

Assessing the Existing Information, Legislation, Management Practices and the Needs for Improvement at Koh Rong Site, Cambodia

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1. Background

Cambodia covers 181,035 km² and shares its 2,28 km land border with Thailand on the north west, Lao PDR on the northeast and Vietnam on the east and south. On the southwest, the coastline extends for 435 km along the Gulf of Thailand. The coastal zone of Cambodia contains extensive forests and numerous bays and beaches with several offshore islands. The largest town on the coast is Sihanoukville, which has deep seaport, and is considered one of the economic centers of the Kingdom of Cambodia.

Protected Areas established by the Department of Fisheries (DoF) are called "fish sanctuaries." Since the end of the civil war in 1979, 13 fish sanctuaries have been established in the Tonle Sap – Mekong system including the deep hole reserves on the mainstream between Kratie and Khone Falls. These sanctuaries are to preserve inland fish brood stock for spawning and nursing from one flooding season to the next. These sanctuaries are protected under the KRET- CHHBAB/33 Kra. Char/9 March 1987 on Fishery Management in Cambodia which states that "All kinds of fishing activities in fish sanctuaries are absolutely forbidden, except scientific fishery research conducted by the Department of Fisheries with special permission." There have been difficulties in enforcing these sanctuaries, which has led to a shift to community established protection areas.

In addition to these sanctuaries, the DoF and units within Ministry of Agriculture Forestry and Fisheries (MAFF) have protected inundated forests within the Tonle Sap, Rivers, Lake and National Parks and mangrove forests along the coast to protect fish spawning and aquatic species nursery functions. Clearing or cutting of these forests is prohibited.

The Ministry of Environment (MoE) has set up 23 Protected Areas to conserve all wildlife including fish and their habitats. While not designated as fish sanctuaries, most MoE protected areas contribute to localized fisheries productivity by maintaining river, lake and coastal habitats. Seven of the MoE Protected Areas are associated with major natural water systems, four with marine systems and three with freshwater systems. Also, MAFF has recently established the Sirius Crane Reserve at Ang Tropeang Thmor that is a significant wetland and fisheries centre.

On 1 November 1993, the Royal Decree concerning Creation and Designation of Protected Areas was established. This defined four National Parks within the coastal areas (Ream, Phnom Bokor, Botum Sakor and Kep) and part of a fifth (Kirirom) altogether covering 366,250 ha; one wildlife sanctuary and part of a second (Peam Krasob and Phnom Samkos) that altogether cover 357,500 ha; and a multiple-use area (Dang Peng) covering 27,700 ha.

There is only one protected area in the Sihanoukville municipality, called "Ream National Park." It is under the common responsibility and management of the MoE in cooperation with other line institutions. The Department of Nature Conservation and Protection under the Ministry of Environment is in charge of management of the natural protected area system.

Sihanoukville is located 224 kilometers from Phnom Penh. It is the sea port municipality of the Kingdom of Cambodia and borders Sre Ambel district, Koh Kong Province, in the north, Kampot District, Kampot Province, in the east, and the sea in the south and the west Sihanoukville Municipality has a total land area of 868 km² and consists of 3 districts (Khan), 23 communes

(Sangkat) and 82 villages (Mondul). Throughout the municipality there are 27,287 families, consisting of 148,643 persons of which 76,013 are females. Of the population, 50.8% work in the agricultural sector, 11.3% in the industrial sector, 7.9% in the service sector and 4% are unemployed.

The division of the population between the districts also reflects the job opportunities. In Prey Nub District, the majority of the population is farmers, whereas in Stung Hav District the majority are fishermen. Government officials, businessmen, workers and service providers are found in the Mitapheap District. Business/trade, industry, services and tourism are known as the development potentials of Sihanoukville.

