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ABSTRACT

This report reviews approaches to coastal management and community management in Malaysia, Vietnam, Cambodia and Thailand. It includes the case study on fisheries management in Thailand. The data source collected from journal articles, technical papers and website.

Malaysia is the only one country with administration of coastal zone management by the federal Government and is strongest in surveillance and enforcement but lacks community based management. Community management in Vietnam established from community needs that they want to protected their resource and also had community traditions to supported resource management. Cambodia is very young in coastal management and almost of aquatic policy is focused on fresh water because close to 75 percent of aquatic protein come from the Tonle Sap and Makhong rivers. Thailand has decentralized fiscal responsibility to the local level for the collection of taxes and administration of funds. Fisheries communities have the right to manage their resources; an approach which was promoted by the Department of Fisheries. With respect to fisheries management, Thailand faces challenges of overexploitation of the resources and a lack of real data on the number of fishing gears; both of which must be addressed so as to allow effective fisheries management.

SUMMARY

WORKING TITLE:

Coastal Management and Community Management in Malaysia, Vietnam, Cambodia and Thailand with a Case Study of Thai Fisheries Management

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ACRONYMS

ADB	Asian Development Bank
ARNHP	Australian Regional Natural Heritage Programme
AusAID	Australian Agency for International Development
BOBP-LME	Bay of Bengal Project on Large Marine Ecosystem
CHARM	Coastal Habitats and Resource Management
CBFM	Community Based Fisheries Management
CBNRM	Community Based Natural Resource Management
CBRM	Community Based Resource Management
CEC	Coastal Engineering Center
CF	Community Fisheries
CIDA	Canadian International Development Agency
CMDEC	Chumphon Marine Fisheries Research and Development Center
CPUE	Catch Per Unit Effort
CZM	Coastal Zone Management
DANCED	Danish Co-operation for environment and development
DANIDA	Danish International Development Assistance
DFID	Department for International Development

GTZ	Gesellschaft für Technische Zusammenarbeit (International Cooperation Enterprise for Sustainable Development)
ICM	Integrated Coastal Management
ICFM-PD	Integrated Coastal Fisheries Management-Pathew District
ICZM	Integrated Coastal Zone Management
IDRC	International Development Research Center
IMO	International Maritime Organization
JSPS	Japan Society for the Promotion of Science
LBCRM-PL	Locally Based Coastal Resource Management in Lungawi
LEU	Local Enforcement Unit
MEA	Malaysia Enforcement Agency
MFRDB	Marine Fisheries Research and Development Bureau
MFRDT	Marine Fisheries Research and Development Technology
MIS	Management Information System
MOFI	Ministry of Fisheries
MONRE	Ministry of Natural Resources and Environment
MOU	Memorandum of Understanding
NCECC	National Coastal Erosion Control Council
NCSC	National Coastal Steering Committee
NEB	National Environment Board
NGOs	Non Government Organizations
ONEB	Office of National Environment Board
PEMSEA	Partnership in Environment Management for the Seas of East Asia
PFG	Pakklong Fisherman Group
PMMR	Participatory Management of Mangrove Resources
RTG	Royal Thai Government
SEAFDEC-TD	Southeast Asia Fisheries Development Center – Training Department
SDC	Swiss Agency for Development and Co-operation
SIDA	Swedish International Development Agency
TAO	Tumbol Administrative Organization
UNDP	United Nant

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managed for the oceans. They agreed to management in five zones: inland areas (river catchments), coastal lands, coastal waters, offshore waters and high sea.⁸ The United

