



MEKONG RIVER COMMISSION/DOF/DANIDA

**Project for Management of the Freshwater Capture Fisheries of
Cambodia**

c/o Department of Fisheries, 186 Norodom Blvd., P.O.Box 582, Phnom Penh, Cambodia
Fax/Tel: (+855-23) 427048, Tel: 723275, E-mail: MRCFISH@bigpond.com.kh

**Inland Fishery Management in Cambodia:
Is the fishing lot system the basis for improved management or should it be abolished?**

by

Peter Degen and Nao Thuok

Working Draft

Stream: Multiple Commons, Fisheries

1. INTRODUCTION

1.1 Background

Since ancient times fishing has been a central element of production and reproduction of Khmer culture and society. The extraordinary carvings of the world's famous relief at Angkor Wat testify this importance. The very advanced culture of Angkor could only evolve and develop in that way it did, counting on rice and fish as the two main staple foods. Until today, the importance of rice and fish for making a living has not changed for the rural population. Fish is by far the most important source of protein for the 10.7 million (NIS 1996) populations of Cambodia of which 85% lives in rural settings. Their economy is to a high degree (90.1%) focussing on primary production such as agriculture, hunting, forestry and fishing. The river systems of the Mekong, Bassac, and the Tonle Sap including the Great Lake and their adjacent extensive floodplains provide the environmental basis for a diversified and subsistence oriented farming-fishing rural society. The annual flooding of large plain areas of Cambodia, provoked by the tropical monsoon rains and the melting waters of the snow in the central Asian highlands imposes the yearly rhythm to the rural multi-strategy economy. Remarkable differences in water supply and flooding within the year and from year to year demand from the rural peasant a high degree of flexibility to benefit from it. At the peak of the rainy season more than 20.000 km² of plain areas, forests, shrub lands, and farmland are under water (IMC 192). [The "manipulation" of those water masses, their currents, and their related resources is of crucial importance for benefiting from this environment.] The water is diverted by means of irrigation canals, stored through dikes or pumped from the rivers into the farmland for getting higher yields. For fishery purposes a huge variety of fishing gears and strategies are designed to take advantage of the permanently changing currents according to the physical and seasonal conditions and in order to obtain the biggest catches.

The present freshwater capture fisheries management of Cambodia is thought to be "one of the most developed and extended systems of fisheries regulation found in the world"(IMC 1992: A5-42). It comprises regulations on large-scale fishing operations in well defined "fishing lots", and middle scale operations, which need official licenses handed out by the DoF, and the so-called

family fisheries with minor gears which can be operated in all water bodies at every time, unless being subject to legally restricted areas. Threats to and pressures on fish stocks are increasing in the same way as conflicts increase between the relevant actors (Ahmed et al. [1998]). For social peace' sake a long-term fishery resources availability providing food security, income generation, and employment has to be addressed within the context of an improved fisheries management structure.

1.2 Scope of this paper

There have been repeatedly claims suggesting that the poor fisher can hardly make a living. These were followed by recommendations for “community based fisheries co-management”, for “participation” of communities through delegating power and responsibility to local authorities. The underlying assumption is that the village communities are organized bodies focussing on common social, economic, and political interaction. On the one hand, the fishing lot system has been made responsible for damaging practices (Ahmed et al.1996, Thuok et al.1996), on the other hand, the “open access” nature of fisheries in areas outside the lots, where either licensed or unlicensed fishing gear are operated, has been regarded as the main threat to the freshwater capture fisheries in Cambodia (Van Zalinge 1997). While glosses are useful at a general level and make complex structures understandable, it is imperative to break down these “odd-job words” in order to be able to achieve a more thorough understanding of fisheries reality and thus operationalize research questions that aim at developing specific alternatives for its improved management.

An endless list of questions may appear: What can “community-based co-management” mean in Cambodia? What does “community” mean in the Cambodian context? Are the “communities” as homogenous and harmoniously compact as the word wants us to make belief? What are the experiences and capabilities of handling common and conflicting interests within a community? Who are the players and how is the power structure? If a community-based management approach is supposed to be a future option, what should be the first steps for setting up or strengthening required structures at community level? How open is the “open access” to fisheries? How damaging are the existing fishing practices to the fish stocks? What kind of exploitation patterns act in a resources preserving manner? etc.

Whatever improvements in the actual management system might be developed and proposed in the future, a deeper insight into the fishing lot system, as well as into the organizational capabilities of the fishing communities and their visions of sustainability must be provided. This should include not only the legally desired part of it but also the informal and not outspoken parts of the existing management practices.

This paper originates within a project context of international fisheries development cooperation, in which a regional organization provides advice to the fisheries authorities of the Cambodian Government on training staff in fishing related research, setting up data bases and developing options for sustainable freshwater capture fisheries management. The basis of data actually available allows only for some initial insights into these organizational systems and management practices. After more than a quarter of a century of civil war, in which most of historical documentation disappeared, and no research had been done, Government staff has to be trained in

order to conduct research on relevant issues for fisheries management, meaning that every kind of data collection is virtually a pioneering work.

