

CHAPTER IV

SOCIO-ECONOMIC CONTEXT OF FISHING IN KOH SENG VILLAGE

Local livelihoods reflect institutional arrangements to regulate the use of environmental resources. Management can be quite complex, involving multiple users and overlapping rights to common resources such as fishery. In the process, the whole question of local or traditional environmental knowledge is the subject of debate and controversy among policy-makers and scholars. In this chapter, I focus on my research site in Koh Seng village. I present various views of different actors' access to fishing resources. In order to understand this complexity, the chapter is divided into three main parts:

The first part of this chapter, I present the ecological setting of Koh Seng village by focusing on the general landscape from the inside and the outside village and people adaptation to the these ecological terrain throughout seasonal variation. In the second part, I move on to describe the fishers' livelihood and their social differentiation of the productions in Koh Seng village. Here, I distinguish three different groups of fisher from inside village and four different groups from outside village and the form of fishery resources extraction. In the final part, I compare fishing techniques, fishing tenure and fishing management, emphasizing different access to fishing grounds. Different fishing techniques and fishing tools are also described in the early part of this section.

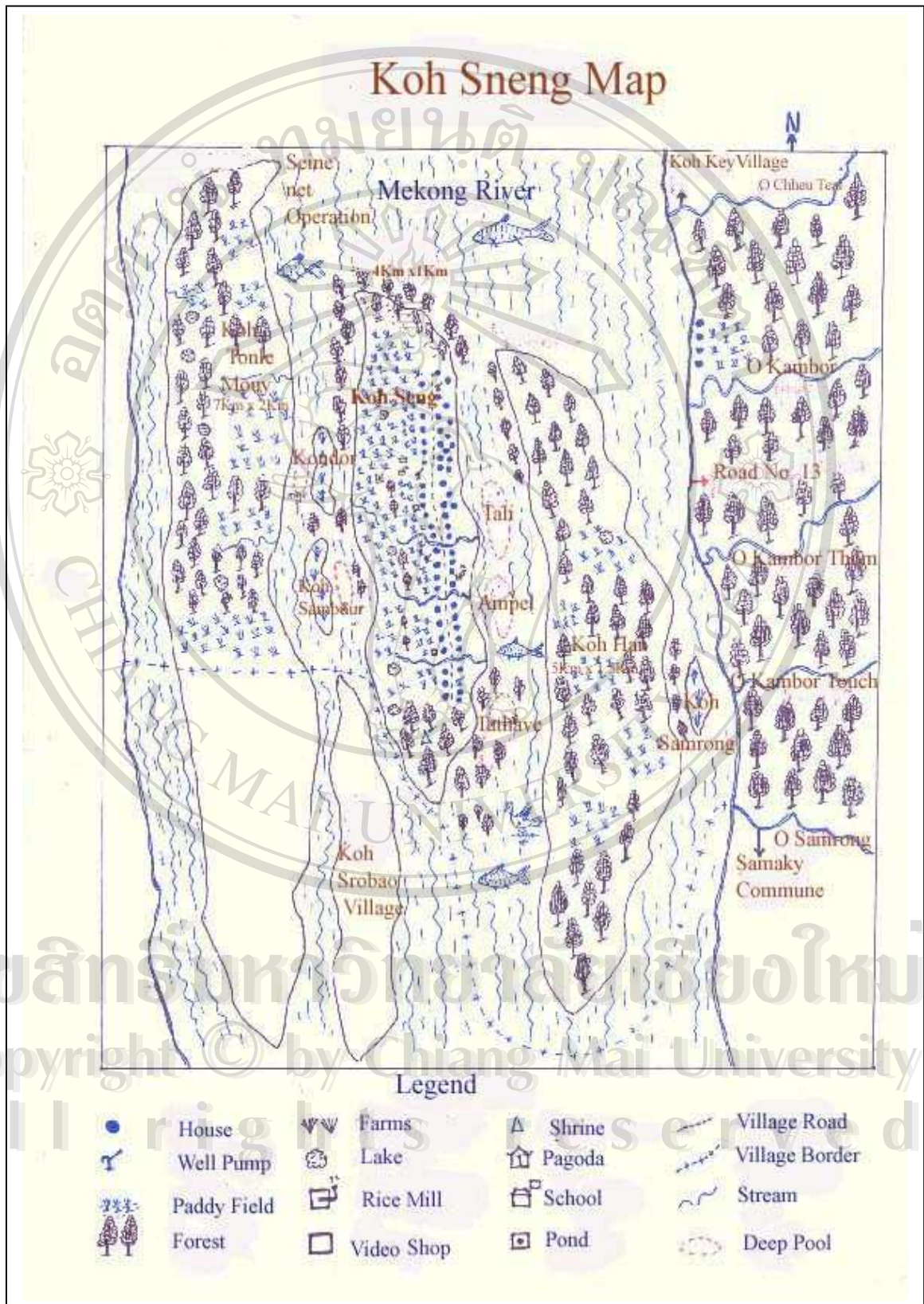
4.1 The Ecological Setting in Koh Seng Village

Koh Seng is one of four villages (Koh Key, Koh Sralao, and Chorm Thom) in Koh Seng commune. By early 2003, the village consists of 148 households with 168 families and the total population is 945 (543 are women). This figures shows that the average member of each household is 6.3 and 5.6 for each family. The physical and ecological setting can be classified based on the general landscape of the village as the whole, specifically from the inside and the outside view.

4.1.1 The Village From Inside View

The village from the inside can be divided into three clusters including its

main activities and actors. The first cluster of the village is starting from the first canal and bridge to the head of village on the north (village head) which consists of 57 households.



Map 4-1: The general landscapes and ecological setting of Koh Seng village

This part consists of the main landing port, then the old monastery building and the commune office which is located on the eastside of the village road. While on the west, there is a newly built Buddhist temple or *Wat* where local people offer food to the monks¹. Inside the pagoda compound, there is a primary school with complete grade (grade 6) where students in the village and other villages on the commune come to school everyday from Monday to Saturday. However, education in the village is one of the problems facing the local people, as there is less access and support from the government. The school is also too small with three rooms which students have to divide into group separately, the morning and afternoon classes.

In this part, it consists mostly of the local government official, environmental rangers², teachers, and commune officials³. It also consists three rice mills, three rice wine producers (one entrepreneur), two groceries shops, two local fish buyers and one village rice bank managed by the Village Development Council (VDC) where local people can borrow rice whenever they are facing shortages.

The second cluster starts from the first to the second bridge on the south which consists of 39 households. In this cluster, there are four carpenters who are working permanently on their craft such as making boats, building houses and other furniture as the main source of their livelihood. There are also two rice wine producers, one Karaoke and one village electricity generator, one small ferryboat driver, one grocery shop, and one pumping well.

The third cluster starts from the second to the third bridge until the end of village. From this part to the west and south until the end of the village, it is surrounded by dense forest, spirit forest, and a shrine where people keep for religious purposes such as doing worship when somebody is ill or asks for the protection for the local people. There are 52 households in this cluster where the main activities include one Karaoke, one regular boat driver, and one rice wine producer and a grocery shop. This part also includes the chief of village who is the only person to

¹ The majority of monks are young (around 10) who come to study Buddhist discipline as an important part for their education in the social life.

² The role of environmental ranger is also explained in chapter 3 on page 73.

³ The commune official is formally involved quite a lot in the day-to-day affairs of the villages. The chief of commune is playing big role in inter-village and high intensity intra-village conflicts, responsible for collecting of basic statistics on village level and for keeping up the local security via the local militia.

coordinate day-to-day work of the villagers. The other is the environmental ranger who is also the carpenter.

By comparing the three clusters together, the first is the most important as it consists of one main landing port, a volleyball court where teenagers play after their daily work, the commune office, pagoda, the primary school, the pumping well and the fish buying stalls, and grocery shops.

Besides this, there are three types of people in the village. The first one is referred to as the salaried officials which include three environmental rangers, four commune officials, six security police officers, six teachers, and one village chief. The second is referred to the local traders, entrepreneurs, wine producers, and carpenters. The rest are farmers and fishers. In terms of local entertainment, there are two Karaoke which start from 6pm to 9pm daily for villagers, mostly for young men and girls come to join after their daily work. In addition, the electricity used for Karaoke has also been used for the whole village. At least, there is one electric lamp for each household and they agree to pay 5,000 Riel (more than US\$1) monthly to the generator owner.

Because the village is an island, boats are the only one source of transportation for economic and social purposes. For instance, farming and fish products are carried by boat from the villages to provincial market at Stung Treng and sometimes go to *Veun Kham* market, the Cambodia-Lao border. By the time I conducted my fieldwork, there are two regular small ferryboats (Mr. Lim Sai and Chan Duern) carrying people from the village to the provincial town daily.

Each boat can carry with 12 persons and its cost ranges from 2,000-3,000 Riel/person. This price is much cheaper than the boat from the provincial town, the cost will rise up to 30,000 Riel/day. Villagers have diverse purposes for traveling to the provincial town. They come to visit their relatives, or buying products from the province and bring their chicken or ducks to sell in the markets. Some families prefer to use their own boat unless they are in urgent need to sell their agricultural products in large quantity such as watermelon, pumpkins and bean.

Based on my interview with the chief of village (April 4, 2003) show that the village consists of 51 motorboat and 69 rowing boats in village. But throughout my

fieldwork, I have found that some families can have up to three boats reflecting their economic and manpower in the families.

There are two main religious places. One is the pagoda and the other is at the end of village where people offer food for the spirit in the forest asking for safe and well-being. However, like other villages in Cambodia, Koh Sneng is small which covers territory of 1km width and 4km length. There is no market in the village, but there are groceries shops where people can buy wine, gasoline, and cooking ingredients and other agricultural supplies. There is also no health post, but there are two traditional midwives and traditional healers who people come to see whenever they got sick or have to give birth for the children. However, the groceries shops owners are also the fish buyers and retailers.

