

## Sustainable Tourism Based on Coral Reefs at Mu Koh Chang Island

### Project Summary

The aim of the Mu Koh Chang coral reef demonstration site is to remove or reduce the causes of coral reef degradation at Mu Koh Chang through: the application of a new model of co-management in the area; restoring certain degraded areas for education and tourism purposes; and assessing the carrying capacity of the reefs for marine based tourism. The project outcomes have highlighted the importance of coordination between and amongst government institutions, the private sector, and local communities in order to promote sustainable tourism development.

### Issues and Challenges

During preparatory meetings with stakeholders in the area, the causes of coral reef degradation at Mu Koh Chang were identified as being: infrastructure development, leading to soil erosion and coastal sedimentation; unplanned expansion of tourism businesses resulting in rapid increase in tourist numbers; unskilled SCUBA divers and snorkelers damaging coral colonies in shallow water; use of anchors by boat operators in reef areas; lack of awareness of the local community of the importance of marine ecosystem to community income from tourism; illegal fishing using chemicals and nets of illegal mesh size and collecting of sea cucumbers and abalone; lack of co-ordination among management agencies; and a lack of manpower and poor law enforcement.



The Mu Koh Chang Website - [www.thaicoralreef.in.th](http://www.thaicoralreef.in.th)

## Raising Awareness on the Ecological Importance of Coral Reefs

Public awareness activities have included training for students, tourism operators, government staff and local people on the ecology of coral reefs and how to use these sustainably. Activities to encourage and empower volunteer groups in coral reef conservation were initiated and all activities emphasised stakeholder participation since a high level of public participation is crucial to successful sustainable management.

Information has been disseminated using a wide range of methods including radio and television broadcasts, posters and 20 permanent notice boards featuring the coral reefs and coastal resources of Koh Chang. A manual concerning fisheries management and coral reef conservation and a handbook of coral reef and related marine organisms of Mu Koh Chang have also been published. A quarterly Thai Coral Reef Newsletter has been launched and copies are distributed to all stakeholders involved in coral reef conservation both at Mu Koh Chang and throughout Thailand. The webpage [www.thaicoralreef.in.th](http://www.thaicoralreef.in.th) provides background to the project; basic knowledge concerning coral reef ecology; and a calendar of upcoming events related to coral reef conservation and management.

### Using Coral Restoration as a Means of Raising Awareness

To raise community and tourist awareness of coral reef restoration a small demonstration site for coral restoration was established at Koh Kra. Site size was small for ease of control and management for the benefit of tourism, education, public awareness, and research. Natural coral fragments were used in order to increase the survival rate of such fragments that might otherwise be buried. The techniques and methods used were kept simple, using cheap materials available from local suppliers and those that provided a hard substrate for coral recruitment. Four methods are displayed at the site: provision of substrate in the form of pyramids of concrete pipes; attaching branching *Acropora* spp. with screws to PVC pipe frames in the coral nursery area; provision of additional substrate using clusters of concrete blocks to encourage natural coral recruitment; and, attaching coral fragments to dead branching corals by means of plastic straps.



Naturally occurring coral fragments placed in concrete blocks to enhance survival

### Developing Sustainable Tourism

Tourism development projects in tropical coastal areas frequently result in significant coral reef degradation. Studies on carrying capacity of tourism sites are critical in order to undertake sustainable tourism planning. Although designated in 1982 as a National Park, Mu Koh Chang was designated in 2002 as an area having special or unique tourism features and identified as a new tourism destination in Thailand. Most tourists who visit Mu Koh Chang are involved in marine aquatic sports and activities such as snorkelling and SCUBA diving. The number of visitors in 2007 was approximately one million, four times the number visiting in 2003.

