SAMUDRA Studies

CAMBODIA

Asserting rights, defining responsibilities

Perspectives from Small-scale Fishing Communities on Coastal and Fisheries Management in Cambodia

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LIST OF ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
AFSC	American Friends Service Committee
CBNRM	Community-based natural resource management
CBNRM-LI	Community-based Natural Resource Management Learning Institute (Cambodia)
CF	community fisheries
CFDO	Community Fisheries Development Office
DOF	Department of Fisheries (Cambodia)
DFID	Department for International Development (of the UK)
EEZ	exclusive economic zone
EJF	Environmental Justice Foundation
FACT	Fisheries Action Coalition Team
FAO	Food and Agriculture Organization of the United Nations
FiA	Fisheries Administration (Cambodia)
GDP	gross domestic product
GIS	geographic information system
GPS	global positioning system
ICSF	International Collective in Support of Fishworkers
IDRC	International Development Research Centre
MAFF	Ministry of Agriculture, Fisheries and Forestry
MFO	Municipal Fisheries Office
NGO	non-governmental organization
OGB	Oxfam-Great Britain
PFO	Provincial Fisheries Office
PRIAC	Policy Reform Impact Assessment
SEAFDEC	Southeast Asian Fisheries Development Centre
TSBR	Tonle Sap Biosphere Reserve
UNDP	United Nations Development Programme
UNTAC	United Nations Transitional Authority in Cambodia
VDC	village development committee
VSG	village support group

DEFINITION OF TERMS

Bia: A big well or pond that people dig for stocking fish in the dry season when the water level is low.

***Chou*:** Khmer word that refers to women who do the work of men and are regarded as proud.

Commercial fishing: Also called industrial fishing, composed of the fishing lot and the *dai* fishery in inland waters. In the marine areas, commercial fishery is characterized by large-scale fishing in offshore waters from the 20-m depth to the limit of the EEZ.

Community Fisheries Area Management Plan: A document prepared by a community fisheries and approved by the Department of Fisheries, which assesses the social and environmental impacts and details the procedures, regulations and measures related to preparation for the sustainable use of the community fishing area.

Community fishing area: Refers to the State fisheries domain which local communities living inside and near the fishing grounds are entitled to use in a traditional way.

***Dai* fisheries:** The *dai* or bag-net fishing is located in the Tonle Sap river in Kandal and Phnom Penh provinces, where the river is reduced to a single but deep channel. Large cone-shaped bag-nets of about 100 m long and with a mouth diameter of 25 m are suspended from floaters and anchored in the channel, where they are held open by the current. Mesh size is 15 cm at the entrance and 1 cm at the bag. Each net is considered a fishing lot.

***Prahoc* and *Pha ork*:** Traditional Cambodian fish paste.

Middle-scale fishing: A licence is required to operate this type of fishery in Cambodia. Middle-scale fishing gear, especially in the Mekong River, the Tonle Sap River and the Great Lake are seine-nets, small river trawl-nets, beach-seines, gillnets, traps, cast-nets, scoop-nets, hooks-and-line and brush parks. This type of fishing is done outside of the fishing lots and in freshwater fishing areas.

Small-scale fishing: In inland fisheries, it is also known as 'subsistence fishing' or 'family fishing'. Small-scale fishing is done in floodplain areas, in fishing lots during the closed season and in rice fields during the rainy season. No licence is required for this type of fishing. In the marine area, this refers to fishing operations in the inshore fishing area, which extends from the coastline at higher tide to a depth of 20 m. Boats used are without engines or with engines of less than 50 hp. Licenses are not required for boats with no engine or with engines below 33 hp.

***Samrah*:** A brush park, a popular device used in inland fisheries. Any kind of bushes or tree branches are cut from the nearest available source, usually the flooded forest. The branches are set out next to each other close to the riverbank or inside a lake or recession pond in water depths of 1.5-8 m. The use of the *samrah* is prohibited by the Fisheries Law.

Sinking net/River pelagic trawl: Used for middle-scale fishing. It is made from thread woven into a big bag, with a rope attached to the lower part with iron pieces and the upper part attached to two boats. It is used to catch fish in major rivers like the Mekong and the Basac.

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24 April 2007

EXECUTIVE SUMMARY

This study aims to: (a) document and explore the understanding that fishing communities have about their rights to fisheries and coastal resources, as well as the obligations and responsibilities associated with these rights, and (b) document and discuss the initiatives being taken by fishing communities to assert their rights and to fulfill their responsibilities. To do this, a review of secondary data on fisheries and case studies on two community fisheries (CF)—Tum Nup Rolok in Sihanouk Ville municipality and Bak Amrek-Doun Ent in Battambang province—were accomplished.

Legally and historically, the State plays a major role in making decisions on fishery use and management in Cambodia. But when the fishery policy reform and CF began in 2000, some space for community participation has slowly emerged even if decisions on fishery use and management still need the approval of the State, and all CF actions have to abide by the rules of the State. Results from the two study sites suggest that when the CF was established and the fishery and local authorities disseminated information about CF, the people became more aware of their right to fish and, in particular, their right to stop illegal fishing. This new awareness encouraged them to take actions to stop illegal fishing. For example, the CF in Tum Nup Rolok negotiated with the Municipal Government of Sihanouk Ville to stop aquaculture development in their community. In Bak Amrek-Doun Ent CF, the local people destroyed a bamboo enclosure of a fishing lot owner, which led to a case in court. The results further show that awareness of rights to fisheries is not enough if the people do not have the capacity to assert their rights, and there is no guidance and support from authorities. In the case of Tum Nup Rolok, the CF successfully negotiated and stopped the aquaculture company because of the CF committee's good capacity to negotiate and because of the support of the fishery and local authorities.

Presently, the CF Sub-decree and the Fisheries Law are used as a basis for determining the people's rights to fisheries. For example, people have the right to inform the authority about illegal fishing but cannot confiscate or destroy an illegal fishing gear; only the fishery authority, in co-operation with local authorities, can do that. The legality of people's action (that is, one has to always act in accordance with the law) appears to be an important consideration to the local people. Amidst all the welcome changes in the increasing role of communities in fishery management, one thing remains unchanged – the right of the local people to do small-scale or family fishing. Family fishing has always been practiced, and thus the right to do this is considered 'traditional' by local people; it has always been there. Unfortunately, there is insufficient information about family fishing, which was, in fact, previously excluded from official fishery statistics. A better understanding of this type of fisheries is needed to establish appropriate and rational measures for sustainable fishery management and livelihoods improvement as well as in assessing traditional rights for rural people to fish and collect aquatic species.

CHAPTER 1: BACKGROUND TO THE STUDY

This study is a collaboration between the International Collective in Support of Fishworkers (ICSF) and the Community-based Natural Resource Management Learning Institute (CBNRM-LI). ICSF has been working on issues related to small-scale and artisanal fishworkers, with a particular focus on seeking recognition of the rights of small-scale fishing communities to fisheries and other coastal resources, as well as their right to participate in decision-making processes. CBNRM-LI is a Cambodian NGO with a mission to analyze and improve the CBNRM approach as an integral component of poverty alleviation, sustainable livelihoods and resource management and conservation, and the decentralization policies and strategies of the Royal Government of Cambodia.

ICSF is organizing a workshop and a symposium in Siem Reap, Cambodia, during 3-8 May 2007 with the following objectives:

- to discuss the desirability of rights-based approaches to fisheries management and to examine their scope in the Asian context;
- to advocate for equitable and sustainable coastal and fisheries management regimes appropriate for small- and large-scale fisheries in the Asian context; and
- to advocate for policies that secure the rights of fishing communities to coastal lands customarily used by them.

The meet will feature a three-day workshop for fishworker organizations, NGOs, researchers and activists from the Asian region, followed by a two-day symposium to which policymakers as well as representatives of regional and international organizations will be invited. A total of 50 participants from Cambodia, Vietnam, Indonesia, Thailand, Malaysia, India, Sri Lanka, Pakistan, Philippines, Bangladesh and Laos are expected to take part in these activities.

ICSF has contracted the CBNRM-LI to conduct the country study in Cambodia for presentation at the Siem Reap meeting. The study objectives are:

- to document and explore the understanding that fishing communities have about their rights to fisheries and coastal resources, as well as the obligations and responsibilities associated with these rights, and
- to document and discuss the initiatives being taken by fishing communities to assert their rights and to fulfill their responsibilities.

This study provides a review of secondary data on fisheries and case studies on two CF: Tum Nup Rolok in Sihanouk Ville municipality and Bak Amrek-Doun Ent in Battambang province.

A small team of researchers implemented the research with support from some key research partners. The team is supported by advisers and individuals from partner institutions.

Methodology

The methodologies used in this research are desk study and field research survey. The desk study was conducted for a month to gather all information related to fisheries in Cambodia. The fieldwork activities were done by two teams for five days in the two selected sites. Focus group discussions were held with CF members, non-members, community committees, village chiefs, commune councilors, and village elders. In selecting the study sites, the following criteria were used:

- availability of information and resource persons;
- accessibility of the area;
- willingness of the local people and partners to participate in the research; and
- advice from the research partners.

The following specific steps were undertaken:

1. Finalize study plan and agreement between ICSF and CBNRM-LI (The plan for the study was finalized by February 2007.)
2. Planning meeting with key research partners: A meeting with key research partners was held on 16 Februrary 2007. It was attended by SEAFDEC, WorldFish Centre, Oxfam-GB, FACT and CFDO. In this meeting, CBNRM-LI introduced the study to its partners and asked for feedback and guidance on its implementation.
3. Synthesis and analysis of secondary data: This desk study was undertaken from the last week of March until mid-April 2007. The research team collected and reviewed country-level information, including statistical information on (a) population dependent on fisheries; (b) fisheries production; (c) issues on fisheries; (d) fisheries and other relevant legislation; and (v) key fisheries management measures.
4. Field research in two selected case study sites: The fieldwork was undertaken during 8-12 April 2007. The research team co-ordinated with the organizations supporting the communities to assist in the fieldwork. A research team meeting was held prior to the fieldwork to ensure that the team understands the research process. During the fieldwork, the team held an introductory meeting with provincial partners to explain the study and co-ordinate activities with them. The participants in the focus group discussions were made in co-ordination with the provincial partners as well. Photo and video documentation of the fieldwork was made.
5. Analysis of information and preparation of first draft of report: The study team summarized the data from the field and prepared a first draft report by the second week of April 2007.
6. Verification and reflection workshop: Another meeting with research partners was held in Phnom Penh on 19 April 2007 to share the initial findings from the research and gather feedback and comments from the partners.
7. Incorporation of comments and revision of study report: The comments from the research partners were incorporated in the draft report and a final copy submitted to ICSF and research partners.
8. Preparation for presentation and finalization of study report.
9. Presentation of study results to regional forum.

Research Partners

The CBNRM-LI co-operated with some partners who have been working on the fisheries sector in Cambodia, such as CFDO, FACT, SEAFDEC, AFSC, VSG, WorldFish Centre, the Capacity Building for Community Fisheries Management Project of the Food and Agriculture Organization of the United Nations and the Fisheries Administration (FAO/FiA) and Oxfam-GB. As research partners, individuals from these institutions provided guidance on the implementation of the research, and shared their feedback on the research report.

CHAPTER 2: OVERVIEW OF INFORMATION ON FISHERIES IN CAMBODIA

Brief Overview of Fisheries in Cambodia

Cambodia is located between Lao PDR, Vietnam, Thailand and the Gulf of Thailand and covers 181,035 sq km of land (see Fig.1). Its population is estimated to be 14 mn, with a growth rate of 2.4 per cent per annum. Population density is only 72 persons/sq km and just over five persons/ha of arable land. Rural households make up 90 per cent of the poor and about 36 per cent of the population lives below the poverty line, that is, on less than US$300 a year (UNDP/FAO, 2003; So Nam and Buoy Roitana, 2005).

Rice and fish are staple food for Cambodians. Fish contributes more than 75 per cent of the people's animal protein intake (Ahmed *et.al*. 1998; So Nam and Buoy Roitana, 2005). The national average fish consumption rate is reported to be 23-31 kg per year (So Nam and Nao Thuok, 1999) but estimates from selected provinces and regions in Cambodia (see Table 1) suggest that the fish consumption rate might even be higher.

In 2001, the fisheries sector contributed 11.4 per cent to the national gross domestic product (GDP), with a value of US$200-300 mn (DOF, 2006a). Approximately 4 mn people or 29 per cent of the country's population derive employment from fisheries-related activities (So Nam and Buoy Roitana, 2005). This number is an underestimation since farming and fishing often go hand in hand and those reported to be gainfully employed in agriculture and farming are likely to be engaged in fisheries as well.

Table 1: Distribution of Per Capita Fish Consumption by Province and Region in Cambodia

Region	Per capita fish consumption (kg/capita/year)	Author
Cambodia (Average)	23 - 31	So Nam and Nao Thuok, 1999
Tonle Sap (upland Siem Reap)	32	Hong Hy, 1995
Tonle Sap (floating village)	71	FAO/PNRM, 1995
Tonle Sap and plains (8 provinces)	87	DOF/FCFMC, 1995
Tonle Sap (including Kandal and Phnom Penh)	67 - 80	Ahmed *et al*. 1998
Fishing households	80	Ahmed *et al*. 1998
Non-fishing households	67	Ahmed *et al*. 1998
Fishing-dependent commune	71 - 76	Ahmed *et al*. 1998
Southeastern (Svay Rieng)	22 - 40	Tana, 1993; Gregory, 1997
Southwestern (Kampot)	38	APHEDA, 1997
South (Kandal and Takeo)	40	CIAP, unpublished

Source: So Nam, 2000; So Nam and Roitana, 2005

Figure 1: Map of Cambodia

Source: www.un.org/Depts/Cartographic/map/profile/cambodia.pdf

Major Fishing Areas in Cambodia

Cambodia is divided into three main regions, where fishery resources are concerned. These are the Tonle Sap Basin, the Mekong River Basin and the coastal zone. The Mekong, Tonle Sap River/Tonle Sap Lake and Basac Rivers and many of their tributaries, numerous lakes and the floodplains comprise a wide range of different habitat types such as marshes/swamps, shrub lands, grasslands, flooded forests and rice fields and reservoirs. In the coastal zone, mangroves, seagrass beds, coral reefs, sandy beaches and tidal flats are the main important habitats found.

The floodplains in the Tonle Sap cover 44,000 sq km, with 22 sq km of flooded forest, shrub or grassland area and 18,000 sq km of wetland area (So Nam and Roitana, 2005). There is an estimated 200 plant species in these flooded forests and, in addition, the Tonle Sap contains at least 200 species of fish, 42 species of reptiles, 225 species of birds, and 46 species of mammals (So Nam and Thuok, 1999). Because of its importance, the Government of Cambodia established the Tonle Sap Biosphere Reserve (TSBR) in February 2001 as a focal point of environmental management (ADB, 2003).

