

# Community-based Forest Rehabilitation in the tsunami-affected areas



Contribution to Forest Rehabilitation  
Thailand's Areas Affected by the Tsunami Disaster

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## **Community-based forest rehabilitation in the tsunami-affected areas**

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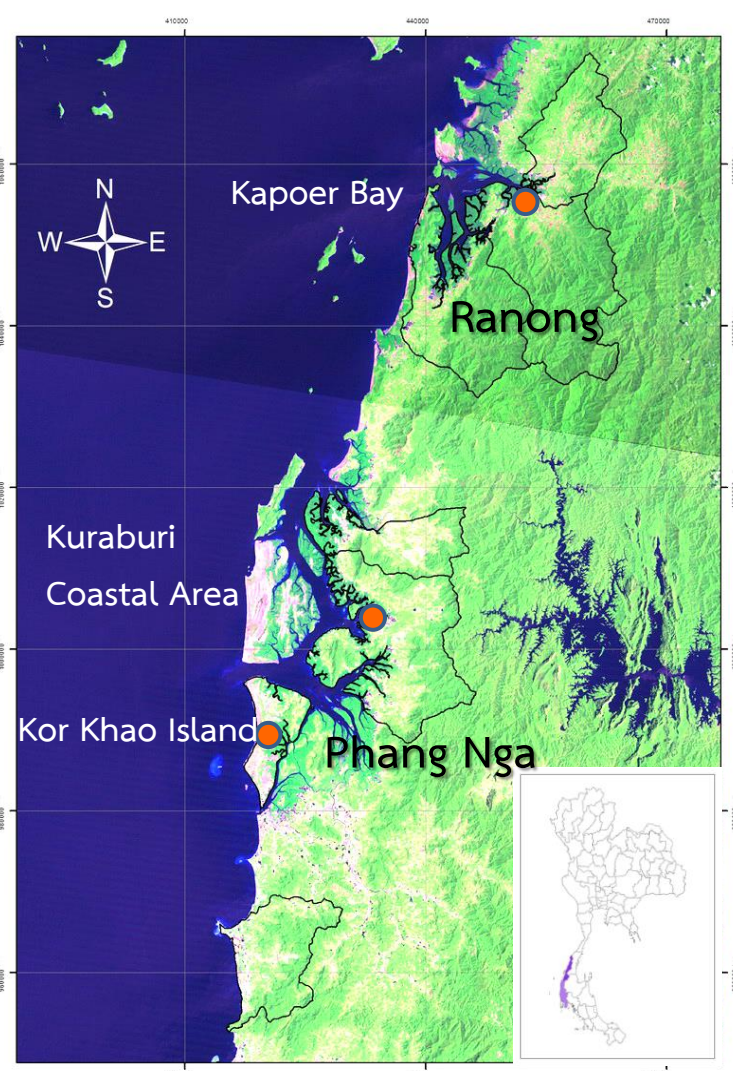
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# About the Project

Thailand's Royal Forestry Department (RFD) in cooperation with Thailand Environment Institute (TEI) launched the project "Contribution to Forest Rehabilitation in Thailand's Areas Affected by the Tsunami Disaster". The project funding source is the International Tropical Timber Organization (ITTO). The project contributes towards the **long-term rehabilitation of coastal forest resources and improves the livelihoods of local communities** in target areas in Ranong and Phang Nga provinces: Kapoer Bay; Kuraburi Coastal Area; and Kor Khao Island. The project implementation period is 2008-2013.



## Community-based Rehabilitation and Management

This project work plan has been implemented by TEI with following 3 principal guidelines - (1) **participation** with community and local administrative organizations; (2) **learning** through the use of traditional and technical knowledge sources; and (3) **integration** of social, economic and environmental aspects.



► *Rehabilitation of destroyed coastal forests*



► *Awareness raising and capacity building activities*



► *Community-based coastal resources plan*



► *Monitoring activity*

# Approaches in community-based forest rehabilitation in the tsunami-affected areas



Forest rehabilitation in coastal zones affected by a tsunami can be divided as follows

- ▶ First stage: mainly individual action in order to replant for the **reclamation** of destroyed areas;
- ▶ Next stage: **Restoration** of biodiversity by creating secure systems for improvements in the quality of life of coastal communities and ecosystem integrity

To ensure long-term continuity and sustainability of the project, various agencies have emphasized on the importance of **sustainable management** through community-based participation and proper support provided by external agencies throughout the project; from the first stage of implementation through to ecosystem rehabilitation processes.