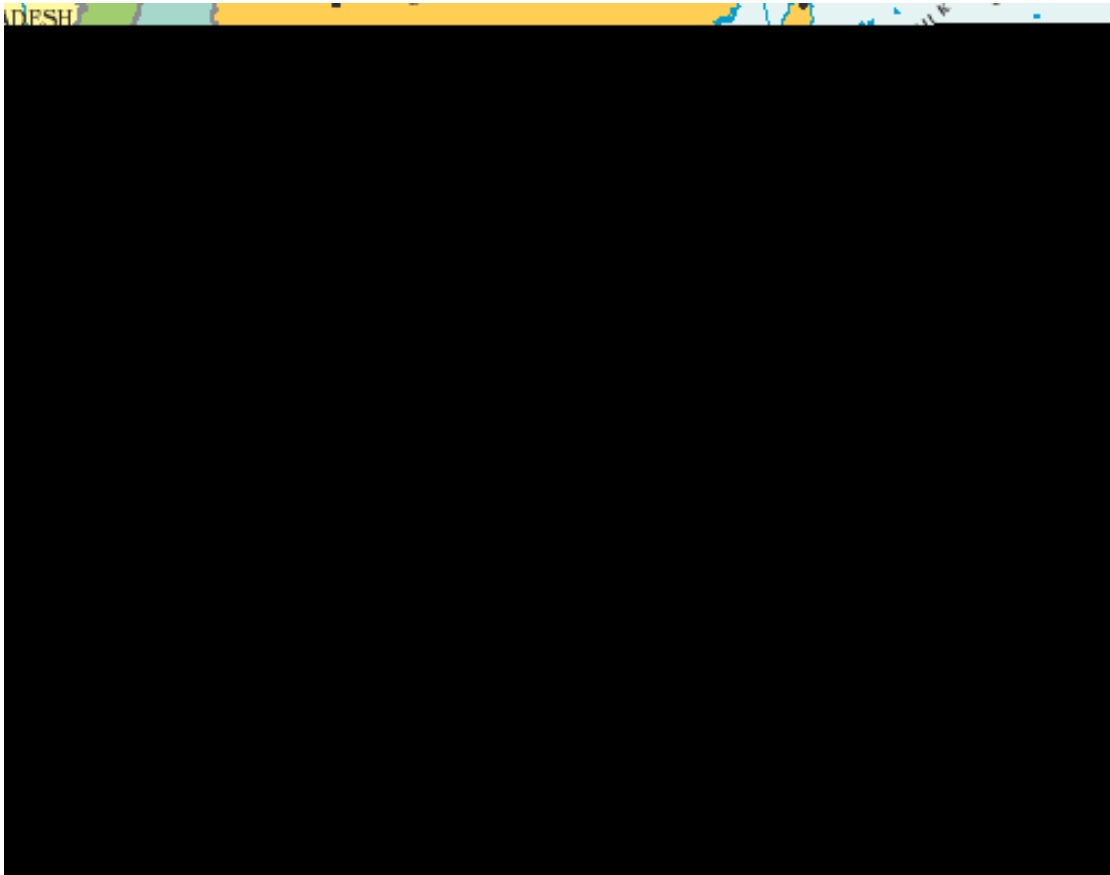


Figure 1 Map of Malaysia, Vietnam, Cambodia and Thailand

Source: <http://images.google.com/>



2.2 Coastal tourism

In Southeast Asia, coastal areas are developing rapidly and national economic policies are promoting coastal tourism so as to generate income. The corresponding increase in hotels, resorts, restaurants and all activities related with the tourism industry can at times lead to water pollution. This pollution may originate from waste water from hotels, resorts and restaurant and also trash from tourism boats and ships, amongst others sources. Tourism becomes even more damaging as tourists prefer to visit natural scenic and cultural areas which are exceptionally delicate.²⁵

Coastal tourism has grown rapidly in a short few years. For example, Do Son in Vietnam has grown by 64 percent from 1988 to 2000, and grew another 400 percent by 2005.⁷ Also, Thailand saw the number of its visitors increase from 7.76 million in 1998 to 14.46 million in 2007, while revenue increased from 7.1 billion \$US to 15.9 billion \$US.²⁶ The number of visitors who visited Cambodia also increased year by year. In 1997, the total number of visitor arrivals was 218,843 and increased to 2,015,128 in 2007, while revenue increased from 103 million \$US to 1,400 million \$US.²⁷ Between 2000 and 2006, the number of foreign tourists increased in Malaysia from 10.2 to 17.5 million. While total number of hotel increased by about 30 percent (1,796 hotels in 1999 and 2,336 hotels in 2006). The revenue increased from 4.9 billion \$US in 2000 to 10.3 billion \$US in 2006.²⁸ The famous

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Figure 3 The famous coastal tourism destination in Malaysia, Vietnam,
Cambodia and Thailand

Source: Improved from Smart Draw 2008

PART 3 COASTAL MANAGEMENT IN MALAYSIA, VIETNAM, CAMBODIA AND THAILAND

Various activities have traditionally driven development in the coast zone and in the oceans: fisheries, shipping, tourism, marine processing, gas and oil, etc. The ocean is the biggest food source and place for recreation in the world. The world is facing a great population increase which is leading to extensive urbanization and economic development causing forests and mangroves to be destroyed for housing, agriculture and industry. Each

Malaysia faces the problems of deforestation, pollution of inland and marine waters, soil and coastal erosion, over fishing and

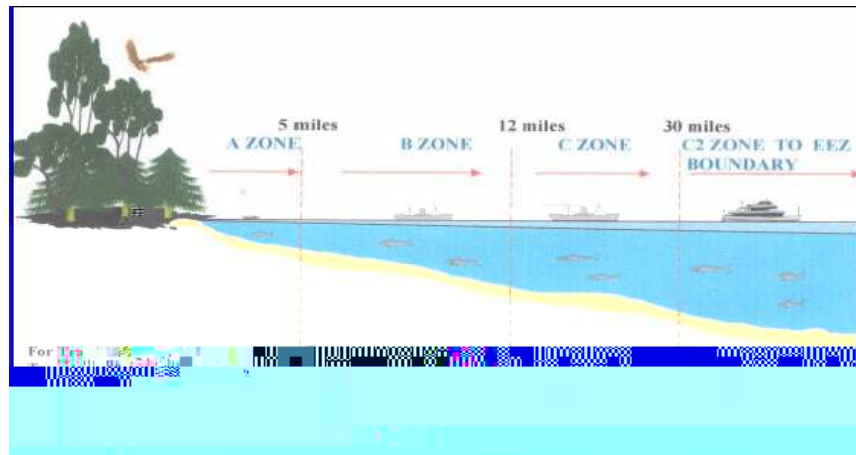
The ICZM in Malaysia seems like a recipe for success, but indeed there have been conflicts and problems with,

1. similar jurisdictional area for surveillance and enforcement;
2. shipping with policy option that have become unclear;
3. overlapping of function between several federal ministries and state Governments in managing the coastal area; and
4. no agency which has authority to deal with the full scale of marine pollution problems and the incapacity of the Department of Environment to handle incidents in the EEZ areas.⁵⁵

Financing is also the barriers to implementing Malaysia's coastal management approach and achievement of goals. Malaysian Government invests only 1 percent of GDP in environment management.⁵⁶ Furthermore, there is a significant difference in the allocation of Government revenues is the Federal Government obtains between 84 percent and 88 percent of these, while the thirteen states obtain only 12 percent.⁵¹

The policies of marine fisheries management divided the area available for fishing into four zones according to distances from the shoreline:

1. Zone A: less than 5 nautical miles (nm) reserved for small scale fishermen using traditional gear;
2. Zone B: between 5-12 nm for fishing vessels less than 40 horse power;
3. Zone C: greater than 12 nm for commercial vessels more than 40 tonnes gross; and
4. Zone C



traditional fishing gear in zone A for conservation of the nursery grounds. Moreover the Malaysian Government promoted stakeholder participation in fisheries management.⁵⁷

The latest program in community based management is poverty prevention practices in Malaysia. Although, the Government has encouraged communities to further participate in enforcement activities: monitoring, control and surveillance (MCS). The result is a strong centralist policy in CZM and a lack of agency capacity to support and integrated cooperation.⁶¹

Two Departments responsible for enhancing marine productivity, rehabilitate conservation and coastal habitat. DOF and Fisheries Department Authority had launched Artificial Reefs (ARs) and Fish Aggregating Devices (FADs). Also under collaboration among Government agencies and Reef Ball Development Groups Limited, Florida, USA 1,500 Reef Balls of various sizes were sunk off the coast of Talang Talang, Sarawak in 1998. The aim of the project is to protected turtles from trawlers.⁶²