The Mekong River Basin is defined by the land area surrounding all the streams and rivers that flow into the Mekong River and includes parts of China, Myanmar and Vietnam. It has a total area of 795,000 sq km and a drainage area of 386,560 sq km (Welcomme, 1985, cited in Baran, 2005). The Mekong is host to over 1,000 species of fish, one of the highest species counts of any river system in the world (Coates et al. 2004). About 500 of these species occur in Cambodia (Rainboth, 1996).

The coast of Cambodia is located along the Gulf of Thailand, from the Thai border in the northwest to the Vietnamese border to the southeast. The coastal area includes the provinces of Koh Kong and Kampot and the municipalities of Sihanouk Ville and Kep. The exclusive economic zone (EEZ) covers approximately 55,000 sq km and is relatively shallow, with an average depth of about 50 m. The coastline of Cambodia is approximately 451 km long (FAO, 2004b).

Types of Fishing in Cambodia

In the inland fisheries, fishing can be divided into three types: small-scale, middle-scale and large-scale fisheries. In marine fisheries, fishing is done in the inshore and offshore fishing areas.

Inland Fisheries: Small-scale Fishing

Small-scale fishing is also known as 'family fishing' or 'subsistence fishing'. It is done in floodplain areas, in fishing lots during the closed season and in rice fields during the rainy season. Access to this fishery is open and does not require a licence to operate. Formerly, small-scale fishing was not included in the official fisheries statistics, but the recent estimate by DOF (2005a) puts family fishing production at 137,700 tonnes and rice field fishing at 91,800 tonnes. Small-scale fishing is important to most rural households because it is the only practicable way of generating cash for their daily consumption since rice production is insufficient (Hori et al. 2006). Fish capture by hands, scoop baskets/bags, fishing spears and single-hook lines are examples of small-scale fishing gear.

Inland Fisheries: Medium-scale Fishing

A licence is required to operate this type of fishery in Cambodia. Operated outside the fishing lots, the most common gear, especially in the Mekong River, the Tonle Sap River, and the Great Lake, are seine-nets, small river trawl-nets, beach-seines, gillnets, traps, cast-nets, scoop-nets, hooks-and-line and brush-parks. Medium-scale fishing gear are used outside of the fishing lots and in freshwater fishing areas (Torell et al., 2004).

Inland Fisheries: Large-scale Fishing

There are two types of large-scale fisheries in Cambodia: the fishing lot system and the *dai* fisheries. The fishing lot (*loh nessart*) system accounts for the large freshwater fishing industry in Cambodia. Fishing lots are auctioned to stakeholders or bidders. The concession for each lot is given to the highest bidder for exclusive exploitation over a two-year period, and these lots provide an important source of revenue to the national government. The *dai* or bag-net fishing is located in the Tonle Sap River in Kandal and Phnom Penh provinces, where the river is reduced to a single but deep channel. *Dai*s are operated from the end of September until March, targeting the migrating fish leaving the Tonle Sap lake and floodplain when the water levels begin to recede in the months after that. There is a pronounced peak in the catches in January. Most of the catch is processed into various fish pastes and sauces, a portion is dried, and the rest is consumed locally as fresh fish, with a small proportion (of high-valued species) exported to neighboring countries (De Silva and Funge-Smith, 2005).

Marine Fisheries: Inshore and Offshore Fishing

Marine fisheries is characterized by small-scale fishing operating in the inshore fishing area, which extends from the coastline at higher tide to a depth of 20 m. Boats used are without engines or with engines of less than 50 hp. Licences are not required for boats with no engines or with engines below 33 hp. Boats with more than 33 hp engine pay a licence fee of 27,000 riel (US$7) per hp per year. Trawling and light fishing are not allowed in the inshore fishing area. On the other hand, commercial fishery is characterized by large-scale fishing from the 20-m depth to the limit of the EEZ. Boats, in general, use engines of more than 50 hp, and they also pay a fee of 27,000 riel per hp per year (FAO, 2004).

Population Dependent on Fisheries

The six provinces around the Tonle Sap Great Lake have a population of nearly 3 mn or 22 per cent of the country's total population (Nao Thuok, et al., 1999). About 25 per cent live in floating villages or raised houses with little or no access to farmland (ADB, 2004), with a large proportion being ethnic Vietnamese. Haapala (2003) claims there is a negative migration rate (-1 per cent to –6 per cent) in all the provinces bordering the lake, except Kampong Chhnang province because of

decreasing fish catches, and irregular rains/floods that have an impact on rice yields, and increases the sediment content in rivers, which degrades the water quality.

In the Mekong River basin, an estimated 60 mn people are engaged in open capture fisheries and aquaculture (Oxfam America, 2005). In the coastal zone, the 2004 census indicated that the population was about 959,000.

Fishery Production

Fishery Production and Value

There are various estimates of fishery production and value, depending on the source of information. Table 2 shows the yearly fishing statistics from 2001-2005, as reported by the DOF in its accomplishment report. The data on inland fishery production is similar. Van Zalinge et al., (2000) report an annual production of 300,000-400,000 tonnes, which made Cambodia's freshwater capture fisheries rank fourth in the world in 1996. The reported value at the landing site ranges from US$100 mn to US$200 mn, and increases in the marketing chain to between US$250 mn to US$500 mn.

The marine fishing data are likely to be an underestimation. In the coastal zone, fishery statistics come mainly from the taxable catch confined to inshore waters. There are no catch estimates from the offshore fishery of international vessels. It is believed that as much as 80 per cent of the catches in the coastal zone is directly sold to foreign vessels (mainly Thai) and not landed in Cambodia (So Nam and Nao Thuok, 1999).

The aquaculture sector is of minor significance to the fishery production of Cambodia. The wild fishery in Cambodia has been so productive that there has been little incentive for development of aquaculture. In the Mekong basin, aquaculture represents only 12 per cent of the fish resources basin-wide (Sverdrup-Jensen 2002). Moreover, until recently, poor infrastructure limited the distribution of fish feed, fingerlings and the products of the industry. Aquaculture production includes cage/pen culture of fish of non-marketable size from capture in the fishing lots, fish farming in ponds, pens and cages and crocodile farming in ponds and cages. Crocodiles are mainly produced in the Great Lake region and in Sihanouk Ville (Nao Thuok et al., 2001).

Table 2: Annual Fishery Statistics, 2001-2005 (in tonnes)

Fishing type	2001	2002	2003	2004	2005
Fishing lot	135,000	110,300	94,750	68,100	94,500
Family fishing	140,000	140,000	120,000	106,400	137,700
Rice field fishing	110,000	110,000	94,000	75,500	91,800
Total	385,000	360,300	308,750	250,000	324,000
Marine fishing	42,000	45,850	54,750	55,800	60,000
Aquaculture	14,000	14,600	18,500	18,660	26,000
Grand Total	**441,000**	**420,750**	**382,000**	**324,460**	**410,000**

Source: Department of Fisheries, 2006a

Fish Processing Technology

Processing involves preservation techniques such as sun-drying, salt-drying, smoking and steaming. In addition, there is significant processing of traditional fisheries (fermented fish and fish sauce). Freezing is only applied to products for export. Recently, freshwater and marine fish have been processed by traditional and modern technologies. The traditional processing technologies can be classified into three, namely, small-scale, middle-scale, and large-scale. Most processed products are consumed domestically, though a proportion of higher-quality, higher-valued products are exported, mainly to markets in Southeast Asia. The principal species processed include freshwater and marine finfish and shrimp (dried, iced and frozen), squid, octopus and *beche de mer*. In 2001, processed fisheries products totalled 33,772 tonnes, of which 18,140 tonnes or 54 per cent were exported (Hap Navy, 2001).

Fishery Trade

International Trade

The history of Cambodia's freshwater fishery exports can be dated back to the 1930s, when freshwater fish were exported to as far as France. Recently, the main markets for international fisheries production exports are Thailand and Vietnam. The other international markets are Hong Kong, Malaysia, the United States, Japan, Australia, China, Singapore and the Philippines (www.fao.org/fi/fcp/en/KHM/profile.htm).

Table 3 shows the volume of exported fish products from inland and marine fisheries in 2001 and 2005. It indicates that the total volume of exported fish products increased by 27 per cent in this period. The exported inland fishery products increased by 40 per cent; this trend was reversed in the marine fisheries sector, where a 31 per cent decrease in volume was noted for the same period. Unfortunately, there is no sufficient data available on the value of these exported fishery products. In addition, the actual volume exported may be higher because not all is noted down for documentation. It is a common practice to export goods at the borders with neighbouring countries (www.fao.org/fi/fcp/en/KHM/profile.htm). For example, fish sauce has been exported to Thailand from Battambang, Siem Reap and Kampong Chhnang provinces and to Vietnam from Kampong Cham, Kandal, Takeo, Phnom Penh and Prey Veng provinces.

Table 3: Export of Fish Products, 2001 and 2005 (in tonnes)

Export of Fish Products	2001	2005
Inland fisheries products	25,000	42,000
Marine fisheries products	13,100	10,000
Total	**38,100**	**52,000**

Source: DOF, 2006a

Domestic Markets

The most important products marketed and distributed are freshwater finfish and their traditionally processed derivatives. Small quantities of freshwater prawns and bivalves are also sold. High-value species are usually sold to traders for marketing in Phnom Penh or for export. Only 20-40 per cent of the total small-scale freshwater aquaculture production (low-valued exotic fish: tilapia, common carp, Chinese carps and Indian carps) is locally sold. Freshwater product is distributed in a number of different ways. In many locations around the Great Lake and along river systems, fish is sold to consumers at farm gate prices. This is especially so for small-scale producers of traditional products who produce for subsistence purposes and for localized sale. In other cases, fish is transported by ox-cart, motorbike and small trucks to urban markets (So Nam et al., 1996).

The domestic market for marine products is small; consumption of marine species by Cambodians is primarily confined to marine areas (FAO, 2004).

Major Fisheries Issues

Illegal Fishing

The very nature of illegal fishing makes it difficult to determine its precise scale and extent. Illegal fishing in Cambodia comes in many forms: from the use of prohibited small-scale fishing gear, electricity, poisons, explosives and water pumps to the massive encroachment of fishing lots into public access areas and intrusion of big foreign boats into the coastal waters designated for CF. All lead to a very high fishing pressure, as well as killing non-target species and damaging habitats.

There are multiple and complex reasons behind the pervasiveness of illegal fishing in Cambodia. There are fishing gear that are cheap and easily accessible like the nylon monofilament gillnets and fine-mesh fences with traps. A 50-m gillnet costs about US$3-5 per unit, while a typical 50-m fine-mesh fence made of mosquito netting costs about US$30 (Hortle et al., 2004). Thus, replacing confiscated fishing gear is an easy option open to illegal fishers. Communities across Cambodia also report the possible involvement of some military and police units in protecting illegal fishers or selectively implementing the fisheries legislation in favour of commercial interests for personal

gain (Gum, 2000). Armed protection for illegal fishing is reported on the coast, particularly for the foreign-owned boats (FACT/EJF, 2002) and in the commercial fishing lots (Gum, 2000). Open and effective communication, including stakeholder awareness of environmental issues, is also described as a challenge in controlling illegal fishing (Thompson, 2006). Unfortunately, the environmental consequences of illegal fishing in Cambodia remain unquantified.

Fisheries Conflicts and Competing Claims to Fishery Resources

Fisheries conflicts happen between communities and commercial fishing lot operators, between community users and business/developmental projects, and among community users themselves. These conflicts have been visible as protests, petitions, fish-ins, arrests and detention for forced labor, confiscation of fishing gear and livestock, injuries, serious human rights abuse, and reported killings of fishers and fisheries officers (FACT/EJF, 2002). There appears to be few formal mechanisms to resolve fisheries conflicts at the local level although the CF is increasingly observed as a potential venue for conflict resolution. Two examples are described here based on personal field observations. In Tum Nup Rolok, the Sihanouk Ville municipal government and district officials approved a Cambodian-Australian company's aquaculture project inside the CF. The community users, through the CF, opposed and negotiated the project with the municipal government. In an earlier decision, the municipal government allowed a Russian company to develop the Koh Pos Island and Hawaii Beach Ville, which is expected to provide at least US$80,000 in annual rent tied to revenue (Kimsong, 2006). In Kampong Kra Sang CF in Takeo province, the fishers have conflicts with farmers who are using chemical fertilizers and pesticides that pollute the channels and waterways. Farmers are not fully aware of the effects of these pollutants and they have not even been properly instructed on the use of these chemicals. Agricultural produce in Kampong Kra Sang is not large; they grow only I AIR 5004 that it is imported from Vietnam so the use of chemicals, with the promise of higher production and income, is an attractive option for farmers in the CF. The CF in Kampong Kra Sang had initiated environmental education work and co-ordinated with various NGOs to offer alternative farming techniques. These examples of conflicts within and outside communities are numerous in Cambodia and the effectiveness of the CF in handling conflicts remain to be seen in the future. As of now, conflicts rarely reach the courts for resolution, and evidence is not brought forward for examination but the CF could potentially manage some of these conflicts.

Threats to Fisheries Environment/Ecology

Construction of Dams

Since the 1950s, nearly 6,000 large and small dams and associated reservoirs and irrigation schemes have been built in the Mekong watershed, including 13 with an outcome of hydropower output of 10 mw or more (van Zalinge et al., 2001). This has led to large reductions in the coverage of aquatic habitats, the blocking of migratory fish species spawning, fry nursery and feeding areas, the altering of the level and quality of water, and the ending of the seasonal ebb and flow that is vital to the cycle of mating and reproduction (Baird and Mean, 2005). The Laos government has a goal of 23 dams to be completed by 2010 and the People's Republic of China reportedly has plans for 12 more power projects on the Mekong main stream, including two large reservoir projects that will have a significant impact on the downstream flow regime (FACT/EJF, 2002). Vietnam also has plans for a few more dams on the Sesan. Cambodia has not included any mainstream hydropower projects in its current development plans but it is apparent that the impacts of dam construction is an issue that the Cambodian government needs to address as they continue to affect the natural hydrological regime, damage fish habitats, and restrict or prevent the movement of fish.

Pollution

Reliable data on water pollution is very scarce. However, FACT/EJF (2002) reports that pesticide use in the Tonle Sap catchment area in 2000 was 1.3 mn litres, including highly hazardous chemicals imported from neighbouring countries, such as dichloro-diphenyl-trichloroethane (DDT) and methyl parathion. In addition, the study reveals that fish samples taken from the lower Mekong basin indicated

that pesticide residues are ubiquitous, with the highest concentrations in catfish species, one of the most commercially valuable fish species. The impacts of pesticide use on ecological security have yet to be assessed, but are potentially acute. The widespread use of fertilizers in the dry season could also affect the ecology of the lake. Household organic pollution, while mainly limited to the floating villages, is another issue to deal with.

Deforestation and Siltation

Deforestation of flooded forests in the Tonle Sap and Mekong basin, for firewood and converting to rice paddies and crop cultivation areas, has had impacts on fish habitats, and accelerated soil erosion, leading to a serious problem of siltation. There is a lack of reliable long-term data but So Nam and Buoy Roitana (2005) point out that from an original area of over a million ha, it decreased to 614,000 ha in the 1960s, and to 362,000 ha in 1991.