In order to develop guidelines and measures to control the number of visitors and prevent tourism damage to the natural environment, a study was undertaken to determine the ecological, physical, facility, and psychological carrying capacity of Mu Koh Chang. For the ecological carrying capacity the national park conservation targets were taken as relative impact indicators, and existing visitor use correlated with existing ecological impacts. The study identified the carrying capacity type that limited the recreation use of each site and the recommendations have been taken into account in planning further development. This enabled identification of an appropriate tourist user fee for visitors to the site. These fees are being used to support and sustain coral reef conservation interventions at the site.

### Changing Past Practices and Developing Alternative Income Sources for Fishermen

In order to reduce the overall pressure from fishing and use of illegal gear, local fishermen were trained in more sustainable livelihoods such as mariculture and as diving guides and tour boat operators. A local guide centre was established enabling visitors to contact and directly engage local boat and dive operators and this has increased significantly the income of small boat operators. At the same time visitors have gained insight into sustainable management activities being undertaken in the area.

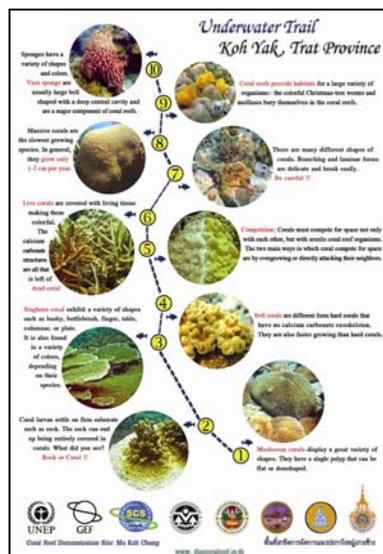


Tour guide centre on Koh Chang Island

A mooring buoy committee has been established as a sub-committee under the Mu Koh Chang National Park Committee to agree on the location of mooring buoys. The committee is composed of boat and dive operators and encourages use of such buoys to prevent anchor damage to sensitive corals. Mooring buoys were installed at sensitive sites. An underwater snorkel trail has been established and mapped with a plastic guide highlighting points of interest along the trail. Underwater guides to the corals, fish and marine benthos of Mu Koh Chang have also been produced.

### Networking Among Government Institutions, Private Sector and Local Communities

The project has sought to encourage collaboration and coordination among government agencies, private sector enterprises, NGOs, and local communities during planning, operation and evaluation of all activities in order to strengthen co-management.



Underwater guide to the snorkel trail

Natural resource management in Thailand tends to be through centralised management by government agency with little decentralisation of authority or control.

Management of sustainable tourism at Mu Koh Chang, falls under the responsibility of several government entities each of which has their own management body, with little co-ordination between them and a resultant over-lapping of activities. The Mu Koh Chang Demonstration Site objective, of developing a management plan and guidelines for sustainable utilization of coral reef resources required the participation of all related stakeholders from both local and national levels. This plan indicates appropriate activities, decided by the meetings of all stakeholders that should be implemented in the area and has now been accepted for implementation by all responsible agencies. The process has facilitated co-operation between the various government agencies.

### Rationale for Approach Taken

At the time of its designation as a National Park in 1982 few resources were made available to implement management measures. The creation in 2002 of a public organisation to maintain a balance between nature conservation and tourism development in Mu Koh Chang resulted in a relatively large amount of

funding being spent on tourism infrastructure development and establishing new management frameworks but the local community was involved only in implementation.



Meeting of all stakeholders for finalisation of the management plan and guidelines for sustainable utilisation of coral reefs

### Potential for Replication

In 2007 and 2008 Mu Koh Chang has been visited by several study groups consisting of government officers, researchers, site managers, scientists, mayors and governors from this region. The most important objective of those study tours has been to share experiences gained from implementation of the demonstration sites. A group of 20 senior government officials from Viet Nam's coastal provinces visited Koh Chang in 2008 and have already commenced implementing some of the innovations in Viet Nam. The success of the management model in Mu Koh Chang can be applied to other areas in Thailand and other countries in the South China Sea.

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