The ICZM policy as shown in the Ninth Malaysia Plan is good for conservation and



Current national marine policies focus on marine economic development, sustainable development, scientific research, environmental protection, biodiversity conservation, marine protected area management, management of habitat management, habitat, population, and species, coastal wetland conservation and management, oil spill emergency response plans, soil plans, and legal frameworks for various legal sectors, e.g., fisheries, maritime transport, and oil and gas development.⁶⁴

In addition to ICZM projects, Vietnam has also undertaken area-based management initiatives, for example the pilot project of Marine Protected Area (2000 to 2010). This ten years project is designed to protect the living environment of fisheries species in 15 marine areas* throughout the country: six marine nature reserves, three marine national parks, and six marine species/habitat conservation areas. These areas are categorized based on three levels:

1. Biodiversity richness and wildness level of every area;
2. Severity of the threats to biodiversity conservation in each area; and
3. Feasibility; including assessment of the economic sectors outside the protected areas; issues relating to the socio-economic conditions of local communities who continue to rely on the protected areas.⁷⁹

It is the responsibility of the central Government under the Fisheries Resources and Environment Conservation Department, the Ministry of Fisheries and the Fisheries Resources and Environment Conservation branch under the provincial Department of Fisheries or Department of Agriculture and Rural Development.⁷⁹

Furthermore, between 2000 and 2005, the Vietnam-Netherlands Integrated Coastal Zone Management Project (VNICZM) was undertaken in Thua Thien Hue, Nam Dinh and Baria Vung Tau. Each area had its own set of problems: Thua Thien Hue was faced with water flood, over-fishing and quality of water; while Ba-Ria Vung Tau experienced dike erosion from tourism and industrial growth; and Nam Dinh also had a problem with sea dike erosion.⁸⁰ The project assisted in the establishment of the required institutional structures at the national and Provincial levels for ICZM, expanding institutional and professional capacity to apply ICZM, develop long term strategy and action plans, and initiate short term application of ICZM in three Provinces through practical problem solving approaches.⁸¹ Vietnam, weak of authority, decentralized the district and lower levels to show that they are near to the community. However, this appears flawed as Provincial

* In the period from 2000 to 2010, 15 marine protected areas will be designated. These include:

- a) 6 areas in the North of Vietnam: Tran island, Co To island, Cat Ba island, Bach Long Vi island, Hon Me island and Con Co island.
- b) 6 areas in the central region: Hon-Son-Tra (Hai Van area), Cu-Lao-Cham, Ly Son island, Hon Mun (Bich Dam), Hon Cau (Vinh Hao), Phu Quy;
- c) 1 area in Southeast Vietnam: Con Dao;
- d) 1 area in Southwest Vietnam: Phu Quoc;
- e) 1 area in the Truong Sa-Hoang Sa sea: Truong Sa.

Government overrules community and local Government decisions. All of these activities were arranged at the Provincial level.⁸²

In the fisheries sector, Vietnam is faced with a large number of small fishing vessels and fishermen which leads to overexploitation of marine resource. The total number of fishing vessels in 1981 was 28,021 and increased to more than 90,000 vessels in 2007. (Nguyen, 2005) 80 percent of them are small vessels using power lower than 40 HP. (Pho, 2007) In addition to this large increase in vessels, Vietnam data on fisheries to support fisheries management. Otherwise, Vietnam has had an ordinance regarding the protection and development of fisheries by the State Council since 1989.

This ordinance lacks regulations relating to fishing operation, aquaculture, management of fishing vessels, fishing ports, wholesale markets, preservation, processing, hygiene and safety of fisheries products, import and export of fisheries products, state management over the fisheries activities, and specialized fisheries inspection force. Moreover, it is not in accordance with international law, bilateral and others Memorandum of Understanding (MOU).⁸³

- 2.3 The Hydropower Sector Pilot Project was supported by the World Bank in 2006 for identification and assessment of significant natural habitat relations with impacts both positive and negative of the proposed program of hydropower development in Vietnam.
- 2.4 The Global Environment Facility (GEF) National Strategy Support Project was supported by the World Bank and UNDP in 2006.
- 2.5

activity. The problem was uncontrollable in Koh Kong. The Department of Nature Conservation and Protection (DNCP) tried to reduce the number of charcoal kilns by taking action and destroying any charcoal kilns that were built.

2. Mangrove areas have been invaded by coastal aquaculture farms. For example, in Kampot, 1,438.8 hectares are being proposed for aquaculture development and 1,079 hectares have been selected for fish farming. However, only 197 hectares of area are legal.
3. Salt pans, which not only invade that mangrove areas but can even deteriorate the soil so that nothing can grow anymore.⁶

Cambodia coastal management has been given little attention because almost 75 percent of aquatic protein in 2003 comes from the Tonle Sap and Makhong Rivers.⁹⁶ In response to the above problems, the Mangrove Forest Rehabilitation Programme was established in collaboration between the Cambodian Environment Ministry and the Organization for
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In addition, institutional arrangements were made in relation with coastal management which was responsible for the management, protection and sustainable use of the resources

at the regional level and enhance capacity of the p

implemented at Virachey National Park is meant to develop and demonstrate Cambodia's Natural Protected Area System with the assistance funds from Global Environment Facility (GEF).¹¹¹

NGOs are important to Coastal Management. The Cambodian Government access to significant NGOs that can help coastal management to reach sustainability. There are hundreds of NGOs involved in various sectors such as health, environment, agriculture, education, etc. They were invited to meetings and seminars initiated by the Government.

the environment. For example, the at will destructi



Figure 9 Thailand

Source: <http://images.google.com/>

Thailand is currently implementing its Tenth National Economic and Social Development Plan (NESDP)* within the five-year span of 2007 to 2011.¹¹⁸ The Thai Government is following the practice of Sufficiency Economy that was given by His Majesty the King.¹¹⁹ This plan focuses on humans as central to development to achieve resource sustainability. It promotes community rights and participation in natural management e.g. community forest and community coastal management. Also, it increases the strength of communities and develops a co-management system for natural resource conservation. It emphasizes the decentralization of Provinces and local organizations. A local organization representative supports the people's needs. For environmental management, the key was adjusting the production methodology and the consumption behavior towards an environmentally friendly pattern to decrease negative impacts, e.g. to promote organic farming and enhance the market for environmentally friendly products. Besides this, the pollution regulations should be kept under control so that the combined reduction of overall pollution and activities that cause pollution do not affect the quality of life in an adverse or harmful way

of natural resources. (Environment protection Act) The Office of National Environment Board (ONEB) is responsible for implementing these acts and is given the power to request an environmental statement from various development projects.¹²¹ The Prime Minister is the Chairman of the National Environment Board (NEB). The NEB approves environment quality management plans, Provincial action plans and amends so as to improve environment law.¹²²

