POLITICAL GEOGRAPHIES OF THE TONLE SAP:

POWER, SPACE AND RESOURCES

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ABSTRACT

The Tonle Sap is rich in fisheries, biodiversity and natural resources, which makes it a very important space for livelihood and environmental security for Cambodians. This research utilizes core political geography concepts, such as space, place, territoriality, territory and scale to examine the complex political and human landscape of the Lake, and also to explore why the politics of space is inherently significant to resource governance issues. In addition to researching the multi-layered political geographies of this freshwater lake, the thesis also considers non-territorial social and power relations within patron-client, money-lending and trading "moy" system relations.

The thesis examines the Tonle Sap as a 'global', 'regional' and 'national' space, particularly through the study of official and abstract representations of the Lake-space by different international, state and non-state agencies. At the meso-level, the thesis explores the territorialization of the Tonle Sap, primarily through three key forms of territoriality – commercial fishing, conservation of environment and biodiversity, and forms of 'public fishing'.

To examine the differing boundaries, territories and contestations over space in the Lake, the research focused on four different fishing villages – Kampong La. Kampong Loung, Kampong Phluk and Peam Bang. Due to the annual 'flood pulse', and great transformations in the wetlands, floodplain, and extent of the lake waters between dry and wet seasons, social – ecological relations also affect the spatiality of fishing and territoriality of different communities. This thesis focuses on key differences between 'floating villages' (permanently on the water), 'stand-stilt villages' (static but half year dry and half year surrounded by water), and farming-fishing communities (rice paddy areas with fishing to supplement incomes).

Thus the key contributions of the thesis are in the detailed examination of social-ecological, political geographic and political economic relations within the resource realm of the Tonle Sap. Hitherto, there are no serious studies of the politics of space and territoriality in relation to resources, livelihoods and 'nature' within the Tonle Sap. Ultimately, this thesis wishes to explore how and why current governance practices and spatial politics are failing to protect fisheries, to ensure livelihood security to the majority of people living on and around the Lake, or to secure environmental sustainability.

Acknowledgements

I grew up in the so-called 'killing fields' of the Khmer Rouge era, where I lost my father. After this era, I had a strong belief that I had no opportunity to go to school and further my studies. However, I have experienced many life transforming events, meeting and knowing many people who have been influential in altering my life chances; and part of my acknowledgements is to thank all those people, including family members, work colleagues, friends and mentors who have helped me to take up the challenge of life-long study and self-improvement. Eventually, I became an activist working for the Fisheries Action Coalition Team (FACT) of Cambodia, where I have become passionately involved in resource politics and livelihood security issues. Further encouraged to understand more about the dynamics of the Lake and also in an effort to improve my position within Cambodia, I sought to undertake higher level academic research. As a result, my dream for better education finally came true through the opportunity to study a PhD at the National University of Singapore (NUS). I am very grateful to all those at NUS who have made this possible.

The part of my life I have spent working towards my PhD at NUS has been another episode of such a life drama, but with one difference; it has been a privileged time, and a most profound one. Not only for me, but also my wife and my four children (three daughters and one son) join me in undertaking my PhD. Without my wife, it would be impossible for me to research and write this thesis, and thus, she deserves this Degree as much as I do. It has been four years of vibrant intellectual stimulation, hard work, and challenging effort within an extremely supportive community of friends, colleagues, and mentors. I take this opportunity to express my deepest gratitude to those who have inspired and supported me in the pursuit of my passion.

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and enthusiasm provided me with the great self-confidence and additional motivation needed to finish my thesis. His patience, support, guidance, wide-ranging scholarship, and personal research experience within Southeast Asia have helped to navigate me through the perplexing and unfamiliar intellectual rapids of undertaking a thesis.

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Finally, I dedicate this work to my family (nuclear and extended), especially to my wife—*Pen Rasmey*; my daughters—*Socheata*, *Solinda* and *Pich Pissey*; and my son—*Sopanha*. I also dedicate this work to 'the soul' of my dear departed father (*Keo Phorn*), who cruelly died in the Khmer Rouge era. I would like to think that this thesis is in part a memory and a part of him.

I have been fortunate to have family and relatives, mentors, friends and colleagues in Cambodia and Singapore who have nurtured my courage to undertake this endeavor and I dedicate this achievement to all of them.

