

**Making Space and Access in Fisheries Resource Management for  
Local Communities in Stung Treng Province, Cambodia.**

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### **Abstract**

Over the last decades, Cambodia has moved from command and control economy to market economy. Meanwhile, access to common property resource such as fisheries sector has spawned conflict inside the sectors between the different actors seeking access to these resources. Moreover, there are serious pressures and externalities from other economic sectors that impinge on the resource base or its flow of products. The use of illegal fishing gears and other stock damaging practices, the struggle over assignment rights and resource entitlements, and the absence of efficient law enforcement and the consequences use of privatized enforcement and violence characterize the internal tensions of fisheries.

However, beside this limitation, there are other external factors that shaped the Cambodia's fisheries management system, such as mega projects of other states in the Mekong Region and growth-oriented development as prescribed by international development agencies. This economic oriented developmental philosophy has considered natural resources such as water, fisheries, forests, mineral and biodiversity as factors of productions in many large-scale development strategies, putting pressure on these resources for profit maximization by transforming natural resource into money, especially for the country in uncertain transition from a socialist state to market economy. As a result, the quantity of fishery resource has declined from year to year, which produce negative impacts on livelihood of local people who are powerless and marginalized in the society.

In this article, the author wants to reveal the complex ecology of the upper Mekong in Cambodia as a case study, especially in Stung Treng province where it is considered as the conservation zone in term of fish and biodiversity resource management. That is, the paper aims to investigate the following objectives: (1) to examine the local fishermen's livelihood strategies and their cultural practices and how they adapt themselves to the changing property regimes in the province, (2) to contextualize the policy and fisheries management by the state and to show how such a policy gives right to the changing property relations, (3) to reveal different strategies developed by different actors (including NGOs program related to fishery management in the province) in gaining access to fisheries management.

### **I. The Complex Ecological Setting in Stung Treng**

Stung Treng is one of the remote provinces of the northern Cambodia. The province covers an areas of 11,092 km<sup>2</sup> in which the total territory has been divided into five categories of land use pattern. The forest land cover an area 83.66 %, the residential land cover an area of 9.31 %, while the water surface and infrastructure cover an area of 4.13 %, and the agriculture land is 1.71 %, while the 1.19 % considered as unused land respectively (Provincial Department of Planning, 2001). The province is divided into 5 administrative districts: Stung Treng, Sesan, Siem Pang, Siem Bok and Thalaboriwat in which comprised of 34 communes with 128 villages with 14,126 households and the

total population is 81,074. The density of the province is 7 per square kilometer, which is much less than the national density of 63.

The Mekong River flows through Cambodia and passes through the provinces of Stung Treng, Kratie, Kampongcham and reaches Phnom Penh where it is divided into three channels: the Tonle Sap being the inlet and outlet of the Great Lake, the Bassac and Mekong rivers are flowing out to the sea. At Stung Treng town, the Mekong meets the Sekong river which has two more tributaries: Sesan and Srepok. These rivers provide the inland capture fisheries yield, which is at least at 300,000 - 400,000 tons per annum ranking Cambodia fourth among the world's top freshwater fish producers (Thuok and Van Zalinge, 2000), with an average consumption of fish was 27-38kg per person per year (Van Zalinge et al, 2000). The fisheries in Cambodia play a significant role in economy of the country. Next to rice, fish is the most important component of the Cambodian diet. More than 75 per cent of the total animal protein intake by Cambodian people comes from fish (Thuok et al, 1997).

The Mekong's ecosystem between Kratie town and the Cambodia-Lao border has the form of an upland river with rapids, inundated forest and deep pools. A part of this area is evaluated as wetland of international importance, which serves as habitats for fish spawning, nursery and feeding. According the survey since 1995 showed that 58 deep pools, of which 39 in Sambor District in Kratie province and 19 in Stung Treng up to the Lao border. And there are many other deep pools along the Sekong, Sesan and Srepok rivers which under the process of study (MRC, 2000).

In addition, this ecosystem has provides good ecosystem for a special fish species, which is one of the most eye-catching mammals in the Mekong (known as Mekong Dolphin) and at the same time, one of the most threatened, as its ecology is deeply dependant on the existence of deep pools areas. The distribution of dolphin in the Mekong is restricted to the area from Kratie in the south to Khone Falls in the north and includes the lower stretch of the Sesan sub-catchments which is also important in terms of deep pools fish habitats in the Mekong. This is not a coincidence since dolphins are known to spend most of their time in deep pools, for where they frequently undertake "hunting" migrations following groups of migratory fishes, which constitute their prey (cf. Biard, 2001).

There are two types of fish migration are seasonally found in the rivers. The long-distance migrations or longitudinal migration (white fish). Annually, the migrations take place between the spawning areas in the Mekong in southern Laos (northeastern Cambodia: Stung Treng and Kratie province) and to flood plains around Tonle Sap, south of Phnom Penh and Vietnamese Mekong Delta and back. The other type of migration is known as Short-distant or " lateral or localized migration" (black fish), the movements are much more limited which from flooded forest to main river, lakes, tributaries during the flood season and back again during the dry season (Van Zaling, 2003). Most of these species are known to be highly economic important for socio-economic of the people.

According to Phallavan and Pheng Bun (2000), who have studied on Mekong Fish species<sup>1</sup> of longitudinal migration showed that fish begin to spawn in the Mekong River at the beginning of the rainy season (May-August). The timing and the migrations appear to be influenced by the lunar phase. When the water recedes, most fish species migrate to deeper waters in the lakes, river, or tributaries (lateral migration), but many species will undertake longer migration (longitude migration) to the Mekong River as

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<sup>1</sup> These are *Henicorhynchus* spp (Trey Riel), *Cycloheilichthys Enoplos* (Trey Chhkok), *Cirrhinus microplepis* (Trey Proul), *Probarbus Jullinien* (Trey Trasork), and *pangasidnodon hypophthalmus* (Trey Pra).

far as Stung Treng and Lao PDR (see also Baird, 2001). Based on this pattern of fish migration reveal that Tonle Sap Lake is not an isolated an entity, but it is part of Mekong river system, which are also linked to the Se Kong, Se San, and Sre Pok river system in Stung Treng and Laos just as the fisheries in Southern of Phnom Penh linked to the Vietnam Mekong Delta.