Policies of Thailand promoted cooperation within the Government and between the Government and local agencies level. In 2002, a new Ministry was established according to a Government Reorganization Act in which agencies involved in natural resources and the environment have been placed under a new structure called the Ministry of Natural Resources and Environment (MONRE).¹²³ For CZM in Thailand, there are national and international projects. The national projects are collaborations with international agencies that assist in funding for the following projects:

1. Community Based Fisheries Management, Bang Saphan Bay Project initiated in 1999 by DOF to demonstrate the fishing right in fisheries communities.¹²
2. Integrated Management Plan for the Development of Shongkhla Lake River Basin started implementation in 2003 as one of the first holistic plans to provide all involved parties with applicable environmental management tools to restore natural resources and environment for sustainable development of the area.¹²⁴
3. Phang-Nga Bay ICM received funds for implementing the activities from the Government's annual budget, along with international cooperation and loan. The aim of the project is to encourage Community Based Fisheries Management.¹²⁵
4. Coastal Habitats and Resource Management (CHARM) project with cooperation between Royal Thai Government and the European Union. The five year project between 2002 and 2007 with the objective of establishing communities skill in fisheries management self-organization and with a strong, committed and enlightened local Government.¹²⁶
5. Integrated Coastal Fisheries Management, Pathew District (ICFM-PD) project with cooperation between DOF and SEAFDEC-TD was to establish community based fisheries management. This five year project started in October 2001 with a pilot project in the Southeast Asia region.¹²⁷

For the international projects, Thailand is involved with

1. Project of Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand received supporting funds from GEF with implementation by UNEP partnership bordering the South China Sea, includes Cambodia, China, Indonesia, Malaysia, Philippines, Vietnam and Thailand. The Action Program for the protection and restoration of coastal and marine environments focused on four main issues: mangroves, coral reefs, sea grasses and wetlands.¹²⁸
2. Bay of Bengal Project on Large Marine Ecosystem (BOBP-LME), this Large Marine Ecosystem is characterized by its tropical climate. It is situated in the monsoon belt and receives high amounts of rainfall. The LME borders eight countries: Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka and Thailand which received

involved with various departmental agencies. The mi

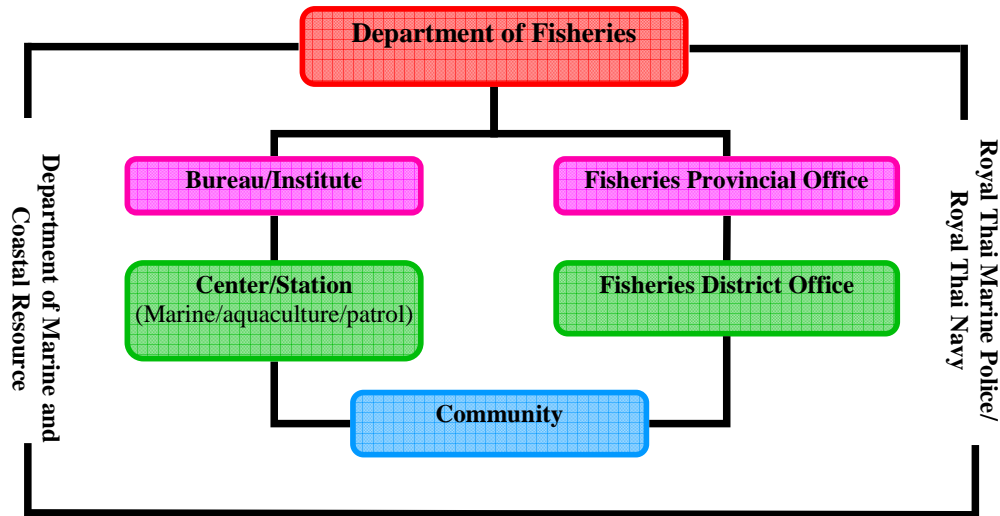


Figure 10 The administrative structure of fisheries management of Thailand

Source: Compiled by the author

The DOF has had a program to develop poor fisheries communities since 1982 which is undertaken by the Marine Fisheries Research and Development Bureau. The first program between 1982 and 1984, developed in inland and coastal areas' economy by providing funding to build fish ponds and support fishing ports. Then, between 1985 and 1992, three activities were undertaken in coastal areas of both the GOT and Andaman Sea: with the objectives to

1. provided infrastructure facilities, there are fishing ports, gears, maintenance building, break waters, rainwater tanks, boat hauling winches, and artificial reefs;
2. encourage the establishment of fisher groups, provided compromise fishing gears and promote product post harvest by woman groups; and
3. support training courses on coastal conservation of fisheries and the establishment of a coastal school.

After that the Thai marine enhancement program ran from 1992-1996, its name was changed but the activities which it undertook remained the same.¹³⁸

Thai Government policy has provided for sufficient economic development of the State while encouraging people to be responsible for resource management so they can help achieve sustainable resource use. According to the Prime Minister who is the Chairman of the National Environment Board there are positive and negative ways to achieve this. The environment policy may be changed if the Government deems that resource use is not

2. suggest a Community Based Resource Management (CBRM) approach in fisheries management to the community; and
3. implement a pilot project using CBRM/ICRM in Kuala Teriang, Langkawi.