Next to this grocery shop, there is also the pumping well which also serves with variety of purposes. The young Buddhist monks from the pagoda also come to fetch water from here. Since most families have their own garden vegetable around their house, the water from the pumping is normally undertaken by the children and women. It serves as place for washing clothes, in particular the young girls in the village came to take bath in the evening and wash their clothes. In front of this, there is grocery shop next to an open space where villagers can dry their rice, beans, peanuts which for process and then the valley ball courts as well. Next to the pumping well on the north along the main village road, there is a group of big trees which serve as meeting and gathering places for women and their neighbors during their free time. The children and teachers also come to the school across this place and also serves as the meeting place for the commune officers, so after their meeting they can buy wine and having meal sometimes in the grocery shop and sometimes in the commune office.

The above description shows the ecological and social interaction in the village, which represents the physical and mental space and the dynamism of activities and adaptation of villagers in the village to these surrounding landscapes. Furthermore, the local people (from young to old) also know and familiar well with the ecological setting such as the traditional protected area of forest called the “spirit forest” which is protected by all people from the village. And the wetland areas where inundated riverine forest known as “*Prey Lung Tuek*”. They believe that forests are very important for fish habitat, for traditional medicine and aquatic vegetable. They

have protected these flooded forests because they understand that these areas make a valuable contribution to household income and the local economy. They also know how to catch fish from ponds, creeks, streams and riverines in which I call the landscape from outside village.

4.1.2 The Village and Its Surrounding Landscapes

Koh Sneng as an island surrounded by many other islands. On the east side, it is surrounded by Koh Han and Koh Somrorng, and Koh Key, while on the west side are Koh Kondor, Koh Sombor and Koh Srolao. However on the north upstream is the open space known as Koh Tonle Mouy, and Chorm Thom village of Koh Sneng commune and Koh Hep of O'svay commune. Based on these physical and ecological setting, fishing grounds in Koh Seng can be classified into five types. The first two types refer to the water body of the river and the deep pools or sometimes known as the deep-water areas and rapid flow of water which serve as the most important fishing grounds on the Mekong. These fishing grounds are recorded as being the most widely used habitat as it is accessible and productive throughout the year. The three remaining habitats types include the tributaries or streams, the creeks and rice field offered in the fieldwork are more strongly influenced by seasonality. However, the uniqueness of this special ecology will be showed as follow:

a) The Water Body of the River and Its Deep Pools

One of the most productive fishing grounds and the conflicting space in the commune is called *Koh Tonle Mouy* (one river island). Traditionally, it has been one of the places for the seasonal fishing grounds for both fishers from inside and outside. During the rainy season, this place become open access, while during the dry season it becomes private and common property for different fishers.

Some special characteristics about this riverine include different types of flooded forest: *Omelina Asiantica* (Daem Ange Chagn in Khmer), *Hydnocarpus Anthelminthica* (Daem Krorbao in Khmer), and *Crataeva Reigiosa* (Daem Tonlea in Khmer). These are commonly found in the riverine of the Mekong River from Thalaboriwat district up to Lao border. These flooded forest create natural habitats for fish migration, spawning and grow up throughout the year (See also appendix B).

Besides these flooded forest, there are several deep pools which serves as fish spawning and habitats during the dry season as well. In Koh Sneng, on the east side of village, there are three main pools: Anlung Tathav, Anlung Ampel and Anlung Tali which situated along Koh Sneng and Koh Han Island's corridor. Villagers could catch fish from these pools around 2 to 3 tons per year from each pool. On the west side of the village, there is *Anlung Koh Kondor*, which is between Koh Kondor and Koh Sneng village. This *Anlung* is not as deep as the others, but local fishers often use stationary gillnets and fishing hooks in the areas. Some times, they use cast net to catch fish during the dry season. And on the tail of Koh Sneng Island, there is one more big pool known as *Anlung Thmorthom* (big rock deep pool). The width of this pool is around 30m and the length is more than hundred meters.

The above description shows that there are five main deep pools surrounding Koh Sneng village. Traditionally, these pools have served as fish habitats, migration and spawning ground during the dry season. However, local fishers could catch fish from this fishing grounds in groups during the dry season and sometimes they share such catch or invited their neighbor or relatives to join their food and meal. By 2000, some these *Anlungs* such as *Tali*, *Ampel*, and *Tathav* have been designated as the Fish Conservation Zone (FCZ) in the village, in particular for endangered fish species: Trey Reach (*Mekong Giant catfish*) Trey Koul Reang (Giant Barb), and Trey Traw Sawk (*Probarbus Jullieni*).

Although these pools have been designated as the fish conservation zone, but in some cases local people can catch fish from these pools. Most of the fish caught from these pools include Trey Pra (*Pangasius.sp*), Trey Ke (*Pangasius bocourti*) Trey Kes (*Glass catfish*), Trey Kaek (*Black sharkminnow*), Trey Kray, Trey Promar (small-scale croaker). These fish species grew large and have strong market demand. Through out my fieldwork, such fish species had been sold to fish buyers in village. In recently, the fish sharing has been reduced to smaller group not the whole village like before when they have abundance of fish.

b) The Creeks (commonly known as O')

The other type of ecological terrain is referred to creeks (O'). These creeks are O'Chueteal, O'kong kang, O'Kontuy korgnork, O'Ping, and O'kombor, O'Kombortauch, and O'Komborthom. Creeks have been served as the seasonal fish

spawning, grow up and migration during the flooded season from July to October. During this time fishers could use gillnets, *Chann*, and long lined hooks to catch fish from these places.

Some creeks can provide large numbers of fish. For instance, O'Cheuteal which situated in Koh Key village could provide around 10 tons of fish if it is blocked or pumped. This creek is big (15m width with the estimated length of 3 to 4 km). As for O'kong kang, O'Kontuy korgnork O'Ping, and O'kombor in Koh Key village, people could catch fish at least around 200kg by using simple fishing nets. If these creeks have been emptied, villagers could catch around one ton of fish per year. Other creeks, O'Kombortauch, and O'Komborthom, are also providing a lot of fish, which could account thousand kilograms of fish.

Before 1995, these creeks have been used by the communal and people agree to block together and share the products. But from 1995 to 2000, some of the Os' (O'Cheuteal, and Kambor thom have been leased to private companies by using small mesh net to block and drop poison inside, while fish start to migrate out to the river. Normally, the blocking O' or poison or pumping O' often conducted by the family who live next to the creeks whose relatives are working in the district level or provincial level.

In 2001, local people have strongly protested against the streams and creeks blocking and since then there is no blocking or leasing the stream to private companies. However in early 20003, one of the creeks have been pumped by a group of fishers from outside because they claimed this creek belongs to their village territory. However this claim had been cleared up by representative from commune arrested them to the commune office where their illegal fishing has been solved. They finally had been allowed to pump and catch all fish through out the collusion and sharing interest with local elites.

c) The Tributaries/Streams

O'talash is the tributary which shares the border with Preah Romkel commune. It serves as the catchments (60 km) where its sources of water are partly derived from Plateau and *Dangrek Mountains* in Preahvihear province. O'Talash is one of the most fish spawning and migration place in the province where it has been

the place for multiple fishers who come to catch fish seasonally during the fish migrate out to the Mekong River.

Before 1995, fishers from Koh Sneng still used the bamboo fence to and the fishing trap to block the stream. Each villager could select one location along the fence to place his or her fishing trap. Other villagers, who were unable to fish because they had no fish trap, were able to share in the catch by assisting in fish processing. People call this “*happy season*” because villagers from Koh Sneng could also work together and also get known fishers from outside who they could share experience and work together.

From 1997 to 2000, this tributary has been leased to the exclusive private operator who received the legal license from the provincial office. But since 2001, this practice has been stopped as there was strong protest both from local people and NGOs who are working on fish conservation. Since then fishers from different places can come to fish and the blocking of small waterway by using bamboo fence traps and Tchip (*Funnel Trap*) are has been resumed but not the whole water body. Once fishers have cleared the flooded forest in the stream for their bamboo traps, the other fishers have to respect and move to other places in the deeper stream.

However by the early of 2003, the use of poison has been widely applied in new forms. This practice is done by pouring the poisonous with the cast net and then used it in the creeks and deep pools. Every year from September to December, multiple users from different places and ethnic backgrounds have caught hundred tons of fish from this area. Most of the fish caught have been kept for *Moy* (fish buyers) from Lao, but now have to sell to fishers who obtained the license from the provincial office.

d) The Rice Field/Ponds

After Pol Pot’s regime (1975-1979), villagers who had evacuated the village returned. Meanwhile, villagers started to extend their paddy and farm land by cutting the forest in the island. Today the village is surround by wet rice paddy and the seasonal flooded forest in the middle of the island. There are two big ponds: *Bueng Kachhet* and *Bueng Kachhet*. During the flooded season (august to December), the wet rice paddy, the flooded forest has been the source of food for fish to grow up. Meanwhile, local fishers can use fishing hooks, Lops, Tru, gillnets to catch fish in this

places. In addition, when the water starts to recede, and the rice start to be harvested, fish also started to move down or stay in the ponds and canals. These ponds are not only creating space for fish to be caught by local people, but also serve as the water reservoir for rice field and buffalo. Villagers meanwhile can catch fish from these ponds by using fishing trap or fishing hooks, gillnets or pump to empty during the less water.

Based on what I have described above, there are five main types of fish habitat and ecology surrounding village. Local people know how to fish and adapt well with the surrounding environment. They understand seasonal fish migrations in the Mekong River and know how to prepare wide ranges of fishing gears to catch particular fish species (see appendix 3 regarding fish species). Mr. Lieng Chann who is one of the experienced fishers in the village explained that:

There are two types of fish migration cycles that we could catch from the river in our areas: (1) the pattern of fish migration from Tonle Sap Lake up to the Mekong mainstream, which is taking place from January to March. During this time, we have noticed two types of fish that we have caught. The first is the big fish such as: Trey Pava, Trey Khaek, Trey Proma, Trey Pa Se Ee, Trey Proul, Trey Chpen, Trey Tenel, Trey Traw Sak. The Second, the small fish such as: Trey Riel, Trey Lehn, Trey Mork which normally taken place from February to April. (2) the down stream fish migration which normally taken place from July to August. These fishes include: Trey Pra, Trey Ke, Trey Reach, Trey Pa Pheurn. These types of fish migrate down stream in large school to the spawning ground in Tonle Sap Lake. Trey Riel also goes down and lay eggs in Tonle Sap Lake as well.