## Reclamation

*...Planting to establish tree cover in damaged areas, aimed at stabilizing forest condition and protecting against encroachment*

- Prepare commonly found local species
- Plant in natural patterns, not rows
- Protect natural water courses and canals



## Restoration

*...Enrichment planting to increase diversity of aquatic plant and animal species, aimed at creating a forest barrier against disasters and supporting community use*

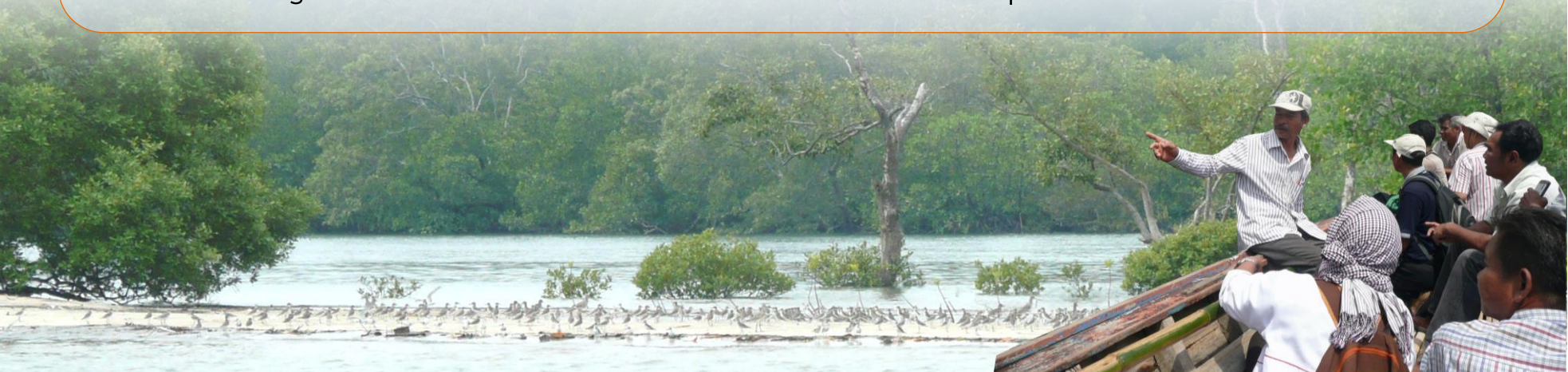
- Survey of the area and identification of appropriate local tree species
- Propagate seedlings of desired species
- Prepare site, taking care to protect understory species
- Plant seedling and release aquatic animal
- Monitor and maintain forest



## Sustainable Management

*Initiating community participation, establishing support from external agencies*

- |   |  |   |
|---|--|---|
| • Establishing collaboration with the community | • Establish committee                    | • Strengthen the management capacity of the committee |
| • Raising awareness amongst the youth           | • Survey and demarcate forest boundaries | • Survey plant and animal populations                 |
| • Collaborating with external agencies          | • Define forest use regulations          | • Formulate a management plan                         |



# Characteristics of community-based implementation

Coastal forest ecosystem rehabilitation and management has focused on the concept that people, forests and all creatures are vital components of a coastal ecosystem, that should be managed in a well-balanced way; where the livelihoods of people and the survival of forests are not compromised.



Thus, the main activities can be divided into three groups as follows;

1. **Area survey and site preparation:** Aimed to match with area conditions and community requirements.



*Selecting for proper species* – based on topographic conditions and the objectives of rehabilitation, with emphasis on local species that grow well in local conditions. The funding for the purchase of saplings of chosen local species was provided by external agencies. The saplings were purchased from other areas. Following this, preparations were made for building nurseries

and/or collecting cones and seedlings in the community, as this would help in reducing the number of damaged saplings during transportation.