At first, DOF Malaysia considered the stakeholders who were living in the community, who were participating in zoning arrangements and in the Fisheries Resource Management Plan (FRMP). The Committee assigned community laws relating to fishing: there is no fishing on Friday and in the event anyone in the community dies. The traditional penalty for such an offence is a fine of one dozen plates to be given to the mosque. To enforce these fishing laws, two members of The Local Enforcement Unit (LEU) volunteer to patrol the demarcated area on basic rotation along with two officers from the Malaysia Enforcement Agency (MEA).⁸³

In 2008, the MEA stationed a patrol boat at the Kuala Teriang LEU while the DOF donated binoculars and walkie-talkies to help protect from trawler incursion. Moreover, it is quite a common practice for both men and women to work in some part for the community such as cleaning the village, helping with lunch or dinner parties (e.g. for weddings), or helping at the mosque with religious activities. The project was implemented with cost-sharing between SEAFDEC and DOF Malaysia. At first, the Japanese Trust Fund I assisted with funds of \$US 35,000 while \$US 10,000 came from the Fisheries Consultative Group (FCG). From 2004 to 2007, the Japanese Trust Fund IV provided \$US 25,523 and the Japanese Grassroots Tsunami Relief Fund contributed \$US 55,506. Further still, DOF Malaysia supported the project with 97,404 \$US.¹³⁹

Although, community based fisheries management is not easy to formulate and implement in any country, Malaysia could put to good use the lessons learned from the LBCRMe557229(h)50]TP8(o)91

There is also a conflict between the small-scale op

4.3 Community Management in Cambodia

With 12 years of peace in Cambodia, there's been a trend toward top-down power transfer through a decentralization process which begun in February 2002.¹⁴³ This decentralization reform was mostly political, as it established a legitimate profile of the State at the local level through democratically elected local councils. The commune law approved in 2001 provided a basic legal framework for the establishment and operation of the Cambodian local councils. The law empowers a commune with legislative and executive authority and establishes the commune councils* as the bodies representing their citizens.¹⁴⁴

For communities to facilitate the implementation of community-based fisheries management, the Ministry of Agriculture, Forestry, and Fisheries created a Prakes (Sub-decree) on guidelines for community fisheries.¹⁴⁵ This Prakes has fourteen chapters comprehensively address community-based fisheries: how to establish the duties of the group; assignment of fisheries administration roles

Some policy-makers in Phnom Penh are working on legislation, but not everyone at the national, Provincial, or local level is particularl

The TAO members* come from each village by a vote based on how well each member represents what they know about the needs of their respective villages and peoples. TAO can respond to people's needs faster than a central Government because they are able to move budgets to new projects under TAO council agreement. By the Tenth-NESDP, TAO should be able to support the people's needs and add community plans to the TAO's own plans. Thus, TAO is one agency helping to build successful the CBFM projects. Local governors and fisher groups will work with TAO to develop their area.

Before community management projects were initiated in Thailand, the DOF had been encouraging fisheries communities along the coastlines of both the GOT and Andaman Sea to establish the saving of fisheries groups. This activity was strongly supported from the within fishers communities. The DOF also invited fishers' participation in replanting mangrove forests and releasing fingerlings.

Community management started in Thailand no more than 12 years ago. Initially, the DOF attempted to promote fishing rights called "Pramong Na Ban", in 1995 and subsequently established a pilot project in 1999 at Bang Saphan Bay.¹² The project followed the country's eighth NESDP (1997-2001) that addresses communities involved with natural resource management. The DOF adapted from the Japanese system and tried to promote a fishing system based on coastal fisheries. The project demarcated an area of about 240 km² in the coastal waters of the Gulf of Thailand. The territorial user's rights will be maintained by fisher's groups based upon legal framework established by the DOF. The community volunteers their services in conjunction with DOF officers in the monitoring for illegal fisheries.¹⁴⁹ The groups of fishers solved problems in their communities by holding public hearings and exchanging information. For example, in this area there has been conflict in the fishing grounds between daytime anchovy purse seines and anchovy cast nets with light lures. The fisheries officers sent a representative to bring the two groups of fishers face-to-face to discuss this problem. They agreed to share the area by having the daytime purse seine operators land their catch by 19:00 hrs at the latest, and then those who use anchovy cast nets can start their operations. This is a good example of dispute resolution by cooperation of resource sharing and management.¹¹²

*

have sufficient experience to practice in each activity and might not understand the objective of the project. Otherwise, they would participate 100 percent in three activities:

1. establishing coastal zone demarcation;
2. zoning management for aquaculture; and
3. enlargement of the mesh size of collapsible crab traps.¹⁵²

According to Thailand's decentralization Act, the lowest local (Sub-district) has access to administration of themselves and members who come from each village. This may help local groups receive supporting funds for implementing coastal management activities for the group. As coastal projects, also cooperate with the local organizations for achieving goals of the projects. From above it seems that fishermen's groups are interested in the MSC program and the Government should highly support. In addition, government should establish a community that is strong on self administration this may help them continue implementing successful activities after projects are completed.

PART 5 FISHERIES MANAGEMENT: THE CASE OF THAILAND

In 1960, with cooperation between Thai and German researchers, new gear from Germany was demonstrated in Thailand. This gear has a high catch capacity, and the rapid use of gear increased in Thai waters. Trawlers numbered 99 in 1960, and increased to 13,113 in 1989.¹⁵³ Thai fishers are highly experienced and keen on adapting new techniques in fishing. This is the reason the GOT has experienced a strong decline in catch per unit of effort from 300 kg/hour in 1961, to about 50 kg/hour in 1980¹⁸ and remained at 35.43 kg/hour in 2005.³ This problem has been addressed by the Thai Government as written in the Eighth and Ninth Plan of NESDP. They have considered stopping the use of destructive

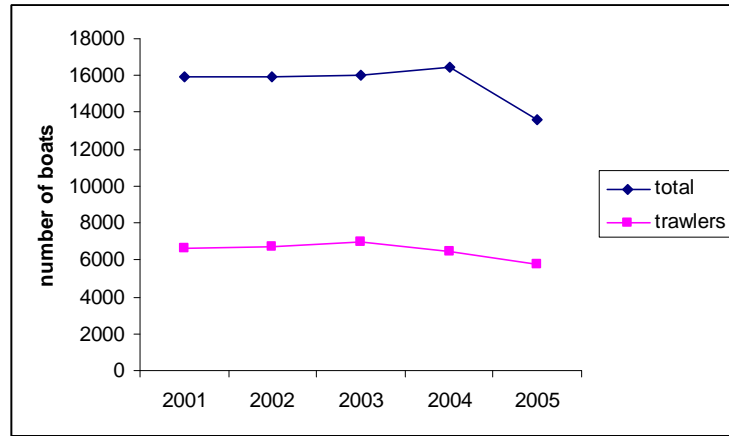


Figure 11 The total number of fishing boats and trawlers of Thailand in 2000 to 2004
 Source: Department of Fisheries, Thailand