Mr. Lieng Chan
Koh Sneng, March 23, 2003

Mr. Lieng Chan is one of the knowledgeable and skillful fishers in Koh Sneng village. Every year, he could catch fish with an average of 700kg for his family consumption. He explained to me that fish caught here has to be dividing for fermented fish (*Prahoc*, *Phaak*), which normally around three jars (each jar equal 20kg) for the whole year consumption. And the surplus, he sold and sometimes shared with relatives in the village around 200kg per year. So the total catch of fresh fish is around 900kg for his family.

In brief, the physical and ecological setting of the village I described above has formed as the general landscape and mental space for local people as the whole. These surrounding environments have provided good place for fish habitat and the adaptation of the local fishers to this ecological terrain. Symbolically, the inner part of

the village is the residential plots ownership. Their houses are built close to each other in two lines along the main road in the village where each house is often surrounded with fruit trees and often close to the river. Riverbanks are intentionally cultivated with vegetable garden during the dry season for the household consumption and market.

The riverbank, paster land for growing vegetables and when used for their household consumption, they grow rice and cash crops. Because their knowledge has been developed throughout the whole landscape of the surrounding area which serves as the lived space for the local fisher and villagers in adapting their livelihood strategies according to these spaces. However, the livelihood strategies of local fishers and their social relations of productions through out these spaces will be discussed in the following sections.

4.2 Fishers and their Livelihood Strategies

Based on the physical and ecological landscapes, Koh Sneng is one of the villages, which are rich not only for fishery resource, but also other resources. In the end of village, there are the individual plots of land-cultivated ownerships. It also consists of dense forest which inhabited by numerous spirits, and its products are also economically important in common village life for such essential things as house construction and procuring of medicine, as well as representing land for possible conversion into rice fields and framings.

In this regards, the village consists of land, forest and water which local villagers can have various accesses to these resources. These show that the source of the local economic livelihood in village is so diverse and complex. Its livelihood security is closely related to households' capacity and manpower to spread their resource and activities that generate cash income. In some cases, fishing is not always appeared as a main source of income, but it serves as whole subsistence resource and indeed the main source of animal protein.

The evidence from fieldwork revealed that one of the adaptive livelihood strategies is kinship relations which indicate so strong and considerable importance, for example in the times of trouble, sources of labor or credit, access to market and political favor. These types of resources become even more important in livelihood strategies as households attempt to adapt to rapid change, periods of uncertainty or -

natural disasters.

From the above discussion, it can be seen that the full significance of fishing activity becomes apparent when placed in the context of wider household livelihood strategies. This itself requires an understanding of how households combine different activities, resources, and how fishers respond to the changes. In order to understand this complexity, I classify this section into four parts: (1) the land holding ownership, (2) the fishers from inside village and its kinship relations, and (3) fishers from outside and their web of social and power relations.

4.2.1 Cultivated Land Ownership

Koh Sneng has been characterized as one of the rice-fish economy villages. Their accesses to land and the surrounding resource are one of the most important for their local economy. Historically, the villagers in Koh Sneng have been involving in practicing slash and burn agriculture, on a cutting and re-growth cycle of between 8-13 years. But the period of this fallow land has shortened year by year, as there is no encouragement from the government.

Until now, the land ownership in the village is still traditionally occupied. The villagers explained to me that once you cleared the land for your rice paddy or farm, you register to the commune office and pay 50,000 Riel per year for one hectare, which is locally recognized commune level and relatives. Two types of farming system in Koh Sneng village can be categorized as the main sources of their livelihood: the first type is referred to wet rice and the second is referred to Chamkar.

Table 4-1: The total productive land (Ha) registered with the commune office

Wet rice (Ha)	Chamkar land (Ha)			
	Bean	Watermelon	Tobacco	Mixed Vegetable
107	73	08	04	10
Total productive land is 202 ha both the wet rice and farming				

a) The Wet Rice

Wet rice cultivation is the chief form of production grown in rain-watered fields in the villages and island. The land size occupation of each family is not so much under pressure, as the populations of the whole commune are still low. Sethi (2000) in his survey shows that each family in Koh Sneng village could obtain the

land as the property right from one to five hectares for wet rice cultivation depending on the number or manpower in the family. He shows the average land holding for each family is about 1.67 ha. Through out my fieldwork, I also found some families could have up 5 hectares of land according to their main power.

The majority of the village is covered by wet rice paddy field and forest at the end of village. During the rainy season, all the paddy fields are occupied by wet rice with less space for buffalo. That is why during this season, the buffaloes look thinner than in the dry season. However, wet rice productions in Koh Sneng is very much depending on the climate, if the weather condition is favorable to provide enough rainfall for their wet rice cultivation.

In 1998, the weather was not good their rice field had faced both drought and insect which made their rice product very low. However, there was assistant from an NGO called PFD (Partner For Development) who provided the rice surplus as part of its development in the province. As the result, the village has initiated the Village Rice Bank in which each household contributes 25 kg for the critical time and the village development. This banking system is under the village committee calls VDC (Village Development Committee) was also start working since then as well.

The village explained that since 2000, their rice production is considered as one of the high yield. During my fieldwork, I have observed that one hectare of land could produce around 2,000 to 2,500kg of rice in which this figure is much higher than the statistic generated by the Provincial Department of Agriculture, Forestry and Fisheries of 1 to 2 tons/ha.

However, rice harvesting has also been one of the happiness times for the villagers because they could share their labor with each other normally started from November to December. The villagers believe that rice collection is one of the activities they could help. If their neighbor gets sick, they could not help much with their energy, but only come hanging around looking at the patients sadly.

Once the rice has been kept in the rice barn, there is at least small party for all the helpers. Meanwhile, there are sounds of happiness which people talk and chat with their neighbors. Some rice owners also rent the Karaoke for one or two hours for the entertainment and these activities take turn with other people until the electricity stops.

b) The Chamkar

The Chamkar sometimes refers to the dry rice field or farming land where forests are cleared by burning undergrowth. In the fertile bed a crop can be grown for a few years without the great input of labor that is required by wet rice techniques. When the soil is exhausted, the farming community can move on, leaving nature to renew itself gradually. This form of agriculture is commonly practice by the villagers in Koh Sneng. There are some advantages about this farming system. Its requires little labor once the ground is cleared, and yields of good-quality rice can overlap the lower parts of the range of yields deliverable by wet field cultivation.

In Koh Sneng, the Chamkar land size is obtained approximately 1.1 ha for each family to grow subsidiary crops and vegetables such as watermelon, tobacco, cucumbers, tomatoes, chilly, potatoes, beans, and eggs plant etc. However, the villagers in Koh Sneng⁴ has extended their Chamkar in other islands of the commune such as in Koh Han, Koh Key, Koh Sambor, Koh Tonle Moy, and Koh Kandor. All of these islands are still natural in term of forest and settlement where there is only temporary settlement.

Since they have plenty of land, people in Koh Sneng sometimes shift the cultivation from place to place every year by doing slash and burn with short period around one to three years. However, this practice is often the blame from the Provincial Forestry Office for destroying the forest. If compares with the practice, wet rice field are more fixed than the *Chamkar*.

The above description shows that the wet rice and Chamkar cultivation have been one of their main sources of family economic. By looking at the context of the wider socio-economic arenas, the village structure of Koh Sneng is historically well established in term of equitable norms, sharing of resource access, and production of exchange relations. However with the external pressure of market penetration and the increasing of commercialization, these communities will be inevitably faced with internal differentiation in term of their access to fishery resource. The mechanism of how these communities deal with this changing environment and how disputes are

⁴ The whole commune has 8 islands: Koh Seng, Koh Srer Lao, Koh Kondor, Koh Key, Koh Tonle Mouy, Koh Han, Koh Somrong, and Koh Sambor. According to the statistics provided by the commune shows that the total wet rice land in the commune is 390 ha, while the farming land is 191 ha.

negotiated and settled become one of the important means of monitoring the process of change.

4.2.2 Koh Sneng Fishers and Their Social Differentiations

Throughout the current changes, resource access and helping system in village are also changing. Villagers in Koh Sneng move out and in depending on the uncertainty of the resource, and household's livelihood strategies. This adaptive feature of livelihood strategies has been adopted and integrated by different household in order to deal with the inherent uncertainty and dynamism of freshwater fisheries.

The other form of access to fish resource of fishers can be categorized based on their social and economic status. According to group discussion and wealth ranking with local people, three types of classes have been identified in the village, the better off, the middle, and the poor as shown in the table below.

Table 4-2: Socio-economic differentiation of fishers in Koh Sneng Village

Social status	The typical characteristic of household
Better off (<i>Nek Mean</i>) (About 20 families)	<ul style="list-style-type: none"> - Local elites, fish buyers and local traders who have strong social and kinship connections both inside and outside the village. - Having big house which roof made from tile or zinc. - Having more than enough land rice and farm land (three to five hectares). In some cases, they hire extra labor to help them. - Having buffaloes, pigs more than 6 and having chickens and ducks at least 40. - Typically, these family could be found of having some of the following asset: motorboat, rice mill, a water pumping machine, Video or Karaoke for renting and have extra money to lend for interest.
Middle class (<i>Nek Kondal</i>) (About 141 families)	<ul style="list-style-type: none"> - These types of families have a good house, which is big and good enough in the village. They normally occupy enough land rice, and gardening land (from one to three hectares). They also have enough manpower, which can produce extra incomes or surplus for trading or exchanging with other villagers or neighbors. - Normally, these types of family occupy two boats: one motorboat and one rowing boat. They have enough animal draft, pigs, chickens and ducks for responding to special need or demand in the family. Most often, these types of families are involving with forest which they could collect NTFP.