Introduction of Exotic Species

Introduction of exotic species should be done with great care as it causes irreversible alteration of the aquatic environment. For example, the threat from the exotic, fast-spreading water hyacinth (*Eichhornia crsassipes*) and giant mimosa (*Mimosa pigra*) has been highlighted by fisheries officers and local fishers, but the evidence for whether these plants cause harm to aquatic ecosystem remains unclear. About 17 exotic species are known to have established wild populations in the Lower Mekong Basin (Hortle et al., 2004). All these species potentially compete with, prey upon, or may transmit diseases to, more valuable native fish.

Marine Habitat Destruction

Habitat destruction is another threat to Cambodia's marine resources. Important causes include destructive fishing such as the use of dynamite and cyanide, and mangrove forest destruction for firewood, shrimp aquaculture and land development. FAO (2004b) reports that coastal villagers point to the increasing use of large trawlers in shallow waters, the use of push-nets and other destructive fishing methods as reasons for the decline in fish catch.

Changing Resource Condition and its Impacts on People's Livelihoods

Local communities are often engaged in diverse sources of livelihoods (Sophal and Acharya, 2001; Campbell et al., 2005; Marschke, 2005). Villagers are engaged in rice cultivation and general crop activity for about five months and they forage, fish and gather a range of food and non-food items from fisheries and forests the rest of the year. In addition, some of them are also engaged in small business activity and wage labour. Thus, rural Cambodians earn their living from multiple sources. Unfortunately, the income from the use of forests and fisheries was noted to be declining in recent years and affecting the rural households who depend on these common-property resources. Local people's access to common-property resources is critical for their daily survival. For example, Rab et al. (2005) show that more than 80 per cent of households in the Tonle Sap and Mekong Basac area get an income of US$26 per annum from firewood collection and gathering of vegetables like morning glory and water spinach. This is a substantial contribution to household expenses.

The slow growth of agriculture is also not helpful to developing people's livelihoods (Sophal and Acharya, 2001). A slow-growing rural economy is naturally unable to effectively support the increasing number of people joining the labour force each year. This is in addition to the growing number of landless people who turn to wage labour for income. All of these naturally lead to negative impacts on people's livelihoods and growing food insecurity in the rural areas. Marschke (2005) illustrates how rural fishers in selected villages in the Tonle Sap and the coastal zone are able to live with uncertainty and deal with ongoing stresses and shocks, and there is an ever-increasing fishing pressure and more fishers are competing over scarce resources within the same fishing grounds. Conflicts ensue and are manifested in gear loss, and, sometimes, violent situations.

Fishers' Access to Markets and Credit

An issue outside of actual fishery resource extraction pertains to fishers' access to markets and credits. Studies like Sok (2004), Bush (2005) and Navy (2006) are instructive but many of the

constraints faced by fishers and traders are not yet well understood. For example, Sok (2004) explains how insufficient managerial and entrepreneurial skills put the Cambodians at a disadvantage in domestic markets. Bush (2005) studied how high levels of informal taxes and gratuities paid to a range of government-sanctioned concessionaires affect fishers' access to good markets. In most situations, access to market is controlled by a combination of fishers being tied to debt from middlemen and social obligations based on ethnic, familial or sociopolitical relationships. In particular, middlemen play an important entrepreneurial role in trade networks by financing market access to poorer fishers (Bush, 2005). In fact, middlemen are preferred creditors of fishers over formal institutions like ACLEDA Bank (Navy, 2006). A focus on markets as an important component of a pro-poor livelihood development is acknowledged by the government, which, with support from DFID, has embarked on a project on post-harvest. Recently, a new section on post harvest was also created at the DOF.

The Legal and Historical Context of Fisheries Management

The Early Years of Fisheries Management

It is reported that arbitrary dues on fishing were given to the king under the reigns of King Norodom (1859-1897) and his predecessors. Privileged groups, made up mainly of Chinese traders and investors, bought the use rights of the fishing grounds, which are subdivided further and leased to other people for a suitable price. From the mere transfer of concession rights from the hands of the original user to the subsequent users, income generated from the use of the fishing ground increases tremendously. Further subleases are made if so desired by the subcontractors. Hence, between the State as the concession holder and the actual users of the fishing ground, numerous go-betweens earn incomes with no risk or effort to pay on their part. Rules were not set and contracts were always negotiated. Fish was sometimes used for payment, and boats and fishing equipment could be rented out to subleasers (Degen and Nao Thuok, 1998).

The initial decades of the French Protectorate did not change this situation. In fact, the laws and regulations on fishing, written down for the first time in Cambodia, formalized pre-existing exploitation patterns in fisheries. The main intention of the 1908 fishery ordinances and regulations was to generate revenues for financing the colonial administration, made possible through stiff taxation schemes imposed on peasant farmers (Thay Somony et al., 2005; Degen and Nao Thuok, 1998).

Fisheries Management during Democratic Kampuchea (1975-1978)

There is very little information available on fisheries during the period of Democratic Kampuchea (1975-1978). Degen and Nao Thuok (1998) report that fishing efforts apparently decreased during this period, although some fishing among cadres was likely to have happened. The legacy of this period was the government's obsession on increasing rice production, which led to the cutting down of massive areas of flooded forests. Ethnic Vietnamese and Cham fishers were also persecuted; thus very valuable fishing knowledge and expertise could have been lost.

The People's Republic of Kampuchea (1979-1989)

During the period of the People's Republic Kampuchea (1979-1989), *krom samaki* or socialist solidarity groups were formed for both fishery and forestry exploitation. By 1983, there were 1,340,000 families forming 102,500 *krom samaki* of three different models. The first type was the model collective: the *krom* directly managed all the rice land, the draught animals were kept for use within the group, and the *krom* leader was responsible for sharing the production work, from sowing to harvesting, and also for the distribution of food within the group. For the second type, the *krom* managed the rice land but the group divided itself into smaller teams of three to five families, and those teams assigned the labour for themselves and also shared the food according to their own team (*puok*). Each *puok* had at least one ox or buffalo. The *krom* leader acted as overseer. In the third type, the *krom* worked some of the land collectively but other areas were handed over to families to work separately or according to mutual assistance practices (Slocomb, 2003).

There is little documentation on the arrangements of the *krom samaki* for fishery exploitation. Degen and Nao Thuok (1998) explain that each *krom samaki* received a section of a lot to fish, including the provincial fisheries administrations. For example, in Kampong Chhnang province, the local fisheries office fished five lots and the central DOF from Phnom Penh allocated itself two lots, while other government departments, such as the Commerce Department, and provinces with no fishing grounds, like Kampong Speu, fished other lots (Swift, 1997). It is possible that further subleasing of the lots was made to generate revenues for the administration.

In 1987, the Fiat Law on Fisheries Management and Administration provided the legal framework for the use and management of fishery resources. With this law, fishing grounds could be auctioned off as fishing lots to commercial-scale operators through a bidding process. The 'owner' of a fishing lot is then granted exclusive rights to fish in that area for a period of two years, with the condition that he would not engage in fishing during the closed season imposed by the government. Family-scale or small-scale fishing is allowed in Cambodia all year round for all fisheries domain, except in sanctuaries. Under the law, fishers could fish in designated areas inside the fishing lots.

In 1997, the DOF introduced a new management category referred to as 'research lots'. A key feature of research lots is that they are not subjected to public auction, and are instead allocated and managed by direct agreement between lot owners and the DOF. The arrangement in the research fishing lots is valid for four to six years (Seilert and Lambert, 2000). In 1997, there were seven research lots, which increased to 69 during the auction period of 1999-2000 (STREAM, 2000). The objective of research fishing lots is to improve the management of lots through research into catches, fish biology, water quality and impacts, and the operation and socioeconomic conditions of local fishing communities.

It was also during this period that several community development projects and fund assistance poured into Cambodia, beginning from the 1993 democratic election organized by the United Nations Transitional Authority in Cambodia (UNTAC). Rural reconstruction came in the context of establishing new democratic organizations such as the Village Development Committees (VDCs), or by first identifying existing interaction patterns at different levels of the village and then trying to enhance their self-help capacity. At this time, a variety of mutual assistance groups already existed at the village level. These groups were observed to be popular among the poorest people in the village. The poor tend to join mutual exchange groups for meals, emergencies, gratitude, means of production, cooking, etc. The Pagoda Committee seems to be the most respected and consolidated community organization in the countryside. However, in line with Buddhist perceptions, monks and respected elders do not want to be involved in fisheries (Degen and Nao Thuok, 1998).

Fishery Policy Reform in Cambodia

Family-scale fishers come into conflict with fishing lot operators, who, in spite of the law, prevent subsistence fishers from accessing the resource through intimidation, violence and false imprisonment (Levinson, 2002). The increasing fishery conflicts, together with public protests and letter writing action from the Cambodian people, and the political motivation of the government to win the 2002 commune and 2003 national elections, paved the way for the fishery policy reform (Mansfield, 2002; Thay Somony, 2002).

In October 2000, Prime Minister Hun Sen visited Siem Reap province and was apparently impressed by the problems that relate to the fisher's access to commercial fishing lots (Ratner, 2006). The next morning, he immediately announced the release of 8,000 ha from the 84,000 ha under commercial fishing lots in Siem Reap province. By February 2001, the government agreed to release a total of 536,000 ha from the fishing lot systems for local community management or 56 per cent of the entire area under commercial fishing lots in Cambodia (Evans, 2002). The DOF was under intense pressure to follow up on this reform, even though there was a limited understanding of what CF might evolve into. There was a transitional withdrawal of provincial fisheries inspection people, apparently to learn more about CF and subsequently, the Community Fisheries Development Office (CFDO) was created in 2001 and became overall in-charge of the process of crafting a sub-decree on CF.

Subsequently, a series of sub-decrees were issued to formalize the release of the fishing lot, and a sub-decree on CF was formulated and discussed with stakeholders. On 29 May 2005, a Royal Decree

on the establishment of CF was proclaimed and on 10 June 2005, the Sub-decree on Community Fisheries Management was approved by the Prime Minister. On 30 March 2006, this sub-decree was given more solid legal standing with the approval of the new Fisheries Law by the National Assembly and was promulgated by the King on 21 May 2006.

It should be noted that the policy reform in fisheries is happening in Cambodia in conjunction with other sector reforms, such as land and forestry management, and especially, the decentralization of administrative reforms with the process of commune council elections throughout the country. The fisheries reform in Cambodia is perceived as a way to transfer the role and responsibilities from the national government to local communities. However, the Cambodian government remains a key player in terms of providing supportive policy and legislative framework and technical support, including capacity building and law enforcement. The community, on the other hand, develops the bye-laws and regulations, management plans and fishing area agreements, following the procedures and models issued by the Ministry of Agriculture, Forestry and Fisheries (MAFF). Communities are also bound to co-operate with government to control illegal fishing activities in the CF area.

When the fishery reforms were introduced in 2000/2001, it was unclear what new systems of tenure and management would be put in place in the areas where fishing lots were removed (Ratner, 2006). Much of the initial work on community-based resource management was 'experimental', with community members and NGOs or government-supported projects working on understanding just how community management could unfold on the ground. Such experiences have informed policy debates and policy formulation, both from a good governance mandate (the PLG Ratanakiri experience) and from a community-based management perspective (the FAO Tonle Sap project) within the Departments of Fisheries and Forestry. In addition, village-level institutions have been formed like the village management committees in Koh Kong province or the Community Fisheries and Mangrove Protection Committee in Sihanouk Ville. Before the new Fisheries Law, these institutions were usually recognized only informally through a memorandum of agreement between the village headperson and the provincial Governor, and, in some cases, technical departments at a provincial or national level. The new Fisheries Law requires these institutions to align themselves within the prescribed governance structures (Marschke, 2003; Rivera-Guieb et al., 2004).

The Emergence of Community Fisheries

Article 9 of the new Fisheries Law clearly maintains that fisheries domains[1] belong to the State and that the use of fisheries domains for non-fisheries-related purposes must be approved by the government, based on the request of MAFF. However, the same law becomes the basis for the establishment of CF. Article 59 states: "All Cambodian citizens have the rights to form a CF in their own areas on a voluntary basis to take part in the sustainable management, conservation, development and use of fishery resources." The MAFF is entitled to allocate part of the fishery domain to the CF that lies inside or around the fisheries domain as CF area (Article 60). This means that it is the MAFF's decision to hand over a portion of the fisheries domain to the CF for management but the community fishing area remains a State public property (Article 3 of the CF sub-decree). Thus, it may be assumed that the tenure of the CF is neither permanent nor exclusive. Even the CF area agreement has a validity of three years (Article 26 of the CF sub-decree), and the CF management plan is reviewed and approved by the fisheries authorities every year (Article 29 of the CF sub-decree).

In 2001, there were 165 established CFs in the country (see Table 4). The largest number of CFs was in Stung Treng (32) and Kratie (28). This number increased to 440 by 2005, with an average increase rate of 28.5 per cent annually. By 2005, about 266 of the 440 CFs (60 per cent) had bye-

[1] Article 8 of the new Fisheries Law stipulates that the fishery domain consists of permanent waters, the Mekong River flooded areas and tidal areas, which serve as the main fishing grounds and fisheries ecosystem protection. The permanent water bodies comprise *inter alia* sea, rivers, tributaries, lakes, channels, streams, reservoirs and canals. The Mekong river flooded areas includes *inter alia* swamps, refuges, wetlands and inundated areas. Tidal areas on the coastline are *inter alia* mangrove forests.

laws, 135 (31 per cent) had maps, 57 (13 per cent) had action plans, and 74 (17 per cent) had fish sanctuaries (DOF, 2006a).

By 2005, 54.5 per cent of the total number of fishing lots had been abolished, with the highest number in Banteay Mean Chey province (see Table 5). It is noted, however, that 100 per cent of the fishing lots in Phnom Penh and Kratie province have been abolished.

One of the key steps in establishing the CF is defining the boundaries of the CF area, covering both land and water. The guideline on how to do this has already been drafted and passed on to MAFF for approval. In practice, the CF in inland fisheries follows the defined boundaries of a fishing lot and negotiates this with neighboring CFs and local authorities. In the coastal zone, the inshore fishing area (that is, from the coastline to a depth of 20 m) is usually designated as the CF area, although this is still negotiated with the local authorities and adjoining CFs. At present, the key element in defining the CF boundaries is not the criteria themselves but the process of negotiation between the CFs and local authorities.

Based on Article 9 of the CF sub-decree, any one can be a member of the CF, given the following conditions: (a) have residency in one of the villages of the CF; (b) hold Khmer citizenship; and, (c) be at least 18 years of age. One individual may only be a single CF member in the community where he or she lives. In practice, only one member of a fishing family registers as a member of the CF even if there is more than one fisher in the family. Also, traders, monks, teachers, police, military and middlemen do not join the CF.