Indeed, some of the fishers are fishing without a l

Table 1 The number of trawlers and push nets with license and actually fishing Thailand in 2003

Province	Otter board trawl		Pair trawl		Beam trawl		Push net	
	2003	Dec 2003	2003	Dec 2003	2003	Dec 2003	2003	Dec 2003
Chonburi	172	179	98	89	0	16	21	64
Chachoengsao	40	41	16	8	0	0	24	123
Samut Phakan	492	465	270	236	34	12	103	282
Bangkok	81	81	10	10	0	2	1	1
Samut Sakhon	390	166	198	62	1	4	162	256
Samut Songkhram	301	62	593	409	0	2	0	19
Petchaburi	148	55	17	18	0	1	48	41
Total	1,624	1,049	1,202	823	35	37	359	795

Source: Department of Fisheries, Thailand

2003: number of licenses

Dec 2003: number of fishing vessels

Since 1947, the Thai Government under DOF has not improved the Fisheries Act, yet laws are clearly outdated. The new regulations are necessary to properly administer and enforce proper fisheries management and the Ministry of Agriculture and Cooperation is empowered to impose fisheries regulations. Thai fisheries law covers only seasons, gear types, species and areas to control sustainable use.

Fisheries laws deemed critical to sustainable fisheries in Thailand are as follows:

1. Prohibited area for conservation of spawning grounds during spawning season of economic species especially Indo-pacific mackerel.

Two conservation areas have been established: one in the middle of the GOT, and the other in the Andaman Sea. GOT Ministerial regulations were adopted 28 November 1984 and were amended 3 times (1984, 1999 and 2006). The conservation area in the GOT covers an area approximately 26,400 km²

16 meters in length can operate during the night. In 2006, DOF limited gear length of mackerel gill net, tackle and certain types of boats were also prohibited. On the other hand, the Andaman sea Ministerial regulations adopted in 11 April 1985 covers an area 18,000 km² and is in effect two months (15 April to 15 June). This side prohibited all trawlers, purse seines and encircling nets with a mesh size less than 4.7 cm.⁹⁷ (Figure 12).

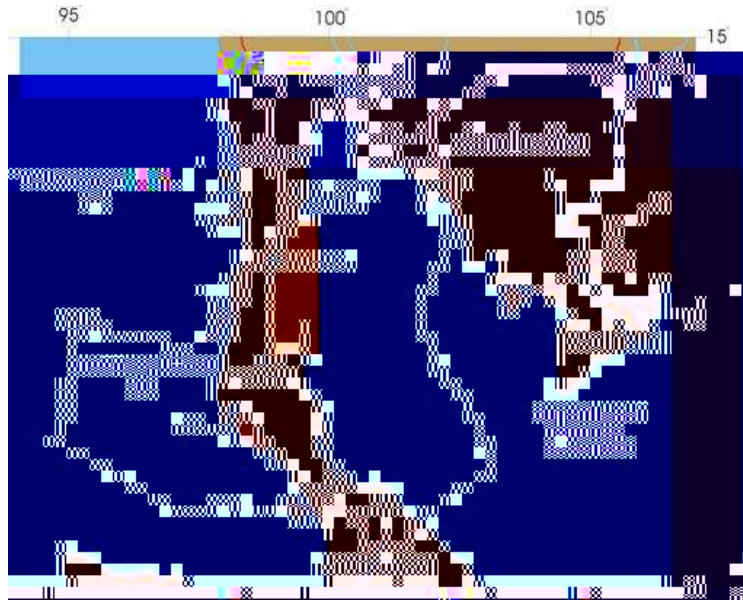


Figure 12 Prohibited areas in Thailand

Source: Improved from Chankong, A. and S. Prisanhul, 2006

2. Prohibited type of gear in some areas

In July 1972, DOF considered establishing a conservation zone within 3000 meter from the base lines in the GOT for the creation of a nursing area zone for juvenile fish and invertebrates. Trawlers and push nets with engine would be banned in this area.⁹⁷

In addition, the heads of Provincial Governments were empowered to impose fisheries regulations so as to follow the Fisheries Act of 1947. The Provincial mandate can solve real problems in the Provinces. Community management can be established within a legal justification for the protection of areas by this form of Government. The provincial mandate process as seen in. (figure 13)

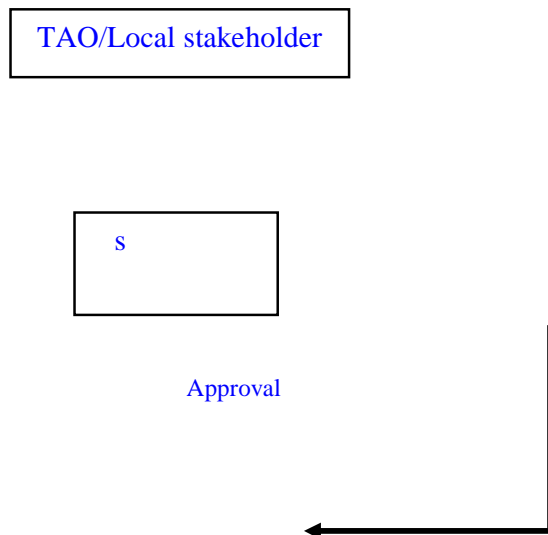


Figure 13 Process of consensus approval

Source: Boonsit L., DOF Thailand

Some of the Fisheries Law has led to conflicts with fishers, as they did not accept some of the provisions. They often asked the DOF to improve and change the legislation so they can get more benefits. The DOF wanted to decrease pressure so the DOF has cooperated with fisherman agents and private companies who related with fisheries resource controls to make a strategy for fisheries management in 2007 and proposed changes to Government Cabinet in August 2008. The objective of this strategy was:

1. To develop the quality of life for the fishers and the stakeholders involved in the marine fisheries industry.
2. To enhance fisheries sustainability taking into account conditions and conducts of responsible fisheries.
3. To upgrade fisheries management efficiencies by emphasizing public participation of all sectors.
4. To utilize marine fisheries resources appropriately, and fairly.
5. To strengthen fisheries capacities at all levels in compliance with the changing environment and acceptable determinations and conditions.
6. To create security and safe food products derived from marine fisheries.
7. To rehabilitate and maintain healthy and sustainable aquatic resources and ecological system.¹⁵⁸