- Poor class (Nek Kror) (Around 7 families) - Having small house with thatch roof which is not good enough in social status. They often own less rice field and farmland because they lack manpower. In terms of producing technologies, these groups of families often occupy a rowing boat, less animal draft such as buffalo. Pig, chicken and ducks are also less for them. The families are often faced with shortage of rice; money that sometimes requires them to sell their labors for extra income and surplus. Normally, they are divorced with many dependences in the families.

Each of class of people is not holding the same access in term of livelihood strategies, resource extraction and exchange relations both inside and outside village. For the better off families, there are around 20 families, while the majority is middle class and very few are the very poor in the village. In terms of fishing, the well off groups are not strongly involving with direct fishing, but some of them act as fish trading. Most of their families have strong connection with local elites and business tie through out their kinship, social relations and patron client relation with local elites and traders. In the village, they have more money than the others because of their trading.

Some reasons why these people become wealthier than others. For instance, Mr. Vy Savorn who is currently deputy director of primary school which provides him with some protections and connection with the upper level of government administration. At home, his family owns one rice mill, and one of the biggest groceries shop in the village. Besides that he is one of the fish buyers in the village. Based on this resources and social status he could make his business grow faster. Sometimes he bought fish one kilogram only 2000 Riel and he sold for 6000 Riel/kg for those who are not in the village and come to work or attend the meeting there. This price is more expensive than the provincial market. In term of rice cultivation, he did not spend much time because he has money to hire the labor and buy the extra rice from other village in which one year he can sell the surplus around 2 tons of rice.

The second case is Mr. Norm Samuth who is currently the environmental ranger in the commune (but fish buyer during the anarchic period), and also one of the biggest handicraft works which form as the main source of livelihoods by making household furniture, building houses for villagers. He has his own sawmill, in which every house in the village asks him to build and pay him. However, Mr. Muth is the one of the most respected person in village. His role as environmental ranger makes

him more legal in buying timbers to make furniture and to build house in the village (the best quality timber in the village price 250,000Riel/1m³). Most of the house building in the village use this kind of wood because the village is surrounded good forest and timber.

The other case is Mr. Yerk Yorn and Mrs. Erk who is a couple with two children. They are presently one of the well off families whose house is also the biggest one. The family has the biggest rice mill and rice wine producing in the village. In one day, they could produce 45 to 50 liters of rice wine. Some days, he could produce up to 100 liters, when it has been reserved or booked for the wedding and special ceremony in the village and other village (one liter is 1,500 Riel). Besides, the rice mill and wine producing, the waste from wine and rice mill can be used for pigs (15 pigs), ducks and chicken. His wet rice harvest for this year is 150 sacks which are more than enough for his family need.

Yorn's family has strong and long kinship relations both inside and outside the village. Historically, his late father-in-law was the first governor in Stung Treng province after the Pol Pot regime. At the moment, his mother-in-law is running a grocery shop in the village. She has regular contact with her relatives as far as in Pakse and Vientiane of Lao PDR. At the provincial town, her youngest son married the girl whose father is the chief of Stung Treng district (these couple are now the teachers at primary school in Koh Sneng). Early this year, Mr. Yorn also spent two weeks in Vientiane to visit his uncle who is the policeman there. He told me that he came to help his uncle with his shop there.

Mr. Yorn is also environmental ranger of the commune, which is supported by the Ministry of Environment. In term of fishing equipments, he has gillnets, cast net, long line hooks, but he does not spend much time on fishing activities. Normally, he put his gillnets and fishing hooks, and *chann* in the river and come to check them early morning and evening.

Based on what I have described above, these group of people often have good connection with the government official, trading agencies and have different social relations. In term of economic production, they have more than enough in their family need and often need extra labor for their business, for instance Mr. Muth, the environmental ranger and the well-known carpenter in the village.

The second type of family livelihood in village is classified as middle class that forms the majority of the households. These families are the most subsistence and sell the surplus for some times. According to Mrs. Mai Sameurn (with five children), who identified her family as middle level, showed that her family's livelihood strategies includes: farming, fishing and raising animals. This year her family could harvest 30 sacks of rice (one sack is 35kg) which she need around 40 sacks for the whole year demand. So the rest, she has to borrow from relatives, neighboring or the VDC (Village Development Council). For VDC, if she borrows one Harp (one harp equal to 60kg), she has to pay interest with 10 kg/year. Besides rice production, her family could produce 600kg of bean, and 200kg of sesame.

However, her family has never bought from others because she has enough manpower to fish. Her family has one rowing boat which her son and husband use to fish by using gillnets, fishing hooks in some *Bungs* and other places besides *Kontuytroy* which are now under the seine net operation. However, the surplus fish are never sold in the market, but to the local *Moys* in the village around 2 or 3 kg in which one-kilogram range from 1,500 Riel to 2,500Riel. Fish has played minor source of income, but serves as the majority of protein need. At the moment, her family has five cows, three buffalo, one pig, thirty chickens, and three ducks which provides as the main sources of income by selling chicken, pigs, and buffalo and making handicraft like making mat which each mat she could sell with 20,000 Riel (each mat takes two weeks).

Livelihoods of these groups are also diverse which involves not only one activity. Sometimes, multiple activities have been taking place daily and also involves with web of social relations. One time, I accompanied one fisherman, Mr. Khorn who likes to identify himself as a farmer and fisher in the village. He and his younger brother were using their gillnets in the river and then we went to his gardening together on the other side of riverbank where his huts and place for other fisher come to take a rest after their fishing.

Khorn's farm is consisted of two parts. The first part is on the lower part or the slop of the riverbank where he plant watermelon, corn, sugarcane, tobacco, eggplant and cucumber. The other part is on the upper of the riverbank, which looks like more a terrace. In this part, he plants banana, papaya bean and coconut. He has to put his unused fishing net around this part to prevent the wild pigs eating his bean. During the

anarchic period, he was using this big gillnet to catch big fish from deep pools, but now it is banned and he has to use them to protect his farm instead.

However in front of his garden, it is the place where fishers from outside come to take a rest, or starting using their drifting nets. Most often these fishers used their fish to exchange with his watermelon, and sugar cane. Some of the fishers here are from down stream as far as the provincial town or Se San district. Some fishers stay under the flooded forest at the head of Koh Sneng during the day time that areas become the place for them to take a rest and cooking for their food. Throughout these interactions they have become friends and sometimes fish here together.

Khorn used to be a fish trader from 1996-998 and in 1999, he decided to start another career as the petroleum trader by importing from *Vuen Kham* to *Stung Treng* town. His boat could carry the six barrels of petroleum per time in which one barrel is 200 liters. At the provincial town, he could sell to *Moy* in which one liter he could earn 300 Riel (three Baht). Unfortunately, in 2000 he was arrested again by the customer officers and fined him with USD100 because his business is considered as illegal without license. Since then he found his business become impossible, so he decided to stop and his parents do not allow him to be away from home as well. Now, he is staying at home doing farming and fishing with his family.

The other family livelihood strategy can be seen is Mr. Kreung Vuth who has been living in Koh Sneng since 1979. Mr. Vuth has eight children (two married and live in the same house) in which four people can generate income for the household. He has two boats. One with machine and one rowing boat, one rice mill, one chain saw. Rice production is 80 sacks (one sack is 45kg), which is enough for his family. His fishing is known as family scale by using gill-nets, lorps, long line fishing hooks, Sai Yeoun and cast-nets. Fish caught used for making *prohoc*, but most of fish caught has to keep for family consumption. The average catch in his family was around 3kg/day, but sometimes he could not catch for two or three days. Besides fishing, he has raised 30 chickens in his rice field next to river on the west side, four pigs and six ducks and six buffaloes. Since he has been here, he said fishing is one of livelihood strategies he has learned from relatives and neighbors. In the past, villagers here often go fishing in-group or with relatives if we go far from village. However, he explained that fish resource in Koh Sneng are still rich, every year most the fishers from *Stung Treng* and other places come to fish in Koh Sneng since he came here in 1979.

The similar case is Mr. Lieng Chan who identifies himself as middle class, and family scale fisher. There are eight people and three manpower in his family: his wife, his eldest son and he himself. His fishing equipments include gill-nets, fishing traps, long line fishing hooks, Tom (vertical trap) and Chann (drop-door-trap). Fish caught has been used for daily consumption, making processing fish (*Prahoc, and Phaak*) and sell the surplus and sometimes share with villagers. Fishing is the activity-taking place year round for our daily food surplus with the estimation of 900kg/year. Besides fishing, he raised 40 chickens, three pigs and three buffaloes. He has two boats: one with machine and one is a rowing boat. These boats have been served as the main source of transportation and communication for the family. Even though, he considered rice is the most important activities and then fishing, other subsidiary agriculture such as watermelon, bean, and mixed vegetables, tobacco are also playing big role in daily need for his family.

What I have described above are the families whose men are playing major role, but also the women who are playing the major roles in the village. There are around five families, who identified as middle classes in the village, have played an important role. The head of these families are: Ms. Sorn Peak, Phar Sou, Ms. Sorn Fat (who has just married in February), Mr. Leang 's daughters (they are very good at making Chann, and Lop). The other women are Ms. Pe and Ms. Nuon whose father is too old to fish and flow the rice field. That is why his two daughters have to take the exclusive role in fishing, flowing and farming as the men. However, most of the women and teenagers who are involving with fishing have often taken place in front and at the backside of the village.