The process of gradually deepening insights also allows for gradually improving the operationalization of research questions that provide a clearer picture of the essentials for fisheries management. This paper tries to contribute to this process of refining research questions, clearing concepts and definitions needed for designing feasible options for fisheries management, that fit the very specific environmental, cultural and institutional-political conditions of Cambodia.

2. THE KHMER VILLAGE COMMUNITY

2.1 General Key Elements

Before referring to fishing villages it seems necessary to provide some key elements of the traditional Khmer communal structures in Cambodia. The Khmer term “*phum*”, which has been translated into the English version of “village” possesses some slightly different connotations than the translation reveals. It is not only a political administrative unit, but also means a hamlet or section of a village, or even any inhabited space even if there is only one house (Delvert 1961 cited in Ebihara 1968, Ovesen et al. 1996). The pagoda or *Wat* may express the social unit of a “*phum*”, though various “*phum*” also frequently share one temple. One of the most striking characteristics of Khmer rural community is the “lack of indigenous, traditional, organized associations, clubs, factions, or other groups that are formed on non kin principles” (Ebihara 1968:181). While there are in fact no communal houses, and there are no communal properties found, the *Wat* assumes a unifying function to tackle with community matters. The traditional Khmer society is deeply rooted in the culture of Angkor and thus principally hierarchical. The survival of the Khmer peasantry, their success in production and reproduction was directly linked to the protection and security available through the supreme cosmological position of the King (Ovensen 1998). This is a classical definition of a “patron-client” relationship. Between the King and the farmer there obviously was a long chain of feudal collaborators to “facilitate” this relationship, and by doing so replicating the patron-client relations in arbitrary ways.

This (rural) organizational pattern was hardly affected by the French Protectorate (1863-1953) and remained fundamentally unmodified. After civil wars, Pol Pot times, multiple ideological indoctrination attempts, and UNTAC’s well-meant introduction of democratic election procedures in Cambodia these structures of patronage and clientelism have remained (Ovesen et al. 1996, Vijghen et al. 1996). Not only did they remain, they probably were strengthened by the need for more security and protection, everybody pined for. Patron-client relations as a guiding social element in society are still in place today as they are prevalent as “backbone of the political structure in Cambodia” (Ovesen 1998:3).

During UNTAC times more than 380.000 displaced persons were resettled in those areas which provided relative security and protection from KR resistance forces and provided on the other hand some economic alternative for survival. UNHCR’s advertisement and the Governments promise of land options succeeded to attract hundreds of thousands of displaced persons into the resettlement programmes. They failed, however, in effectively providing them the land (Greve 1993). The displaced people survived thanks to the availability of and access to the abundant common resource base mainly in the flooding area of the country (CNMC [1998 draft]). The

process of integration into the new community was extremely difficult (Baron 1996) and those who succeeded in rebuilding their lives socially depended to a high degree on how well they could reestablish and strengthen patron-client relations.

Since the last democratic elections, organized by UNTAC in 1993, much attention has been paid to the Cambodian countryside in the form of rural development and community development projects (MRD/CDRI 1998). The new cooperation projects and development programmes couldn't base their support on pre-existing, well developed organizational structures but instead found a continuing process of social deterioration (Ovesen et al. 1996). The reconstruction of rural organization and the strengthening of their self-help capacity has been tried in mainly two different ways: Through the introduction of new democratic organizations such as the Village Development Committees, or by first identifying existing interaction patterns at different levels of the village community and then trying to enhance their self help capacity. Both procedures have revealed promising potentials. A project on rural development in Kampong Thom province identified a high variety of existing self help groups in the villages. From 19 identified groups, 5 were located above the village level, namely at Pagoda level. Only 2 of them were located at village level. The remaining 12 self help groups were found to operate as mutual exchange groups below the village level (Aschmoneit et al. 1997). This disproportionate distribution of self help groups coincides with observations made in other provinces which suggest that especially the poorest strata of the village community tend to join mutual exchange groups for meals, emergencies, gratitude, means of production, cooking, etc. In case a person succeeds in getting wealthier he is likely to abandon those self help groups below village level to which he used to belong. Solidarity seems to be perceived as an affair between the poor. Wealth, instead, seems to be related to the successful management of patron-client relationships. 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 elder do not want to be involved in fisheries.

2.2 The Fishing Village

Fishing villages are not exempted from these general underlying cultural patterns of rural social and political organization. A household survey in the main fishery relevant provinces in Cambodia in 1994 revealed that 73% of the household members regarded themselves as farmers. On the other hand only a 10.5% of the household heads consider fishing as their main source of income and 34.1% of them is involved in fishing and fishing related activities on a part-time basis (Ahmed et al. 1998). The classical fishing villages are subject to flooding and recession movements of the waters. There are, especially in the Tonle Sap Lake, also some floating villages, which seasonally shift the position of the boathouses according to the lake water level movements.