Coral reefs are vital marine and coastal habitats, but very little is known about these ecosystems because of lack of research. The sites of coral reefs have not been completely identified. Based on small surveys, coral reefs have been observed to occur in many localities in Cambodian coastal waters, generally around the inshore islands and in some rocky areas. Coral reefs in Sihanoukville have grown around most of the islands and estuaries such as Koh Rong, Koh Rong Samlem, Koh Poh, Koh Tres, Koh Chanlus, Koh Krobei, Koh Rusei, Koh Takiav, Koh Sromauch, Koh Thah, Koh Seis, Tapring Islands, Koh Thmey, Koh Tang islands, Koh Puoluo Vey, Koh Kun Dor, and estuaries of Kampenh, Tamuong, Machouv, Cheuteal, and Koh Pos Bay.

2. Objectives

Objectives of Marine Protected Areas (MPAs) and Coral Reefs include:

- Protecting and managing the area of sea in which spawning grounds, feeding grounds and nursing grounds of marine living resources to ensure their long-term viability and to maintain genetic diversity;
- Protecting coral reefs and other biodiversity within the Marine Protected Areas;
- Promoting compliance with MPA regulation by increasing income for local fishers (through enhancement of local fisheries, training of alternative livelihood, and promotion of eco-tourism);
- Restoring capture fisheries and promote sustainable management;
- Strengthening capacity building through improving the capacity of officials at the national, provincial and local levels to manage protected areas effectively; and
- Preserving, protecting and managing marine eco-systems of marine protected areas for the purposes of conservation, education and tourism.

3. History of Koh Rong

3.1 Geographical feature

Koh Rong site is located in the west of Sihanoukville Municipality. Koh Rong and Koh Rong Sonlem are 22km and 28km from Sihanoukville International Sea Port, respectively. Koh Rong site is one of 5 communes of Meattapeap District of Sihanoukville. It is a new commune (2000) and has 4 villages; Rong Sonlem village is in Koh Rong Sonleum, Preksvay, DeamThkor, and Koh Touch is in Koh Rong. There are five islands in the Koh Rong site:

1. Koh Rong (Rong Island)
2. Koh Rong Sonlem (Rong Sonlem Island)
3. Koh Ngor or Koh Touch
4. Koh Anloun (located between Koh Rong and Koh Rong Sonleum)
5. Koh Sorng Phynorn (Two small islands located in the eastern Koh Rong)

3.2 Socio-economic status

Koh Rong site is a new commune that was established in 2000. It is among 5 communes of Meattapeap District of Sihanoukville municipality and has 4 villages Rong Sonlem village, Preksvay, DeamThkor, and Koh Touch which is in Koh Rong. The total population in the site is 293 families consisting of 1,378 persons of which 836 are females. The main occupations include fishing, workers and crop cultivation. 70% of the total population is fishermen, and 30% are workers and crop

cultivators. Most fishing gears used by fishermen are seine net, trawl shrimp, gill net, crab gill net and fish gill net. Fishermen used to see dolphins, dugongs, sea turtles, sea grass and coral reefs during fishing activities around the islands. The sightings have become fewer in recent years.

3.3 Management authority

Management authority in the Koh Rong site had varied from regime to regime due to the civil war in the Kingdom of Cambodia. In 1960 to 1975, the site was managed or governed by two authorities Sihanoukville International Sea port and the Navy authority. No one lived in the Koh Rong site during Pol Pot regime (1975 – 1979). This site was occupied by Pol Pot and there were no fishing activities. The site was governed by Navy authority for five miles around the islands during 1979 to 2000. This site has been determined a new commune in Meattapeap district of Sihanoukville municipality, and has been managed by the Sihanoukville governor and Navy authority from 2000 to date. The Department of Fisheries is the principal government agency responsible for management of living aquatic resources. The Marine Protected Area at Koh Rong Site will be managed by a unit under the Department of Fisheries. This management unit will cooperate with local authorities, communities, local fishers, and NGOs, to manage and conserve the resources. The Koh Rong Site will employ some rangers, an administrative assistant, and a manager. Below is the flow chart of the management structure for conducting marine protected areas.