One special activity practiced by local teenagers is to catch natural frogs by using spear gun. This practice is part of hunting games and source of daily food conducted by teenagers while they are working on their farm other islands or looking after their buffalo on the riverbed or along the island corridor. They use this spear gun to kill natural frogs living in the flooded forest or a bush in the riverine or riverbed, in particular in March to April when the level of water recede to the lowest. Sometimes, they used this equipment to kill fish who showing themselves underneath the water surface or the water bird living in the forest or the flooded forest. The hunters are not allowed to kill water birds in the river because it is under the Ramsar site protection.

Based on the discussion above, the production relations of the middle class in the village varies in which the main source of their family economy is not depend on one thing. These multi activities are seen as rice cultivation, catching fish the whole year, vegetable cultivation and animal raising. These kinds of relationships are based on families and labors characterized the middle class in the village. These classes of people are able to produce enough production, rice enough so they may go fishing and to sell for some cash or their labor may be shared along the ethnic line and ethnic group.

The other class is the poor group in the village. Normally, this class of people are more dependent on natural economy because they don't have assets and access to those resources like the other two classes. Their livelihood is more like an end meet condition. Their lives start in the morning and then finish by the evening and tomorrow start again. The condition of the survival based on this resource, which are not considered in the market economic at all.

Mrs. Mai Phornng, which is one family among the poor class, occupies rice field more than one hectares. This year the land could produce only 30 sacks of rice (one sack is 35kg) and her family need at least 40 sacks to meet whole year supply of the family. To meet the requirements, she has to sell her labor or help her relatives in rice transplanting, and harvesting the rice which she could earn one sacks in five days. To respond to daily food consumption, she and her family have to dig for crickets along the riverbanks, catch crabs from the rice field and riverbanks, pumping the pond in the rice field. When the ponds are emptied, she moves to the riverbanks where she could catch frog living there during the dry season.

She does not have buffalo or cow, but she has one pig, five ducks and chickens. She is divorced (with six children) and her husband has been away. In village, her relatives and neighbors feed some of her children while she is on the farm working for herself and others. Her rice field is big enough to produce enough rice, but she lacks of labors to do this. However throughout the process of market mechanism and privatization, these groups of people will be more and more depending on the labor so that the poorest will be forced to sell their land in distress situation.

Throughout my fieldwork, the system of helping in the village is still remaining such as house building. In the past, when people build houses, the house owner asks their relatives or neighbors to go together to cut the timber from forest in order to make poles for the house. Before the house built, the owner invites villagers, neighbors, and relatives to go fishing such as using cast nets or gillnets in order to help them. The owner has nothing to worry, but only to prepare wine and rice for them. If the amount of fish was over supply, the house owner can use the remaining to make *Prahoc*. These kinds of tradition and helping culture is lasting since generations.

Mr. Lien Chann who is one of the elder explained to me that last year one house was built and the villagers form as groups around five boats to fish in order to supply during the house building. Each boat was able to catch fish around 10 kg which was enough for the villagers who come to help build the house. Based on the tradition, when people build a new house, the house owner will not kill pigs or duck to serve the helpers because it will bring bad luck to them. If it is unavoidable, the house owners can ask some body to do it and they have to buy from them instead.

According to Mr. Vuth, whose son married with Mr. Chan's daughter, sees this helping system is declining by arguing most people now are more *Suon tour* (person who wants to have and get things for only themselves). Recently, when doing business or fishing, people do not often inform the other villagers to go as group. For instance, going fishing by using long line fishing hooks, if they know there are more fish there, they do not tell other to go with them.

Now most families in our village have their own saw chain which can be used to cut timber in very short time for one tree. Therefore, if the villagers want to cut wood or timber to build their house, they have to ask and pay to those people who have the saw chain in order to cut timber for them. In addition, house building now has to hire at least one person who is commonly known as *Me Cheang* (the one who are very skillful with house building). Besides this, the villagers could provide labor while setting up the foundations. Some helping systems are still practiced in the village such as harvesting the rice, threshing, and transporting the rice back to their rice barns which normally taken place in November to December.

Although there are three types of different economic classes in the village, most of their fishing takes place among their family members and often in the fixed

place whose fishing equipments are gillnets, cast nets, Lorp, Chann and Toms, which are not in the larges asset. Based on the example above, these groups of people are dependent on natural resource, custom and kinship relations. Women and teenagers are also in the position of fishing and other productions relations in order to support their family livelihood. However, all resource in the village are not only used by these groups of people, but also highly demand from outsiders as well, in particular fishing ground and resources which I now discuss in the section below.

4.2.3 Fishers From Outside: the Social Relations of Productions

Throughout the historical context, fishing activities in Koh Sneng are done individually (small-scale fishers) and collectively, and private operation in the same water body. However, their social relations to production in this water body are diverse and complex. Some fishers from outsides are well equipped and more advanced with capital, labors and power relations. According to law, there are two types of fishing scales (the license and non license) allowed to operate in Koh Sneng which involves four different groups respectively.

The first two groups are referred to license fishers the mobile seine net and target seine net operators. The mobile seine net operated by Mr. Puong Da⁵ from *Prabath* commune of Stung Treng district. In his requested letter, the mobile seine net was length 120 m and size 1.6 cm, while the law ban from 1.5 cm. He has obtained the legal status (license No. 391 Kor.Sor.Khor dated Novemner 7, 2002) to operate from November 1, 2002 to May 2003, which cover three villages: Koh Sneng, Koh Key and Chom Thom village. The license was signed by the commune chief, the chief of district, the chief of district office of Agriculture, the acting director of Provincial Fishery Office and the Director of Provincial Agriculture, Forestry and Fisheries.

The target seine net or fixed seine net operated by Mrs. Chandy and Mr. Sok Rim (the couple from Samaki commune of Stung Streng district). The license was also signed by the above mentioned institutions and persons as well. Their fishing ground is taking place on the sandbar between Koh Sneng and Chorm Thom villages, which assigned and demarcated by the Provincial Department of Agriculture. Accordingly, they cannot use any places in the commune. The used of these fishing equipments could catch more fish then any other equipments and has impact on local

⁵ He is originally Vietnamese who has been living in Stung Treng Province since the liberation time.

fisher in different ways. The local fishers could not use their fishing equipments in the area assigned for the target seine nets while the mobile sometimes enclosed the local fishing equipment who used in the areas. This practice is taking place during the open season.

Historically, the couple has been using this seine net since 1989 in which they had spent nine years operated in Koh Sampeay commune in Siem Bok district and operated in Koh Sneng since 1998. They are the lowland people (Nek Srok Krom) from Prey Veng province and the seine net did not belong to her. It originally belonged to the Vietnamese couple living next to her house and borrowed her money to operate this business. Unfortunately, her husband was killed by the Khmer Rouge soldiers while fishing in the remote areas during the civil war. For compensation, the wife of Vietnamese fisher decided to stop and give this seine nets to Mrs. Chandy and Mr. Sok Ri.

The third groups refer to the drifting net operators which considered as non-fixed fishers. These types of fishers also include Chams, Vietnamese, and Khmer from provincial town. Their fishing equipment sometime could reach 600m length stretching across half of the river. They are moving from places to places according to the pattern of fish migration and come to the market daily. During peak time of fish migration, about 50 boats of drifting nets come to fish on the river body in Koh Tonle Mouy. The practice of drifting nets is normally starting from east side of riverbank (Koh Key) and then drifting along the current flow of water until Koh Sneng village. This practice can take place as many times as possible based on the pattern of fish migration and availability in the areas. According to my interview, the drifting net fishers could catch fish from here at least from 10-20 kg/day. But during the peak time, they could catch up to 40 kg to 80kg/day.

The fourth group of fishers are referred to as the seasonal fishers who come from different places and settled their fishing camps in the commune. These fishers are from Sre kor, SeSan in SeSan district, *KonToykor* (the cow tail) of Stung Treng district and the provincial town. They come to fish here every year from December to March while the water level in Sekong River become too shallow to fish. Sometimes, these fishers also fish in the creeks and deep pools controlled by local fishers in Koh Sneng. Some of these fishers have been fishing here seasonally for long time.

Villagers in Koh Sneng also admit that they have these seasonal fishers fishing in their commune since 1970, which become one of their traditional practices.

Throughout my fieldwork, I have found that the seasonal fishers strongly reflect the role of women in fishing, in particular in the securing of informal economy of the family. Fishing is widely recognized as something in which women participate, though in some places there are restrictions on the technique that can be used in some places on the technique the men can use. However, this shows us the division of labor in term of gender in fishing activities. In particular, how women have been playing the typical role in the informal economy of fishing. Here is one of the typical seasonal fisher who comes to fish in O'talash from August to December while fish start to migrate out from the tributaries to the rivers.

I decide to do fishing here with my husband because it is easier than rice cultivating. In one fishing season, I can buy enough rice for the whole year of family demand. During the earlier season of rice cultivation, we advance our money to the rice cultivators in which one Harb (one Harb equal 60kg) cost only 10,000Riel. Once he rice has been kept in the barn in the village, the cost will rise up to 20,000 Riel/Harb. For each season, I could buy rice from 30 to 40 Harbs. Besides this, while fishing here I can raise pigs, ducks, and chickens to support daily need of my family.

Mrs. Pom Ti
November 23, 2002

In O'talash, most of the seasonal fishers now are trying to hide how much fish they could catch exactly per day. One reason behind this behavior was that the fishing in this area now become more and more contested, in particular there was reported that some local or provincial authority come to ask fishers to pay them for fishing in the areas.

All types of fishers I mentioned above can be classified into two types according to their habitats. The first is the non-fixed or mobile fishers which include the mobile seine net and the drifting net operators. These fishers have moved from place to place constantly according to the pattern of fish migration and come to the market every day to sell their fish caught. According to the law, the middle-scale need to pay tax and ask for licenses.

The second types are the fixed fishers which include the target seine net operator, and the seasonal fishers. These fishers have settled down their hut or fishing camp next to the fishing grounds. The licensed seine nets is one of the most effective

equipments to catch all types of fish. In one season, the target seine net could catch fish from the area estimated more than 100 tons. The estimated money come from these fishing could range from 20 to 30 million Riel, while they pay tax to the communal council only 600, 000 Riel (last year was only 400,000 Riel).