No single fisher association, club, or cooperative has been reported from the fishing communities. The organizational structures of the so-called small scale and middle scale fisheries are mainly based at the family and household level. These family crews also play an important role in the exploitation of the fishing lot, being involved either through contractual agreements with lot owners, or sub-leasers, or sub-sub-leasers, or eventually through poaching.

The fisher who lives in these agglomerations of boathouses and temporary shelters on stilts usually operates with gears, which don't require a labor force that exceeds a nuclear family. These gears are classified and regularized in the Fisheries Law as middle scale licensed fishing gear and unlicensed "family" fishing gear (or small-scale). The licensing system does not have an upper limit for a number of gears to be licensed. Thus, it can not be regarded as a management tool of fisheries resources, as it actually is a way of collecting revenues. The gears belonging to the smallest category can be used, legally, without any impediments, except those imposed through property rights and license permissions of the major categories, as well as on the general access possibilities to productive water bodies. According to the household survey (Ahmed et al. 1998) some 86.8 % of household heads are engaged in "family fishing", while only 9.5 % operate licensed gears, 1.2 % uses large scale gears in fishing lots, and 2.5 % are employed as commercial fish workers.

3. THE FISHING LOT SYSTEM: PROPERTY & ACCESS RIGHTS TO LAND & WATER

A fishing lot is a geographically defined river location (*dai*), stretch of river, river beach, or temporarily flooded land, which may or not include flood forest areas. A fishing lot is auctioned every 2 years and given under concession to the highest bidder. The winner of the auction has to pay part of the fees in advance to the State and the rest on payment by pre-established installments. Each of the fishing lots (Table 1) which are leased out under this system has an individual "burden book", that not only defines the individual location on a map, its boundaries, relevant water bodies, conservation areas, and communal fishing areas, but also specifies the beginning and end of the fishing season, the type, number, and location of gears allowed to be operated in the lot. Special indications may refer to tax payment conditions and other relevant issues.

Table 1: Number and Types of Fishing Lots and Fish Sanctuaries 1980-1997

Year	Total No. of lots	No. of Fishing Lots by Types						Fish sanctuaries
		Lake-Stream lots	Bag net lots	Bag net lots for white lady carp	Bag net lots for prawn	Bag net lots for seed of <i>Pangasius</i> spp.	River sand bank lots	
1980	307	143	96	-	13	-	55	11
1981	307	143	96	-	13	-	55	11
1982	307	143	96	-	13	-	55	11
1983	307	143	96	-	13	-	55	11
1984	307	143	96	-	13	-	55	11
1985	307	143	96	-	13	-	55	11
1986	307	143	96	-	13	-	55	11
1987	307	143	96	-	13	-	55	11
1988	307	143	96	-	13	-	55	11
1989	302	141	76	7	13	31	34	13
1990	302	141	76	7	13	31	34	13
1991	301	141	76	8	13	31	32	15
1992	301	141	76	8	13	31	32	15
1993	298	141	74	8	13	31	31	15
1994	298	141	74	8	13	31	31	15
1995	279	141	63	8	13	31	23	15
1996	279	141	63	8	13	31	23	15
1997	248	141	63	8	13	0	23	15

Source: Ministry of Agriculture, Forestry and Fisheries. Department of Fisheries. 1998

Note: The so-called research fishing lots are not mentioned in this table, but the increase in the number of research lots is one of the causes of the decrease in the official number of "commercial" fishing lots.

The spatial extension of the fishing lots sums up to 8529.22 km² in the whole country (Map 1 and Table 2). The biggest lot (a research lot, that is not considered in tables 1 and 2) is more than 500 Km² large and is located in the Tonle Sap Lake area, where the lots are generally larger in size than river lots or *dai* lots. No comprehensive studies have been undertaken so far on how many villages are located within these sizeable lot areas and in their immediate vicinity and how they relate to the fishing lots.