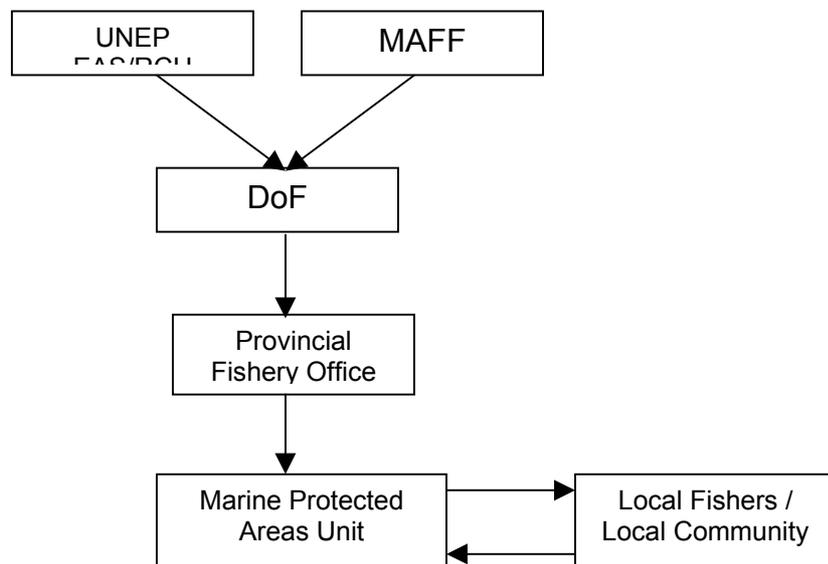


Figure 1. Flow chart of management structure for marine protected areas.

4. Current Legislative Framework Relating to the Management of Protected Areas

4.1 Royal Decree (Reach Kret) on Protection of Protected Areas

This Royal Decree was promulgated by the King shortly after the enactment of the Constitution and the establishment of the first Royal Government after the 1993 elections. Three years later, the National Assembly enacted the Law on Environmental Protection and Natural Resource Management.¹ This law also relates to the protection of natural areas.

In designating parks, wildlife preserves and related areas such as protected coastal zone areas, the King gives his strong moral commitment and leadership to preserve these areas in their natural state as part of the nation's heritage. This moral commitment is crucial to maintaining the natural beauty and the eco-system with the coastal zone. There are 4 categories of protected areas:

¹ Law on Environmental Protection and Natural Resource Management, NS/RKM/1296/36, dated 24 December 1996, also referred to as, "Environmental Protection Law."

1. National parks
2. Wildlife sanctuaries
3. Protected landscapes
4. Multiple use areas

The Royal decree designated several protected areas in the coastal zone within the 4 categories mentioned above. National parks in the following locations are protected for scientific research and educational and entertainment purposes:

1. Kirirom – Kompong Speu and Koh Kong²
2. Bokor – Kampot
3. Ream – Sihanoukville³
4. Botum Sakor – Koh Kong
5. Kep

Areas in the following locations are to be maintained in their natural conditions to protect wildlife, vegetation, and ecological balance:

- Phnom Oral – Koh Kong, Pursat and Kompong Chhnang
- Peam Krasaub – Koh Kong
- Phnom Samkos – Koh Kong

Multiple Use Areas are necessary for the stability of the natural environment, for pleasure, and the conservation of nature with a view of assuring economic development. Dung Peng in Koh Kong is the only designated multiple use area in the coastal zone.

The power of the State to protect natural areas is set forth in Article 58 of the Constitution, which states – *State property notably comprises land, mineral resources, mountains, sea, underwater, continental shelf, coastline, airspace, islands, rivers, canals, streams, lakes, forests, natural resources, economic and cultural centers, bases for national defense and other facilities determined as State property.*

The control, use and management of State properties shall be determined by Royal decrees presented by the Council of Ministers. The Constitution gives the power to make laws to the National Assembly and the Senate.⁴ This Royal Decree was promulgated three years before the National Assembly established the Ministry of Environment and enacted the Environmental Protection Law. The Royal Decree states that "exigent circumstances" made it necessary to issue a decree to designate protected areas.