Besides fishing and selling fish, the target seine net operator could also raise chickens with more than 60 at her fishing camp. She (the target seine net operator) bought this in cheap price from villagers or exchanges with fish or other commodities she brought from the provincial town. So far, the common agricultural product they bought from village include: bean, soybean, tobacco, pumpkin, coconuts, watermelon, tamarind, chicken, and ducks. Through out this process, they have established good concoction and social relations these villages in the commune.

As for the seasonal fishers, they could catch more fish than the local resident. The average fish caught from this area ranges from 10 to 15 kg per day during the rare time. For the peak time of fish, they could catch which ranges from 20 to 30 kg/day. Normally, these fishers are strongly depended or linked with *Moys* or fish buyers who come to take their fish twice time a day. The average price for fish sold in the area is around 2,500 Riel/Kg. Most of the seasonal fishers prefer to fish here because there are more fish available and it is also far from the provincial market. Once the fish had been sold to *Moys* all the money could be saved rather than spending on the market or pleasure. Each season, they could save their money with the average from 500,000-600,000 Riel. These types of fishers used variety of fishing equipments as the local fishers, but only that they are working harder and more permanent that the local fishers in the residents. The seasonal fishers in the commune are still claim their customary rights because they used to fish in areas, while the license fishers have exclusive right over the fishing grounds, which are rich in fish resource through out their migration up and down in the Mekong mainstream.

Based on the case I have explained above it shows that most of the fishers both from inside village and outside village are strongly influenced by the market system and linked strongly with the middleman who acted as *Moys*. Most of the fishers from inside fish for family consumption and sell the surplus, while the fisher from outsides, in particular the seine nets fishers, drifting net fisher, and seasonal fishers are fishing sell as the major target.

For the drifting nets fishers and seasonal fishers are often asked for informal taxes from the local authorities and the fishery officials who come to patrol the illegal fishing practices. Based on laws, most of the equipment they use fall into the middle-scale and sometimes use the illegal fishing equipments. Based on the fishing scale, all the middle-scale fishers have to apply for license, if not they will not be allowed to fish. These practices have resulted in cooptation and sometimes fall into the patron-client relations, which the fishers need to maintain their activities.

However, 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.

The frequent presence of poultry, pigs and buffalo in villages are not used for daily food like fish. Through out my fieldwork in Koh Sneng, I observed that chickens were generally a stand-by-food-if other protein cannot be obtained for a period for several days a chickens might be killed. In addition, chicken might be served at impromptu gatherings, when fish is not sufficient. However, in many cases and places, the frequent (often annual⁶) epidemics of poultry disease tend to keep the supply too low to make this a dependable protein source.

In general, pigs and buffalo are regarded as “ festival foods”, to be utilized only on special occasions. They are not sufficiently large to ensure sufficient demand for a beast to be killed on a normal day. To some extent the rapidly increasing transport infrastructure mean that a buffalo, for instance, have been shared among a number of markets in which this issues will be discussed in chapter V. Nevertheless, at the present time not only is fish the main protein source for most of the people, but also for those who are not affordable substitute.

The leasing of fishing ground to the private extraction has created more space conflict between outsider fishers and inside fisher (usually between the fixed known local fishers and the seine net operators). Any conflict over fishing space is resolved through the intervention of Provincial Fishery Office as an arbitrator or as the ultimate

⁶ Some villagers in Koh Sneng complained their chickens have died all which is around 100.

decision-makers of who fishes where and what are the equipments used. The allocation of space is crucial because a seine net, the predominant gear used in the water bodies of river covers large space for its operation. Employment of a few seine nets can easily crowd the water bodies. More fishing teams operate in the richer water bodies and as such the problem of congestion is acute there. In poorer bodies, where the fisher-lessees have control over the property rights structure, it is mainly the fishers who enforce the rules of access among themselves.

To obtain fishing license in Koh Sneng is also difficult. Sometimes, it takes the target seine net operators around three months to get the permission or approval from the all related institution in the province. This process has involved a lot of power relations as well as social relations. It is acknowledged that the seine nets operator in *Koh Tonle Mouy* is the Aunt of the Chief of district, and her father is also the present senator at the senate office in Phnom Penh. Therefore, 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.

In this case, the local fishers in Koh Sneng have failed to establish effective property rights over the water bodies. Property rights over the water bodies are eventually transferred to a class of people who come from outside the fishing community. These classes of people are the leassees or license fishers which sometime known as middlemen or fish-merchants and moneylenders. However, the local fishers are able to hold rights over some water bodies only it is very poor quality. During the open season or dry season, the property right in these water bodies of the commune is held by a class of wealthy fishers who own a substantial amount of fishing assets in which these people can be called as license or commercial fishers.

The fishery unit known as seine nets fishers in *Koh Tonle Mouy* has been authorized by the provincial fisheries office, in particular the Provincial Department of Agriculture, Forestry and Fisheries. It is allowed to fish only in the territory assigned by this institution and the used only the fishing gears mentioned in the contract. During the open season, the target seine net fishers have exclusive right over the common-pool or river body, while during the open season the fishing ground become the public again.

During my fieldwork, the level of water is increasing and receding irregularly.

Even in March and April, the level of water is higher than usual around half meter, which provides more space for fish to escape from staying in *Bungs* or pools. With this hydrological condition, the seine net fisher could catch more big fish according to this variation. A group of local fishers (who went out fishing by using torch light) explained to me that when the water goes up it brings along fish, while the water goes down all fish has to stay in the pools or *Bungs*. The changes of water level are not affecting the fish population instead it produces more space for them to escape where the seine net could catch in big amount. However, the serious problem effecting the riverine ecology is that most of the pools and *Bungs* become shallower because the riverbanks have been eroded by the current flow and some pools fill up with the sand which make certain fish species such snakehead changes their habitats to the deeper pools.

Based on law, fishing right and access in Koh Sneng has been categorized with two types small-scale, and medium-scale. 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 can catch both during the open season and closed season in public place and can catch fish in lots during the closed season. 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. Based on this scale, I will show what types of fishing gears and how these fishing gears have been used by different type of fishers in the commune.

4.3 Fishing Techniques, Fish Tenure and Fishing Management

Fishing techniques and gears used in Koh Sneng has provided a good illustration of cultural practice and the evolving aspect of everyday life of fishers. The range of cultural traditions, together with the different topographic settings in which they have traditionally existed, has led to difference in the fishing equipment developed by the various ethnic groups through their interactions. As the result, name for gear types are passed from group to group, and new fishing gears are also being developed or adopted, while the old gears were being abandoned or modified to meet the changing social, economic and environmental conditions.

Throughout my fieldwork, certain fishing gears are being used and operated in Koh Sneng by both fishers from inside and outside village. However, these fishing gears can be categorized with seven types. The first type and commonly used in the village are:

1). *Chann*. It is a drop-door trap with an enclosure for holding fish while triggered by the movement of fish inside the trap against strings passing vertically through the enclosure. The door is usually weighted with a stone. The



Picture 1: Drop-door trap (*Chann*) used to catch fish in the Mekong river during the flooded season.

enclosure may be a basket of woven bamboo up to 1 m in diameter and 2 m long, or fiber net (this is more modern variant, typically slightly smaller 60 cm diameter and 1.3 m long). It is a traditional fishing gear commonly practiced the whole province not only in the village. Originally, this fishing gear has been adopted from the ethnic Lao fishers from nearby.

Chann is used to catch fish in the river during flooded season where there is strong flow with flooded forest. In particular during May to July, it could catch more fish known as Trey Kya (*Channa striata* and *Clarias sp.*). This fish species ranges from one kilos to three kilos in average. At the moment, *Chann* could last only one season because fishers prefer to put it in the water in the whole season until it decayed or broken down by some how. In terms

of capacity, *Chann* hardly catch more than one fish per time because when the fish come and touch the string, its drop-door was triggered and drop automatically. So, fishers need more effort to check it very often while putting in the river beside the flooded or shrubs.



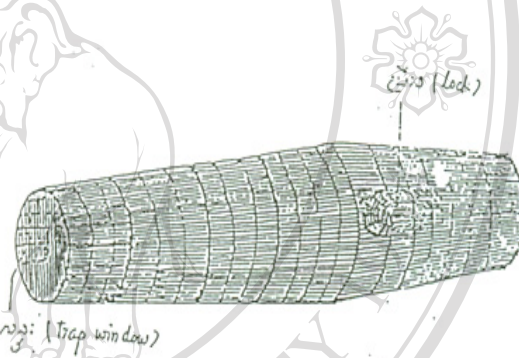
Picture 2: Cylindrical drum trap (*Lorp*) made by woven nets used in Koh Sneng.

2) *Lorp* (*Cylindrical Drum Trap*): It is made by bamboo. But in recently, people

can make this with the woven nets because it is easier for them to reproduce. Generally, it could be two meters long where its mouth keeps paralleled with current. It can catch almost every kind of fish species coming through flooded forest in the stream, tributaries and mainstream. Certain kinds of fish are commonly caught are Trey Proul, Trey Kaek, Trey Pava, Trey Pase Ee, and Trey Kya.

Mostly, people put this besides the reef plants or shrub in the water along the river channels or corridor during the flooded season. This fishing gear is considered as middle-scale in which they could be removed by at least two people. Its capacity could catch fish around 50-60kg. Currently, there are not so many big fish to catch so that people in Koh Sneng are rarely used in their normal fishing place. But, this fishing equipment is used more often in Koh Srolao because there are still big fish to be caught in the flooded forest in the corridor of islands and river.