Table 2: Distribution and Extension of Fishing Lots by Type and Province, 1996

Province	Total Lot Extension (km ²)	Type of Fishing Lot						Total
		Lake-Stream Lots	Bag net lots	Bag net lots for white lady carp	Bag net lots for prawn	Bag net lots for seed of Pangasius spp. ²	River sand bank lots	
Kampong Cham	634.36	13	-	-	-	-	14	27
Kratie	90.20	11	-	-	-	-	8	19
Prey Veng	1484.02	20	-	7	13	10	-	50
Kandal	1702.60	19	38	1	-	21	1	80
Phnom Penh		1	25	-	-	-	-	26
Takeo	518.44	20	-	-	-	-	-	20
Kampong Chhnang	439.83	20	-	-	-	-	-	20
Pursat	405.77	7	-	-	-	-	-	7
Battambang	1447.00	12	-	-	-	-	-	12
Bantey Meanchey	203.00	4	-	-	-	-	-	4
Siem Reap	796.00	7	-	-	-	-	-	7
Kampong Thom	808.00	7	-	-	-	-	-	7
TOTAL	8529.22	141	63	8	13	31	23	279

Source: Ministry of Agriculture, Forestry and Fisheries. Department of Fisheries. 1998

¹ Research Fishing Lots are not listed

² In 1997 bag net fishing for Pangasius seeds was prohibited

3.1 The legal dimension in a historical perspective

The fisheries laws and regulations were formalized and written down for the first time by the colonial administration of the French Protectorate and published through several complementary royal ordinances in 1908. This legal body constituted in fact an endeavor to formalize pre-existing exploitation patterns in fisheries, rather than an introduction of completely new regulations. The purpose was to extract revenues for financing the colonial administration.

Under the reigns of King Norodom (1859-1897) and his predecessors the king was entitled to arbitrary dues on fishing throughout the kingdom. Collection of the taxes was done by “general farmers” who bought the use rights of the fishing grounds. Thus, this privileged group came to hold absolute control over all the waters of Cambodia. This group, generally formed by Chinese traders and investors, divided the concessions obtained by the King into sections which they in turn leased to new “farmers” after a suitable price was agreed. The income generated through the mere transfer of concession rights from the hands of the “general farmer” to the hands of sub-contractors, amounted to a total that exceeded, frequently doubling, the capital outlay payable to the Royal Treasury (Darboux et al. 1906, Pétillot 1911). The new contractors in turn sub-leased their concession to other sub-farmers who could also, if they desired, divide up their grants and transfer them to less fortunate at the lower scales of the social and economic hierarchy. Thus, between the State as the concession holder and the actual fisherman who plied the waters of

Cambodia, the old regime made it possible for five, six, or sometimes even seven go-betweens, to make relatively high earnings with no risk or effort to pay on their part. There was no set rule, which prevailed over the way in which the contracts were negotiated. Collectable dues could be paid in fish, which was received at a lower price than usual, thus allowing the concession holder an additional profit. Renting boats and fishing equipment could also frequently be essential part of sub-leasing agreements (Pétillot 1911).

This situation did not change through the initial decades after the establishment of the French Protectorate, which became known for the highest tax rates imposed on the peasant farmers in all Indochina. The ordinances of 1908 succeeded in allowing the colonial treasury to increase their tax income from fisheries by 17% in the first year. In 1910 the taxes from fisheries covered 1/9 of the administration budget of the French Protectorate, compared to 1/8 that was provided by taxes from rice paddies (Pétillot 1911). During the following decades no major changes, that might have modified the system itself in a substantial way, have been introduced to the system of auctioning the fishing lots and guiding them through burden books and eventually enforcing the law (Chevy et al. 1940).

During DK times (1975-1978) the lots were not particularly fished like lots established by the previous laws, but fishing cadres often of non-fishermen were formed to operate certain gear in the traditional lot areas (Luco 1997). The DK obsession with increasing the rice production and persecution of particularly ethnic Vietnamese and Cham in the country lead on the one hand to negative impacts on the recruitment of the fish stocks through cutting large areas of flooded forest areas. On the other hand to loss of fishing expertise which was vested in the Cham and specially the Vietnamese fishermen.

In PDK times (1979-1991) and under continuing civil war the fishing lot system was reinstated under the rule of socialist solidarity groups "*krom samakki*". Each "*krom samakki*" group could receive a section of a lot to fish. In that way also the provincial fisheries administrations could exploit fishing lots. For example in Kampong Chhnang Province the local fisheries office fished 5 lots and the central DoF from Phnom Penh allocated itself 2 lots, while other government departments, such as the Commerce Department, and provinces with no fishing grounds, like Kompong Speu, fished other lots (Swift 1997:Annex17-A). Since the capacity of the governmental groups for fishing was underdeveloped, a successive sub-leasing of the lots was necessary to obtain revenues and financial support for the administration (IMC 1992). The traditional patron-client system might have proven to be very useful for running the lots (compare Vijghen et al. 1996).

The review of the legal ordinances from pre-war times ended up in the Fiat Law of Fishery of 1987, which confirms the fishing lot system as the most important management tool for inland fisheries. The income of the Department of Fisheries derived from selling concessions of fishing lots is around 2/3 of total budget requirements (DoF 1998). The extent of vested political and economical interests in the fishing industry hampers the government in the protection of the fishery resources inspite of their legal power to control access to the fisheries.

3.2 The current practice of fishing lot management

First of all, fishing lot operation seems still to be a big business, as well as a major source of declared and undeclared tax collection, framed within a socio-political system of patronage.