The implementation of fisheries resource conservation under Ministry of Agricultural and Cooperative though the DOF is the lead agency in four areas:

1. Fisheries enforcement and surveillance

This activity is cooperation among DOF, DMCR, Thai Marine Police and Thai Royal Navy. The DOF is the lead on fisheries control along the coastline. The Bureau of Fisheries Administration and Management take action to control both fresh water and marine areas. For marine areas, DOF divided its res

Figure 14

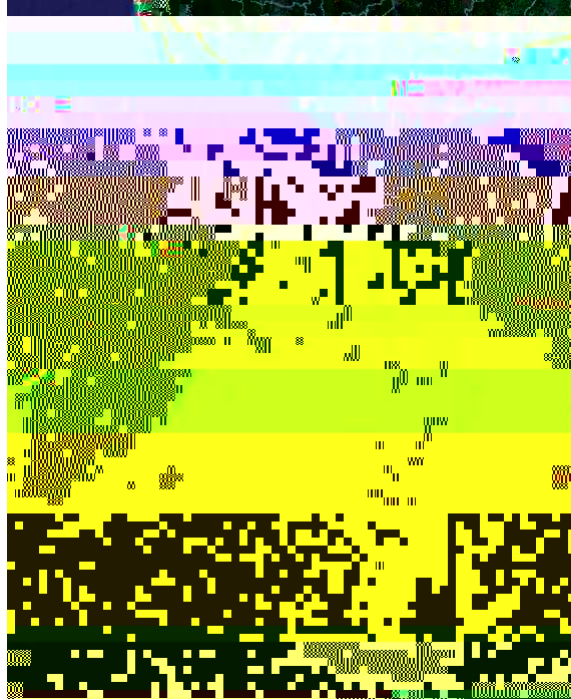


Figure 15 The location of Marine Research and Development Center

Source: Adapted from Google Earth

3. Coastal resource enhancement

Resource enhancement projects are the result of much needed habitat conservation efforts by the DOF and DMCR agencies that are charged with this responsibility. Both of them are responsible for the release of fingerlings, planting and protecting mangrove areas, and establishing artificial reefs. The protection of sea grass, seaweed and coral is the responsibility of DMCR.

Within the DOF, three sectors take responsibility for the release of juvenile fishes: the Coastal Fisheries Research and Development Bureau, the Marine Fisheries Research and

Song Kha Province in 1982 (B.E. 2525).¹⁶³ Recently, artificial reefs will be greatly improved by DOF and it plans to add one location in each coastal Province per year. The main goal of the project is to increase the habitat for juveniles and to protect the nursery grounds from highly destructive gear (trawlers and push nets) that operate near shore. A very important project of Queen Sirikit is Coastal Resource Enhancement taking place in Pattani and Naratiwat Provinces. The project sunk 608 shipwreck trains, 189 garbage trucks, 707 concrete tubes and 23,000 concrete boxes in the sea at 47 locations. The results were successful: as the standard of water quality improved and fish species increasing from 15 in the first year to 43 in second years. The average catch per unit effort (CPUE) also increased from 7.9 to 14.5 kg/boat/day in the first and second year respectively, which resulted in higher incomes for the fishers. Before the establishment artificial reefs, fishers averaged 10,680 baht/month, after which this income increased to 12,272 and 15,440 baht/month in first and second years.⁸⁴ Thailand has mangrove forests along the coastline and approximately 36 percent of the shore line (936 km.). Once the Mangroves covered an area of nearly 2,299,375 rai (around 367,899 hectares) in 1961, but dropped to 1,047,390 rai (around 167,582 hectares) by 1996. Almost all the clearing was for aquaculture. The Government agencies lead by DMCR responded by reinforcing their mangrove management. Private companies (petroleum and others

care of them. In 2006, non-government organization in Japan invited the chairman to Japan for the chance to experience and learns the Japanese method of crab conservation. In the monsoon season of 2006, this group started a new method by marking crabs on their carapace and releasing them to the sea. The results showed average carapace length and total catch was increasing as shown in table 2.¹⁶⁷ This group is strongly involved with the donation of gravid crab but lacks the manpower for

Government save funds and time, and ensure the fisherman will know the condition of resources thereby help them to easily manage resource sustainable in a manner.

Although, fisheries communities received authority from the Thai Government to manage fisheries in their own unit by establishing a territorial fishing area, they only have the authority for monitoring and surveillance. The Thai Government has not yet granted communities the right to perform policing and enforcement duties within their own communities.

Thailand Government initiatives undertaken by DOF started stakeholder involvement in the establishment of a strategy for fisheries management that brings everyone happiness and can decrease any negative pressure between the fisherman and the T

PART 6 COMPARISON OF COASTAL MANAGEMENT IN MALAYSIA, VIETNAM, CAMBODIA AND THAILAND

Malaysia, Vietnam, Cambodia, and Thailand, all located around the GOT found implementing coastal management problematic, and all initiated their programs in response to basic problems such as air pollution, water pollution, coastal erosion, resource decline, etc. The harmonized national policies were adopted and developed to suit the current national and local conditions. The policies

Table 3 Comparative analyses of strengths and weaknesses of Community Management in Malaysia, Vietnam, Cambodia and Thailand (continued)

Country	Strengths	Weaknesses
Vietnam	<ul style="list-style-type: none"> - Various international donor funds help improve capacity to govern in ICZM and help to develop strategy and 	

Table 3 analyses of strengths and weaknesses of Community Management in Malaysia, Vietnam, Cambodia and Thailand (continued)

Country	Strengths	Weaknesses
Thailand	<ul style="list-style-type: none"> - King helps and supports coastal management activities - The Chairman of the Natural Environment Board is also the Prime Minister - The tenth NDESP currently focuses on people as being central to resource conservation and promoting harmonized farming and environmentally friendly products. Promotes cooperation among Government agencies - Decentralized tax collecting and budgeting to TAO - Fishers can govern local fishing rights areas 	<ul style="list-style-type: none"> - Some Legal Acts are out of date - Needs concentrated effort on enforcement patrols to control illegal fishing and resource depletion - Needs larger budget to support enforcement program - Lack of cooperation between departments at Ministry and Provincial levels - Lack of cooperation between Provincial Governments and TAOs - Users and stakeholders are poor at importance resource and conservation