3) *Trou (Oblong Trap)*: It is a family fishing gear made from bamboo. It is used to catch fish in small streams or creeks while the water flow during the dry season. This fishing gear is usually blocked by the fence trap from side to side of the stream or the current flow of water way and left space for this



Picture 3: Oblong trap (*Trou*) commonly used in Koh Sneng village.

fishing so that fish have no way to escape accepted going through this *Trou*. In Koh Sneng, *Trou* has been used to catch fish in paddy field and small ponds (two ponds: Domery Slap, and Bueng Kachet), stream during the wet rice season. Most of the common fish species caught are Trey Andeng (cat fish), Trey Rors (Snake head fish), Trey Kranh (*Anabantidae*) and Trey Riel.

Sometimes, it could catch freshwater shrimp and prone in the paddy.

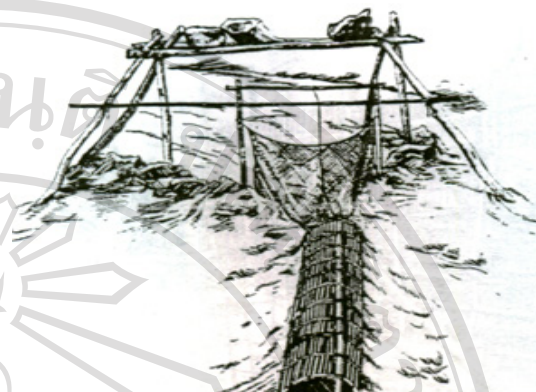
4) *Tom (Vertical Vase Trap)*: It is made from bamboo with the size of around 0.6m decimeter and less than 1m high. It is one of the popular fishing gears that



Picture 4: Vertical vase trap (*Tom*) which normally used in dry season

village fishers used to catch fish since their ancestors. Most of the fish caught by this gear are small fish (Trey Riel). This fish mostly used for daily consumption, but sometimes used for making smoked fish, Pra hoc, Phaak (Fermented fish) if they catch the surplus. It is normally used from February to May when the level of water becomes the lowest.

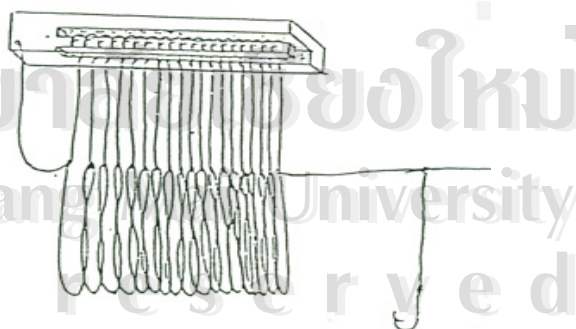
5) *Tchip (Cylindrical Current Trap or Funnel Trap)*⁷: It is one of the traditional equipments used by local people to catch fish migrate from the streams, creeks, and tributaries to the river mainstream. The Tchip has very long tail made from mesh nets connected and extended from the fishing trap called “Lorp” blocking the current flow of water. It is considered as middle-scale by the fishery law.



Picture 5: Cylindrical current trap (*Tchip*) used mostly to catch fish from the stream while migrate out to the Mekong River.

This equipment is currently used in O’talash which is considered as one of the most productive fishing grounds. Most of the fish caught by this equipment are highly marketable and big such as Trey Kes Krorhorm, Trey Kes prak, Trey Chpin, Trey Chlaing, Trey Andeng, Trey Phtork, Trey Ker and Trey Tronel. During peak time of fish migration, Tchip could catch fish up to one ton per day. Currently, the major fishers who use this equipment are from Preah Romkel commune from Cambodia-Lao border. There are less fishers from Koh Sneng using this equipment, but they move deeper until middle of the stream which they can stay there someday by using gillnets.

6) *Santouch (Hook and Line Gear)*: The most basic hook and line gear comprises a hook on a line. Lines now are generally monofilament. It is regarded by the local fishers as one of the oldest fishing gears in Koh Sneng



Picture 6: Hook long line (*Santouch Ronornng*)

⁷ The local people call this Tchip while the official declaration from the Ministry of Agriculture, Forestry and Fisheries in 1987 call this fishing gear Chuc.

village. However, there are varieties ways in which hooks and lines are used.

(a) *Santouch Ronornng (Hook Long Line)*: It is the traditional fishing gear in which they use the fishing hooks ties with string and attached to the long string. In the past, they could have only fishing hooks or up to 20, but now they could have from 100 hooks up to 120 hooks. It is used for the whole year to catch fish by putting along the riverbanks, streams, creeks and tributaries. However, the Long Line Hooks is considered as middle-scale fishing practice. In the past, it could catch big fish in which one fish could weight more that a kilogram, but now some fish caught are less than a kilo for each species.

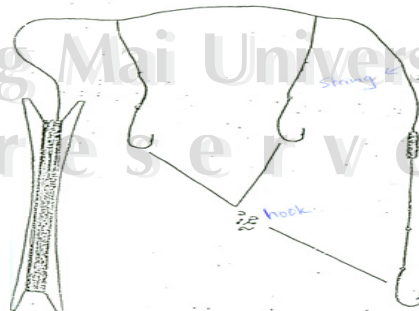
(b) *Set Pole and Line (Sontouch Borngkhai)*: This fishing gear is a short, thin, springy pole is used, with a line attached to one end. The other end is pointed and is jabbed into the bank with the line railing in the water. The most common bait is earthworm, but to catch *Channa striata* (known as Trey Kya in Khmer) small live fish (normally small catfish), frogs, shrimp and insects are also used. Fishers often used large numbers of this gear at one time (the maximum is around 100 fishing hook).



Picture 7: *Set pole and line (Sontouch Borngkhai) used to catch fish along the streams, and river banks etc..*

The gear is commonly set in the evening and if a fisher is using a large number he will check them on the return trip. Usually the gear is left overnight then checked and removed in the morning. If fish are expected to be plentiful the gear might be checked many times in a night. *Sontouch Borngkai* is mainly used by men and teenage fishers in the village. It is commonly used by the villagers in Koh Sneng for the whole year, but it is very constantly use during the rainy season when fish start migrate into the flooded forest in the streams, creeks, or along the riverbank and also in the rice field.

(c) *Bottom Long Line (Santouch Buos)*. It is a set line strung between poles or sometimes ties with the branch of the flooded forest in the



Picture 8: *Bottom long line (Santouch Buos) which normally used in deep pools.*

river. Usually, fishers do not use many fishing hooks which can be less than ten and the hooks are often big and strong tied with stone or zinc and dropped into the riverbed or deep pools to catch big fish such as Trey Pra (*Pangasus nasutus*), Trey Pramar (*Smallscale croaker*), Trey Krai (*Notopteridae*) and sometimes Trey bawbel (*Dasyatidae*) during the dry season. At the moment, some fishers in Koh Sneng still use it, and all seasonal fishers who come to fish along the deep pools in the commune always use them while fishing. This type of fishing gear is considered as middle scale.

7) *Sam Nahn (Cast net)*: Sam Nahn at least has five meters long and it is a family fishing gear ties with the strong string about three to five meters long so that when throwing into water to catch fish, fisher can take it up with this string. The size of this fishing equipment is varies which ranges from 1.5 cm up to 18 cm. The small size used to catch small fish (Trey Riel) for daily consumption and making fish pasted and fish permeated. As for the lager size, it is used to catch big fish living deep of the deep pools or Bungs during dry season. Normally, fishers go down to the river surrounding their village or in front of their house where they can stand on the rock to throw this cast net into the pools which most of the fish could be caught then.



Picture 9: Fisherman in Koh Sneng is preparing his cast net to fish in deep pools during dry season.

In summary, all the fishing traps that I have mentioned above are used for small and medium-scale fishing which is designed specially to catch exactly the fish species based on the seasonal variation and the fish habitat as well as they seasonal movement.

The second type of equipment used popularly is gill-net (*mornng*). *Mornng* is one of the popular and common for the people as the whole. It could be used in different kind of water and places: such as river, streams, creeks, cannels, deep pools, or tributaries. It can be used in shallow, deep, stable or flowing water during both dry and rainy season. In Koh Sneng, there are two types of *Mornng* used to catch fish. The first is called *Mornng Kaing* (stationary gillnet) in which fisher use a fixed place. The

second is *Morng Borndet* (drifting or floating gillnet), which people use to put across the river drifting along the current flow of water.

The size of these fishing nets varies. The first one is a mesh sized which ranges from 2 cm up to 4 cm. It is called *Morng Trey Riel* which can catch small fish such as *Trey Riels*, *Trey Lehn* and other small fish. The second is *Morng Krola Pram* which ranges from 5cm to 7cm, which could catch bigger



Picture 10: The seasonal fishers prepare their gill net (*Morng*) to catch fish

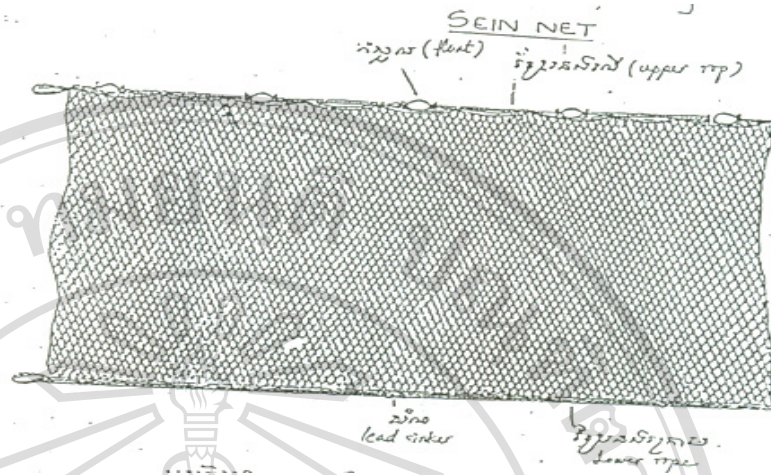
fish such *Trey Chpen*, *Trey Proul*, *Trey Pava*, *Trey Chlaing*, and *Trey Pa Se Ee*. The third type is called *Morng Krolarthom* (bigger size), which ranges from 8cm-18cm. This size of gillnets could catch fish such as *Trey Ros* (*Snakeheads*), *Trey Trasak*, *Trey Pra*, *Trey Tronel*, *Trey Pava*, *Trey Khaek*, *Trey Proma*.