MAK SITHIRITH – November, 2010

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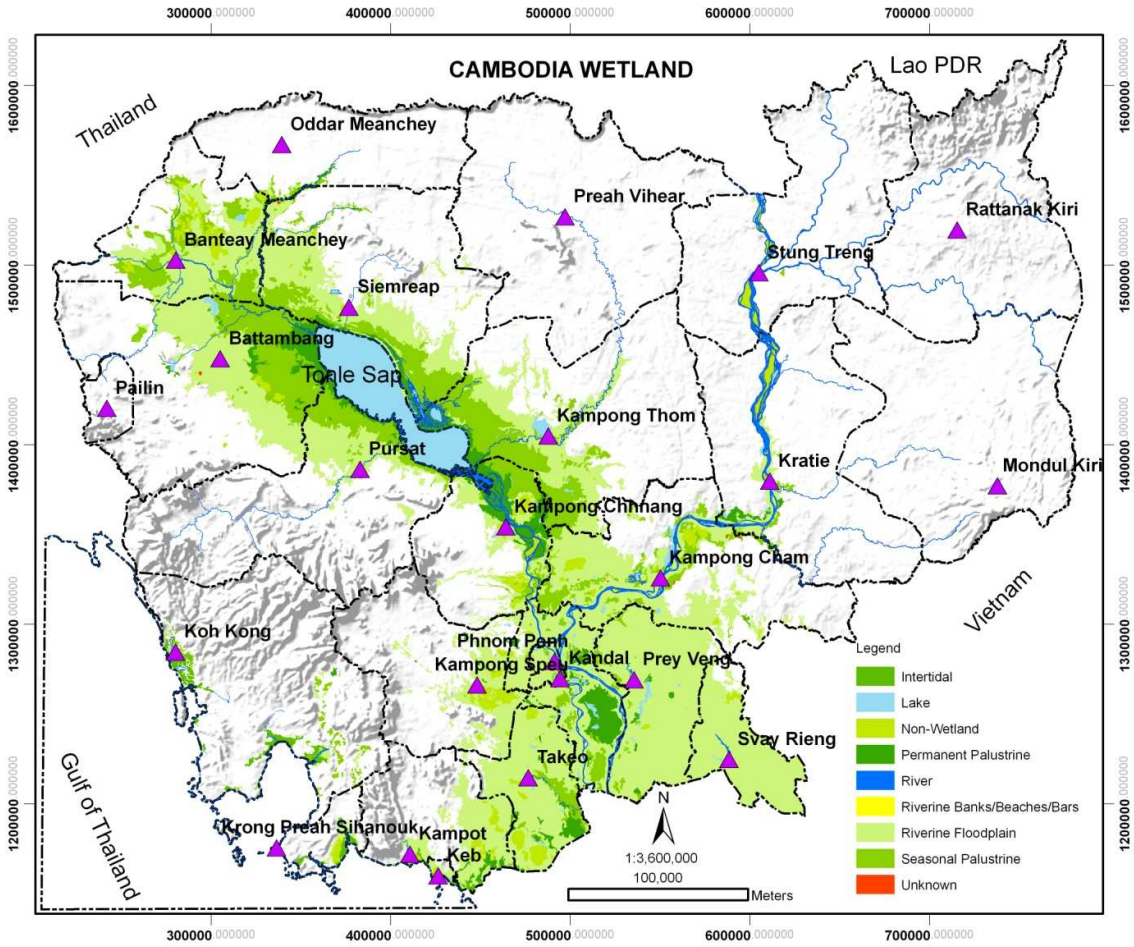
ACRONYMS AND CAMBODIAN TERMS