In Mekong region, many migratory stocks extend beyond national borders, which often refers to “trans-boundary stocks and thus requires inter-governmental coordination in research and management. Fish migration is not only represent the complex ecological and geographic of the rivers, but also become the symbol and cultural belief for certain kind of fish species. For instance, in Stung Treng one fish species as become the symbol of the province and the pride as well as the cultural belief for local people. For instance, the *Mekongina erythrospila* (Pase Ee) which believe to migrate from Sesan and Sre Pok Rivers through Sekong to Mekong here in Stung Treng (Pousen and Jergensen, 2000, 1999).

Rainboth (1996) has explained that in Kratie, fishermen were unable to identify it by name although they recognized the fish, indicating that the species was rarer in that area. The distribution pattern indicates that the species prefers rocky stretches with rapids and a fast current, and concurs. This fish species could have the size up to 45cm, which is considered as the Mekong endemic inhabiting rapidly water in medium and large sized rivers feed on periphyton and phytonplankton normally found in Stung Treng province.

The confluence of rivers in the province is not only providing good ecological link of fish diversity, but has also shaped the pattern of people livelihood and settlement. This ecological richness translated into particular forms of livelihood for the large majority of the human population living inside and next to the rivers/floodplains are connected through the Mekong as well as other tributaries that serve as the migration routes to distant and mainly upstream-downstream spawning areas. This translated into important sources of income generation and food security so access to fish as a common property resource is of particular importance for the most vulnerable segments of the rural populations such as the landless and other marginalized socio-economic groups (Degen et al, 2002).

In Stung Treng, about 90 % of the populations has settled their houses along the rivers while there are about 95% of the population are farmers and the rest are traders, government, and non-government officials. It is observed that most of the farming system is in traditional practice where most of farmers command cows; water buffaloes as draught power and use simple equipments and indigenous seeds. So, their livelihood strategies are not fixed with one activity, but it involves with the combination of rice, livestock, collection of forest products, cultivation of vegetables and fruit, seasonal migration, as well as fishing (DoP, 2001).

Fish is the second most important source of the diet of the people in this province which rarely undertaken as the primary economic activity, but is a component of household resource portfolio involving all members, moving in and out of different activities. People catch fish every day for daily consumption as well as for selling the surplus product. Fishing activities are mainly active in dry season, from November to May. In this time people can fish from 1.5 to 10 kg per day per household. There are not so many fishing activities in the rainy season because local people are engaged in agricultural activities and the water level is high. So they can only fish occasionally that provides about 0.5 to 5 kg of fish per day per household. During this season the people use processed fish that are processed in the dry season for daily food (Vannaren, 2002).

As Cambodia is part of the Mekong Basin, the prospect of large-scale development is predicted on the exploitation of the basin to share resources. The

Mekong basin commons are regarded as a hitherto unexploited resource to be harnessed for economic development. But as the global market economy pushes deeper into the Mekong region, the natural resource-based-farmers and fishers are rapidly being expropriated by a combination of state-sponsored development and an influx of private sector investment of the nation through which the Mekong River traverses (Hirsh, 2000). While geographically, Cambodia shares some Mekong predicaments with Laos; it is a small country with weak state and powerful neighbors that have not, historically, respected its borders. It has little resource to protect its interests, and it needs to adhere to regional regimes and/or international agreements to safeguard its current position in the Mekong cooperation (Ojendal, 2000).

In Stung Treng, the Mekong brings water annually with the average of 53,3% while the Sekong, Sesan and Srepok rivers have bring water down with the average approximately of 16,7%. Therefore, these Fours Rivers bring water down to Cambodia annually in average approximately 37,484m<sup>3</sup>/second (Provincial Department of Water Resource and Meteorology, 2002). Based on this potential, Cambodia in the future expects to be regional exporter of energy. The study of hydropower construction plan along Sekong, Sesan Rivers and Nam Thoeun shows that three locations have been identified for construction. 2 locations are situated along the Sesan River: The upstream and the downstream. The upstream catchments cover the areas of 18,555 km<sup>2</sup>, with water discharge of 120m<sup>3</sup>/second and expected to produce 112 MW while the downstream catchments cover an areas of 18, 550km<sup>2</sup>, with water discharge of 120m<sup>3</sup>/second and can produce the power of 207 MW. The third location is in Srepok river with the catchments areas: 30,620 km<sup>2</sup>, Water discharge: 120m<sup>3</sup>/second which can produce electricity of 222 MW (Cambodian Wetland Team, 1999).

## **II. The Current Changes in Fisheries Resource Management in the province**

The current fisheries management in Cambodia is based on the Fisheries Law management and administration No.33 KRO.CHOR, sub-decrees, declaration and proclamations. The law consists of general rules, exploitation of freshwater capture fisheries and marine fisheries, aquaculture and processing of freshwater and marine fisheries products, competent authorities involved in the resolution of law violations and the penalties (Degen et al, 2002).

According to the Fiat-Law No. 33 KRO.CHOR, article 10 and 11(1987) state that the exploitation system of the freshwater capture fisheries is formally divided into three types: (1) Large-scale which obtained the license through the process of an auction operated during the open season from 1<sup>st</sup> October to 31 of May for fishing grounds located in north of Phnom Penh and from 1<sup>st</sup> November to 30 June operated in the fishing grounds located in south of Phnom Penh. (2) The middle-scale obtained legal status through license operating during the open season from operated though licensed fishing. Both large scale and middle scales fishing serve the purpose of collecting national revenue. (3) Family fishing also called subsistence fishing, which the fishing gears can be operated everywhere during the whole year, except inside the fishing lots during the open season and inside the so-called “ Fishing sanctuaries”.

But in Stung Treng, fish management in Stung Treng province is fallen into the second and third type of management that is the family scale and middle scales. It is not considered as commercial exploited and it served as the fishing reserve. Fishing ground has been divided into: Fishing ground (open access), fish spawning grounds and migration which need to regulated certain types of fishing gears and seasonal fishing practice, Protected fishing grounds which strictly prohibited for fishing. In practice,

fisheries resource management is concentrate on export as well and demarcation of fishing to be commercial exploited (Vannren, 2002).