As for *Morng Borndet*, it is usually long with several hundred meters sometimes up to 600m used in *Koh Sneng*. It requires at least two people to conduct this fishing net one is rowing the boat and the other is unlading the net from the boat into the water. Most fishers are from outside and they are very knowledgeable and experienced about the pattern of fish migration regarding to time and place where to put their drifting net in the river. However, this fishing equipment is considered as middle scale with not boundary fixed as the *Morng Kaing*.

The third type of fishing tool is the seine net (*ourn*), which is exclusively for medium-scale fishers operated in *Koh Tonle Mouy*. It requires a considerable investment of capital and labor. There are two types of seine nets (*Ourn*) in *Koh Sneng* commune. The first is known as fixed or target *Ourn* which allow to use in the territory demarcated by the Provincial Fishery Office. The second is the mobile *Ourn*, which can be used any places wherever they could catch fish in the commune. In principle, these two fishing nets are used to catch only small fish (*Trey Riels*), but in practice they could catch all types of fish species in the area. For the target seine net,

the catch capacity could ranges from 200kg-3 tons⁸ a day with a maximum catch of 129-150 t in one season.

The target seine net in Koh Sneng length 300m consist of ten workers and three engine boats. The workers are not only helping to put the nets off the boats, but also select the types of fish



Picture 11: The typical of the seine net used in Koh Sneng

regarding to grade 1, 2 and 3. The time for fishing is not fixed according to the wind, the level of water and the moon. Sometimes they start round up their seine nets at 6 pm or 10 pm or sometimes in the early morning according to the pattern of fish migration. The other reason is that in the river has increased the used of navigation, in particular the newly introduced speed boats from *Veun Kham* in Laos to Stung Treng provincial town across this place in which its sound, waves, and engine propellers makes scares the fish to go out from their deep pools.

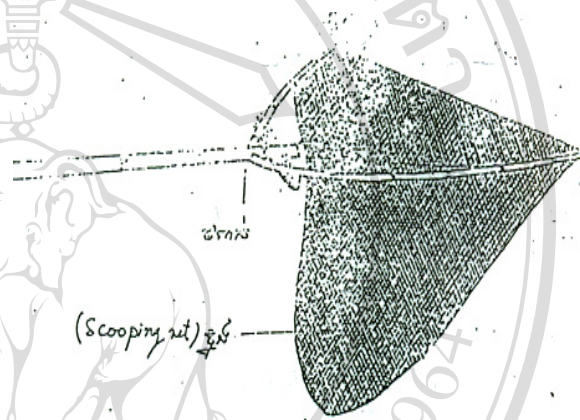
The seine net fishers are very experienced and knowledgeable regarding to fish migration and movement. They could predict all kinds of fish in the water by just sitting on top of boats or putting a paddle into the water while rowing. Throughout their experience, they also could estimate how much fish can be caught by listening to the sound of fish migration, the wave of water, the moon position, and the pattern of monsoon wind. Based on the ecological terrain, the seine net operate on the only way of fish migratory route which they need to prepare the nets in advance before the fish arrive their fishing territory and then they will try harder to encircle the seine net to the riverbanks.

⁸ On 12 of March 2003, the seine net had conducted four rounds to catch Trey Riel during its peak of migration. The seine net was able to catch around three tons of fish on that day. As for the mobile seine nets, it is difficult to estimate how much fish caught per day because it practiced in very short time and not so fixed.

Fish caught from seine net are often kept in the cage made by nets used for fish selection and keep them alive for the morning market. Most of the fish here has to be divided to be sold in the markets both at the provincial town and district which the local people never know how much fish they catch exactly.

However, it has always been the hot issues and conflicting interest between the local fishers and the seine net operators. It is always involves with power relations and financial investment with higher level of authorities. For instance, the fishers used these fishing nets are not from the local they are from outside obtaining the license from the Provincial Department of Agriculture, Forestry and Fisheries.

The fourth tool is called *Thnorng* (scoop-net). The scoop net has a mouth at least two meters and is considered as small-scale fishing gear by local fisher. It is made of nets interwoven like a bag connected to a forked bamboo handle. People in Koh Sneng often use it in the evening after returning from their rice field and farms.



Picture 12: Scoop-net (*Thnorng*) commonly used by fishers in Koh Sneng

Normally, it is used in the place where there are not so complex along the channels or corridor of the island in the riverbank. Most of the fish caught are small such as *Trey Sluek Russey*, *Trey Riel* or small shrimp used only for daily cook. If they could catch in big amount, the surplus will be dried under the sunlight (dried fish) and sold in the market. Sometimes, this equipment can catch bigger fish such as *Trey Kaek*, and *Trey Pava*.

The fifth technique to catch fish is called *Chuorn* (A V-shaped net). This fishing gear is used by the fishers directly not mounted on the boat like in Tonle Sap Lake. Normally, it is look similar *Thnorng*, which is made by bamboo as the forked part and handle and tied by the woven thread with nets.



Picture 13: The V-shape net which is normally used in the river during dry season.

The handles have two poles where the clutter will be used to strengthen the surface of net. It also creates space where fisher can put against their hips with one hand hold the handle and the other hand use the separate pole/stick to hit the water or flooded forest. By doing this fish will be disturbed and terrified and move away where the *Chuourn* are waiting besides that brush or flooded forest. This type of fishing equipment is normally used in a complex ecology in the river or around the bung (pools) where all types of fish hiding themselves during the dry season. This fishing gear is very easy to keep because after using they just only remove the clutter in the middle and then they can role all the equipment together and put under their house.

The sixth technique, *Chlous trey* (torch fishing) are a method of spearing fish at night by using a torchlight. Fishers practice this fishing at night because they know that fish sleep near the surface of the water leaning on branches of trees. In particular, most of the big fish come out from the deep pools while staying in daytime to find out food. This technique is used mostly during the dry season when the level of water becomes more shallow and receding into Bung (pools). Normally, fishers go fishing in groups which ranges from three to ten people walking along the Bungs, uneven rocks from places to places in the river and sometimes they have to swim across the deep pools. This fishing technique is so popular among the adult fishermen.

Most of the fish caught are snakehead, in which the amounts of fish caught are depending on the level of water. If the level of water become shallower, they could catch more, but if the level of water is higher they could catch around 4 to 10kg per night. The fishers who use this technique also require strong physical body, because they sometimes



Picture 14: *Chlouse trey* technique, which normally takes place during dry season while the level of water are low.



Picture 15: *Spearing* technique normally used by teenagers to kill frogs in the river during dry season.

have to walk against the rapid flow of water along the uneven rocks through its corridor. However, when talking with the fishery official in the provincial town, they say this fishing technique is considered illegal according to the fishery law.

The seventh technique is spearing equipment by using spear gun. This is a wooden version of the typical underwear rubber-powered spear gun. It is part of the fishing game used by the local teenagers while they went out to their farm in the islands or looking after their buffalo in the river. It is commonly used to shoot the natural frogs living in the flooded forest or a bush in the riverine or riverbed, in particular in March to April. Sometimes used to kill fish showing themselves underneath the water surface or the water birds living in the forest or the flooded forest. The hunters are not allowed to kill water birds in the river because it is under the Ramsar site protection.

In brief, there are seven types of fishing tools and equipment described above. Two categories of fishers use these types of fishing equipment according to experiences, investment capacity and the law of fishing, which designates the places where each category of equipment can be used. According to the Fishing Law issued in 1987, fishing ground in Stung Treng is considered as protected areas or fish sanctuary which is not allowed for large scale commercial fishing like other provinces who have the fishing lots in the country. It is allowed only the middle-scale and small-scaled fishing to fish for consumption.

Throughout the process of change, the fishing ground in Koh Sneng has become more and more desire from outsiders for profit maximization. In addition, with unclear institutions and the process of privatization, the most productive space has leased for private exploitation while leaving the less productive space for the local fishers. Access to this fishing ground is totally denied which 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 become more and more competitive in which I will discuss in the next chapter.

4.4 Summary

Historically, the villagers have long been depending on their surrounding -

environment. The ecological landscapes and the seasonal variation are often reflecting their livelihood activities and adaptation. These specific characteristics show how villagers utilize fish as well as the range of gears and habitats. Even though fishing is rarely undertaken as the primary, but is a component of wider household resource involving all members, moving in and out of different activities based on the ecological setting around their area. Household livelihood strategies can be characterized as being based on the use of multiple resources, adapting to uncertainty and change.

Their access to these ecological terrain and fish resources are quite complex which sometimes involve multiple and overlapping user rights to this common property resource. The local economy of fisher in Koh Sneng is very important for their daily life. Throughout case studies show that the income and the wealth of fishers are complex and dynamism according to their financial investment, their social relationships and their social status. Generally, fishers in the commune fall into one of two categories, namely small-scale fishers, and medium scale fishers. All these fishers are in some way controlled and managed in terms of their access to fishing by the state officials or local elites.

In Koh Sneng commune, small-scale fishers use more of their own labor because they have no money and most of their fishing are not taking whole day permanently as the outsiders. Their social relations normally extend among their kin groups and villagers who live in the same village structure. They have fewer connections and less protection. While the local fish dealers and retailers have more connection with their *Moys* or government officials. As for the commercial fishers far better than small-scale fishers, and dealers in terms of investment in fishing tools and are able to hire some labor to help them to catch fish.

This group of fishers have an extended kin group which they can rely on and some have very good connections with local elites and market system. In general, the structures of social organization among local fishers are mainly family and household based. While the private operator use more labor and invest more capital. Through social interactions, they have very complicated relations among their kin group, power relations, patron-client relations, and government officials. They could draw their legitimacy through the institutional and power line in the province with the uncertain transition of resource management.