2. **Reforestation and rehabilitation of the forest ecosystem:**

*Having a discussion for collaborative preparation*

- ▶ Setting up the operating date and time
- ▶ Publicizing to promote reforestation activities
- ▶ Setting up pilot reforestation plots for monitoring survival rates
- ▶ Monitoring and maintenance
- ▶ Initiating other ecosystem rehabilitation activities, such as releasing aquatic life
- ▶ Evaluating activities



3. **Development of community-based forestry management:**

*Aimed for the maximum benefits for ecosystem and communities*

- ▶ Understanding community data and forest utilization patterns
- ▶ Strengthening the capacity of community leaders
- ▶ Surveying of areas and investigation of property rights
- ▶ Promoting the role of women and youth in forestry management
- ▶ Defining boundaries and setting regulations for resource utilization
- ▶ Creating a forestry management network across all communities



# Koh Kor Khao's coastal resource management

**Koh Kor Khao** is a small-sized island located on the edge of the Andaman Sea around the estuaries of Takua-Pa river and Nang Yon river. It is also another sub-district of Takua-Pa district in Phang Nga province, with five villages as Baan Muang Mai, Baan Nok Naa, Baan Pak Koh, Baan Thung Tuek and Baan Bang Niang. Koh Kor Khao has a diversity of natural resources, such as mangrove forests, terrestrial forests, beach forests, sea grass sanctuaries and coral reefs.

After the tsunami that occurred at the end of B.E. 2004, local communities realized the importance of coastal resources. The communities then initiated coastal resources management through community-based participatory approaches.



**Community-based ecosystem rehabilitation** approaches applied in this project consist of the following activities –**tree replanting and the release of aquatic animals, establishment of aquatic life preservation zone, surveying and making forestry boundaries**



**Survey of the status of natural resources** in both terrestrial and mangrove forests. Carrying out these activities will provide for valuable data that can be inputted for the database of **the Koh Kor Khao coastal resources management plan.**



In addition to community-based rehabilitation, the project will also involve the development of the **Koh Kor Khao environmental management network**, which will become another channel to connect communities to engage in community-based implementation in the right direction. Establishment of the network includes activities such as capacity development of community leaders and youth groups.



# Khao Bor Sai

## Natural Capital of Baan Thung La-Ong



“**Khao Bor Sai**” is a mountain covered with evergreen forests that cover an area of 25,825 rai. It is located in Moo 4 Baan Thung La-Ong, Bang Wan sub-district, Kuraburi district in Phang Nga province. The mountain was declared to be a national reserve forest since B.E. 1971.

It is also an important watershed that provides vital support to the habitats of various fauna and flora, and a source of water to surrounding villages. Given the importance of the ecosystem services provided by the mountain’s watershed, villages and communities in the area have agreed to collaborate for rehabilitating and protecting the watershed from exploitation of mono-crop cultures.



Local youth groups in Baan Thung La-Ong have participated in a **survey of the watershed that studied the physical changes of forests**. The survey revealed that the inner zone of the watershed is still maintaining its fertility and density with various tree species, such as the *Dracaena loureiri*, *Sandoricum koetjape*, *Chloranthus erectus*, Ebony and *Shorea laevis*. Results of the survey have prompted for **initiating conservation/preservation activities in the Khao Bor Sai mountain area** in order to be protect its natural capital..



# Reforestation around the coastline of Kapur Bay

“Kapur Bay” covers a total area of 17,218 rai. It is located in Mhuang Klueng, Kapur, Bang Hin and Naka sub-districts in Ranong province. The area has several waterways that run through and join together at an estuary of the Andaman Sea on the west. The bay is fertile with a diversity of natural resources, providing ample food sources to surrounding communities.

Kapur Bay was partially damaged by a tsunami in B.E 2547, however the condition of natural forests in the area have deteriorated due to excessive logging (motivated from concessions provided on timber woods). A number of areas in the forest have been covered by various species of weeds. During mangrove rehabilitation activities in the Kapur Bay area, **weed species were cleared** regularly on a three-month basis, both before and after replanting tree species in order to help tree saplings gain strength.



At first stage, the community chose both *Rhizophora mucronata* and *Rhizophora apiculate* for replanting as most of both saplings were supported by the Ninth Mangrove Resources Development Station (Kapur). Later, they have **increased the diversity of flora** particularly those economic species for **adding higher value** from forest utilization. They have built up nurseries for saplings such as *Bruguiera parviflora*, *Bruguiera cylindrical*, *Xylocarpus granatum*, Nipa palm and *Bruguiera gymnorrhiza* in many communities.

They have also released aquatic life and set up some specific areas for preserving economic species such as Belcher's venus clam and Oriental hard clam, including some regulations for utilizing those aquatic life.