Despite the country has gone through decades of civil wars, there were many places where people could fish. Fish resource during these turmoil period was still abundant and fish was processed by using traditional techniques without any icing techniques. Villagers told me that fish still rich and available since French colony administration. However, starting from late 1980s to late 1990s, all resources not only fish has been exploited rapidly in the commune. During that time, there were a lot illegal guns and ammunition. Most of the big fish or endangered fish species had been killed and taken away during that period. In addition, the Cham and Vietnamese were very good in taking all this big fishes such as Trey Reach (*Mekong giant catfish*), Trey Koul Reang (*Giant barb*), and Trey Traw Sawk (*Probarbus Jullien* or *Seven-line barb*).

In addition, the prolonged civil conflict and instability which have characterized Cambodia for most of the last decades also undermined the opportunities for the Mekong corridor to take advantages for its strategic position as a trading route. However, the political and economic isolation and self-reliance has been changing since the mid 80s, following the political reforms which have started to promote private investments and closer relations with neighboring countries. These factors combined with recently achieved peace in Cambodia and the proximity to the much more developed Thailand, now place the northern part of the country in an entirely new regional context, which offers a wide range of opportunities for the strategically located people of Upper Mekong of Cambodia (Daconto, 2001).

In 1992 that was the UNTACT period, fish was starting to export from the province to foreign country in particular to Lao as it is close to each other. Meanwhile, new fishing equipments and techniques had been introduced extensively such as: explosive, poison and electricity shocking was used to catch big fish in the deep pools and rivers, streams and creeks (Interview with provincial fishery official, March, 2003). On the other hand, the state was not prepared to loosen the political grip over the rural areas. The result was that the state did not in any substantial way support rural development, but nobody was positioned to do it either. However, with the opening after the 1993 election, resources on an altogether deferent scale have been made available, and rural development and politic of resource become the high level interested in the wake of the possibly emerging and accessible financial resources (Ojendal, 2000).

The report by the Provincial Fishery Office (1999) showed that the illegal fishing was starting from 1993 to 1997 in which about 8,000 incident fishing with explosives took place throughout the four rivers in the province each year. These infractions have occurred for nearly twenty years while the electro fishing was operated in the last four years and the activities increase from year to year. It was difficult for the authorities to suppress it because it is operated at nighttime. Fishing with these two types of illegal fishing gears were the major reason that the fisheries in Stung Treng have declined. The other reasons were the fishing the closed season, a large increase with the use of nylon gillnets, fishing in deep pools using mesh size gillnets of 25-35cm (Vannaren, 1999).

In contrast, the existing government policy is divorced from the actual management practice. The legal instruments for managing the fisheries are not necessarily deficient, in fact they have good potentials if put into place. The main issues is the lack of compliance with the legal principles and consequently the risks of anarchy translating into accelerated resource depletion and increasing social discontented (Vuthy, Dara, and Degen, 2000).

However through out these decades, the system of fish exploitation has been changed. The river, tributaries, streams, creeks was leased to a private companies, whereby a concessionaires receives an official license from the local authorities to fish in the rivers. Thus the local communities have been deprived of their access to the resources, and have lost their ownership and fishing rights. The practice of leasing fishing ground to a concessionaire for the commercial practice does not encourage the use of sustainable harvesting techniques. These activities, in conjunction with unsuitable fishing practices including fishing with electricity shocks, explosive fish and poisoning the waterways, is having negative impact on the fishery stocks.

According to the interview with local fishers in Ramsar site revealed that the use of illegal fishing such as grenades, explosion, poisonous and electro-shocking has started since 1992 to 1998 that is the most anarchic situation. In 1998, there were some effort from NGOs to advocate and educate all stakeholders of the resource conservation as the result; this anarchic has risen to the peak, which need the government intervention. And in 1999, the use of explosion had stopped but there was still few using the electro-shocking and poison to catch fish. Meanwhile, fishery issues had spawned into conflict nation-wide and the government declared some parts of fishing to the local control (Interview: April 4, 2003).

By early 2000, some villages in the areas have initiated the fishery community in respond to the livelihood strategies crisis and to regulate the use and management of resources (especially common property resources). But this process has been in a mare situation since there is no formal legal right to recognize this local institution as some parts of the fishing ground has been leased to private before the government declaration in 1999. Today, local people are forbidden to access to the nearby fishing grounds where it is under the process of private operation in the river and streams (interviewed, 2002). In term of fish ecology, the commune is endorsed with rich biodiversity such as flooded forest in the riverine of the Mekongs, the deep pools, streams, creeks, tributary and in particular the sandy beach along the river.

For instance, in Koh Sneng commune where Koh Sneng is one of the communes situated along the Mekong River, which is about 25km north of Provincial town. It is one of the 40 islands in the Ramsar site along the Mekong up to Lao border where it is rich with natural resources both inland and upland. The richness of these resources has offered both opportunities and problems, which are often specified to people living in the areas. The water body of the river in this commune is one of the productive grounds in the commune is called Koh Tonle Moy where there are a multiple fishers from diverse ethnicity. The ecological setting of this river is actually the mainstream of the Mekong River where it is surrounded by many islands on the upper and lower parts. Each island is composed by many-flooded forest in the river as well as deep pool and rapid flow of water through the rocky riverine.

This riverine serves as the migration rout of fish and then distribute through flooded forests, deep pools, and channels of island corridor along the mainstream. The whole areas are also under the Ramsar site designation with the concept of wise use philosophy, which is considered as the protected areas. It is implied that the areas could be used only for small scale with traditional fishing gears which is not effect the degradation of resource. But it is not clear since some parts of the rivers has been demarked and leased for seine nets and mobile seine nets operation for exclusive private. In addition, the whole body of river has been used by different fishers as the local fishers revealed, “ Every year during the open season, there are around 50 fishing boats using their drifting nets on this river body while other parts fishers come to settle their temporary huts fishing permanent for the whole season even though the areas has designated as the conservation and managed by the local fishers in the commune.

In term of local administrative structure and resource management system, the commune is one the apparatus of the state which is the centralize system of the district, province and the state. By definition, the state, in its role as the political and administration of national authority and the would-be sovereign policy-maker on the national level- carry an identity and capacity as both structure and agent depending on how and from where it is viewed. However, the most important structure of the state administration should be outlined as a powerful actor in which its tools for the national structures include laws and policies, armed forces and in the process it provide more favor to the business interest rather than the grassroots actors whose livelihood are resource-dependence (Bryant, and Bailey, 1997).