Table 4: Number of Established Community Fisheries by Province/Municipality, 2001-2005

No	Province/Municipality	Number of Community Fisheries/Year				
		2001	2002	2003	2004	2005
1	Kg. Thom	8	10	15	17	32
2	Siem Reap	10	10	10	13	21
3	Banteay Meanchey	6	10	13	13	19
4	Battambang	9	19	26	33	37
5	Pursat	8	14	16	22	25
6	Kg. Chnnang	14	32	44	44	44
7	Kandal	10	17	17	17	24
8	Takeo	12	13	16	19	21
9	Prey Veng	7	22	23	23	23
10	Kg. Cham	10	18	20	20	20
11	Kratie	28	31	40	51	56
12	Phnom Penh	1	1	1	1	1
13	Stung Treng	32	38	51	51	51
14	Ratanakiri	1	1	5	5	5
15	Preah Vihear		2	2	2	2
16	Ordor Meanchey				3	6
17	Kg. Speu			5	6	9
18	Svay Reang		4	5	9	9
19	Kampot	1	8	8	7	8
20	Kep	1	1	1	1	1
21	Sihahouk Ville	4	4	5	12	17
22	Koh Kong	3	3	6	6	9
	Total	**165**	**258**	**329**	**375**	**440**

Source: DOF, 2006a

Table 5: Fishing Lot Statistics after the Fishery Policy Reform

No	Province/ Municipality	Number of Fishing Lots	Abolished	Percentage	Number of Fishing Lots Remaining
1	Phnom Penh	3,475	3,475	100.0	0
2	Kandal	179,728	130,308	72.5	49,420
3	Takeo	46,007	30,806	66.9	15,201
4	Prey Veng	143,069	87,729	61.3	55,340
5	Kg. Cham	65,005	40,874	62.8	24,131
6	Kratie	8,725	8,725	100.0	0
7	Kg. Thom	127,126	56,773	45.4	69,353
8	Siem Reap	83,941	61,216	72.9	22,725
9	Banteay Meanchey	32,756	26,358	80.5	6,398
10	Battambang	146,532	43,814	29.9	102,718
11	Pursat	55,120	30,272	54.9	24,848
12	Kg. Chnnang	62,256	17,172	27.6	45,084
	Total	**953,740**	**538,522**	**54.5**	**415,218**

Source: DOF, 2006a

Impacts of the Fishery Policy Reform

Since the start of the fishery policy reform, some studies have already been initiated to look into its impacts. Oxfam-GB (2003), for example, showed that fishers in general showed remarkable support for the fishery policy reform despite numerous implementation problems brought about by the low capacity of the fishing communities and the institutional authorities (including, but not confined to, the fisheries staff). The immediate impacts of the reform are increased access to fishing areas and decrease in payments to fish, enjoyed mainly by the medium-scale fishers. The poorer fishers or those using small-scale gear and who did not pay any pre-reform taxes and were least likely to fish in fishing lots, do not appear to have benefited from the fisheries reform as much as middle-scale fishers. Similarly, there are reports that fishers with larger gear and those who can travel to more distant fishing areas benefited the most from the initial release of the fishing lots (Thay Somony, 2002).

The immediate increase in access to fishing came without the guidance of any supporting institutional framework (Oxfam-GB, 2003; Ratner, 2006). It was not particularly clear to the communities or the fisheries institutions what it meant for a fishing lot to be released and transferred to the community for management. At the start of the reform, an increase in illegal fishing was actually noted in some CF (Oxfam-GB, 2003). The increase in illegal fishing activities was mainly attributed to the temporary management vacuum created by the withdrawal of the fisheries officers from the field and relaxing the controls on fisheries when the fishing lots were released (DOF, 2006b).

The second round of Policy Reform Impact Assessment (PRIAC) in early 2006 made a much more optimistic review of the fishery reform. By this time, the CF sub-decree had already been passed and this guided the different actors in CF about their roles and responsibilities. The people's assessment of their livelihoods was also better than in previous evaluations as a slight increase in fishing income associated with increased fish catch was reported. However, of great concern is the continued clearing of flooded forest in the former fishing lots, which have been opened up for agricultural opportunities. For example, the DOF (2006b) notes that migrant agricultural workers in released fishing lots in Prey Veng province had new labour opportunities on lands opened up for agriculture and the chance to supplement their incomes by fishing but this caused great concern to the local authority about the destruction of flooded forest areas.

Overall, despite increasing documentation on field experiences on CF in Cambodia, it is still difficult to get a good sense of what is really happening on the ground with regard to the changes brought about. How do CF committees really function? What are they struggling with most? Does CF have exclusive use rights? Establishing the extent of community control is still difficult to ascertain at this point, although some observations can be made. CF management planning is still under way for most communities but there are already some indications of community assertion of rights to stop illegal fishing (Marschke, 2003; Rivera-Guieb et al., 2004). Kurien et al. (2006) also note that

fishers feel 'free' to relate with aquatic resources without fear of reprisals from fishing lot owners as one important benefit from the fishery policy reform. While the State remains the owner of fishery resources, opening more access to some fishing lots and delineating the CF boundaries on the coast are certainly a welcome change.

Community-based Management Systems in Cambodia

Community-based natural resource management (CBNRM) is an idea that has slowly grown in Cambodia in recent years. Ken Serey Rotha (2005) provides an excellent introduction to CBNRM in Cambodia. He explains that there are various strategies in the country that are fundamentally based on CBNRM such as community forestry, CF, participatory land use and planning, and participatory protected area management. These strategies, as expounded by Rotha and other selected papers in CBNRM-LI's publicaton (2005), have government and communities working together in the management of the resources. These Cambodian strategies tend to be more on the "government controlled side of the co-management spectrum" (Rotha, 2005).

Thus, to talk about community-based management systems in Cambodia, one has to bear in mind that 'community' does not always necessarily refer to villages or local people alone. A community is likely to include the government as represented by the officers and officials of the local authority and the national and provincial government line departments. In some instances, a 'community' may also include the NGOs that are working on community-based management projects in specific sites.

The Traditional Rural Cambodian Village

Chandler (2000) provides some insights on the situation of villages in Cambodia in the early 19th century. During this period, villages could be divided into three types: the *kampong*, rice-growing villages and villages in the wilderness (*prei*).

The *kampongs*, after the Malay word meaning 'landing place', were located along navigable bodies of water and could support populations of several hundred people. Some of the inhabitants were Chinese or Sino-Khmer, Malay and Cham, although minorities tended to keep themselves in separate hamlets that formed elements of the *kampong*. Rice-growing villages, on the other hand, are poorer and smaller than *kampongs*. These were numerous and populated by ethnic Khmer. Houses are scattered around in no special order near a Buddhist monastery or *wat* and also near the pond or stream that provided water for the village. Life in these villages revolved around farming and fishing, and numerous ceremonies celebrate the different stages of the rice-growing cycle. In times of crisis, people in these villages may run off into the forest but they somehow always return to their villages. The third type of village lay hidden in the *prei* or wilderness that made up most of Cambodia at the time. The people there were illiterate and usually non-Buddhist, speaking a language related to Khmer but owing no loyalties to the *kampong*. The villages were frequently raided for slaves and they were economically important because they were able to exploit forest resources. Their political loyalties, however, were to other villages in the *prei* where people spoke the same dialect and performed similar religious rituals.

There is no evidence that any villages in Cambodia were governed by formally constituted councils of elders during the 19th century and it was likely that villages settled their own disputes through conciliations rather than by law (Chandler, 2000). Ebihara (1968) also asserts that villages lacked indigenous, traditional, organized associations, clubs, factions, or other groups that are formed on non-kin principles. Thus, Cambodian society was referred to as "loosely structured", implying that in the 19th century, there were no "durable, functionally important groups" or voluntary associations aside from the family and the Buddhist monastic order or *sangha*. When a village organized itself – for defence or for a festival – it did so for a short time in response to a specific need. And the *sanghas* are likely the ones unifying the people in handling community matters.

However, a Cambodian identifies himself in relation to one's status (Nee and Healy, 2003; Best, 2005) and this could be located from one's standing from the King to the *sangha* and to the leaders of the *kampong* and down to the landless and minority peoples. If a person's place was relatively secure, people in weaker positions sought him out and offered homage in exchange for protection.

Cambodian society was characterized by the exchange of protection and service in different relationships, often described as "lopsided friendships" (Wolf, 1996). In a village context, these links might be with older and more fortunate members of one's family, monks in the local *wat*, bandit leaders, government officials, or holy men (*nak sel*) who appeared from time to time promising their followers invulnerability and riches. In the *kampong* and the capital, where people grew their own food, patronage became more complex as having a patron was connected with one's chances to survive. Many people enslaved themselves to a patron to protect themselves against the greed of others. Both sides of the patron-client equation saw their relationship as natural, even obligatory: "The rich must protect the poor, just as clothing protects the body." (Finot, 1904 cited in Chandler, 2005). Indeed, Cambodians have traditionally regarded the righteousness and permanence of patron-client relationships. And throughout the 19th century and even in the earlier Angkorian period, patronage and hierarchical relationships have been the key elements in Cambodian society.

The Key Characteristics of a Cambodian Community

From the 19th century to the French Protectorate (1863-1953), the Pol Pot regime, the UNTAC period and the present time, communities in Cambodia have adapted and changed throughout the years, often subtly. The following are some observations made about the key characteristics of a Cambodian community.

First, relationships in Cambodian communities are still largely shaped by wealth, power, gender and education. The strict code of behaviour requires people to act according to their position and condition in society. There is always a polite, correct and virtuous way for the 'lower' person to relate to the 'higher' person. Special mention has to be made of gender relations, particularly since women are being urged to participate in development programmes and the nation's affairs. Resurreccion (2006) advises against inserting women into development projects by only addressing poverty-reduction and conservation goals without recognizing actual gender/social inequalities. This may inadvertently reproduce existing gender hierarchies instead of actually transforming them.

Second, kinship networks and obligations are important to Cambodians. Families are seldom nuclear. Extended relations stay under one roof and where all family 'members' are subsistence farmers or fishers, the absolute necessity for family interdependence is even greater and more urgent. Loans or gifts of materials or money, and sharing of labour within families is still a necessary and universal practice in many Cambodian communities. The kinship network is an essential support system in times of emergency. Kinship networks help in times of emergency and provide protection in cases of conflicts and violence. They are also expected to deal with conflicts within both family and community. Sharing resources and mutual assistance within the kinship networks is an obligation shared and honoured by all Cambodians. The strong sense of sharing and mutual assistance among Cambodians has proven to be useful in establishing self-help and mutual support groups in the communities (Simmons and Bottomley, 2001; MacAndrews, 1998). In particular, encouraging the very poor families to form such groups has the potential of fostering greater cohesion, mutual understanding, a sense of belonging and a source of identity among the members.

Third, the network of relationships, whom Cambodians relate with, defines a person's identity and, in most situations, Cambodians would never challenge the person they hold in respect. People say to one who is of higher status: "Tell me what I must do." People appear to be more comfortable in following the instruction of others. Particularly at the village level, it is extremely difficult to challenge those in power. Respect for somebody in position is suggested to have a deeper basis in Buddhism as many Cambodians acknowledge that "one's position in the social order is largely pre-ordained" so people accept their lot even with a general understanding that one's position could change through good deeds and luck (O'Leary and Nee, 2001). Nee and Healy (2003) suggest that feelings of insecurity and despondency are a direct effect of militarism, and this attitude has become so entrenched long after the war has ended, and many are still finding it hard to imagine their long-term future and continue to suffer from a lack of initiative and confidence. This apparent helplessness sometimes tends to make a community believe that it has a right to external assistance and support and that their own development is, and should be, an externally-driven process.

Fourth, the patron-client system is still very much a part of the Cambodian community and society at large. While some question the exploitative relationships in this system (Wolf, 1966; Blunt and Turner, 2005; Degen and Nao Thuok, 1998), one could view patronage as a traditional part of social networking. One has to deal with the patron-client system in a more careful way and not simply dismiss it as negative or work towards eliminating it. Nee and Healy (2003) suggest that the rural poor generally do not see any problem having patrons, as the overriding perception is that the patron and clients are "helping each other." Thus, it could be viewed as a form of social welfare service that has existed informally for a long time. Usually, values of trust and co-operation, which are essential for social capital, are strongly built into the system. While society is still poor and resources still limited, there is no system to replace it; and without an alternative, the patron-client system may be the only lifeline for the very poor (Simmons and Bottomley, 2001). The patron-client system is simply a way for people to survive, and to destroy the system prematurely would amount to destruction of a survival network.

Fifth, while some studies (Best, 2005; Vijghen and Sareoun, 1996) have suggested that there were no functionally important groups or organizations in Cambodian communities, at least traditionally, the *wat* and the *pagoda* association are examples of what might be called an 'organic' group in Cambodia. An organic group refers to the indigenous associations/committees that have existed in communities for a long period of time and are collectively initiated by local citizens (Sedara and Sovatha, 2005). They exist in all communities in Cambodia. The participation of these organic groups in community-based management should be encouraged as they form part of the community's social capital that is likely to sustain local participation. For example, the community-based fishery management in Phneat Kohpongsat in Banteay Mean Chey province shows how the Buddhist monks brought people to work together for resource conservation and how community members try to follow the fisheries rules not simply because these are rules, but also because these are derived from the basic religious tenets of Buddhism (CFDO and CBNRM-LI, in press). Indeed, to this day, the *pagoda* continues to be an important unifying force in Cambodia (Pellini, 2004).

Sixth, there are minority groups in Cambodian villages, particularly in fishing communities that are at the farthest end of development assistance. For example, there are not enough studies that deal with the Cham minority. The Cham people are an ethnic group living in Cambodia, Vietnam and Thailand, speaking the Cham language and considered to be descendants of the kingdom of Champa (Tarling, 1992). Cambodia has the largest concentration of Chams, estimated between half a million and one million; about 90 per cent of them are Muslims (Pann and Doyle, 2003). A recent study on livelihoods made some reference to the Cham community in Cambodia as likely to have a strong identity linked to fishing and which might pose as an obstacle for people shifting into new occupations (Campbell et al., 2005).

Finally, the Cambodian community's perception of their rights needs to be viewed in the context of their culture and history. In the Cambodian hierarchical structure, many people consider respect of status to be more important than respect of rights. Those who respect status are regarded as correct, virtuous and polite. When rights are described in political terms, they often respond: "For the time being I do not need any rights, but I am hungry". (Nee and Healy, 2003). The promotion of any rights that are unrelated to a community's basic needs is likely to fall on deaf ears or cause conflict.

Evidence of Customary Practices and Traditional Community Management

The present Cambodian constitution provides some basis for resource ownership. For example, Article 44 states: "All persons, individually or collectively, shall have the right to ownership." It goes on to specify that only Khmer entities and citizens shall have the right to own land. 'Commons' (in a broad definition) is considered as "State property" and its use and management to be determined by law (Article 58). Any direct reference to customary practices is not made in the constitution, but references are made to Khmer traditions and culture, and in the preamble, reference is made to the "fine Angkor civilization" (Torell, 1998).

Yet, against this legal backdrop, there is very little direct documentation or reference to customary practices or traditional community management in Cambodia. Torell (1998) describes a practice in

provinces like Svay Rieng where fishing is open to anyone during the periods of floods when rice fields are submerged. But when the water recedes and the contours of the fields become visible again, the open right to harvest the resources quickly ends.