The lot owner

Most of the present lot owners are running their lots for 2 or 3 or even more concession periods (Luco 1997, Swift 1997). Lot #13 of Kandal Province has been operated since 1985 by the same lot owner (PMFCFC 1998). During the bidding process the “already lot owners” have obviously some comparative advantages as against completely new bidders. These advantages are:

- already owning the right equipment for operating the lot,
- possession of detailed empirical knowledge about the real productivity of the lot (which is likely to differ substantially from the officially reported one),
- proven management of a complicated patron-client financing system in which sub- and sub-sub-leasees as well as less economically powerful middle and small scale fishers participate (see below), and
- detailed empirical knowledge about the local social setting of fishing communities, behavior of poachers, relations of fisheries officers, efficient protecting mechanisms of the fishing lot, etc.,

These advantages directly translate into the reduction of transaction costs, like the costs for acquiring information, for negotiating contracts and for enforcing them.

The participants in lot operation

The burden books, following a standardized 12-article scheme, detail the fishing lot operation for each fishing lot in the country. There still seems to be enough elbow-space for each fishing lot owner to creatively arrange specific agreements with local stake holders like police, militaries, fisheries officers, inspectors, fishing patrol, navigation police, district authorities, fisher groups as well as individual fishers. Usually the lot owner agrees on sub-contracts with sub-leasees prior to the auction, in order to collect the starting capital for the bidding (1/3 of the base amount for bidding has to be deposited with the DoF in advance). The organizational chart of the fishing lots differs actually from lot to lot. There might be only one “lot owner fishing operator”, like this is predominantly the case in the *dai* fisheries. There might also be a “lot owner & share holder company” followed by various “sub-leasees non fishing operators” at one or two levels, and a sizeable number of “sub-sub- and sub-sub-sub-contractors fishing operators”. Even those may sell small fishing rights “*pun chalat*” on a temporary basis and with well-defined spatial limitations to fishers who operate with small gears. Fishing lot # 19 from Takeo Province is only one concrete example of an existing organization and fee structure (see in conjunction Chart 1, Map 2, and Table3).

Generally, in riverine-lacustrine lots and especially in lake lots the organizational chart tends to be more complex than in *dai* lots or in river sand bank lots which are much easier controllable by a single fishing operator. The sub-division of the lot into smaller fishing domains constitutes an efficient way of controlling the fishing lot, i.e control is handed over to somebody in exchange for a negotiated payment.

In general terms, the fishing lot owner recovers his officially paid lot fees through leasing out of parts of his lot. Payments of the leasing fees are made in Cambodian Riel, in USD, in *damlung* of

gold, and in Thai Bath (in Battambang and Banteay Meanchey Provinces). The risks increase as soon as the investment has to be recovered by fishing itself, as the productivity of fishing does vary from year to year.

Most of the riverine-lacustrine lots comprise within their lot area specially designated common property areas (as specified in the burden book) for communal fishing activities with small-scale gears. In practice, these areas can often hardly be freely accessed as they are scattered over the lot and in order to reach them people have to pass through the patrolled lot area (Luco 1997). It is

Table 3:. Fishing operators, divisions, fee structure and sub-lease arrangements

Example Takeo Fishing Lot # 19 (1997)

(Sub-) Leaser Fisher	Leasing price paid to owner (Riel) ¹	Lot area/section: (Ref. # in Map 2)	Residence of fishing operator	Type of fishing operation	Other lease & sub lease arrangements
A	700.000	#1	Kompong Leav Village	Daay Tube net [large scale]	Leaser also had to pay 150,000 R. to Kandal Province Fisheries officials. [This section is located within Kandal Province, but belongs to Fisheries Office in Takeo Province.]
B	270.000	#2	Preik Ta Hing Village	Barrage	
C	400.000	#3	Kompong Preah Village	Pond	Kompong Reap Commune
D	Free! [In return for security]			Canal	The local police get this operation without paying the lot owner. They resell it to Vietnamese fisher who use a barrage at the mouth of the Prammuey Mekara canal.
E	600.000	#4	Kompong Leav Village		Sub-owner sold fishing rights (<i>pun cralat</i>) plus fished by himself.
F	1.400.000	#5 #6	Kompong Leav Village		Leaser is uncle of E (above). The sub-owner sold the southern part of his section (Ref.#6) to two people in Kompong Leav Village (O) for 400.000 R., plus sold fishing rights (<i>pun cralat</i>) and fished himself.
G	unknown	#7			This section is divided into many small strips sold to people nearby in nearby villages.
H	2.500.000	#8, #9, #10	Kompong Reap Village		The sub-owner sold the southern part of his section (Ref. #9) to someone living in his village for 150.000 R., he sold the pond Kro Bay (Ref. #10) also to someone from his village (P) for 400.000 R. and sold fishing rights (<i>pun cralat</i>) in the remaining section (Ref. #8) plus fished there by himself.
I	150.000	#11	Kompong Preah Village		
J	150.000	#12	Kompong Preah Village		He also bought Pou Chenna pond.
K	150.000	#13	Tuol Chan Toek Village	Canal	[Preik Sdei Commune]
L	150.000	#14 , #15	Preik Sdei Commune		The owner sold 100 meter-wide stripes along the mouth of the Stoeng Angkor Borei river (Ref. #14) for an unknown total R . They sold fishing rights in the rests of the section (<i>pun cralat</i> , Ref. #15), and sold rights to various canals (S). In addition they fish the two ponds in the section, Sena Dek Cho and Boeng Traw.