Through the Royal Decree, the King gave his strong moral commitment and leadership to the protection of the nation's natural heritage. This important aspect of the decree clearly is consistent with the role of the King under the Constitution. But, it is not a law recognized under the Constitution. Article 8 of the Environmental Protection Law provides that protected areas, including national parks, wildlife sanctuaries, and protected landscapes. Areas, including national parks, wildlife sanctuaries, protected landscapes, protected and multiple use areas shall be determined by Royal Decree [Article 8]. It appears that under Article 8, the law recognizes the protected areas established by the King in this Royal Decree.

Under Article 58 of the Constitution, natural resources are state property, and the use and management of state property shall be determined by law. As a matter of policy, the National Assembly and the Senate can defer to the King's decree, but the way to keep these areas under full protection is to formulate a law enacted by the National Assembly and Senate. The Council of Ministers has approved at least two requests from MoE to modify national park areas, one to rename national parks, and another to add land to a national park. The letters of the Council of Ministers do not refer to a source of authority to make these changes.

² Bokor was renamed Preah Moniong, and Kirirom was renamed Preah Soramarith-Kosomak. See Council of Minister Letter 831, dated May 17, 1995.

³ The size of Ream National Park, which at some point was renamed Preah Sihanouk National Park, was increased by adding 21,000 ha. See council of Ministers Letter 986, dated June 21, 1995.

⁴ Constitution, Article 90 and 99.

4.2 Decree Law on Fishery Management

An abundance of marine life in the coastal zone is absolutely key to its economic and cultural life. Decree Law on Fishery Management deals with both freshwater and sea fishery resources. The Constitution adopted five years after this law was promulgated, has also treated fishery resources as a part of the wealth of the nation. Fishery resources include animal and living creatures that live and are born within the fishery domain. There are two types of fishery domains, freshwater domain and maritime domain. Maritime domains extend from the coastal areas until outside the exclusive economic sea of the nation. There are four provincial/municipality fishery offices in the coastal areas as Sihanoukville, Koh Kong, Kampot and Kep and one inspection unit is based at Sihanoukville to control all illegal activities along that coastline. The inspection unit has been operated with two vessels about 14-15 meters in length, with a maximum speed of 12-15 knots. The vessels are often unable to match the speed of foreign illegal vessels (DOF, 2001). The right to fishing in both freshwater and salt water fishing domains is subject to payment of fishing contribution to the Government as determined by the State and pursuant to the contract.

There are many legislative instruments and regulations currently in force for management, conservation and sustainable development of the fisheries resources in Cambodia such as:

- Fishing permits for commercial fishing -Boat licenses;
- Licenses for foreign fishing inside Cambodian EEZ;
- Prohibition of illegal fishing gears as electro-fishing, explosive and poisons;
- Protection of mangrove areas and fish sanctuaries (spawning ground area);
- Closed season during the spawning season of mackerels from 15 January to 31st March;
- Identification list of the nationally threatened wildlife species for which shooting is prohibited;
- Protection of all wildlife in the Kingdom of Cambodia;
- Prohibited trade of wildlife in the Kingdom of Cambodia;
- Prohibition of the reptile trade in the Kingdom of Cambodia; and
- Prohibition of exploitation and harvesting of corals and other species in the CITES appendices.

The new fisheries policy and fisheries law reinforce the importance of fish habitat sanctuaries and seasonal fishing controls in maintaining fish stocks and their diversity. Of special importance, the Department of Fisheries is concerned with:

- Enhancing the protection and sustainable use of natural fisheries resources;
- Extending the institutional responsibilities of fisheries management to fishing communities; and
- Encouraging integration of fisheries management with overall rural development in fishing communities.