# A survey of Hoi Hwan-Hoi Khaow in Kapur Bay



Both **Hoi Hwan** (Belcher's venus clam) and **Hoi Khaow** (Oriental hard clam) are main economic aquatic resources of communities surrounded Kapur Bay as the best periods for collecting them are before the First and Third quarters and before the Full moon and New Moon, by using simple tools such as coconut shell shard, garden rake or even spoon to dig on sand dune surface in depth less than 5 centimeters

A sharp decrease of the amount of both species, it became an initiation of the “**Voluntary Surveyor Program**” among the eighth-graders at Baan Bang Hin School and their parents who have earned living by collecting those two species. They have surveyed together to investigate their existing numbers and their habitats.



- **Hoi Hwan** (*Tapes belcheri* S., 1852) or Belcher's venus clam that is a bivalves with delicate valve in dull white to light brown color and having clear-colored stripes



- **Hoi Khaow** (*Meretrix Venus*) or Oriental hard clam with shiny hard shell in different colors and stripe patterns from plain white, cream, light brown to dark brown in stripes. The mature ones are larger than those spotted Babylon ones.



**The survey** began with setting up five sampling plots in the size of 5x5 meters. Then, they used self-made rakes made of PVC pipe installed with proper-sized metal nails for raking first. Later, they used their hands to pick up those species and put them in separate containers for each plot before size measurement, weight check, recording all collecting data and summarizing their survey as follows;

- ▶ **Topography:** most areas are covered with sand and small gravels with a bit of mud, clean environment without garbage and any bad smell
- ▶ **Hoi Hwan** with sizes 2.5-3.8 cm., as the average size of 3.4 cm.
- ▶ **Hoi Khaow** with sizes 3.7-5.7 cm., as the average size of 4.0 cm.
- ▶ **Population density** of Hoi Hwan and Hoi Khaow 283.5 kg./rai
- ▶ **Amount** of Hoi Hwan and Hoi Khaow from the local gatherers with the annual value of about Baht 172,000 (for the retail price of Baht 20/kg. as of August B.E.2554)



# Value of Coastal Aquatic Catch at Baan Bang Kluay Nok



Regarding of being a Muslim community of Baan Bang Kluay Nok community in Naka sub-district, Suksamran district in Ranong province, they have rehabilitated and maintained their local mangrove forest continuously. They also have their local conservation group and local youth group on protecting sea and mangrove forest around Baan Bang Kluay Nok as those groups have interested in their community's traditional coastline fishery. Then, they have collaborated to study and survey the value of community's coastal resources focusing on fishery production.