In this sense the powerful actors (state, businesses) may derive power from an ability to control the environmental resource of weaker grassroots actors such as poor fishers or farmers and in consequence these actors become the marginalized and especially vulnerable to environmental degradation. The livelihood strategies have been associated with a sophisticated understanding of the location which is often embodied in the development of complex institutional arrangements regulating the use and management of resources, especially common property resources (Bryant and Bailey, 1997).

In the recent literature review by many scholar show that the recent state administration has a structure and working methods that were built on the Vietnamese system from the early 80s, and constructed for attaining political control and maintaining political stability. This system obviously constitutes an important feature both when pursuing development and when one is trying to understand the role of the Cambodian state in development affairs. The formal organization of the state administration follows a hierarchy of: National (*Cheat*), Provincial (*Khet*), District (*Srok*); Commune (*Khum*); Village (*Phum*); Group (*Krom*). Along this chain the CPP had pervasive influence (Ojendal, 2001, Ovesen, Trankell, and Ojendal, 1996).

These scholars have demonstrated that the province is for most Cambodians the center of administrative power, the District can be described as the center for rural administration, the Commune is the lowest level resembling a bureaucracy, and the Village chief is the state's most local arm. The Groups do not exist anymore in a formal administrative function. Village chief and his deputies are by far the most frequent and important contact point between state structures and ordinary Cambodians. This administrative hierarchy is fairly strictly adhering to in bureaucratic matters. However, a lot of 'business' now goes on outside, and parallel to, this structure, which is not at all as authoritarian and totalitarian as it used to be. In addition it should be mentioned that recently a number of development initiatives have been interrupting this administrative and political mono-structure.

From the 1993 election until the even in 1997, the provincial level were largely divided between CPP and FUNCINPEC people. Meanwhile, no progress had been made in creating a rule of law or building democratic institutions, the only way to protect one's wealth and position was to hold onto power. In short, while both parties wanted to attract foreign investors, neither had a real desire to strengthen the state to the detriment of its own clientele<sup>2</sup> and factional interests. Funcinpec was unwilling to rely on, and largely unable to command, the CPP controlled administration. The CPP was unwilling to credit FUNCINPEC for a governmental success. Furthermore, at every level of

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<sup>2</sup> According to Le billon (2000), the term Clientelism and patronage are not new to Cambodia. Associated with extended parental ties and alliances, patron-client relations are culturally embedded and have been a constant pattern of Cambodian politics, linking in particular the monarchy or central leadership to provincial strongmen.

administration, civil servants had to struggle with salaries well below subsistence, which resulted in widespread petty corruption. With regard to natural resource exploitation, the formal state thus captures only a token portion of the wealth generated by its exports (Le billon, 2000).

The District level is the major level for local administration. The district offices do not have the resources to run line-departments as the provinces do. Rather responsibilities are divided along personal lines. In reality high priority has been given to the security aspects in the rural arenas throughout the 80s and the development efforts have been of second priority (Ovensen, Trankell, Ojendal, 1996).

The commune office is next in this bureaucratic hierarchy. This level is formally involved quite a lot in the day-to-day affairs of the villages. Projects like minor scale and road building are likely to involve the commune office. Inter-village and high intensity intra-village conflicts primarily seeks mediation with the Commune Chief. The commune offices are officially responsible for the collecting of basic statistics on village level and for keeping up the local security via the local militia. In the village, the chief is the only person employed by the state. Financial resources and technical capacity for investment and extension services are extremely limited and it is, in addition, not the habit of the local government to work directly with the grassroots, although the case, the Village Chief has a lot of day-to-day with the villagers (Ojendal, 2001).

In the village, the chief is the only person employed by the state who has no official office or any special facilities which usually gets a very minimal salary. The village chief usually a peasant among others in the village. He coordinated a number of groups (*Krom*) in village, a system used for grassroots contact which now largely seems to have stopped functioning. Thus, after the 1993 election the political life in the villages has become less democratic, at least in terms of popular participation. In addition, after the power struggle in 1997, the public servant who are recruited from CPP, are also perceived as belonging to and being an agent of that party, rather than being non-political public servant. However, an increasing awareness of issues of human rights and law and order of course gives the villagers added strength in refusing to obey the orders of the local authority (Ojendal, 2000).

In Khmer word *Phum* denotes inhabited space in the rural areas in general, and for the peasants it means his home area in a loose sense rather than a specific agglomeration of houses or a bounded organizational entity. These scholars have further argued that the nature of Cambodian village is composed of the headman and the temple. The headmen part refers to the administrative systems imposed from outsider to the local population, while by temple part reference was made to local people conception of a moral community (Thion, 1993).

The recent political structure of Koh Sneng commune has resulted from the communal election in 2002 in which five members of the communal council come from Koh Sneng village. However, these persons are the agents of each political party in the countries: The Cambodian People Party (CPP), the FUNCINPEC, and the Sam Ransy Party. The chief of commune and the first deputy and secretary general are the CPP representative. The second deputy is Funcinpec, while the third deputy from Samransy. In the process of administrative work, the Sam Ransy party who powerless become the opponent while Funcinpec is the alliance to the ruling party (CPP). So every decision related to resource management are coming from the coalition parties for instance the leasing of forestry and fishing ground while the Sam Ransy disagree and demand that all these resource should be controlled by local people. As a resulted, this party has been accused of trying to conspire people against them and subject to be labeled as



troublemaker in the commune. This mechanic has been used coercively to control people not only the party members.

In term of fishery community management, the development of the local institution arrangements to regulate use by the individuals or groups of environmental resources are quite complex and involve multiple and overlapping user rights to common property. The management of common property resources has been especially important but complicated, and has often resulted in the development of highly complex common property regimes (CPR) that bring together individual in the community with the aim to manage those resources on the communal long-term basis (Bryant and Bailey, 1997).

The whole question of local or traditional environmental knowledge is the subject of long-distancing debate and controversy among the policy-makers and scholars. However, that knowledge is often diverse as the social and ecological contexts within which it has developed. There are so many other examples of how indigenous knowledge has been applied so as to promote long-term environmental management goal and to reflect a detailed appreciation and understanding of local environmental resources by grassroots actors and, and that such knowledge has often served as the basic for highly environmental management system allowing for simultaneous resource exploitation and conservation.