6.1 Administrative and Management system

The countries reviewed have different administrative and management approaches to coastal management. Malaysia is implementing coastal management under a federal system in three levels: federal, state and local. The lack of integration among the three levels within the federal system can pose problems. Each level is composed of various departments while agencies establish their own policies. The result is many policies are duplicated in

6.2 Legal and regulation

Legal Acts and Ordinances have been implemented to

Table 4 Legal Acts and Ordinances of Malaysia, Vietnam, Cambodia and Thailand

Title	Malaysia	Vietnam	Cambodia	Thailand
Forest and National park	<ul style="list-style-type: none"> - National Forestry Act of 1984 - Conservation Act of 1960 	<ul style="list-style-type: none"> - Forest Protection Act of 1991 	<ul style="list-style-type: none"> - Preah Reach Kret on Creation of Protected National Area of 1993 	<ul style="list-style-type: none"> - Forest Act of 1941 - Wild Animal Reservation and Protection Act of 1960 - National Park Act of 1961 - National Forest Reserves Act of 1964.
Fisheries	<ul style="list-style-type: none"> - Fisheries Act 1985 	<ul style="list-style-type: none"> - Aquatic Resource Protection of 1989 		

Table 4 Legal Acts and Ordinances of Malaysia, Vietnam, Cambodia and Thailand (continued)

Title	Malaysia	Vietnam	Cambodia	Thailand
Environment	- Environment Quality Act of 1974	- Environment Protection Law of 1993 - Ordinance of Vegetation		

6.3 Surveillances and enforcement program

The surveillance and enforcement are very important

control illegal fishing activity, Cambodia should learn from the successful experiences of neighboring countries so as to effectively improve the efficiencies of implemented projects, while Thailand should support fully the f

community management, and some communities in Vietnam have proven resource management for a long time by established traditional methods. Cambodia also has a CF and the numbers increase year by year. Thailand is the oldest when we look at coastal management but appears weak on enforcement and control. Thailand fisheries communities have the right to manage their resources but lack the funds to implement MSC programs. The central Government and/or TAO should fully fund and support these activities so they can achieve this goal.

PART 7 CONCLUSIONS AND RECOMMENDATIONS

This report cannot say which country has the best coastal management solution because all four countries have not completely implemented coastal management initiatives. The policies depend on priorities in each country, such as in Cambodia which needs to develop social and economic well-being of its citizens. Cambodian also needs more food, health and higher education levels for its citizens; thus the Cambodian Government must prioritize to the basic needs of its people.

Most Malaysians have never been to the ocean and the major GDP of the country comes from agriculture (rubbers and palm oils).³⁶ Malaysia is a good lesson which respec n874347(i)0c.95892(r)2

are managing now. With that small change, a sense of pride and ownership in all things good, as it relates to the coast, can become cultural wellness.

Thai fisherman groups have the right to manage marine resources simultaneously with fisheries law so as to control illegal fishing. Thai fishers appreciate and are ready to participate in MCS activities. Otherwise, the Thai Government would lack the funds and manpower to fully support a MCS program. Therefore, to succeed in community

for sustainable resources use is to establish pride in the coastal environment by positively influencing and involving school children in most if not all of the activities.

END NOTES

1 Lem, A., R. Subasinghe, and M.J. Phillips, Presentation on Small-scale fisheries producers and globalization; available from (http://km.dmcg.go.th:81/mesu/mangrove/mangrove_map.aspx)

2 Nagasawa K. No date. Background and Objectives of the Meeting on Current Status of Transboundary Fish Diseases in Southeast Asia: Occurrence, Surveillance, Research and Training. Southeast Asian Fisheries Development Center, Aquaculture Department, Iloilo, Philippines.

3 Kongprom, A., R. Phoosawat, U. Ossapornpitakkul, U. Augsornpa-ob, S. Hoimuk, K. Loychuen, M. Sumontha, and S. Sripanpaibool. 2005. Status of Marine Resources from Commercial Trawlers in the Gulf of Thailand and Andaman Sea, Marine Fisheries Research and Development Bureau. Department of Fisheries. Thailand, 97 pp.

4 Tookwinas, S. No date. Coastal Planning of Shrimp Farming: Carrying Capacity, Zoning and Integrated Planning in Thailand, Coastal Aquacultu1520221(a)-3.6m9218()-16.4669(f)2.57652(i)0.

17 Food and Agricultural Organization. August 1999.

38 World Wildlife Fund; available from

- 57 Flewelling, P. and G. Hosch, Country review: Malaysia; available from
(<http://www.fao.org/docrep/009/a0477e/a0477e0c.htm>)
- 58 Ogawa, Y., Marine Fisheries Management and Util

- 78 National Integrated Coastal Management Demonstration Site Project in Danang, Vietnam; available from
(http://www.danangcoastalink.org.vn/English/Danangcoast/w_message.htm)
- 79 Vu, H.T. 2001. The Development of the Marine Protected Area System: the Vietnam Experience; available from (<http://www.mekong-protected-areas.org/vietnam/thu.htm>)
- 80 Vietnam Integrated Coastal Zone Management; available from
(http://www.nea.gov.vn/html/duan/Halan/English/VNICZM_HomePage.html)
- 81 Vietnamese fisheries sector project, list of donor funded projects; available from
(http://www.ficen.org.vn/details.asp?Object=54&news_ID=12168708)
- 82 Pham, L.H. 2006. Fiscal Decentralization from Central to Sub-national Government in Vietnam. Paper presented at Seventh Annual Global Development Conference Institutions and Development: At the Nexus of Global Change St. Petersburg, Russia, 20 January 2006
- 83

- 118 The mandate of Tenth National Economic and Social Development Plan, No.10, 19 October 2006. in Thai
- 119 Office of the National Economic and Social Development Board , Summery of the Tenth National Economic and Social Development Plan (2007-2011); available from <http://www.nesdb.go.th/Default.aspx?tabid=139>
- 120 National Economic and Social Development Board, The Tenth National Economic