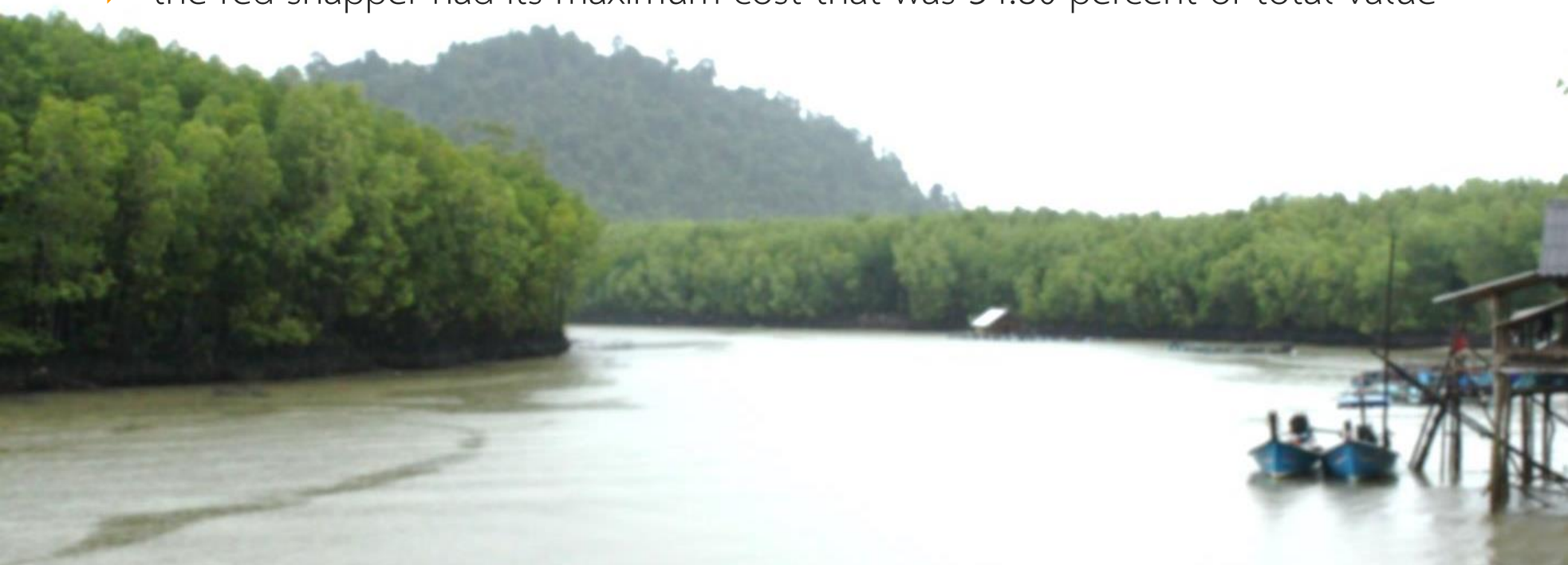
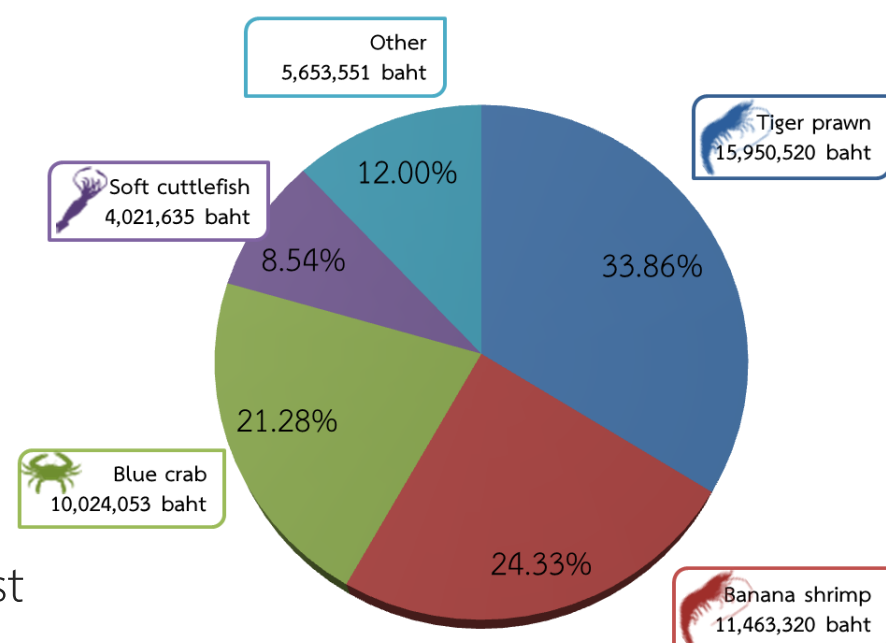


The study began with their **questionnaire survey on aquatic life species** and their status among community's

professionals, compiling all data for summary and analysis as they would present those collected data on the community forum. They also wanted the forum participants to add up some data and select for prioritized aquatic life. Later, they would survey for all details of those selected prioritized aquatic life from major aquatic life catchers. In 2011, they collected, summarized and analyzed data from 54 individual cases and presented their results on the community forum for discussion and collecting comments, also recommendations.

The results of 12 key aquatic life data during June 2011 – May 2012 could be summarized as these followings;

- ▶ Total value of annual aquatic life catch was Baht 47,113,080
- ▶ Total cost of aquatic life catch was Baht 9,472,872 or 20.10 percent of total value. The cost of fuel was the highest one
- ▶ The tiger prawn had its maximum value at Baht 15,950,520 with the minimum cost that was only 7.89 percent of total value
- ▶ the red snapper had its maximum cost that was 34.80 percent of total value



# Promoting of public awareness and capacity-building

Promoting of community's public awareness and capacity-building on coastal resources management was aimed to promote their integrated management concept from the watershed through the estuary. There were three target groups as

(1) **General people** emphasized on providing data and information through their monthly village meeting activity and planning for conducting a variety of activities

(2) **Youth groups beyond the school system** emphasized on their learning or data exchanges with community leaders, community's resources survey, also discussions with other youth groups from different areas,

(3) **Youth groups in schools** emphasized on suitable activities that matched with their curriculum for each level.