These policies recognize the right of fisheries communities to manage local fisheries and the important of their involvement in protection of the resources. Further, they emphasize the importance of increasing habitat protection to ensure the sustainable use of the resources. The draft fisheries law is currently under discussion and review. The law will include provision for community co-management and fish sanctuaries, and marine fisheries conservation as well.

4.3 Law on Environmental Protection and Natural Resource Management

Article 59 of the Constitution directs the State to protect the environment and natural resources and to develop a precise plan to manage the environment. This law implements Article 59 and adopts other environmental and natural resource management policies for the country. It also imposes administrative and criminal penalties on those who violate certain provisions of this law. This law contains very broad statement of general principles to protect natural resources and the environment.

The law delegates sweeping authority to the executive branch to define standards and requirements by sub-decree. The sub-decrees, in turn, delegate broad authority to the MoE to issue implementing Provision. Therefore, it is extremely important for citizens and enforcement officials to consult all these documents to know their duties and responsibilities under the law. Article 8 of the law defines the

nation's natural resources to include: land, water, airspace, air, geology, ecological systems, mines, energy, petroleum, gas, rocks, sand, precious stones, forests, forests products, wildlife, fish and aquatic resources. Under Article 8, areas for natural resource protection including parks, wildlife sanctuaries, protected landscapes and multiple use areas shall be determined by Royal Decree. Under Article 12, MoE is required to compile an inventory of pollutants and wastes, toxic and hazardous substances, and harmful levels of noise and vibration disturbances. The law requires MoE to collaborate with other "concerned ministries."

4.4 Sub – Decree on Water Pollution Control and Solid Waste Management

4.4.1 Decree on Water Pollution Control

This sub-decree was promulgated pursuant to Articles 12 and 13 of the Law on Environmental Protection and Natural Resource Management,⁵ which directs the Ministry to prepare sub-decrees on water, land, and air and noise pollution standards. The Environmental Protection Law does not contain any standards to apply to these sub-decrees; rather the law delegates the authority to the executive branch to adopt these standards. This sub-decree implements the requirement to issue water quality standards. As is the case with other sub-decrees under the Environmental Protection Law, this sub-decree further delegates broad authority to MoE to issue implementing Provision. The purpose of this sub-decree is to protect one aspect of the environment – natural water sources. The way the sub-decree protects water is to prohibit people from intentionally or unintentionally discharging any substance that will find its way to the water supply and pollute it. Thus, as you read the sub-decree, keep in mind that the major focus is to stop pollution at the source. Therefore it is important to define "source of pollution" very broadly, as is done here. Basically, a source of pollution includes any building or place that discharges, directly or indirectly, any of the following substances into public water or drainage systems such as liquid waste, pollutants–Substances that change tile physical, chemical or biological composition of water, hazardous wastes, waste water, and Sewage–contaminated water discharged from houses and building.

The resources of the coastal zone, including the rich bio-diversity of the sea and mangroves, the fauna and flora of the forests are particularly dependent on clean water. Tourists will not travel great distances to swim at polluted beaches. The fishing industry will decline as catches decrease and some species are declared unfit for human consumption. Article 8 of the Sub-Decree prohibits the disposal of any type of solid waste, including garbage and hazardous substance into public water areas or public drainage systems. This article also prohibits the storage or disposal of any type of solid waste, garbage, or hazardous substance that could lead to pollution of public water areas. This is an important section. Other articles only prohibit discharges, but this section also prohibits storage of pollutants in certain situations. The discharge of sewage into public water areas without passing through public sewage systems or another treatment system is strictly prohibited.