ADB	Asian Development Bank
ASL	Above Sea Level
CB	Collective Fish Buyer
CDRI	Cambodia Development Resource Institute
CF	Community Fishery
CFDS	Cambodia Family Development Service
CMDG	Cambodia Millennium Development Goal
CNMC	Cambodia National Mekong Committee
DANIDA	Danish International Development Agency
DoF	Fisheries Administration
EIA	Environment Impact Assessment
EJF	Environmental Justice Foundation
FA	Forest Administration
FACT	Fisheries Action Coalition Team
FAO	Food and Agriculture Organization
FiA	Fisheries Administration
GEF	Global Environment Facility
GIS	Geographical Information System
GMS	Great Mekong Sub-region
GPS	Global Positioning System
GTZ	German Technical Cooperation
MAFF	Ministry of Agriculture, Forestry and Fisheries
MFB	Mobile Fish Buyer
MIME	Ministry of Industry, Mines and Energy
MoE	Ministry of Environment
MoP	Ministry of Planning
Moy	regular clients
MoWRAM	Ministry of Water Resources and Meteorology
MRC	Mekong River Commission
NAPA	National Adaptation Programme of Action to Climate Change
Neakleu	High Lander
Neak tonle	River People
NGO	Non-Governmental Organization
PRA	Participatory Rapid Appraisal
RGC	Royal Government of Cambodia
Seila	foundation
Sreleu	higher ricefield
Srekrom	lower rice field
TSBA	Tonle Sap Basin Authority
TSBO	The Tonle Sap Basin Organization
TSBR	The Tonle Sap Biosphere Reserve
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
WB	World Bank
WUP	Water Utilization Program



Map of Cambodia and the Tonle Sap Lake

CHAPTER ONE

The Tonle Sap: Power, Space and Resources,

1.1 The Contested Space in the Tonle Sap Lake

> Cambodia proverb says: "*mean teuk, mean trey*,"—where there is water, there is fish; But what if the fish deplete due to bad governance?

CAMBODIA covers an area of 181,035 km^2. It borders Vietnam in the east, Laos in the northeast, and Thailand in the north and west. The gulf of Thailand borders Cambodia in the south (World Bank 2004). It is agrarian country where large space of the country is used for rice cultivation. Agriculture is the main industry of the country and it was an engine to build the Angkor Empire before 12^{th} centuries when three or four rice harvest was possible during Angkor period because of rich alluvial soil and the water storage system. Another factor contributing to the building of the Angkor Empire and the state was the particularly helpful conduct of the Tonle Sap as illustrated by various scholars:

> "In this country, it rains half of the year; in the other half, it hardly rains at all. From the fourth to the ninth month, it rains every afternoon, and the water level of the Great Lake can reach seven or eight fathoms [approximately 50 feet]. The big trees are drowned; only their tops can be seen. People who lived on the shores all go away to the mountains. Later, from the tenth month to the third [of the following year', not a drop of rain falls, and the Great Lake can be navigated only by small boats…] The people come back down at this point and plant their rice" (The account of Chou Ta-Kuant to Angkor between 1296-1297 quoted in Chandler, 1992:74).

> "The miracle of the Tonle Sap amazed many travelers to Angkor. As long as the region supported a large population, the deposit left by receding water provided useful nutrients for the soil. Even after Angkor was abandoned, the lake remained the most densely populated by natural fishbowl in the world, providing generation of Cambodians with much of the protein for diet" (Chandler, 1992:74).

> "Jayavarman centered the [Khmer] kingdom on the region of the [Tonle Sap] Great Lake. Rich in fish and fertile of rice on the lake's alluvial plain, the area was capable of sustaining a great population, the basis of the rise of the dynasty that he founded." (Kamm, 1998:17).

These accounts illustrate that the Tonle Sap Lake has been a rich source of fish and rice for people living near its shores for many centuries. Rice and fish were essential elements underlying the 'power' of the Khmer as stated in the old Khmer Proverb *"tveu sre neung teuk, tveu seuk neung bay"* which means "cultivating rice requires water, doing war requires rice". Furthermore, the Khmer built the empire and Angkor Wat before the 12th century. The location to build the Angkor Wat was strategically chosen by King Jayavarman II and he installed his successive capitals in the Tonle Sap Lake region, utilizing the seemingly inexhaustible fishing pond known as Tonle Sap Lake (Thierry, 1997).

For the Khmer dynasty, control of the Tonle Sap area and mastery of water supplies were the keys to power. The indigenous irrigation systems became one of the achievements of the Angkor civilization and a source of its strength (Kamm, 1998:18). In essence, the intensive use of irrigation systems and reservoirs gave the Khmers a technical edge: "By freeing cultivators from dependence on unreliable seasonal monsoons, they made possible an early 'green revolution' that provided the country with large surplus of rice" (Seekings, 1990:10). The rich alluvial soil and the water storage system, the Angkorian people could cultivate three or four rice a year (Chanlder, 1992). The power of the King largely derived from the development of an irrigation system that could produce 3 to 4 times of rice harvest a year, feeding a relatively large population. Fish from the Tonle Sap undoubtedly enabled an extension of the Kingdom across parts of mainland Southeast Asia. Thus, connections between water resources, fisheries and political power have ancient roots.