¹ 1 USD = 2.500 Riel at time of data collection

M	3.600.000	Ref. #16	Preik Sdei Commune		The owner sells fishing rights (<i>pun cralat</i>) for a short time during the open season only; during the closed season the owner above (L) sells fishing rights. He also sells some canals for an unknown amount (T). Plus the owner uses a barrage with net at Stoeng Sandaek, and pumps out a canal and some small ponds.
N	3 Chi ²	Ref. #18	Prey Thmey Commune	Fished-Out Pond at Preik Ta Nun	
	>13.700.000	[compared to official auction price of 12.350.000 Riel]			

Source: SWIFT 1997: annex 8. Own adaptation

also reported that in some cases in Kampong Chhnang and Takeo Provinces the lot owners simply take over the operation in these common property areas or the local authorities lease them out to other fishers in return for a fee (Swift 1997).

Protecting the lots!

Where there are profits to be made, there are interests to protect, and the conflict potentials between the different resource users are high as can be expected. Fish is a mobile resource crossing the boundaries of fishing lots. While outlining the protective measures that have been found in different fishing lots, it has to be made clear that these primarily have nothing to do with protecting the fish stocks. Some measures might well act as stock enhancing mechanisms but they are not intended as such. The arbitrary list of evidence of lot protection measures found in at least 16 fishing lots in 9 Provinces of the country contains the following characteristics (Luco 1997, PMFCFC [1998], and Swift 1997):

- ❑ Lot owner gives part of the lot to militaries or police gratis, in return for protection; they in turn lease this part out to (in the reported case Vietnamese) fishing operators.
- ❑ Lot owner leases out most parts of the lot to sub- leasers and fishing operators, each of them, takes over responsibility to protect his part.
- ❑ Lot owner has his own private guards; their number is in relation to the lot size and the calculated value of the fish. These groups can comprise up to 30-40 armed and properly equipped men.
- ❑ Lot owner and sub leasers rent guns from the provincial or regional army through intervention of the district authority, in return for an established fee. At the end of the season the guns are given back.
- ❑ Lot owners may patrol themselves or let relatives or friends and villagers help out in return for (specified) fishing rights.
- ❑ When people buy small stripes of lot area, they may actually rely on the owner's or subleser's protection; in any case they would report any infraction to them.
- ❑ Lot owner may scare people through threatening them, verbally or by shooting in the air with the gun.

The common denominator of the options for physical protection of the lot area is the threat through weapons. In the aftermath of long civil unrest this is not surprising, but indicative of the need for improvement of management.

Protecting the stocks?

² 10 chi = 1 damlung = 400 USD

Fishing lot operations exert heavy pressure on the fish stocks. How this pressure impacts on the stocks and on their recruitment capacity, can only be measured exactly through monitoring catches over long periods of time. Unfortunately this has been missing so far and a recently set up catch assessment data base is providing some initial insights into the fish stock situation (Van Zalinge et al. 1997; Diep et al. 1998).

The use of damaging and even illegal fishing gear within and outside fishing lots has frequently been reported (Van Zalinge 1997, Ahmed et al. 1996, Ahmed et al. [1998 draft], IMC 1992, CNMC et al. [1998 draft], Luco 1997, Swift 1997, PMFCFC [1998 comp.]) and it can be assumed as a widespread activity. On the other hand, however, comparatively little attention has been given to behaviors of lot owners and fishers (Swift 1997, PMFCFC [1998 comp.]). Among protective measures of the fishery resource there might be mentioned the following:

- Fishing lot owners and operators protect the flooded forest against encroachment, especially in the northern part of the country in the lake lots of the Tonle Sap Lake.
- The practice of long-term engagements in fishing lot operation, despite the two-yearly auctioning cycle, promotes a longer-term resource exploitation perspective. Lot owners do not do everything to maximize the catches. Though they usually operate with minor fishing gears also during the so-called closed season in their lots, they obviously protect the flooded forest in that period.
- There are observations that fishers and lot owners do not always pump dry recession ponds, being common property areas within the fishing lot or not.
- Lot operations take place during a specific period of the fishing season. Outside this period the large-scale fishing gears are not in place and fish can move freely.