Key activities on promoting of community's public awareness and capacity-building on coastal resources management were consisted of

- ▶ study visits and experiences exchange forums
- ▶ utilizing maps and satellite images for communication and raising their awareness
- ▶ conducting survey activities that could be flexibly operated both adults and youths as they had to present data and exchange ideas in the community forum
- ▶ developing network among communities
- ▶ conducting activities related to environmental studies in schools
- ▶ conducting youth camps activities and experiences exchange among youth groups
- ▶ Producing brochures for disseminating updated knowledge on related topics
- ▶ Producing signboards for promoting a campaign on natural resources preservation and providing knowledge about tree species' names that grown in the mangrove forest



# Kapur Bay

## Coastal Resources Management Plan

Communities around Kapur Bay in Muang Kluang Kapur and Bang Hin sub-district joined hands with Local Administration agencies and various agencies to prepare the coastal resources management plan. The process consisted of information



sharing, data analysis and capacity development. The purpose offer pushing the process of decision making and planning effectively.



### Vision:

Kapur Bay becomes a fertile coastal resource and a nationwide coastal tourism site, which is managed through good governance and active participation of concerned parties from a strong collaborative network.



### Strategy:

1. **Manage coastal resources for long term utilization** and secure the coastal ecosystem and community.
2. **The development of a coastal resources network and a monitoring scheme** for increase local capacity to protect all encroachments
3. **Research and survey coastal biodiversity** through set aside conservation areas, and promote the integrated use of traditional and scientific knowledge



# Koh Kor Khao

## Coastal Resources Management Plan

After Koh Kor Khao was affected by the tsunami disaster in late 2004, a number of agencies offered their support to restore tsunami-affected areas. However, these agencies did not have the right expertise in coastal resources management.

In order to move forward in the right direction, local community members and a number of stakeholders jointly prepared a management plan to properly rehabilitate and protect coastal resources.



**Vision:** Natural resources will be managed through the use of participatory approaches, to restore the integrity of the ecosystem in a fair and sustainable way.



**Strategy:**

1. **Natural resources rehabilitation and management** through information surveys, demarcation of land boundaries, and reliable maps and databases
2. **Pollutants prevention and studies on coastal erosion**
3. **Promotion of the sustainability of coastal resources utilization** and enhance income from conservation activities
4. **Continuous building of community capacity for sustainable coastal resources management**



# Monitoring of forest ecosystem and coastal resources rehabilitation

Monitoring of the forest ecosystem rehabilitation was conducted with active participation of the local community in the following three patterns;



- ▶ **Follow-up monitoring** after 3 month and 6 month replanting in the prepared sites by marking in sampling of 2-4 plots with a size of 4x4 meters on different conditions. The survival rate was around 80-95 percent.

- ▶ **Ecosystem monitoring:** a brief survey to monitor the forest condition by setting up 3-5 stratified sampling plots. Monitoring includes recording of the forest structure, components and regeneration, and the collection of biological resources data.



- ▶ **Monitoring and assessing the extent of coastal resources utilization** through various methods, such as - fishery production value. Information obtained would give an estimate of the market-based value of the utilized coastal resources, including costs and benefits. Knowing the market-based value of coastal resources utilization can be valuable information for local communities, who can realize the economic effects of using and preserving coastal resources. The importance of this data for local communities will also create motivation to participate in future monitoring activities.



Founded in 1993,  
the **Thailand Environment Institute** (TEI)  
is a non-profit, non-governmental organisation  
focusing on environmental management and  
sustainable development. The Institute carries out  
policy research, develops capacity and implements  
field projects to mitigate climate change, conserve  
natural resources and manage the man-made  
environment at local, national and regional levels.

[www.tei.or.th](http://www.tei.or.th)

The **Royal Forest Department** (RFD)  
was established by King Rama V in 1896 under  
the Ministry of Interior. It was later transferred to the  
Ministry of Agriculture and Cooperatives, and is currently  
part of the Ministry of Natural Resources and Environment.  
The Department has responsibility for the oversight,  
management and protection of the forests under its  
jurisdiction. It also carries out research and promotes tree  
planting, both in community forests and in economic forests.

[www.rfd.go.th](http://www.rfd.go.th)

The **International Tropical Timber Organization**  
(ITTO)  
is an inter-governmental organisation founded in 1986  
to develop forest-based trade and industry, and to  
promote sustainable forest use and management.  
Today, ITTO focuses more on community forestry,  
forest law enforcement and governance, and reducing  
forest degradation. The Secretariat of ITTO is located in  
Yokohama, Japan.

[www.itto.int](http://www.itto.int)