4.4.2 Solid Waste Management

This sub-decree was promulgated pursuant to Articles 12 and 13 of the Law on Environmental Protection and Natural Resource Management,⁶ which direct the Ministry to prepare sub-decrees on water, land, and air and noise pollution standards. The objective of this sub-decree is to assure that solid waste is managed carefully so that human health and bio-diversity are protected. The Environmental Protection Law does not contain any standards to apply to these sub-decrees; rather the law delegates the authority to the executive branch to adopt these standards. This sub-decree implements the requirement to issue solid waste management standards. As is tile case with other sub-decrees under the Environmental Protection Law, this sub-decree further delegates broad authority to MoE to issue implementing Proclamation, which have not yet been issued. MoE officials report that they are working on these Proclamations as part of the Municipal Solid Waste Management Project. As these Proclamations are issued, they will be included in the Sourcebook database. This sub-decree deals with household wastes and hazardous wastes, both of which pose a threat to the natural resources of the coastal zone including bio-diversity, wildlife, forests, forest products, fish, aquatic resources and scenic beauty. Much of the coastal zone has yet to be

⁵ Law on Environmental Protection and Natural Resource Management, NS/RKM/1296/36, dated 24 December 1996, also known as "Environmental Protection Law."

⁶ Law on Environmental Protection and Natural Resource Management, NS/RKM/1296/36, dated 24 December 1996, also known as "Environmental Protection Law."

developed, so there is an opportunity to integrate planning for solid waste management into the land management plan for the region. Basically, this sub-decree is aimed at protecting land from pollution by solid waste (which of course, can also lead to water and air pollution). As with other sub-decrees under articles 12 and 13 of the Environmental Protection Act, the idea is to prevent pollution from happening in the first place. The sub-decree covers all aspects of solid waste management including disposal, storage, collection, transportation and recycling of waste. The sub-decree applies to all solid wastes. There are two classes of solid waste, 1) Ordinary garbage, rubbish, or household waste, and 2) Hazardous waste.

The division of solid waste into two categories is key to the way this sub-decree deals with waste. Hazardous waste poses a far greater threat to the environment than does ordinary waste. Accordingly, the regulations that apply to hazardous waste are much stricter those that apply to household ordinary waste. Solid waste refers to solid objects, substances, and products that are useless and need to be disposed of. It might be helpful to think of solid waste as waste that is neither effluent (liquid) nor gaseous. The MoE and provincial and municipal authorities share responsibility of household waste. By management, the sub-decree includes: disposal, collection, transport, storage, recycling, minimizing and dumping of household waste. Provincial and municipal authorities do the actual "collection transport, storage, recycling, minimizing, and dumping of waste. Local authorities are also required to establish plans for long, medium and short term waste management. These plans are presently being developed. Local authorities know local conditions, the availability of space for landfill, the areas in which the population is growing, the capacity of the population to pay for garbage pick-up, etc. and can factor these conditions into their plans.

5. Successful Management schemes of Marine Protected Areas

The creation by villagers of village fisheries communities and local protected areas of various kinds is an important pilot in sustainable fisheries through local management. The Fisheries Department is the principal government agency responsible for management of living aquatic resources. The Koh Rong site will be managed by a unit under the Department of Fisheries. This management unit will cooperate with local authorities, communities, local fisheries, Non Governmental Organizations (NGOs) and private sectors to manage and to conserve the natural resources. Activities below should be done for marine protected areas:

- Scientific baseline survey within the Marine Protected Areas (MPAs) with participation from Cambodians;
- Discuss how to share ownership and benefits (share of user fees, spillover of fisheries, local training in eco-tourism, alternative livelihood) of MPA between MPA Unit and local community;
- Local training, education and public awareness on how to manage coral reefs within the MPA develop park management plans including regulation;
- Develop MPAs enforcement strategy including local fishers and community participation in strengthening park ranger capacity;
- Develop a monitoring strategy and training program that can be implemented by local scientists;
- Monitoring or patrolling within the Marine Protected Areas at the Koh Rong Site;
- Inspecting illegal fishing activities within the MPAs Koh Rong Site;
- Consultation and meetings with the KRRSMPA unit to solve conflicts or issues;
- Assist conducting scientific surveys such as baseline survey and monitoring surveys;
- Provide guidelines, strategy and plans to manage and protect the KRRSMPA effectively and sustainably; and
- Develop long term financing arrangement for Marine Protected Areas.