It should also be mentioned on that occasion that in Takeo Province there is virtually no flood forest left over. This is mainly due to the expansion of the recession rice area, but also to a certain degree to the harvesting of juvenile trees and brushes being used in the illegal brush traps “*samras*”. It has been observed that at the beginning of the fishing season in December large amounts of brushes are shipped into the fishing areas to be used in “*samras*”. From the Vietnamese province of Long An, situated in the flood plains of the Mekong and Vam Co Rivers the practice of “*samras*” is being abandoned as the cost of brushes has risen to levels making the operation uneconomical (pers. com. Guttman).

Another observation should be mentioned in this context: One lot owner in Takeo Province, who has been running for several continuous concession periods, has already cleared 25 ha of flood forest within his lot for conversion to paddy fields. Since on the one hand the catch rates were declining noticeably he decided to build up at the same time a future economic basis. In line with the land law, that reads “*if any temporary possessor [...] got 5 consecutive years and the land is free within record in the enrolment register and does not belong to anybody, the temporary possession shall become a legitimate owner of the land*” (Land Law, Part 2, Art.74) the lot owner started clearing shrub lands. A land title provides him what the fishing lot concession cannot offer: legal ownership. In this case the land law provides an incentive for clearing flooded forest areas. Though the flood forest is under the jurisdiction of the Department of Fishery, as soon as it is cleared and paddy fields come into existence other legal instances such as Department of Land Titling are getting involved.

3.3 The “villagers’ ” participation

“Villagers’ ” participation in the fishing lot fishery is not based on an organized structure at group or village level, but their rather individualistic participation is based on the system of patronage. Lot owners (patrons) do not relate to villages as a whole, they relate to people in the villages as sub-lessees, and fishing operators who may acquire certain fishing rights and vice versa. In general, the relation between the people from the nearby villages and the lot owners is characterized by tensions, threatening, conflicts, negotiation, commercial partnerships of sub-leasing and partnerships in fishing operations.

Even in cases where villages are located within the fishing lots, inhabitants are legally not entitled to fish during the open season. Thus, poaching can be seen as inevitable constituting an essential element of the relationship between lot owners and people living in nearby villages. The “villagers” are in general more interested in rice farming and tend to clear the shrub land in order to increase their production base. They don’t derive any immediate benefit from preserving the flood forest for the fishing lot operators. Rice fields still provide sizeable amounts of fish for food and eventually for selling or for exchange (Gregory and Guttman 1997, Tichit 1981).

In practice, however, under the private property rights of the fishing lot concession there are also a series of other access rights and access strategies to fish resources. As observed Takeo fishing lot #19 all of the fishing operators who fish in this lot live in the nearby villages (refer to Chart 1, Map 2, and Table 3 in conjunction). Their involvement in the lot fisheries reaches from written agreements with the lot owner or the sub-contractors for seasonal involvement, over shorter and more localized permissions, from payments in advance to “share cropping” with the out-leaser, from defining a specific area to fixing the contract to a number of a specific gear, up to poaching. Even children have been reported to obtain fishing permission for fishing left-overs in ponds in exchange for payment in rice. At peak times in barrage lots villagers from within the lot are reported to be invited to participate in the labor intensive fish harvest in exchange for fish (Swift 1997).

An exceptional example of joining interests has been reported from fishing lot #10 in Battambang (PMFCFC [1998 comp.]). In that specific case the 250 families of one village used to clear flood forests and to poach within the lot. The conflict level between villagers and lot owner used to be high. Through a process of negotiations, supported by outside intervention, both sides resolved that the villagers were allowed to fish within the lot with a certain type of gillnet which targeted lower value fish in exchange for stopping cutting the flood forest and poaching on other higher value species which were harvested by the lot owner. The Department of Fisheries supported the agreement by lowering the concession fees for the lot owner.

3.4 Ethnic dimension of fisheries

In Cambodia the inland fisheries have a very visual ethnic dimension, and it is a sensitive one. While the ethnic Khmer are considered basically as farmers the ethnic Cham and ethnic Vietnamese are more considered being the fishers (Ebihara 1968). The stake of Cham and Vietnamese fishers in the Cambodian fishing industry has to be considered when designing management options that involve partnerships with the primary resource users.

The Cham, organized along Muslim religious traditions, have traditionally been named as excellent fishers and boat builders. They show a greater sense of solidarity at village community level than the Khmer (Ovesen et al.1996). Though they have clearly defined Cham villages with their mosque, they often spent long periods of time with their families on their boats during the fishing season. A fishing lot owner in Takeo reported, that only Cham fishers organize larger fishing groups. They designate a leader who negotiates a concession with the lot owner or sub-contractor for a larger group, if not for the village.