In contemporary times, the Tonle Sap is a social and livelihood "safety net" for millions of people. Formed 5500-6,000 years ago, the Tonle Sap Lake is a largest freshwater lake in Southeast Asia, and it is 7th largest lake in the world in terms of the lake area in the wet season (ILEC, 2005; Penny, 2002; Penny *et al.,* 2005; Tsukawaki *et al.,* 1997).

Cambodian people say that "where there is water, there is fish" and "where there is a fish, there is food". As a largest freshwater lake in Southeast Asia, it supports one of the most productive freshwater fisheries in the world, with annual yields of 230,000 tons, equivalent to about half of the country's total production (Van Zalinge *et al.*, 2000; UNDP/GEF, 2004). Thus, the The Tonle Sap is envisaged as a huge 'space of dependence' (Cox, 1998), or rather multiple 'spaces of dependence' for fishing communities around the Lake and people from all over the country who use fish as an important source of protein and livelihood incomes. Different fishing communities have settled around the Lake over time, such as the 'floating', 'stand-stilt' and 'farming-cum-fishing' communities. Thus, the Lake is home to approximately 4 million people. Of the total population, about 1.4 million people (See Table 1.1) live in the Tonle Sap floodplain between the National Road No.5 and No.6 in 1158 villages within 160 communes (Keskinen, 2003; NIS, 2008).

Table 1. 1: Administrative space in the Tonle Sap and population by province

The Tonle Sap	**Area (km^2)**	**Population In 2008**	**Population In 1998**	Rate (percent)
Banteay Meanchey	6679	678,033	577,772	1.57
Battambang	11702	1,024,663	793,129	2.28
Kampong Chhnang	5521	471,616	417,693	1.21
Kampong Thom	13814	630,803	569,060	1.03
Pursat	12692	397,107	360,445	0.7
Siem Reap	10299	896,309	696,164	2.53
Tonle Sap Provinces total	60707	4,098,531	3,414,263	
Tonle Sap area (Between National Road 5 & 6)	14876	1,388,555[a)]	1,186,192	n/a
Cambodia	181,035	13,388,910	11,437,656	1.54
Source: Keskinen, 2003 and 2008; NIS, 2008; a) This is based on estimation				

People living around the Lake have adapted to the natural ecosystem, hydrology, and developed their own human systems to use resources, improving their skills in fishing and processing of fish. Their cultural and social lives are uniquely and tightly reliant on fishing and on other resources the Lake provides. The Tonle Sap is a unique *Water World*, with pronounced rhythms, seasonal patterns, a pulsing ecosystem, and people have adapted to these ecological cycles over many generations. The techniques, fishing skills, and cultural rituals are all aspects of the indigenous ecological knowledge (IEK, Berkes, 1999) passed on

from generations to generations. Fishing is the main source of income and livelihood security for most communities around the Tonle Sap (Navy *et al.*, 2006). In a sense, this thesis is partly an attempt to come to terms with the spatiality of peoples' lives and livelihoods relating to human – nature relations in this wetland. Space takes on deep material, political, cultural, economic and ecological meanings.

Freshwater fish forms the main part of the Cambodian diet, particularly as many fish are made into "*prohok*", a fermented fish, which is a favorite food for many Cambodians as indicated below:

> In the countryside, prahok is often eaten simply with rice. But a typical Cambodian meal will often include prahok as an ingredient in samlor, or soup, or as a dipping sauce, such as teuk kroeung, which is eaten as an accompaniment to grilled freshwater fish wrapped in lettuce or spinach leaves (Ly Vanna and Moul Jetr, 2003, Leisure Cambodia).[1]

Fish and "prohok" are eaten with rice.