Indirectly, there are beliefs, knowledge and practices that affect resource use patterns and are thus argued to form part of local people's customary practices. For example, local people believe that on Buddhist prayer days, many fish can be caught. Since Buddhist prayer days coincide with the phases of the moon, this is supported by another observation: fish like the moonlight, they are playful in the moonlight and are easily caught with gillnets at full moon. When it is about to rain, however, no fish can be caught. Only when the rain starts falling would the fish come out of their hiding places. During certain times of the day, very little fish is caught. Asked for the reason, a fisherman explained that the fishes are now in the rice fields looking for food. They would come out later to play in the canal where they can be caught with the cast-net (Balzer, Balzer and Pon, 2002).

Similarly, Bao et al. (2001) describe some of the local ecological knowledge of the people in the Mekong River basin. A common observation is that many fishes lay their eggs in the flooded forest or in the flooded shrubs surrounding their rice fields. The fingerlings then come to look for food in the rice fields and the flooded grasslands. Another observation is that once the trees and shrubs are gone in an area, the abundance of fishes is reduced. Fishers also have the capacity to explain changes in their environment in their own way. In Sesan River, fishers have noticed that when water is released from the Yali Falls dam, the river often becomes very turbid and red, unlike anything that was experienced in the past. One fisher commented that if a pail of water is taken from the river at these times, there is generally one finger's width of red silt at the bottom of the pail within ten minutes; the water is much more turbid than ever seen before dam construction began (Baird and Mean, 2005).

There are also oral stories from the field relating to specific fishery management strategies that assert local people's claims to fishery resources. For example, the village leaders in Chrouy Pros Bay in Koh Kong province explain that they have put in cement blocks within the boundaries of their CF as FADs and also to prevent the commercial fishing boats from encroaching in their waters. This is similar to stories from provincial fishery officers in Kampot who talked about the use of spiked tree stumps in coastal waters to prevent the entry of illegal fishers into their community.

An interesting essay by Hortle and Song (2005) lists the different proverbs on fish that Cambodians have grown up with. For example, Cambodians would say *kom moa-ut ch'rarn doach trey komphleanh*, ("Don't talk a lot like *trey komphleanh*"), which means "If you talk too much, you may make a mistake or give out secrets". This saying refers to *gouramis* (Trichogaster spp.), which often live in low-oxygen environments and have a habit of swimming near the surface while opening and closing their mouths to gulp air. Or *kom saoich khlang pek proyat rohaek moa-ut doach trey sanday*, ("Don't laugh too much or you will get a big mouth like *trey sanday!*"), which means "One must not laugh loudly at someone who is making a mistake", referring to trey sanday (*Wallago attu*), a voracious predator that has an extremely large mouth with sharp teeth. The essay shows that language is a potential area of inquiry into better understanding Cambodian culture, particularly the people's relationship with fisheries and the environment. Probing more into Cambodian proverbs, metaphors and stories, one might get more evidence on traditional management systems and customary practices.

Overall, there is a huge gap in information about traditional fishery management systems in Cambodia. Studies on customary practices often relate with upland resource management and indigenous peoples (for example, Ratanakiri), but certainly such practices are likely to be similarly found in fisheries.

CHAPTER 3: CASE STUDY OF BAK AMREK-DOUN ENT COMMUNITY

This case study describes the Bak Amrek-Doun Ent CF and, in particular, focuses on the perceptions of the claims to fisheries and coastal land, community actions to support these claims, and the rights and responsibilities of the communities related to fishery resource use. This study highlights the actions of the CF to respond to issues on illegal fishing and cutting of flooded forests. It shows that the community views fishing as a right open to all, provided that it follows the fishing laws and the bye-laws of the CF. The responsibility for managing and protecting fishery resources, and the flooded forest, in particular, is also emphasized in this study.

Background Information on Study Site

Bak Amrek-Doun Ent CF is located in the villages of Bak Amrek and Doun Ent, Prek Luong commune, Ek Phnom district, Battambang province. Established on 21 September 2003, it has 280 members, 150 (or 53 per cent) of whom are women. The CF covers a total area of 1,075 ha of land and water. At present, the Bak Amrek-Doun Ent CF is part of a federated CF composed of three other CF (Data collected from the CF Management Plan, 2006).

The CF has a total population of 2,196 people; 1,138 (or 52 per cent) are women and 1,058 (or 48 per cent) are men. There are 431 families in the CF—253 families in Bak Amrek village and 178 in Doun Ent village (Provincial Department of Planning, 2005).

There are seven committee members (four women and three men) in the CF,. The committee has one male chief, two vice chiefs—male and female—one female accountant, one female secretary, one female disseminator, and one patrolman.

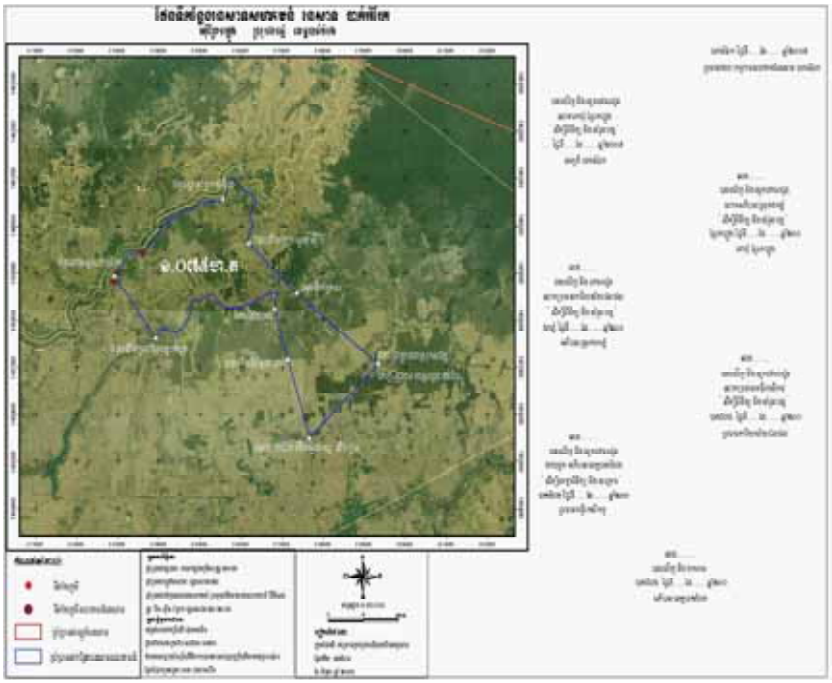
Table 6 shows the different livelihood activities of women and men in the CF. It indicates that fishing, farming and raising animals are the main sources of livelihood and these activities are done by both men and women. Small businesses like stores and sewing are left to women, while machine repairing, collecting palm juice water for wine and sugar (*skar thnaot*), and the production and charging of batteries are the work of men. Interestingly, one of the five taxi drivers in the village is a woman, a widow.

Table 6: Livelihood Activities of Women and Men in Bak Amrek-Doun Ent CF

Livelihood Activities	Number of Families Involved	No. of Men	No. of Women
Farming	376		
Fishing	429		
Raising livestock	429		
Small-scale business	40		
Labourer	30		
Motor taxi	5		1
Machine repairing	5		
Hairdressing	3		
Tailor/seamstress	7		
Boat service	1		
Palm juice water collection	4		
Battery charging	2		
Morning glory collection	6		
Shellfish/snail collection	5		

Source: Provincial Fisheries Office, 2007

Figure 2: Map of Bak Amrek-Doun Ent CF



Source: Battambang Provincial Fisheries Office, 2007

Table 7 shows that the fishers in the CF use multiple fishing gear that target various fish species. In the discussions with the CF, the local people report that some villagers and outsiders use illegal fishing gear such as mosquito nets, brush park *(samrah)*, sinking nets, electric fishing and poison. The fish catch from mosquito nets and sinking nets is high and that is what makes them an attractive option for fishers. During the peak season (September to December), a mosquito net can catch an estimated 300 kg/day, while sinking nets have an average catch of 800 kg/day.

Table 7: Fishing Gear, Species Caught and Catch Estimates in Bak Amrek-Doun Ent CF

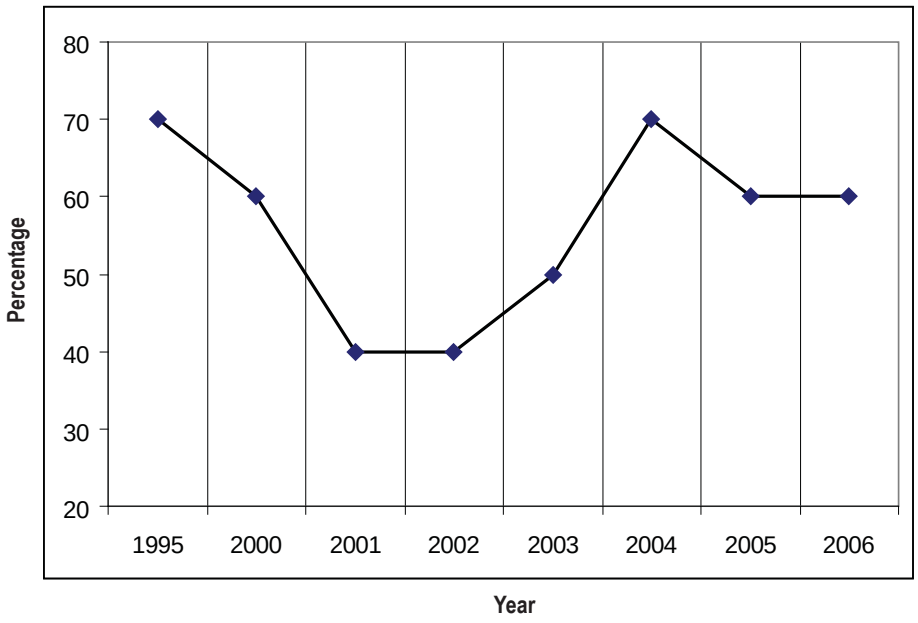
Type of Gear	Main Species Caught	Present Average Catch/day (in kg)	
		Peak fishing season (September to December)	Lean fishing season (January to August)
Gillnet (used along the tributary)	Jullien's mud carp (*Riel*), Common silver carp (*Chpin*)	5	0.5
Gillnet (used along the flooded plain area)	Cobia (*Phtok*), Walking catfish (*Andeng*), Yellow mystus (*Chlang*)	10	0
Hooked longline and Hook (*Bankay*)	Multiple species	7	1
Cast net	Common climbing perch (*Kranh*), Cobia, Walking catfish	5	2
Handled pick-out (*Angrut*)	Common climbing perch, Cobia, Walking catfish	0	1
Small cylindrical drum trap (*Lorb*)	Multiple species	10	0

Bamboo eel trap (*Luan*)	Eel	1.5	0
Folded woven trap (*La*)	Tree spot *gourami* (*Kampleanh*)	3	0
Scoop net (*Thnang*)	*Ka Et* and other species	2	0
Kra Bey Yun (to catch small shrimp)	Lanchester's freshwater prawn (*Kam Pis*)	0	5
Scooping basket (*Chnneang Tram*)	Multiple species	0	2
Mosquito net pipe (*Lou Sbay Mung*)	Multiple fingerling species	300	0
Samrah (brush park)	Multiple fingerling species	0	200
Electro-fishing gear	Multiple fingerling species	5	10
Sinking net (*Oun Pra Yung or Mong Peang Stung*)	Multiple fingerling species	800	0
Bamboo enclosure (*Bor or Lorb Nor or Rav)*	Multiple fingerling species	500	0
Poison	Fish and birds	0	15 birds

Source: Focus Group Discussion in Bak Amrek-Doun Ent, 9 April 2006

Figure 3 shows the community's perception on fish catch trends in the CF from 1995 to the present. Fish catch reportedly decreased from 1995 to 2001, from 70 per cent to 40 per cent in 2001. The people attributed this decrease to the prevalent use of illegal fishing activities such as electro-fishing gear, *Bor* gear, mosquito net pipes, *samrah* and sinking nets. *Bor* is similar to the bamboo enclosure that is used along flooded plain areas. It is made up of a net with a 2-cm mesh size and a length of 2,000-4,000 m. The mosquito net pipe is 7-12 m long and the mouth opening is 3 m; it uses very small-mesh nets of less than 0.5 cm size. The *samrah* is made of piles of about 500-1,500 branches, cut from the flooded forests. The sinking net is pulled in the lake, extending from 20-30 m, and with a height of about 3.5 m. All these fishing gear catch even small fish and fingerlings, and make use of the flooded forest.

Figure 3: Fish Catch Trend in Bak Amrek-Doun Ent CF: 1995-2006



Source: Focus Group Discussion in Bak Amrek-Doun Ent, 9 April 2006

From 2001 to 2002, the fish catch declined by 40 per cent and remained at this level. During this period, the fishery policy reform had already begun, and the local people were beginning to be aware of their right to the fisheries. This awareness came about when the Provincial Fisheries Office (PFO) in Battambang went to the villages and informed them about CF. At this point, it appears that the local people's understanding of CF was that they had free access to the fishing lot and that they have the right to stop illegal fishing, even if committed by the fishing lot owner. This newly found awareness encouraged the local people to take bolder steps to stop illegal fishing. One such act was the destruction of a bamboo enclosure of the owner of fishing lot No. 9 in 2002. This case is explained further in the succeeding section.

There were reports of an increase in fish catch from 2002 to 2004. The perceived increase in fish catch is attributed to people's growing awareness and understanding of the negative effects of illegal fishing. With the establishment of the CF in 2003, the people's solidarity and advocacy against illegal fishing became stronger. Supported by the Village Support Group (VSG), the PFO, the local authority and other relevant institutions, the new CF started dissemination of the CF bye-law and fishery law to local people and also collaborated with the fishery authority and commune police to crack down on illegal fishing in the community fishing ground and public area like the Sangke River tributary.

From 2004 to 2005, fish catch decreased again because of the use of more efficient fishing gear like the bamboo enclosure, the continued cutting of flooded forest for farming land, the support of soldiers to illegal fishing and the increase in the number of outsiders fishing in the CF. This situation is slowly being addressed by the CF as it makes a stronger commitment to stopping illegal fishing and cutting flooded forests. Moreover, fishery authority and relevant NGOs provided training courses to the community to strengthen their capacity in maintaining and sustainably using fishery resources.

In 2005, the CF also demarcated the CF boundaries by using a Global Positioning System (GPS) to create a map. The demarcation was joined in by the PFO, the VSG, local authorities, district environment staff, the community committee, district representatives, and neighbouring communities. The CF map formed part of the CF agreement which was signed by Bak Amrek-Doun Ent CF committee chief, chiefs of neighboring CFs and the village chiefs of Bak Amrek, Doun Ent and other neighbouring villages. The CF bye-laws have also been agreed upon and disseminated in the two villages and neighbouring villages.

Communities: Structural and Institutional Aspects

Table 8 shows the description of the different socioeconomic groups in the Bak Amrek-Doun Ent CF based on the people's perception. The local people report that a majority of the families in the CF is poor (51 per cent) but a large percentage (41 per cent) is also from the middle-income group. Only two families (1 per cent) are rich, while 30 families or 7 per cent are very poor (see Table 9).