In responding to the process of enclosure, the poor grassroots actors have developed their strategies which are designed to maintain their livelihood opportunities, which could avoid provoking powerful actors into any retaliatory action that might exacerbate their plight. Even under the conditions of democratic rules, the political and economic of these marginalized actors are often impossible for them to protest about the environmental degradation or physical exclusion. So, many grassroots actors nonetheless develop strategies that aim to minimize any adverse effects on them while at the same time avoiding confrontation with powerful actors.

According to the process of administrative format system show that the process of bidding fishing ground is come from the chief of commune who is the main actor in decision-making process while the top level is waiting for approval for the contractual process. More over, according the new draft of sub-decree says “ local people have the right to conduct small scale of commercial fishing in their fishing ground without the outsider come to conduct the business their. But this process, the local people do not have capacity or enough money to conduct such a business and they agree to preserve all these resource to catch for their family consumption only (DoF, 2003).

The recent conflict of fishery exploitation between the local people and outsider is very contradicted as we expect our communal elites to find the solution for us. Instead, they always support the private companies and put pressure on us. One time, we the local fisher, local authority, the fish private companies and the fishery office in provincial level come to find the solution in the district level. The argument is that the private has paid tax to the communal council so the local people have to follow and accept. If not, we will be accused as the son who knows before their father. This means that the communal representative is the father of local people, so they cannot against with their father ideas.

For instance, when people asked about the process leasing fishing grounds to private operation in the commune, the ruling elite respond back by accused them as the opponent parties by warning that “ You the people don’t have to complain about the leasing of the fishing ground to the private operation, because this is the decision from

the top level<sup>3</sup> (provincial level)". They also say that "the oxcart are kept going while the dog is continue barking" which cannot stop the oxcart at all.

With the decentralization process, the administrative system in the local level seems very contradicted. In late 2002 there was a mass demonstration in Phnom Penh regarding the forestry community organization. As a result, this process has increased more control by local authorities on local communities and the NGOs who are working with local development. For instance, in a meeting between one local NGO and district authorities on December 24, 2002 showed that the local authorities are not trying to control their people, but also every development NGOs in the areas, as Mr. Thavarith, the chief of Thalaboriwat district said:

The district authority needs good relation with each other (for instance, the meeting with the local community, selecting the people, chief of village and commune to attend the meeting without asking permission to the district authority) and all the letters have to come through the district office for the approval. In principle, it needs to approved from the provincial office and the district office so that we can inform the chief of commune to approve as stated in the constitutional law. We know the principle to establish the fishery community is to conserve and protect and manage the fish resource in their community more sustainable. But since the policy regarding to forestry and fisheries communities are not officially approved by the state, we find it difficult to act. People are only a small organic in the society so the most important is the law in which the national assembly is working on that as well. For us, the district authority, we would like to support any effort in establishing the fishery communities, but the most important is the law supported from the government or the approval letter from the provincial governor.

In the absence of legal framework, a local officials or the provincial governor may want to support the CFM but without clear legal mandate or policy for this, they are reluctant to act. Even if there would then be interpreted at the provincial, district, and local levels is open to debate. For this reasons, it is important where possible to gain informal support for community-based processes to illustrate the strength of such an approach and to bring policy makers on side.

According to local people observed that in every season, as they could estimate the seine net could catch fish at least more than a hundred tons per year from the area. For us now, we have no right to fish there at all instead we have to move away from that area and fish along the uneven rocks, stream and other area in the flooded forest as well as the pools along the other islands. The use of seine nets is one of the effective equipments used to catch all types of fish. Every year, they could get profits around 20-30 million Riels while they pay to the communal council only 600, 000 Riels this year and last year was only 400,000Riel. Now, fish is difficult to catch even we use two or three stationary gill nets and we hardly catch enough fish to eat. Stationary gill-net is difficult to catch only this time of fishing nets.

However, almost all household are involving fisheries to one degree or another. The Mekong channels, floodplain stream, ponds, and rice paddies are intensely fished, while aquaculture is not commonly practiced. Fishing is an opportunities activity, which provides local households with a fundamental source of protein the surplus catch also provide an opportunity for trading. It is common for artisenal fisherfolk, the people tend to identify themselves through their connection with land and rice agriculture, despite the relative importance of the fishery sector in this region.

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<sup>3</sup> In the tradition of Khmer moral training, to protest against a parent's decision, to criticize one's boss or spiritual master, to rebel against a husband is inadmissible. Not only are such acts inadmissible, they are also foolish. Going up against one's superiors is considered futile because losing is inevitable. As a proverb says, don't hit a stone with an egg ( Ovesen, Trakell and Ojendal, 1996).

### **III. Fishers and Access to fish Resource through Social and Economic Space**

The term access, by definition, is referred to the ability to benefit from things-including material objects, person, institutions and symbols. Therefore, access brings attention to a wider range of social relationships that can constrain or enable people to benefits from resources.

In Cambodia, throughout the process of transitional context of the late 1980s and early 1990s, the natural resource revenues have been contested as individual actors maneuvered to improve their position in an unstable political environment characterized by a breakdown of law, institutions and even customary rules of social behavior. The survival strategies of individual actors, rather than any ideal economic or legal rationale, shaped the commoditification of resources such as fisheries (Le billon, 2000).

In the study of small-scale enterprise and commoditization process show that the logic of capital and the spatial division of labour were (re)structuring the regional economy which encompasses more than mere economic criteria, since production, exchange and consumption activities are interwoven within a complex network of local social, political and cultural contexts. As some recent post-structuralist and post-modernist work show, this collage of activities and arenas are suffused with competing representations and interpretations concerning ideology, identity, power and knowledge that exceed any notion of economic space.

Verschoor (1992) suggests that economic space should not be conceived as a fixed totality. Thus, compliance or resistance to commoditization processes involves a multiplicity of interrelated social practices that raise numerous questions, which raise further considerations concerning economic space. First, there is the localized context in which activities relating to production, exchange and consumption take place. Second, there is a need to identify the complex networks of local and extra-local social, political and cultural arenas in which production, exchange, and consumption processes unfold. Thus an understanding of the impact of commoditization on small-scale enterprise must be related to an analysis of social practices involved in different social and spatial arenas. Therefore, space should be conceived as a multi-dimensional social structure based upon actors' social network.