> …."Prahok is the taste of Cambodia. If there is no prahok, we are not Cambodians. Prahok is the Khmer identity," says Nao Thouk, Director General, Fisheries Administration. "It is like butter or cheese for Westerners," he adds, explaining that some 70,000 to 80,000 tonnes of prahok are produced each year between December and March.
>
> Farmers from outlying provinces will travel vast distances to trade rice for the fish paste, which is one of the most important sources of protein for Cambodians in the countryside, where simple meals of prahok and rice are common…
>
> (*ThingAsian*, Experience Asia Through the Eyes of Travellers, 2007).[2]

These accounts suggest that the Tonle Sap is important for Cambodian people for two reasons; first, it provides common pool resources in which people from all over the country could access and use these resources to provide food and to supplement their living; second, the Lake provides a critical role in terms of providing natural and cultural capital for numerous communities living around the Lake. Hitherto, there have always been relatively plentiful supplies of fish which provide a "safety net" against famine. Thus, many

[1] Ly Vanna and Moul Jetr. 2003. *The Story of Prahok article*, Leusure Cambodia; http://www.leisurecambodia.com/Leisure_Cambodia/No.10/prahok.htm
[2] http://www.thingsasian.com/stories-photos/20712/4177504/9/brt0_art;jsessionid.

Cambodians rely on the Lake's resources for their living and they consider the Lake as a "social safety net."

The notion of the Lake as being a space providing common pool resources and livelihood security is important but misleading in the sense that the Lake has also been steadily commercialized over time. Firstly, the French colonized Cambodia in 1863 and the colonial authorities used the Tonle Sap as a 'power base' through exploiting fisheries resources:

> The fisheries laws and regulations were formalized and written down for the first time by the colonial administration of the French Protectorate and published in several complementary Royal ordinances in 1908… The purpose was to extract revenue for financing the colonial administration…The ordinances of 1908 succeeded in allowing the colonial treasury to increase its tax income from fisheries by 17 percent in the first year. In 1910, the taxes from fisheries covered one-ninth of the administration budget of the French Protectorate, compared to one-eighth that was provided by taxes from rice paddies. In the following decades, no major changes have been introduced in the system of auctioning the fishing lots…(Degen and Thouk, 2000:53-54).

The French Protectorate Regime classified the Tonle Sap into the commercial fishing areas, public fishing areas, and conservation areas. The French Protectorate Administration further divided the commercial fishing areas into the commercial fishing lots and auctioned these areas for private control, reducing areas of public access (Degen and Thouk, 2000). The colonial administration effectively reduced commons spaces and excluded ordinary fishers from access to fishing areas within the designated lots. The post-colonial state authorities have continued to apply these practices and use the fishing lot system to exploit fisheries for state revenue generation, leading to fishing conflicts between fishing communities and commercial fishing lots (FACT and EJF, 2001). Indeed, numerous conflicts between villagers and fishing lot owners, followed by public forums on these conflicts in 2000 were influential in raising this researcher's interest in the politics of space and resource management in the Lake long before I decided to write this thesis.

In addition to providing natural, social and economic capital for Cambodians, the Tonle Sap Lake provides vital roles within the broad Mekong Basin. Anders Poulsen describes the Tonle Sap as "the pulsating heart" of the Mekong:

> "…floods around the Tonle Sap show a seasonal swelling and shrinking of the Great Lake. The rhythms resemble heartbeats, adding substance to the expression that the lake is "the heart of the Mekong", in which case the tributaries must be arteries" (Poulsen, 2003:08).

Based on this view, Jussi Nikula (2005) argues that "the importance of the flood pulse to the Tonle Sap Lake has been compared to that of heartbeat. The flood pulse is what keeps the heart beating. If the heart stops, the system dies" (Nikula, 2005:13). Indeed, the entire ecosystem would be transformed adversely; the fisheries would collapse, indigenous knowledge would be subverted, the poor would go hungry, livelihoods would be disrupted, the communities would become dispossessed of basic means of survival, and the national economy would be severely affected. Thus, if we consider the trans-border hydrological and biophysical linkages of the Lake with the Mekong Region we obtain a strongly regional dimension concerning the Lake's future ecological and environmental security (Nikula, 2005; Kammu *et al.*, 2008)[3]:

> The Tonle Sap Lake and associated ecosystem services are vital for the great majority of the people living in the area. But the importance of the lake is not limited to its floodplains. Its influences are felt widely in the whole Cambodia as well as regionally in the Southeast Asia and even internationally. For example Kummu *et al*. (2005c) recognize the lake's value as, among others, regionally important feeding, breeding and rearing ground for fishes, as natural reservoir that protects the Mekong delta from excessive flooding and supplies it with water during the dry season, and as home of internationally significant biodiversity and water bird sanctuary" (Nikula, 2005:14-15).

