
- NGOs
- University

Transformation Process

- Input
 - WP1: Situation appraisal
 - WP2: Dissemination, monitoring and evaluation
 - WP3: Ecosystem health and functioning
 - WP4: Livelihoods, goods and services
 - WP5: Institutions and stakeholders
 - WP6: Reconciling multiple demands: ecosystem health and functioning
 - WP7: Reconciling multiple demands: livelihoods, goods and services
 - WP8: Reconciling multiple demands: institutions and stakeholders
- Output
 - Develop action plans to reconcile multiple demands placed on mangroves and adjacent areas
 - Local and national level stakeholders participate in action planning
 - Action plans piloted by stakeholders and impacts on ecosystems, livelihoods and institutions assessed
 - New knowledge on most effective approaches communicated to agencies responsible for CZM
 - To assist in formulating Codes of Practice and policies to RMD placed on mangroves and adjacent areas

World view

- EU
- Millennium Development Goal (MDGs)
- Ramsar Convention on Wetlands of International Importance
- Convention on Biodiversity (CBD)
- International Tropical Timber Organization (ITTO) – Mangrove workplan
- Food and Agricultural Organisation (FAO)-Mangrove Management Guidelines
- World Bank Code of Conduct for Sustainable Mangrove Management
- National Policy

Owners

- Local communities (the same as Client) – direct resource uses
- Local authority:
 - TAOs (Tambon/Subdistrict Administrative Offices)
 - PAO (Provincial Administrative Offices)
- Local/ Central government offices
 - Department of Marine and Coastal Resources,
 - Royal Forestry Department,
 - Department of Fishery
 - Department of Marine and National Park

Environment (Mangrove Ecosystem)

- Insufficient proper policy/ policy cycle
- Insufficient proper management/ mgt cycle
- Insufficient knowledge/ awareness/ participation
- Unhealthy mangrove ecosystems
- Decreased in mangrove area
- Reduction in aquatic catch amount/mangrove's good and services
- High risk from disaster (Climate change (sea level, strong wind/wave/storm))
- Low opportunity to access/own assets
- Decrease in income
- Decrease in food for household consumption
- Vulnerable/insecure livelihoods

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