6. Further needs

There is no research and monitoring unit for marine fisheries within the Department of Fisheries, although there are a few specific research projects underway in collaboration with donor agencies. So far the Department of Fisheries has proposed a marine and coastal national research institute in Sihanoukville and is seeking for donors to assist this due to the fact that the Royal Government,

especially the Department of Fisheries has limited budget. It, however, has UNEP to provide both technical and financial support for the project, "Reversing Environmental Degradation Trends of Fisheries, Coral Reef and Sea grass in the Kingdom of Cambodia" as a part of the UNEP/GEF South China Sea Project. The International Coral Reef Action Network (ICRAN) has been conducting a project on Marine Protected Areas by providing both technical and financial support as well. According to the limited budget and lack of human resources of the Fisheries Department, some activities relating to the Marine Protected Areas at the Koh Rong Site should be requested to UNEP to support such as:

a) **Financial assistance:**

To establish the Koh Rong Site as Marine Protected Areas, budget should be used to employ rangers, office equipments, and operating costs for administration and field researches.

b) **Boats and research equipments**

To conduct baseline survey on coral reefs within the Marine Protected Areas at Koh Rong Site, few small patrol boats, underwater camera and several sets of SCUBA including an air compressor are needed for coral reef surveys and permanent patrolling within the Marine Protected Areas.

c) **Short-term technical assistant**

For the beginning of the baseline survey and management process, short-term reef biologists should be required for assisting and training to fisheries officer and local researchers.

d) **Local Education and Public awareness**

For long term sustainable operation of the project, local people and park rangers are required to participate in management and conservation of the marine resources within their communities. Most of them are uneducated and unaware of the management and conservation processes for sustainable uses of the resources. Therefore, required training, eco-tourism training and future development of tourism within their areas should be provided for local people as well.

7. Future Management plans for Marine Protected Areas

Plans need to be prepared with local communities and other stakeholders and include arrangements for collaborative management, zoning and enforcement, prohibitions and allowed uses and clear definition of roles. The plans should be short and may initially cover more than one protected area.

There has been increased government acceptance of a role for local communities in coastal and marine resource management. Locally managed MPAs need to be linked in some way with technical and policy guidance, but in ways which do not undermine the dominant community role. An intermediate mode is co-management that, in some cases, could be adopted as a transition towards full community responsibility.

The new draft fisheries law, decrees and sub-decrees have not yet been entered into force. The draft sub decree on marine protected areas is being prepared to conserve the natural resources, especially coral reefs and their biodiversity. A regulation or introduction plan for marine protected areas will then be prepared under the new fisheries law and the sub decree on marine protected areas. The process and collaborative arrangements for management need to have a legal base, which sets out the roles, obligations and authority of various stakeholders.

Boundaries of the marine protected areas will be demarcated in order to protect the encroachment, illegal activities and disputes. Marine protected area management can be improved by using technology such as GPS and GIS, and then the clear demarcation of boundaries in the field where feasible. The sustainable use of marine biodiversity is an area where a shift in modes of co-operation is apparent.

In most countries MPAs have been established under agencies of the government. However the trend now is towards local management. This sometimes takes the form of co-management between local groups and other agencies. In other cases, local communities have primary management responsibility with technical, financial and legal support from NGOs and the government.

Successful small MPAs catalyze the development of larger areas under multiple-use protection, through the interest generated amongst adjacent communities. This can be regarded as a form of "incremental conservation". Conditions for successful community based MPAs in the Pacific islands region include small size, cohesive community, strong leadership, and the perception of some form of threat to marine resources or their environment. Co-management of Marine Protected Areas has various forms. It may involve more than one level of government or more than one agency.