These comments suggest that the Tonle Sap is both at the heart of the Mekong Region and it has become one of the globally significant freshwater biodiversity hotspots. Protecting the Tonle Sap is essential not only with regard to the Mekong Region, but also as part of efforts to preserve tropical wetland biodiversity. As this thesis aims to show, protecting

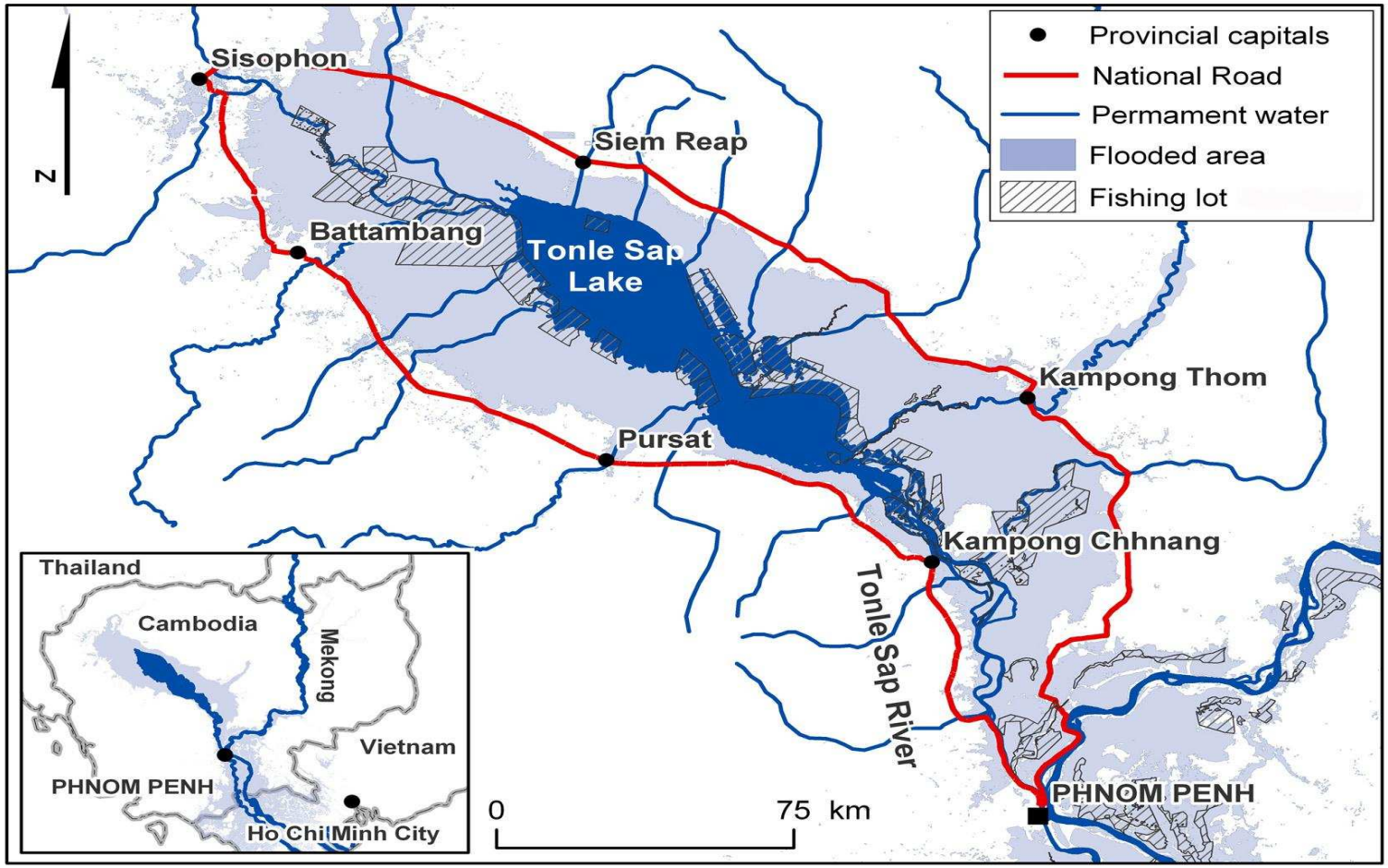
[3] Jussi Nikula, *The Lake and its People*. MSc Thesis, Helsinki University of Technology, 2005.