When asked what factors make people rich, the community reported that improving the fishery condition is important to them and this could be achieved by stopping illegal fishing and cutting of the flooded forests. Specific reference was also made to being more knowledgeable of farming techniques that would address the lack of water for farming during the dry season. Other responses include the importance of external assistance to the community for establishing self-help groups, providing credit with low interest rates, and training for better fish-processing techniques and constructing better roads.

The people perceive that they are poor because of the decrease in fish catch caused by flooding and drought, illegal fishing and cutting of flooded forest. Others say that having no farm land, no knowledge of better agricultural techniques and the lack of irrigation systems also contribute to poverty. Special mention was made of the import of fruits and vegetables (like watermelon, cucumber and corn) from Thailand, which compete stiffly with local produce.

Table 8: Socioeconomic Groups in Bak Amrek-Doun Ent CF

Criteria	Very poor	Poor	Medium	Rich
Total income per day	500R (0.13USD)	3000R (0.75USD)	7000R (1.75USD)	10000R (2.5USD)
Type of boat	0	One small boat	One big boat	Two big boats
Fishing gear	One bamboo basket and one cast net	One fish net	Three fish net and One cast net	sinking net plus Samras and mosquito pipe
Education	Illiteracy	Less education	Grade 1-9	Grade 1-12
Number of children	Many children	8 children and lower	5 children and lower	5 children and lower
Property	Small cottage	bike and old motor bike	bike and motor	Car and motor

Source: Focus Group Discussion in Bak Amrek-Doun Ent, 9 April 2006 and VSG data

Table 9: Number and Percentage of Socioeconomic Groups in Bak Amrek-Doun Ent CF

Socioeconomic Class	Number of Families	Percentage
Very poor	30	7
Poor	222	51
Middle	177	41
Rich	2	1
Total	**431**	**100**

Source: Focus Group Discussion in Bak Amrek-Doun Ent, 9 April 2006

Associations and Groups in the Community

There are several associations and groups in Bak Amrek-Doun Ent CF, namely, (a) elderly persons' association, that currently has 95 members, for people 56 years old and above and with a one-time membership fee of 6000 riel (US$ 1.50) per person; (b) savings group; (c) credit group; (d) cattle and rice bank; and (e) women's self-help group. These groups are supported by the VSG.

The elderly association gives advice to the community for conflicts related to domestic violence and other social problems and fishery conflicts, if needed. It also raises money for building schools, roads and other ceremonies. The association also assists the elders who have no home and are poor by providing small amounts of fund to build a house or provide rice, mosquito nets, blankets, scarves, long skirts, kettles, mats, etc. The association is funded by the VSG. In the beginning, the elderly association only focused on helping the elders who are members of the association but now, it is helping the very poor families in the community, even if they are not members of the association.

The main religious group is composed of Buddhists; all the people in the CF are Buddhists. There is a *Pagoda* Association and the monks are active in disseminating information about fishery resource protection and conservation.

Some women are active as leaders of the CF Committee, and the chief of the savings group and the chief of the self-help group are women. In the community, the women leaders have sometimes been criticized by some villagers and illegal fishers. They are called names like *chou*, which refers to women who do the work of men and are considered proud. Sometimes, women are also taunted as "carrying the earth by themselves," referring to women who want to be in charge of everything by themselves. There were also reports of domestic violence in the villages but the number of incidents apparently decreased in 2005 with the support of the VSG. At present, the CF committee helps to solve domestic problems. The community suggests that the CF committee should also help train women to engage in small businesses such as sewing, hairdressing, animal husbandry and agriculture.

Conflicts in the Community

Conflicts between fishers and *bia* owners

Before the CF was established, some wealthy people who were farming near the lake dug a *bia* and put up *samrah*s (brush parks) to catch fish and get water for farming. A *bia* is a big well that is dug near the lake where fish are trapped. The owners of the *bia* disallowed the villagers to fish or use the water in the well. The conflicts between the *bia* owners and some fishing families continued without any resolution until the CF was established. Bak Amrek-Doun Ent CF co-operated with the CFs in O'Kambut-Kpop, Prek Loung-Sdey Lue, Sdey Kroum-Raha Soung and Bak Rates to try to resolve the conflict. At a meeting of the CF committees, the CF leaders agreed to ask for contribution money from the *bia* owners. All of the *bia* owners agreed because they preferred to pay the CF committees rather than unofficially pay to the army, fishery authority, and the military and civilian police. However, payment of fees did not stop the local people from fishing or getting water in the *bia* so the CF is planning to stop taking the contribution money from the *bia* owners and allow the local people to openly fish in the *bia* by 2008.

Conflicts between fishers and soldiers owning a *bia*

In 2003, the soldiers dug a canal that connects to a 40 m X 36-m *bia* near the lake just when the CF was about to be established. Every year, the soldiers allow a middleman to harvest fish from their *bia* in exchange for a fee of US$3,000. Local people complained to the CF Committee members who then turned to the local authorities and the fishery authority to help them in negotiating with the soldiers. The leader of the soldiers did not agree to give up the *bia* but instead offered to give a contribution of 100,000 riel (US$ 25) to the CF community every season. Other *bia* owners are already contributing money to the CF. The contribution varies depending on the size and level of fish catch. The CF committee accepted the soldiers' proposal. The other *bia* owners were jealous of this decision because they have smaller bias and they thought that the 100,000 riel is small, compared to their contribution. Some *bia* owners pay the same amount even if their income is reportedly not higher than 600,000 riel (US$ 151) every season. The fishers wanted to freely access the resources in the *bia* of the soldiers because they think that they have the right to do so but even so, the soldiers continue to maintain their *bia* and disallow the local people from fishing or getting water from their *bia*.

Conflicts between fishers and soldiers supporting illegal fishers using encircling seine-nets *(oun hum)*

In one incident, after the CF had already been established, Bak Amrek-Doun Ent CF members co-operated with the other CFs in the federation and the fishery authority and military police to arrest and confiscate an encircling seine-net and boat. However, about 13 armed soldiers chased the arresting group and took back the confiscated seine-net and boat. The soldiers accused the community group as being thieves. The PFO chief was called to mediate between the conflicting groups. The compromise reached was for the community to return the seine-net and boat to the soldiers. At that time, the community had no choice but to accept the decision. However, the community later decided to take their complaint to the district level of government. They have already gathered thumbprints from 600-700 people in two communes although they are still awaiting a response from the district authorities.

Conflicts between the community and fishing lot owner

In 2002, about 35 people from the community destroyed the bamboo enclosure in Ar Key Lake inside fishing lot No. 9. The bamboo enclosure obstructs the movement of fish in the lake, and the people think this is the reason why they have low fish catches. After this incident, the fishing lot owner complained to the Provincial Court, and the community members involved in the incident were sentenced to 25 years in prison and asked to pay a fine of 45 mn riel. The community contested the court ruling and filed a counter complaint. This time, the court heard the pleadings of seven representatives of the community, the community's lawyer, fishery authorities and the fishing lot owner. The court decided to reduce the sentence from 25 to 15 years, and the fine was lowered to 25 mn riel. The community was still dissatisfied with the decision of the court so they filed another complaint to the Appeal Court. This time the court decided to keep the people out of prison and

required a fine of 400,000 riel. Still dissatisfied, the community elevated the case to the High Court. The case is still pending.

Perceptions of the Community

The people described themselves as a fishing community. Everyone who is registered with the village and commune authorities is part of the community. There is one family in the community engaged in fishing and palm water collection. This family was allowed by the village chief to live along the canal but community members do not consider them to be one of them because the family did not register with the village authority.

Communities' Perceptions of Claims

The community claims that small-scale fishing is open to anyone at any time, provided that the users do not use an illegal gear and that they follow the fisheries and CF bye-laws. This open right to fisheries is particularly felt and freely exercised by the community now with the establishment of the CF. The community members report they do not feel the pressure from the fishing lot owners anymore. The community also said that all fishers should help in protecting the resources.

Outsiders also come to fish in the community. They come from neighbouring places like Bak Prear, Tha Koul, Sampouv and Banan Mountain and sometimes from farther places like Siem Reap. The outsiders live in boats or construct makeshift houses on the hills and stay in the CF for most of the flooded season, i.e., September to December. They use cast-nets, fishing nets and longlines. Some also use electro-fishing gear. The outsiders are allowed to fish in the community, subject to the same conditions mentioned above.

In contrast, the use of flooded forest is restricted. Cutting dead trees for firewood is allowed but only after permission is granted by the village chief. The incidence of indiscriminately cutting flooded forest has decreased since the establishment of the CF. Reportedly, more people understand the value of the flooded forest, and they are also aware of the CF bye-laws. The community also said that they stopped cutting flooded forest to "follow the instruction of the Prime Minister."

In the canal, about 40 families have been residing there for 10 years now. These families used to live along the river tributaries but they moved along the canal when the tributaries became narrower and the tributary bank collapsed. Some of these families also moved along the canal when they got married or they bought land there. People along the canal have no land title deeds but they have receipts issued by the District Land Authority. There are some reported conflicts related to land boundaries but these are often resolved by the village authority. The families do not pay the authorities for building their houses.

Community Actions to Support Claims

The main threats to fisheries are the use of illegal fishing gear, conflicts with fishing lot owners, the increasing number of outsiders who fish in the CF and the continued use of the *bia*. Related to farming, the main threats include natural disasters like floods, low agricultural prices and the increasing use of pesticides.

The main response to these threats, particularly to fisheries problems, is the establishment of the CF.

Community Rights Regimes

When the CF was established, the following changes were reported: (a) The CF Committee dares to face up to powerful interests. (b) The CF committee gets training from the VSG about fishery and other laws, and about the rights and responsibilities related to fishery resources. (c) CF members get information and explanation on the fishery law and the right to use fishery resources. (d) Fish catches have increased, so people's living standards have improved, especially widows who can process more fish for *pra hoc* and, *pha ork*, and smoke and dry fish for eating and selling. (e) The cutting of flooded forest for firewood and farming has been reduced. (f) Illegal fishing activities have decreased.

Despite these changes, the CF is still weak in some aspects. For example, there are insufficient funds and materials like gasoline for patrolling. The community's understanding on community management is also still limited, and collaboration with fisheries authorities can still be improved.

To further improve fishery management, the community suggests the following:

- Local authorities and relevant institutions should collaborate with the community to stop illegal fishing activities;
- There should be frequent training courses for the community to help them better understand the fishery law, advantages of natural resources, and the use of fishing gear; and
- There should be frequent dissemination of the fishery law to people in the community.

Rights and Responsibilities

The community perceives that the fishery resource is common property and that small-scale fishing is open to all at any time of the year (see Table 10). However, users of fishery resource have the responsibility of protecting the resources, using only legal gear and not fishing during the spawning season. The resources found in the community such as birds, tortoises, turtles and pythons are also accessible to users but these needed protection as well. The use of flooded forest is more restricted. People have the right to reside along the canal, and plant vegetables there. Residents along the canal have the responsibility to plant trees to prevent erosion.

Table 10: Rights and Responsibilities of Fishers in Bak Amrek-Doun Ent CF

Fishery Resources and Land	Rights of Fishers	Responsibilities of Fishers
Fish	Open fishing	Using legal gear, conservation, and no fishing in the spawning season
Birds	Protection and maintenance	Protection and maintenance
Tortoises and turtles	Protection and maintenance	Protection and maintenance
Crocodiles	Protection and maintenance	Protection and maintenance
Flooded forest	Restricted use	Protection and maintenance
Pythons	Protection and maintenance	Protection and maintenance
Land along the canal	Residence along the canal and planting of vegetables	Plant trees to stop canal land erosion and keep the environment along the canal clean

Source: Focus Group Discussion in Bak Amrek-Doun Ent, 9 April 2006

The local people play a role in protecting and conserving the fishery resources and in reporting any illegal fishing to the CF Committee. The committee, in turn, should lead in eliminating illegal fishing activity, disseminating the fishery law and making people understand about the advantages of community management. The CF Committee is assisted by the fishery authority and the local authorities. The environment officers should assist in disseminating information about the environment. CF management should also be supported by the elderly people, NGOs, monks and schools.

CHAPTER 4: CASE STUDY OF TUM NUP ROLOK COMMUNITY

This case study describes the Tum Nup Rolok CF and, in particular, focuses on the perceptions of the claims to fisheries and coastal land, community actions to support these claims, and the rights and responsibilities of the communities related to fishery resource use. This study highlights the responses of the CF to competing fishery resource claims and discusses their perceived rights to fisheries. It also explains the people's view on the open right to engage in small-scale fisheries at any time of the year.

Background information on study site

The community is known as Tum Nup Rolok Community Fisheries and Mangrove Protection, which is located in Village 1, Tum Nup Rolok Sangkat, Stung Hav precinct, Sihanouk Ville municipality. It is facilitated by the Municipal Fisheries Office (MFO) in Sihanouk Ville. The municipal government and the Seila programme supported the CF when it was established on 23 November 2005. Tum Nup Rolok CF is made up of four villages, with a general membership of 815 individuals (53 per cent women and 47 per cent men). The majority (70 per cent) of the CF members come from poor families, while the rest are middle-income families.

Figure 4: Map of Tum Nop Rolok CF

Source: Fisheries Administration, 2006

Eleven members were elected to the CF Committee—a chief, three deputy chiefs and seven committee members. One of the CF Committee members is a woman. Tum Nup Rolok CF is still a young organization—only two-year old—but it already has approved bye-laws, a map and a draft of a management plan.

The total population in Village 1, where the CF is located, is 7,746, of which 51 per cent are men and 49 per cent women. The total number of families is 1,415, all from the Khmer ethnic group.

The community members are mainly fishers and workers in crab and shrimp peeling activities, while others are fishworkers and construction workers (see Table 11). Some of their families also

engage in raising animals. At present, non-fishing-dependent families are not members of the CF, like businessmen, policemen, doctors, army personnel and civil servants. Crab peeling is a widespread source of income among families, with 950 families engaged in it. There are families involved in other livelihood activities such as fish processing, animal husbandry, construction work, trading, farming, driving, vegetable gardening and middlemen operations. The people in Tum Nup Rolok do not grow rice but instead plant cabbage, string beans, lemongrass and morning glory

All fishing activities, except catching common geloina, involve men. Reportedly, women cannot engage in fishing because it requires hard labour and distant travel from the place of residence. The livelihood activities involving women are crab peeling, gardening and raising animals, which are all home-based activities. Other livelihood activities like selling fish and farming are done by both women and men.

The main fishing gear in the community are trawls, gillnets, traps and hooked longlines. Hand fishing occurs in mangrove forests and shallow waters. The catch consists of various species of fish, shrimp, crab and squid. The fishing gear are used according to the season and they are used both inside and outside the community fishing ground. About 190 families use a variety of seasonal gear such as fish gillnets, shrimp gillnets, shell longlines, and ray hooks-and-line. 283 families operate trawls, while 115 families operate crab traps. Fewer families catch common geloina by hand (50) or use hand push-nets (25). More expensive gear like purse-seines and gillnets are used by five families.