Le billon (2000) has proposed that the commodity chains are composed of networks of actors 'cluster around one commodity and situational specific, socially constructed, and locally integrated, underscoring the social embeddedness of economic organization. From this perspective, markets are not only regulated by economic rationality, governmental policies and legal mechanism but are both constrained and enabled by a vast array of social relations and institutions such as, for example, kinship or religious institutions. As commodities and money move across space and scales (micro and macro) within a global economy, the associated discourses change with the flow of information and the interpretation put upon it. Therefore, these analyses should give greater emphasis to the role of discourse in shaping production, exchange, and consumption patterns. In this way, an appreciation of social embeddedness can be extended from the social actors directly involved in the operations of commodification to wider networks with which the commodity chain interacts.

To understand why some people or institutions benefit from resource under political economic framework, Ribot and Peluso (2002) have suggested the framework of access analysis which involves: (1) identifying and mapping the flow of the particular benefit of interest, (2) identifying the mechanisms by which different actors involved gain, control and maintain the benefit flow and its distributing; and (3) and analysis of the power relations underlying the mechanism of access involved in instances where benefits are derived from access.

This model is very important for concurrently examining the larger contexts of such political economic relations: policies, markets, technologies, knowledge, and even identities. Access analysis can focus on the policy environments that enable and disable different actors to gain, maintain or control resource access or the micro-dynamics of who benefits from resources and how. This approach of analysis puts property in place among the many other mechanisms that shape the distribution of benefits, the landscape of incentives, and the efficiency and equity of resource use. In doing so, it serves as a tool for identifying the larger range of policy mechanisms –beyond property and other forms of rights-that can affect changes in resource management and use efficiency, equity and sustainability with consequences for well-being, justice, conflict and cooperation.

In Koh Sneng commune, the recent development of CPRs by grassroots actors have long sought to regulate resource use through specific management practice. To appreciate their existence and their role is also to begin to clarify one of the big debates that has surrounded the environmental management of many grassroots actors over the years reflects a ‘tragedy of the commons’ what Hardins (1968) is actually describing is an ‘open-access’ situation whereby resources are open to use by all actors, and there are no CPRs or other management structures to regulate such use.

However, the recent research by political ecologists has been pointing out that the environmental crisis in Third World reflects mainly the tragedy of the enclosure rather than a tragedy of the common. In this process, the state often acting with conjunction with businesses and multilateral institutions, denies grassroots actors access to commons resource hitherto managed by them through local institutions such as CPRs. In effect, CPRs are taken over by the state for large-scale commercial exploitation either by its own agencies or by allied business interests using the large-political power of the state. Bryant and Bailey (1997) have proposed with two kinds of enclosures of the commons for the poor grassroots actors:

First, the enclosure of the commons is typically associated with the dissolution of many of those grassroots institutional arrangements (notable CPRs) that had hitherto managed the commons. As power over local environmental resources shifted from grassroots institutions actors to the state and other actors external to the community, the need for these grassroots institutions largely disappeared and the utility of local cooperation in aid of long-term environmental management. To be sure, not all of these institutions disappeared, and local public ‘passivity’ in the face of outside management of local resources often belied fierce conflict over access usually conducted by covert means.

The second, the enclosure of the commons served to further marginalized the poor grassroots actors in the measure that their access to environmental resources essential for their livelihoods was restricted or denied (for instance fishing ground in Koh Sneng commune). Not only was the access to resources ended, but also these actors were often forced into a situation whereby they had to work ecologically marginal land and fishing grounds elsewhere in order to survive.

For instance, the fishery conflict in the commune, as we can see through the historical context of the area, fishing activities are done both individually (small-scale fishers) and collectively and private operation in the same water body. By law, access to fishing rights by fishing households is organized into two categories of fishers based on their access to fishing resources: small-scale, and medium-scale. Each category must follow certain regulations regarding the types and sizes of equipment used, fishing locations, catch length, width of net, fish trap size, number of fish hooks, and so on.

A medium-scale fisher is classified according to the size of the equipment according to the fishery law. They generally gain access to the fishing grounds once

they buy the license from the Provincial Office of Fisheries in each province. The licensed gear requires a fee payable based on the expected catch per season per gear type. Medium-scale fishers can catch fish throughout the fishing domain (in public place) but only during the open season in a certain assigned fishing grounds.

The small-scale fishers are those who fish only for household consumption usually with small equipment as designated by the Department of Fishery. Small-scale fishers are defined by the authority's rules based on their small gear size. These simple fishing tools include single hooked line, harpoon, handle-scooping basket, cast net less than 5 meters in length, scoop net, V-shape net which has a mouth less than 2m, gill net less than 10 meters in length and so on (Thouk 1997). This category is not licensed and the gear can be used throughout the year and throughout the fisheries domain except in the fish sanctuary. Small-scale fishers can catch both during the open season and closed season in public place and can catch fish in lots during the closed season (Thouk and Sina 1987).

The medium-scale fishery is characterized by boundary and authority rules. Access is granted to those who pay a license (boundary), while authority rules define the types of technology that may be used. Spatial and time limits (assignment) are negatively defined, in the sense that these are no restrictions apart from exclusive areas positively assigned to fishing lot operation during the open season. While the middle scale fishery is a government revenue generating tool by way of licensing, it cannot be regarded as a resource management tool since there is no limit to the number of licenses (Degen et al, 2000).

During the province workshop on Fishery Community-Based Fishery resource in Stung Treng, the representative from the Provincial Department of Agriculture, Forestry and Fisheries said:

...all fishing grounds in Stung Treng are considered as the protected areas for fish spawning and migrations. It is not allowed for large-scale commercialized exploitation, but only the middle and family-scales. According to the law, the family scale is allowed to have one fishing hook, 10 m of fishing nets and so on. These mean that all fishers in the Koh Tonle Moy in Koh Sneng commune are using the middle scale. In principle, all the middle-scale fishing gears have to apply for license and pay taxes to the government. But in late 1999, in respond to the policy reform of poverty alleviation, the Prime Minister Hun Sen has declared not to tax these types of fishing gears, while the department of fisheries needs the record all these types of fishing gears, that is why we need them to apply for permission again. In Stung Treng, we do not apply for all; it is only the fishing gear which may affected the fish stock. For instance, Ourn is always having conflict, so we need them to apply for permission in which we could only give them some regulation and technical advices, which allowed only with specific territory assigned by the provincial fishery office. The seine nets (Ourn) operate in Mekong-Stung Treng province could have 400m length while in the lower part such as Kampong Cham could have 1,000m. In practice, Ourn has no effect at all to the fish stock in the province.