8. Conclusions and recommendations

Protected areas are becoming an essential component of Cambodia's Nation. The main development sectors are moving steadily to recognize protected areas. The protected area approaches has seen integrated with strategies for fisheries, agriculture, forestry, water resources, tourism and rural development. Protected areas have a vital role to play in promoting the implementation of those priorities. Similarly, protected areas will increasingly facilitate Cambodia's integration into the international community, leading to enhanced development and economic ties.

Marine Protected Areas need to be seen as a device for facilitating the rehabilitation and recovery of ecosystems, endangered species, rare species and coral reefs in accordance with the Convention on Biological Diversity. This requires a broadening of thinking of the role of Marine Protected Areas. All the foregoing issues need to be addressed on the basis of improved expressions of governance, with governments accepting and acting on their responsibility to ensure that natural resources are used sustainable, while facilitating greater public participation. The trend towards a greater community role in Marine Protected Areas is seen as encouragement for further effort in this direction.

The existing fishery law and regulation are very poor. They are not proper tools for scientific-based fisheries management and the allocation of the resources. The law is being dealt with only passive fishery management, which input controls have been used as management tools such as ban on gears, gear size, mesh size, closed season, closed areas, etc. Even the law existed since 1987, but its enforcement has been very poor due to the Department of Fisheries lacks of infrastructure such as patrol boats, and the corruption scandal that has been occurred within the inspective officials for many decades. Trawl nets are the most destructive gears in bottom of the fishing ground. They damage flora and fauna and their ecosystem in the sea bottom during trawling.

With references to some major gaps in scientific knowledge of marine fisheries resources, it should be initiated collaborative research in the Cambodian section of the Gulf of Thailand because areas of specific importance are reproductive biology, population dynamics and ecology of commercial fish species. It should also be given high priority for quantitative studies of benthos and pelagic invertebrates, which constitute the food for commercial species. Management measures should be implemented to conserve endangered species, and protocols should be set up for the handling of accidentally captured cetaceans, dugongs or sea turtles.

The educational level of fishermen and their families is very low, and it is important that information about marine ecosystems and biodiversity should be trained and disseminated to these people. Increased community participation in fisheries management requires that stakeholders make informed decisions, and this is only possible if the stakeholders have all the available information.

REFERENCES

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Council of Ministers Letter 986, dated June 21, 1995, adding 21,000 ha to Preah Sihanouk (Ream) National Park.

Decree Law (Kret Chhbab): Official 33 KC Number Effective Date March 9, 1987

Environmental Protection and Natural Resource management

Investment Law of 1994

Joint Decision 193/781, by the Ministry of Agriculture, Forestry and Fisheries and the Ministry of Environment, on "The Creation of Joint Group to Prevent the Destruction of all Kinds of Wildlife in the Kingdom of Cambodia," May 12, 1997.

Law on Environmental Protection and Natural Resource Management

Maintenance of Sub-decree 43, on "The Maintenance of Social Order in Phnom Penh, in Social Order the Provinces and Municipalities," August 10, 1994. This Sub-decree prohibits certain offenses and creates penalties for those offenses. Of particular importance are the fines related to the improper disposal of waste.

Mangrove Forests. Preventing Joint Proclamation 1563, by the Ministry of Agriculture, Forestry and Fisheries destruction of and the Ministry of Environment, on "The Prevention of the Destruction Wildlife of all Kinds of Wildlife in the Kingdom of Cambodia," September 20, 1996.

Prohibition of Proclamation 1033 by the Secretariat of Environment, on " The Prohibition of certain Forest Logging, Construction of Sawmills, Charcoal Kilns, Tile-brick activities in Kilns, Lime Kilns, and Tobacco Kilns in Natural Protected Areas, " June 3, Natural 1994.

Protection of Instruction 873 by the Ministry of Environment, on "The Protection of Coastal and Coastal and Mangrove Forests," May 15, 1995.

Royal Decree (Effective Date: November 01, 1993)

Figure 1. Coral ornaments from Cambodia.