It is the perception of the community that fish catch has declined by as much as 20-25 per cent since 1984 and some fish species have disappeared. The decline in fish catch is caused by the increase in the number of fishers and the use of more efficient fishing gear, and the cutting of mangrove forests. Villagers reported that some fish species have already disappeared such as dugong and sea otters. They believe that these species have disappeared because of overfishing and noise pollution from the engines of big fishing boats.

Box: People's perception of decline in fisheries resources

The fish species that are nearly extinct include: Hoeven's slender carb (*Trey Pra Loung*), Greater bony lipped barb (*Krum*), Marbled sleepy goby (*Dom Rey*), Great white sheatfish (*Sandai*), Smith barb (*Chror Keng*), *Kar Chorn*, Eye spot barb (*Khman*), *Kanh Chanh Chras*, and Armed spiny eel (*Khching*).

The fish species that are extinct include: *Catlacarpio siamensis* (*Kul Rang*), Red cheek barb (*Ampil Tum*), Paradise threadfin (*Puk Mot Chmar*), Twisted jaw sheatfish (*Khlang Hai*), Truncated estuarine catfish (*Tror Nail*), Siamese tiger fish (*Kon Trop Khlar*), Freshwater tounguefish (*Andart Chkei*), Red tail tinfoil barb (*Kar Hei*), Nieunof's walking catfish (*Andenk Kuy*), Soldier river barb (*Chkauk*), and Siamese rock catfish (*Kanh Chors Thmor*).

Table 11: Livelihood Activities of Women and Men in Tum Nup Rolok CF

Sources of Livelihood Activities	Number of Families Involved	Men only participate (√)	Women only participate (√)	Both men and women participate (√)
Trawler	283	(√)		
Crab gillnet	28	(√)		
Fish gillnet, Shrimp gillnet, Shell longline, Ray hook-and-line, Seasonal gear	190	(√)		
Crab trap	115	(√)		
Beka gillnet	5	(√)		
Push-net (by hand)	25	(√)		
Purse-seine	5	(√)		
Collecting common geloina	50			(√)
Crab peeling	950			(√)
Motor taxi	15	(√)		
Selling	22			(√)
Fish middlemen	14			(√)
Fishworkers	85	(√)		
Construction labour	35	(√)		
Farming (Average size of farm land: 650 square meters)	16			(√)
Vegetable gardening	10			(√)
Animal husbandry	65	(√)		(√)

Source: Draft CF Area Management Plan, 2007

Communities: Structural and Institutional Aspects

In the community discussions, the people reported that about 53 per cent of the families in Tum Nup Rolok come from the middle-income group, 39 per cent are poor families and 8 per cent are rich families.

Poor families earn an average income of 2000 riel (US$0.5) daily. For fishing, they use long wooden boats or row boats, fish or crab nets that are less than 300 m in length, and crab traps less than 100 m. Others simply use their hands to collect marine resources. A majority of them are elementary school graduates; the illiteracy rate is 65 per cent. Poor families usually have small wooden houses with a few household utilities. The number of children in poor families ranges from four to six.

Middle-income families earn an average of 4,000 riel per day (US$1). They use fishing boats with less than 15 hp engines. Usually, they use trawl nets, crab nets less than 1,500 m and crab traps that are less than 500 units. A majority is schooled up to the secondary level of education and the illiteracy rate is only 15 per cent. They have better living conditions, with more sturdy houses made of wood and galvanized iron. The number of children of middle-income families ranges from two to four.

The rich families in Tum Nup Rolok earn an average income of 8,000 riel per day (US$2). They use bigger wooden boats with 33 hp engines. They have trawl nets with freezing machines and other modern fishing gear. Around 95 per cent of the rich families are educated and have cement houses with sufficient household utilities. Their number of children ranges from two to four.

In the community discussion, insufficient income, low education, lack of livelihood options and having too many children were cited as reasons for the presence of many poor families in Tum Nup

Rolok. The lack of livelihood options is acknowledged as the principal reason for remaining poor. Poor families are especially affected because they do not have the capital or the knowledge and skills required to venture into other livelihoods.

Groups and Associations

There is a patrolling group and a savings group established in Tum Nup Rolok but the savings group was discontinued because of lack of funding support. The patrolling group in the CF works closely with the commune council, the police and the MFO and is led by the CF Committee.

Women in the CF participate in some of its activities. There is also a woman member in the CF Committee. However, she has not really participated in community activities and plans to resign from the committee.

The main religious group is Buddhist (99 per cent) and only a negligible number of villagers are Catholic.

Conflicts in the Community

Conflicts exist among fishers in the community. Fishers using trawlers are in conflict with users of other nets and traps because the former sometimes run over the nets and traps. Users of these fishing gear are not restricted to the community. There are also conflicts between local community members and outside fishers from Sre Ambel.

Mangroves are cut by some community members for firewood. There are others who claim to own some parts of the mangrove area, clear them and later sell them to outsiders. These incidents are reported by the villagers to the CF.

A recent conflict developed between the CF Committee and an aquaculture company. The municipal government gave the company a permit to develop oyster aquaculture inside the CF. In co-operation with the MFO, the CF Committee complained about this and negotiated with the municipal government. Several discussions took place and the municipal government clarified that the permit given to the company did not cover the mangrove areas inside the Tum Nup Rolok CF. The company finally conceded and said that their project development will remain outside the CF.

The CF Committee's involvement in negotiating competing claims in resources is not new. Prior to this incident, when the CF had just been established in 2005, the army attempted to take a piece of land in the village for its expansion activities. The CF Committee took part in the negotiation process and, with support from the MFO, it was able to stop the army's activities. When the army stopped its planned expansion activities, the CF Committee's immediate step was to begin the land and water demarcation of the CF. The committee members were trained by the MFO to draft bye-laws. A committee was formed to demarcate the boundaries, made up of the MFO staff, the district chief, the precinct chief, CF Committee member and representatives of neighbouring CF. With the help of a geographic information system (GIS) expert from the Provincial Department of Environment, a map of the CF was produced, submitted and recognized by all levels of local authorities.

The CF Committee members' capacity to negotiate, the support of the local authorities and MFO are the reasons given for the CF's success in acting on conflicts in the CF. The community reports that the strong co-ordination between the CF and the MFO, in particular, is one factor that helps in solving conflicts.

Perceptions of Community

The community members see themselves as CF, but with a special focus on mangrove protection. The protection of mangroves is something deliberate because people said it is an important resource that is tied to their fisheries. The focus on mangroves was also influenced by the municipal government, particularly the governor, who encouraged the conservation of mangroves in Sihanouk Ville.

The CF is led by a committee of 11 members and has a general membership of 815 people. This number is only a fraction of the total population (7,746) in the CF. At present, non-fishing-dependent families are not members of the CF, including businessmen, policemen, doctors, army personnel

and civil servants. Some villagers still have a limited understanding of CF and thus appear to be uninterested to register as members of the CF.

Communities' Perception of Claims

The community has been using the mangrove forests for firewood and doing hand fishing for a very long time. They said that they have always thought of having a right to openly fish in their community for as long as they obey the law. Outsiders also have this right; they are free to fish in the community. When the CF was established two years ago, the community created rules and regulations and they expect the community members and outsiders to abide by these rules. The community reports that they also have the right to develop aquaculture and ecotourism activities.

It appears that the community's perception is that the fishery is open access, while mangrove forest use is restricted. In particular, cutting down mangroves is strictly prohibited. However, fishing in the mangroves is open to all and mainly done by the poor families in Tum Nup Rolok using small-scale gear like traps and nets or hand fishing. Gathering common geloina, and small crabs and snails is also done in the mangrove areas and this activity reportedly sustains the poor fishing households' daily food consumption.

Community Actions to Support Claims

The main threats in the community include continued use of illegal fishing gear, in particular the use of electro-fishing by villagers and outsiders. Another threat is the perceived support of some powerful people in pursuing business activities as in the oyster aquaculture case. The community feels threatened by the possible control of fishery resources by powerful people from outside the community.

To respond to these threats, a CF was established with the intention of managing fishery resources and, in particular, to protect the mangrove resources. The community reports that they were encouraged to establish a CF because the MFO explained to them the fishery policy reform.

Community Rights Regimes

Since the establishment of the CF, the community reports that indiscriminate cutting of mangrove forest has stopped. This is a result of the increase in people's awareness about resource management and protection. Dissemination activities were done by the CF and supported by the MFO. It also helped that a patrolling group is monitoring illegal fishing and the cutting of mangroves. The visibility of a CF office in the village also helped stop illegal activities. Access to mangrove and fishery resources is perceived to be easier now with the establishment of the CF.

Notwithstanding these changes, the CF is still weak in some aspects. Sustaining actions to stop illegal fishing is a main concern of the CF because it lacks funds and equipment. While some funds for gasoline are given by the municipal government, the money is not enough to sustain patrolling activities. The patrolling groups are not equipped with radios and mobile phones for faster communication. In some cases, the fishery authorities cannot act on time to stop an illegal activity. In addition, the CF needs to implement more activities to increase awareness among local people of CF management and to reach out to more people in the community. The lack of access pathways in the mangrove areas is also a major deterrent to timely action to stop illegal fishing and cutting of mangroves. At present, fishers need to use their boats or wade through the water to get to the mangrove areas.

To respond to these weaknesses, the community offers the following suggestions:

- More support and collaboration from the government on law dissemination and enforcement, and training on aquaculture for the people of the community;
- CF should establish the clear boundary of the mangrove forest to be protected and create a conservation area to improve the natural resource condition and people's livelihoods;
- Replant mangroves; and
- Establish an access path.

Rights and Responsibilities

The community perceives that everyone has the right to fish and use the mangrove resources for as long as they follow the CF bye-laws. Family fishing (for example, hand fishing) and the use of mangroves are allowed for all at all times. The community also perceives that they have the right to engage in aquaculture and develop ecotourism activities.

Table 12: Rights and Responsibilities of Fishers in Tum Nup Rolok

Fishery Resources and Land	Rights of Fishers	Responsibilities of Fishers
Mangroves	- Use mangroves for the whole year - Replant	- Sustainable use, protection and conservation - Inform and mobilize people to plant mangroves
Fish and all resources in the water	- Hand fishing for the whole year	- Family fishing (hand fishing)
Channel (1,2,3)	- Aquaculture	- Follow legal and technical norms
Coastal land	- Create ecotourism zone - Sell things to reduce fishing	- Cleaning and sanitation - Replanting mangroves and building good roads for tourists

Source: Focus Group Discussion in Tum Nup Rolok, 9 April 2007

Fishery management is an important objective of CF establishment because the community reports that without management, the resources will decline and there will be no fish habitats, fish, mangrove forests or tourism opportunities left. To manage the fishery resources, they see the need to disseminate the law to the people inside and outside the community, replant mangroves, clean the coastal land where they expect to develop an ecotourism zone in the future, be recognized by the government to help them with fisheries management, establish a conservation area in the community and explore other possible sources of income besides fishing.

The community, particularly the CF Committee, is playing the central role in community fishery management in Tum Nup Rolok. In particular, the committee is negotiating in competing resource claims and in stopping illegal fishing and cutting of mangroves. The community suggests that it is difficult to undertake fishery management on its own; it thinks that fishery management is a collaborative effort involving communities, governments (the local authorities and fisheries institutions) and investors who will provide financial support to supplement jobs in the CF.

CHAPTER 5:
SUMMARY OF KEY FINDINGS

This study offers the following key findings:

a. Fisheries is the Cambodian people's lifeline; it is a significant source of food and income and it is integral to the people's culture and way of life. Inland fishery production is estimated at 300,000-400,000 tonnes, which makes Cambodia's freshwater capture fisheries rank fourth in the world (Van Zalinge et al., 2000) and the Tonle Sap has the highest productivity worldwide (Baran, 2005). The wild fishery in Cambodia has been so productive that there has been little incentive for aquaculture development. In the Mekong Basin, aquaculture represents only 12 per cent of the fish resources basin-wide (Sverdrup-Jensen 2002).

b. Some gaps in fisheries statistics have been noted by this study. For example, marine fishery production only includes fishing effort (by boat and gear) for taxable gears, which are largely confined to inshore waters. There are no estimates of effort, catches or revenue collection of offshore fishery, mainly done by international fleets that land their catch in their home ports.

c. This study notes the insufficient information on family fisheries. In fact, family fisheries used to be excluded from the official fisheries statistics. Rural households generate cash for daily consumption from family fishing (Hori et al., 2006) and a better understanding of its importance to the rural household and economy is needed to establish appropriate and rational measures for sustainable fishery management and livelihoods improvement as well as in assessing traditional rights for rural people to fish and collect aquatic species.

d. This study offers some observations on the characteristics of Cambodian villages based on secondary data review. In particular, it emphasizes the hierarchical nature of Cambodian villages and the persisting presence of the patron-client system in the society at large. This study suggests a more careful analysis of the patronage system as it forms part of the local people's survival network. The values of trust and co-operation are also strongly built into this system.

e. There is little direct documentation on customary practices or traditional community management in Cambodia. There are some studies (Torell, 1998; Balzer, Balzer and Pon, 2002) that describe the beliefs, knowledge and practices that may form part of local people's traditional management system, but overall this is a gap in fisheries data.

f. Based on existing laws, the State plays a major role in making decisions on fishery use and management. For example, Article 9 of the new Fisheries Law states: "Fisheries domains belong to the State." The type of fishery management system in place is also a decision made by the State. Even with the establishment of the CF, decisions on fishery use and management have to be approved by the State and all CF actions have to abide by the rules of the State.

g. Even if the State is the main player or decisionmaker on fishery management concerns, small-scale or family fishing is an open option that has always existed and is thus considered 'traditional' by the local people.

h. With the start of the fishery reform and the establishment of the CF, the people in the two study sites say they have become more aware of their right to fish and stop illegal activities because of the dissemination activities of fishery institutions and local authorities. This new awareness has encouraged them to take actions to stop illegal fishing, for example, the destruction of the bamboo enclosure in Bak Amrek-Doun Ent, which is now a case pending in court.

i. Article 11 of the CF Sub-decree and the Fisheries Law are used as the basis for determining the people's rights to fisheries. For example, people have the right to inform the authority about illegal fishing but cannot confiscate or destroy an illegal fishing gear; only the fishery authority, in co-operation with local authorities, can do that. The legality of people's action (that is, the belief that one has to always act in accordance with the law) is an important consideration for the local people.

j. Awareness of rights to fisheries is not enough if the people do not have the capacity to assert their rights, and there is no guidance and support from the authorities. In the case of Tum Nup Rolok, the CF successfully negotiated and stopped the expansion activities of the army and the development of the oyster aquaculture project because of the CF Committee's good capacity to negotiate and the support of the fisheries and local authorities. In Bak Amrek-Doun Ent CF, the people had the support of the VSG, the other neighbouring CFs and the fishery and local authorities.

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APPENDICES

Appendix 1: Study Outline

Study Summary and Background

The study in Cambodia will be conducted by the CBNRM Learning Institute in collaboration with key partners. The study will focus on small-scale fishing communities, primarily focusing on a selected coastal area of the country, while providing a broader overview based on published literature.