(Quoted on March 26, 2003)

It should be pointed out that villagers' classification on the scale of fishers is different from the law. Large-scale fishers are referred the fishers who operate the target seine nets, mobile seine nets and drifting gillnets in which most of these fishers are not from their villages or commune. It implies that, people classify a larger number of fishers as large-scale fishers than the law does. There are almost no small-scale fishers who can catch enough fish to eat by using fishing tools classified by the fishing law. In practice, however, fishers claim themselves as small-scale fishers by using medium-scale fishing tools. One of the reasons was explained that, they catch fish only for

consumption. This explanation is similar to Gum's (2000) discussion on catching fish to meet livelihood needs, which means catching fish to eat and to sell for basic needs.

It is important to compare the fish catch's statistic and socio-economic plan in the province from 2001-2005. Based on the figures from 1999-2000, fish consumption/person is 8 kilograms while the expected planned until 2005 is 12 kg/person annually. Based on this statistic, small-scale fishers contribute to the significance of the fishing economy and their local economy.

**Table 1:** Socio-economic Plan (2001-2005) of Fish Product in Stung Treng

<b>Fish product in 1999-2000</b>	<b>Expected Product in 2005</b>
Total export fish is 888 tons. This includes three types of fishes. <ul style="list-style-type: none"> <li>- Fish number one: 200 tons</li> <li>- Fish number two: 300 tons</li> <li>- Fish number three: 388 tons</li> </ul>	Fish exported: 1,280 tons. This includes: <ul style="list-style-type: none"> <li>- Fish number 1: 350 tons</li> <li>- Fish number 2: 450 tons</li> <li>- Fish number 3: 480 tons</li> </ul>
Aquaculture: total 14 tons. This includes: <ul style="list-style-type: none"> <li>- Fish culture/cages: 14 tons</li> <li>- Fish pond: none</li> </ul>	Aquaculture: 35 tons. This includes: <ul style="list-style-type: none"> <li>- Fish culture: 30 tons</li> <li>- Fish pond: 05 tons</li> </ul>
Fish processing: 25 tons. This include: <ul style="list-style-type: none"> <li>- Pra Hoc/Pa-ak: 18 tons</li> <li>- Dried Fish/Smoke fish: 07 tons</li> </ul>	Fish processing: 75 tons. This includes: <ul style="list-style-type: none"> <li>- Fish fermented: 50 tons.</li> <li>- Dried/Smoked fish: 25 tons.</li> </ul>

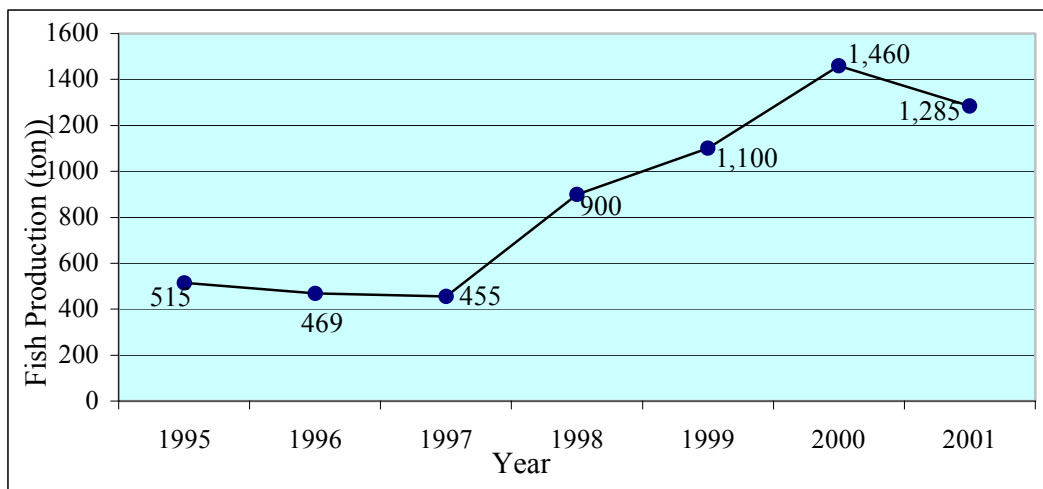
**Sources:** Provincial Department of Planning, 2000

Through out the questionnaire survey show that the annual fish catch of each household ranges from 200 kg to 980 kg and the average of annual fish catch is 339.21 kg per household. However, fish catch productions are used for fresh consumption and fresh sale. The fish catch is also processed for subsequent consumption and sale. Most of the fish catch production is used for consumption both fresh and processed which account of 74.6% and the rest is sold which is account about 25.4 % (Vannaren, 2002). Based on this he argued that the average fish and meat consumption is 254.69 kg per household, the minimum and maximum consumption being 146 kg and 595 kg respectively.

If compared with other source of food and meat, fish contributes 87 % of the meat consumption while the buffaloes contribute only 2 % in which the average is about 6.6kg. The pork contributes 4% with the average of 11kg. The chicken contributes 7 % to the total meat consumption with the average annual chicken consumption is 17.84 kg per household. The price of chicken is 4,000 to 5,000 Riel per kilogram (Vanaren, 2002).

If we consider the provincial fishery data of fish catch production trend, during 1995-1997 as shown that fish catch production is about three times less than those in the present. The per capita fish consumption of the local people was then about 15 kg/caput/year, which was far less than human minimal nutritional requirements (32 kg).

**Figure 1:** showing that the fish catch production in 1998 was two times more than those in 1997. The peak fish catch production is 1,460 tons in 2000, three times more than those during 1995 - 1997.



**Source:** Provincial DoF, 2002

However, if we compare the total number of people in the commune and the resource surrounding, this number of people could not put pressure on the surrounding environment. People often identify themselves as the small-scale fisher in which their fishing gears they used are not so big or large which could catch big amount of fish, mostly for the subsistence only and not full time fishers as well. In contrast, every year, there are more fishers from different places come to fish here during the open season so most of fish has been exploited by these groups of fishers who work for their main sources of income.