Vietnamese fishers have had historically a predominant influence in the operative level in the Cambodian inland fisheries. At the beginning of the century 60% of the fishers in Pursat were reported to be Vietnamese (Darboux et al.1906). The Vietnamese are until nowadays known as the best fishers (Luco 1997, Swift 1997). They can smell the fish and have a very deep knowledge about the habits of the different fish species. They reportedly know exactly how, where and when to install a certain type of fishing gear (PMFCFC [1998 comp.]). They have a long tradition of being involved in fishing lot operations, although lot owners usually are Khmer, or Sino-Khmer. There seems to be no fishing lot owner, who does not at least consult a Vietnamese master fisherman about the best strategies for acquiring and exploiting his lot.

In adaptation to the wide spread anti-Vietnamese sentiments in Cambodia the Vietnamese show a tendency to settle near police stations or military posts. Their insecurity is alleviated through this type of (appropriate) patron-client relations. In Kampong Chhnang Vietnamese fishers had exchanged their Vietnamese style pirogue for a Khmer boat type in order not to be conspicuous.

Reports from lot owners as well as from fisheries officers confirm that Cham and Vietnamese are rarely involved in conflicts with authorities or lot owners compared to ethnic Khmer villagers. Cham and Vietnamese are much more willing to agree on fishing fees as well as paying the license fees for their gears than paying fines and even risking further discrimination afterwards.

4. CONSIDERATION FOR DEVELOPING SUSTAINABLE FISHERIES MANAGEMENT OPTIONS

4.1 Overall systemic approach

The approach for developing sustainable fisheries management options has to consider the overall framework of cultural, economic and political processes of Cambodia. If we consider that one of the most essential features of Cambodian society is the patron-client relation then the fisheries management options have to be shaped within this given framework. It doesn't make sense to formulate options, which well might fit a western philosophy of "community participation", but might not be practicable under Cambodian circumstances. The French legal regulations on fisheries, which were designed to eliminate the Chinese intermediaries, and channel revenues into the colonial administration, did not succeed in restructuring the organizational set up to a system where the fishing operators would have the full benefit of their efforts. The demand for better legal enforcement to improve management has to be analyzed within the context of vested economic and political interests, which can be interpreted as an informal tax system. The weakness of the given system is not that it doesn't work or might be too inefficient, but rather that it is as arbitrary as in ancient times and allows for abuses on the stronger side of the relationship.

4.2 Embedding into general rural development approach

The fisheries activity is realized entirely in the rural setting. For the rural population fishing generally represents one of various strategies to obtain food security, income, and employment.

Improvements in one production strategy may translate into negative impacts in the other. For example: If rice production may be increased through intensifying the use of chemical pesticides, this might directly impact on the productivity of fish production in the rice fields and eventually threaten food security. Thus an integrated approach is necessary. Fisheries management has basically and fundamentally to do with the stakeholders' capacity of communicating and negotiating common and differing interests in fisheries. The relative importance of fisheries depends obviously on alternative production opportunities outside the sector. The capacity to analyze impacts on the fisheries environment, to communicate interests, to organize interest groups, to negotiate agreements, and plan sustainable development is not a precisely fishery specific capacity but belongs into the broader framework of self help capacity. Rural development programmes have essentially to do with enhancement of self help capacity of rural organizations and institutions. Sustainable resources management is considered a never ending process of learning how to use resources effectively without threatening their reproduction capacity.

5. CONCLUSION

The fishing lots cover the main inland fishing areas of the country. Improvements in the actual fisheries management necessarily have to be addressed within and through this fishing lot system.

Developing options for "community-based" management has to refer in Cambodia to a complicated and interwoven network of patron-client relationships involved in fisheries. It is unrealistic to expect being able to copy community-based management structures or transfer structures that have been well tried elsewhere (Hannesson 1988, Kurien 1988).

In Cambodia the patron-client relations should be used for awareness building focussing on exploitation patterns that allow for sustainable recruitment of the stocks. Likewise the organizational capacity at fishermen's level needs to be strengthened, including their capacity to negotiate. Thus, allowing on the one hand for organizing themselves and implementing and monitoring resource careful resource exploitation and protection, and on the other strengthening their potential position within paternalistic and unequal relationships.

There are encouraging experiences in programmes of rural development in Cambodia that focus their intervention on strengthening the self help capacity of villagers (Aschmoneit et al. 1997). Those experiences will provide valuable elements for designing options for fisheries management that will make sense in the rural setting.

Improving fisheries management has to be addressed through the fishing lot system. In much the same way as the French Protectorate "introduced" the fishing lot system, its "abolishment" would likely result in no real changes in the people or methods involved. The fishing lot system should rather be used as a starting point to address resource-preserving issues. The existence of common property areas as "open access areas within and as they defined

in the burden book of specific fishing lots, might be provide a potentially good “platform” for communication and negotiation on access rights and sustainable resources management.

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