The study objectives are as follows:

- To document and explore the understanding that fishing communities have about their rights to fisheries and coastal resources, as well as the obligations and responsibilities associated with these rights.
- To document and discuss the initiatives being taken by fishing communities to assert their rights and to fulfill their responsibilities.

The study will draw on:

- published information;
- other literature (unpublished articles, campaign material, petitions, etc.);
- discussions with key organizations working with fishing communities; and
- fieldwork in one or two locations in the country (Koh Kong and Stung Treng are the tentatively selected sites.)

The study will first collect country-level information (such as statistics on the population dependent on fisheries fish production, relevant legislation, management measures, overview of community-based systems, overview of fisheries issues, etc.). There will also be one or two case studies conducted in a particular location (to be selected by the study group after consulting with key stakeholders and partners). (Refer to the attached study framework for more details.)

The study will be conducted from February to May 2007 and will include the following main activities:

1. Finalization of study plan and agreement between ICSF and CBNRM-LI.
2. Planning meetings with key fisheries stakeholders and research working group.
3. Desk study: synthesis and analysis of secondary sources.
4. Field research at two selected case study sites.
5. Analysis of information and preparation of first draft of report.
6. Verification and reflection workshop.
7. Incorporation of comments and revision of study report.
8. Preparation for presentation and finalization of study report.
9. Presentation of study results to the regional forum.

(Refer to the study schedule for more details on specific deadlines.)

The results of this study will be presented at a regional forum organized by ICSF in May 2007. (Refer to workshop prospectus for more details.)

10. Finalize study plan and agreement between ICSF and CBNRM-LI:

The proposed budget and study schedule will be finalized by CBNRM-LI and sent to ICSF in the first week of February 2007.

11. Planning meetings with key fisheries stakeholders and research working group:

After finalizing the study plan and agreement between ICSF and CBNRM-LI, a planning meeting will be prepared to be conducted in the second week of February 2007, with partners such as AFSC, PMCR, CEPA, FACT and WorldFish Centre at the CBRNM-LI office to (i) introduce the scope of the study project to partners; (ii) ask for comments from partners on the study outline (for inputs to the questionnaire); (iii) discuss about the specific location for

study activities with partners; and (iv) identify key fisheries stakeholders and respondents to fill out research requirements.

The questionnaire(s) will be developed by the study team with the comments of the research partners from the planning meeting. If possible, the study team will check the availability of time to conduct a pre-test of the questionnaire to improve it.

12. Desk study: synthesis and analysis of secondary data:

From the second week of February until the first week of March, the study team will conduct the desk study to collect the country-level information, including statistical information (in brief) on (i) population dependent on fisheries (inland, marine); (ii) fisheries products (inland, marine), main species (iii) status of fisheries resources (particularly any evidence of overfishing); (iv) fisheries, coastal and other relevant legislation; and (v) key fisheries management measures in place (including the use of MPAs as a fisheries management/conservation measure).

After the secondary data collection, the study team will synthesize and analyze the data to produce a written synthesis paper.

13. Field research at two selected case study sites:

The field research will be conducted during March 2007. Before the field research, there will be a research working group meeting conducted to ensure the research working group's understanding of the research process.

During the field research, the study team will conduct an introductory meeting with provincial partners and on the study outline.

The selection of the sample will be done according to the time and the group members. After selection of the sample, the research working group will conduct the interviews. Photos and some short videos will be taken during the fieldwork for evidence or reference.

14. Analysis of information and preparation of first draft of report:

The study team will enter the data from the field research into computers and analyze it in order to write the first draft report of the study, combining the secondary data analysis and synthesis paper.

15. Verification and reflection workshop:

After the first draft report of the study has been done, in early April, the study team will prepare a reflection workshop at its office to (i) reflect on the process of the study; (ii) present the result and first draft report of the study to the partners; and (iii) to clarify with partners on research findings.

16. Incorporation of comments and revision of study report:

After the comments have been provided by the research partners at the reflection workshop, the feedback will be used to revise or improve the second draft for a final draft to be circulated among the partners.

17. Preparation for presentation and finalization of study report:

A presentation of the study results will be prepared using the study report and, based on the field experience of the study team, will be sent for final comments from ICSF before presenting to the regional workshop.

18. Presentation of study results to regional forum:

The study team will contact the workshop organizers in advance to prepare for the workshop agenda and to identify the participants from the Cambodia study team to join the ICSF workshop on "Assessing Rights, Defining Responsibilities", which will be conducted during 3-5 May 2007 in Siem Reap, Cambodia.

Study Schedule

Main Activities	Feb				March				April				May
	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13
Finalize study plan and agreements	X												
Planning meetings with key fisheries stakeholders and research working group		X											
Desk study: synthesis and analysis of secondary sources		X	X	X	X								
Field research at one or two selected case study sites					X	X	X	X					
Analysis of information and prepare first draft of report							X	X	X				
Verification and reflection workshop									X				
Incorporate comments and revise study report									X	X	X		
Prepare for presentation and finalize study report											X	X	
Presentation of study results to regional forum													X

Appendix 2: Checklist for Focus Group Discussion (FGD)

1. Some clarifications on definitions before the FGD

a. How do you define fishery resources? What do these include? (Related to rights.)
b. How do you define coastal lands/fishing domain? What do these include?

2. Background information on location under study

a. What is the name of your CF?
b. Where is it located? (Village, Commune, District, Province)
c. When was your CF established?
d. How many members does the CF have? How many are men? How many are women?
e. What is the total population in your community (including non-members of CF)? What are their main occupations? Please use the table below (for the whole community, and not only one village).

Livelihood Activities	Number of Families Involved	Men only participate (√)	Women only participate (√)	Both men and women participate (√)
Fishing Activities				
Fish gillnets (*Mong Trey*)				
Shrimp gillnets (*Mong Bangkea*)				
Crab traps (*Lorb Kdam*)				
Crab gillnets (*Mong Kdam*)				
Push-net (by hand)				
Hook-and-line				
Spear				
Catching crabs by hand				
Collection of common geloina (*Krum*)				
Collection of blood cockles (*Ngeav*)				
Mechanized push-nets				
Purse-seine				
Set bag-net (*Aoun Hum*)				
Trawler				
Others				
Post-fishing activities				
Middlemen				
Selling fish in the market				
Others				
Land activities				
Farming				
Vegetable gardening				
Animal raising				
Salt farm labour				
Construction labour				
Store seller				
Motor driver				
Others				

f. What are the main fishing gear, main species caught and average catch per trip? Please use the table below.

Type of Gear	Main Species Caught	Present Average Catch/trip (in kg)	Seasonality
Fish gillnets (*Mong Trey*)			
Shrimp gillnets (*Mong Bangkea*)			
Crab traps (*Lorb Kdam*)			
Crab gill-nets (*Mong Kdam*)			
Push-net (by hand) (*Dun Dai*)			
Hook-and-line			
Ray longline			
Spear fishing (*Snor*)			
Mechanized push-nets (*Dun Masin*)			
Purse-seine			
Set bag-net			
Trawler			
Others			

g. Has the overall fish catch increased or decreased? When? Why?
h. Can you identify what species have disappeared? When? Why?
i. Does the CF have bye-laws or statutes? If yes, what are the main rules or regulations in the bye-laws?
j. Is your CF demarcated? When was it demarcated? Who joined the demarcation? How was the boundary demarcated (for example, setting up buoys)?
k. Does the CF have an area agreement? If yes, who are the main stakeholders that signed and recognized the agreement?
l. Does the CF have a management plan? If yes, what are the main objectives and activities of the management plan?

3. Communities: structural and institutional aspects

a. Describe the socioeconomic class in the community according to the following sample criteria. (You can add or delete criteria based on agreement among the participants.)

Criteria	Poor	Middle	Rich
Daily income/family			
Type of boat			
Fishing gear used			
Level of education			
Number of children			
Type of house			
Others			

b. Estimate the number of families in each socioeconomic class. Note that this might be a difficult task. If the numbers are difficult to estimate, draw a circle and ask the participants to divide the circle according to the 3 socioeconomic classes.

Socioeconomic Class	Number of Families	Percentage
Poor		
Middle		
Rich		
Total		

c. What is the socioeconomic class (poor, middle or rich) of the majority of people in your area? Why?
d. What factors help to make someone rich? (Examples: education, knowhow to save money and raise capital.)
e. What factors help to make someone poor? (Examples: lack of skills and ideas, poor fortune.)
f. Are there any other associations or groups in the community? What are these? What is their composition? What do they do in the community? (For example, there is a *wat* association composed of elderly men and male monks. They are in charge of assisting the monks in the pagoda.)
g. Are there any organizations or associations for women? What are these? Describe the women who are part of the organization.
h. Are there any women leaders in the community? What do they do?
i. Do you think women's interests are addressed in your community? (For example, domestic violence is an issue for women and there are no groups that address this problem.)
j. Are there any groups of fishers who control the fisheries? Who are they? Why do they control the fisheries? (For example, there are shrimp bag-nets in the community and they catch most of the resources because they are owned by the rich families and powerful men in the community.)
k. Are there any respected elders in the community? Who are they? What do they do for the community?
l. What are the main religious groups in the community? Who are members of these groups? (For example, 10 per cent of the people in the community belong to Islam and the members are all fishing families.)
m. Who resolves conflicts in the community? How do they resolve these conflicts?

4. Conception of community

a. List down the key characteristics of your community as shown in the example below:

Our community is a:
- fishing community
- Cham community
- poor community
- community of shrimp catchers

b. Do you consider everyone as part of your community? Is there anybody who does not belong to your community? Why?

5. Communities' perception of claims to fisheries

Claims of fishers to fishery resources

a. Do fishers have the legal rights over the fisheries in the lake, river and seas?
b. What are these rights?
c. Are these claims seasonal?
d. Are those rights traditional or relatively recent? Why?

e. Are there fishers who claim these resources even without any legal basis? Who are they and what is the basis of their claim? (For example, a river section is restricted because of a claim by a long-time resident that it is part of the land that his ancestors have passed on to him.)
f. Are claims to fisheries recognized and supported by neighbouring communities?
g. Who opposes these claims to fisheries? Why?

Claims of other people to fishery resources

a. Is there anybody in your community who is not allowed to use the fisheries in the lake, river and seas?
b. Is this seasonal?
c. Why aren't they allowed to use the fishery resources?
d. When did this happen?
e. Are outsiders allowed to use the fisheries in the lake, river and seas?
f. Is this seasonal?
g. Why aren't they allowed to use the fishery resources?
h. When did this happen?
i. Are there fishing gears allowed? Why or why not?
j. Are there fishing gears that are prohibited? Why or why not?

6. Communities' perception of claims to coastal lands

Claims of fishers to coastal lands

a. How long have you been living in this area?
b. Where did you live before?
c. Why did you decide to move here?
d. Do you have legal titles to your land for housing?
e. How did you get your land to be titled (criteria)? When was it titled?
f. If your land is not titled, do you have traditional rights to stay on coastal lands, and use coastal spaces (for drying nets/fish, etc.) that are recognized in some way by the State or local authority?
g. Are those rights traditional or relatively recent? Why?

Claims of other people to coastal lands

a. Is there anybody in your community who does not have any access to coastal land?
b. Why don't they have access?
c. When did this happen?
d. Are outsiders allowed access to coastal land?
e. Why don't they have access?
f. When did this happen?

7. Community actions to support claims

a. What are the main threats to the claims on fisheries?
b. What are the main threats to the claims for housing and occupational purposes?
c. What did the community do to address these threats?
d. What are the difficulties in addressing these threats?

> For example, a threat to fisheries is the increase in the number of blood cockle boats fishing near the community. To stop them, the community established the CF. Statutes and bye-laws have been approved and the CF area agreement was signed and recognized by stakeholders. However, some of the commune police are corrupt and they support the blood cockle boats. The commune chief also supports them, so these boats still fish inside the CF. The CF does not have enough resources to patrol and their boats are too small to stop the blood cockle boats.

8. Community rights regimes

a. What are the changes that happened to your community after the establishment of the CF?
b. Has access to resources improved? Why or why not?
c. Are there migrant fishers in your community? Who are they?
d. Are migrant fishers allowed access to fish in your community? On what terms and conditions?
e. What are your suggestions to improve fishery management and make sure that there is equity? Who should do it?
f. Do you support the CF establishment? Why or why not?
g. What are the weaknesses of the CF now? How do you address these weaknesses?

9. Rights and responsibilities

a. Summarize the rights and responsibilities of fishers to fishery resources and coastal lands.

Fishery Resources and Land	Rights of Fishers	Responsibilities of Fishers
Fish and all resources in the water	Right to fish the whole year round2	Not to use illegal gear
Mangroves		
Seagrass beds		
Seaweeds		
Rivers, streams and canals		
Coastal land		
Others		

b. Perceptions on fisheries management
c. Do you think there is a need to manage fishery resources? Why or why not?
d. What are the key actions needed to manage the fishery resources?
e. Who should manage the fishery resources?
f. What should be the role of government in managing the fishery resources?
g. What should be the role of communities in managing the fishery resources?

Appendix 3: Study Team Members

List of Study Team

The study team consists of the following personnel from the CBNRM-LI and Community Fishery Development Office (CFDO):

	Name	Role	Phone	Email
1	Sim Bunthoeun	Study Co-ordinator	012 918 326	bunthoeunsim@everyday.com.kh
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Appendix 4: Study Partners

List of Study Partners

The study team works closely with key partners (research working group members):

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SAMUDRA Studies

CAMBODIA

Asserting Rights, Defining Responsibilities
Perspectives from Small-scale Fishing Communities on Coastal and Fisheries Management in the Cambodia

Researched and Written by
Tep Chansothea, Meng Kimsan, Tit Phearak, Deap Polin, Chap Sopanha, Sim Bunthoeun, Rebecca Rivera-Guieb

Collaborating Partners
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SAMUDRA Studies

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Asserting Rights, Defining responsibilities:
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In preparation for the Workshop and Symposium on "Asserting Rights, Defining Responsibilities: Perspectives from Small-scale Fishing Communities on Coastal and Fisheries Management in Asia", held in Siem Reap Cambodia, from 3 to 8 May 2007, case studies were undertaken in six countries in Asia—Bangladesh, Cambodia, India, Indonesia, Philippines and Thailand. Among other things, the studies aimed to document and explore the understanding that fishing communities have about their rights to fisheries and coastal resources, as well as the obligations and responsibilities associated with these rights, and to document and discuss their initiatives to assert these rights and fulfill their responsibilities. The studies formed the basis for discussions at the Workshop and Symposium. This case study from Cambodia will be found useful by NGOs, regional and national organizations of artisanal fishworkers, and anyone interested in fisheries and fishing communities in Cambodia.

ICSF

ICSF is an international NGO working on issues that concern fishworkers the world over. It is in status with the Economic and Social Council of the UN and is on ILO's Special List of Non-Governmental International Organizations. It also has Liaison Status with FAO. As a global network of community organizers, teachers, technicians, researchers and scientists, ICSF's activities encompass monitoring and research, exchange and training, campaigns and action, as well as communications.

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