According to the law, fishers not only are classified into three categories, but also manage their access according to each scale. For instance to be a seine net operator, a person must engage in a bidding process. That process is competitive and requires not only financial capital, but also social capital. The financial and social capital requirements for bidding are largely intertwined. In the Cambodian context, financial capital can be enhanced through social connections, knowledge and power. All Cambodian citizens are eligible for bidding with the exception of government employees (cf. Piseth, 2001).

However, the outcome of the bidding process is depend on how rule, physical, and material condition, and community attributes have shaped action arenas and incentives faced by individuals actor. Ostrom (1999) has explained that action arena is the social space within which individuals interact-exchange goods and services, solve problems, dominate one another or fight. The action arenas experienced by individuals as they move from home to market to work can be viewed as seamless web. Underlying any model of an action arena are implicit assumptions about the rules individuals use to order their relations, the states of the world, and the nature of community within which the arena is located.

As the case of seine nets operators Koh Sneng commune, some times it take them three months to get the permission or approval from the all related institution in the province. This process has involved a lot of power relation as well as social relation. It is acknowledged that the seine nets operator in *Koh Tonle Mouy* is the Aunt of the Chief of district, and her father is the senator at the senate office in Phnom Penh. There

the approval of fishing ground for private operator is not the big problem because her nephew is the big boss of the chief of commune.

Tofique (1998) in his case study on inland fisheries in Bangladesh observed that fishers in general have failed to established effective property rights over the water bodies. Property rights over the water bodies are eventually transferred to a class of people coming from outside the fishing community. A class of people is usually referred to as the lessees which sometime known as white collar middlemen or water lords or fish-merchants and moneylenders. However, the local fishers are able to hold rights over some water bodies which are of very poor quality. Property right in these water bodies is held by a class of wealthy fishers who own a substantial amount of fishing assets. He calls these people as fishers-lessees.

His argument is similar to the inland fisheries in Koh Sneng where the resource units can more appropriately be viewed as less mobile and as more mobile. In this sense, mobile is refers to the movement of fish and the consequences ability of the agent to control the biomass of fish. In process, the more mobile therefore refers the situation where the agents have less control either on the movements of fish or on its biomass while the less mobile refers to the situation where the agents have more control on the mobility of fish and hence on its biomass.

In the case of *Koh Tonle Mouy*, the fisheries unit (the seine nets operation) has been authorized by the provincial fisheries office, in particular the Provincial Department of Agriculture, Forestry and Fisheries. It is allowed to fish in the assigned fishing ground and must not use fishing gear, which is not mentioned in the contract. Furthermore, they must limit their fishing to designated areas within the fishery. During the seine net fishing during the open season (more mobile state) the lessees can reduce common-pool losses by enforcing the rule of any rotational system or through assignment of fishing grounds. Fishery access is either territorial or open access when it is monsoon (May-September), the water level is high (June-August, September), and the large carps are dispersed (June-September). Accesses to fish resources is controlled by the lessees when the water starts to recede (October-April), water level is falling and becomes lowest.

Toufique (1999) suggest this process would be more appropriate to describe as a patron-client type. While Piseth (2001) proposed this process as the social connection or social relation. He explained that with specific kinds of social relations such as, patron-client relations, more advantages could be gained over those without these connections. However, he argues that the issue of social relations are much more clearly discerned through the Khmer terminology with three categories:

First is called *Khnon* (back) or *tuyo* (pipe): It is commonly known as patronage relation or connection. This relation is based on vertical, hierarchical and unequal power. Such relationships are described as dyadic (i.e. involves two parties: individual or family), vertical (i.e. hierarchical, the patron being superior to the client) and many-stranded (i.e. the relation pertains to more than one sphere: economic, social and political of life).

The second is called *Khser* (string or line). This social relation is based on kin relations which based on horizontal and equal relations of power. In term of brother and sister in-law relations, this relation is also effectively practiced as part of the kinship network in the commune. Moreover, the terms *bong/phoun* are hierarchically ordered along the elder-younger dimension. This term can apply to all kinds of relations in Khmer society. The Khmer relations reveal an absence of the 'formal structured, functional kin groups beyond the nuclear family as found in kinship analysis.

And the third is called *Moy* (regular customer in particular in commercial relations). There two fish buyer companies in Stung Treng at the moment. However, in



practice this form of *moy* can be seen through fish buyer who may help advance capital to the commercial fishers during a bidding process and before the lot becomes operational. In return, the fish buyers have a contract (written, or unwritten contract) to buy fish from him at marketable prices or at an agreed upon price. This form of relation is popular among villagers in terms of commercial interest—loaning money. It forms a contractual relation between the moneylender and the money borrower. Small-and medium-scale fishers often advance capital in making or buying fishing tools or as to use it for other purposes.

#### IV. Conclusion

The livelihood quest of grassroots actors has always been a reflection of the local institutional arrangements to regulate use by the individuals or groups of environmental resources. Such managements can be quite complex and involve multiple and overlapping user rights to common property. In the process, the whole question of local or traditional environmental knowledge is the subject of long-distancing debate and controversy among the policy-makers and scholars.

For instance the fishing grounds in Koh Sneng can be referred as the common-pool Resource (CPR) where individual are jointly using this resource are presumed to face with tragic situation in which their individual rationality lead to an outcome that is not rational form the perspective of group. In principle such CPRs typically involves two things: well-defined common property resources and resource users, and the strict controls on access and the use so as to prevent over exploitation. However, these CPRs are never fixed in space or time but fluctuated depending on shifting property relation, environmental circumstances, and social conflicts among actors both insides and outside CPRs. In addition, it provided a flexible institutional means by which grassroots actor have often sought to reconcile resource use with environmental conservation-although the existence of a CPR in itself has never been a guarantee of success in this regards.

In practice, it is designated for small-and medium-scale fishers to fish for consumption. However, with unclear institution and the process of privatization, the most productive space has leased for private exploitation while leaving the less productive space for the local fishers. Therefore, small-scale fishers find it difficult to catch fish in public place compared with the most advance fishing assets from outside. There is little place available for them (no public place) to catch enough fish for their consumption. From the people's point of view, gaining access to catch fish in a public place by local fishers is difficult.

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