biodiversity through designating the Tonle Sap as the Biosphere Reserve Areas and the classification of the Biosphere Reserve Areas into three different conservations—the 'transitional zone', the 'buffer zone' and the 'core zone'—has added to the political geographic complexity of the Lake. Commercial, public and conservation uses often overlap and clash, but environmental degradation due to various human uses continue to threaten the Lake's future viability as a social "safety net". These are further reasons why this thesis has materialized. Unless an effort is made to study the multi-scale and multi-level political geographic complexity of the Lake, then many significant conflicts and problems of resource governance will not be properly understood.

1.2 Main Themes of Thesis

There are plenty of studies about resources and fisheries management in the Tonle Sap Lake, focusing on the technical aspects of fisheries, environmental management, biodiversity conservation, and various aspects of Lake governance (Degen *et al.,* 2000; Van Zalinge *et al.*, 2000; Baran, 2005; Keskinen, 2003, 2006; Ratner, 2006; Kummu *et al.,* 2006, 2008). These studies highlight two essential issues relating to resource management in the Tonle Sap Lake; on the one hand, they highlight weak governance in resources management in the Tonle Sap, leading to over-exploitation in resources, and its negative implications for livelihoods of fishing communities in the Tonle Sap Lake, and on the other hand, they call for improvements of the governance, such as establishing proper institutional arrangements and policy framework.

This thesis draws on these resource management studies, but it also seeks to provide alternative explanations for some of the problems of resource governance. My approach emphasizes the political geographies of lake resources management. This study focuses on the geographical classifications in the Lake and examines the implications of human territoriality in resource politics.



Map 1. 1: Map of the Tonle Sap Lake (adopted from Kummu *et al.*, 2006)

First, I argue that the state constructs spaces in the Tonle Sap Lake as a means of controlling people, things and resources within those spaces and as a way of exploiting resources more effectively. The official geographical classifications in the Tonle Sap have created commercial spaces, public fishing spaces and conservation spaces. This research sets out to explore the politics of space, for no space is politically neutral (Lefebvre, 1991; Massey, 2005). Space generates a whole host of complex *territorial* claims (Peluso, 2005a); actors[4] claim space to utilize and exploit resources, to earn value from those resources, and thus, space becomes territorialized and politicized (Vandergeest and Peluso, 1995; Cox, 1998; Paasi, 2003; Delaney, 2005; Peluso, 2005a). Core political geography concepts such as place, scale, territory, boundary, and politics of space form the heart of many of my discussions concerning the Tonle Sap. Given the different territories, territorialities and territorialized spaces in the Tonle Sap, the research examines the implication of 'political geographical classification' on resource management. The research demonstrates that official representations, classifications, and territories have generated many contested claims, overlapping functions, boundary disputes, and conflicts involving many local communities that inevitably lead to further resource degradation as people seek to compensate by exploiting more from what limited space and resources are available to them. Furthermore, we can not fully appreciate the problems of political geography in relation to fisheries, unless we also appreciate some of the complex political economic and 'social' dimensions of power involved, such as the 'power webs' (see chapters 8 and 9), networks, social hierarchies, patron-client relations at play.

Figure 1.1 is an effort to synthesize key dimensions of this thesis, and to illustrate the central significance of political geography and territorialized politics in the Tonle Sap Lake. Each Chapter of the thesis will focus on specific issues in the diagram. The rest of this Chapter will highlight key aims and outline the thesis components.

[4] In the Tonle Sap Lake there are many actors including fishers, fishing lot owners, fisheries officials, environmental officials and Commune Councils; each claiming its own space.

1.3 Key Aims

Following Robert Sack's (1986) notion of human territoriality as a "strategy employed to control people and things by controlling areas", the following specific objectives are central to my research:

1. To highlight the significance of political space in relation to natural resources and fisheries governance;
2. To explore different and competing territorialities affecting the management and governance of resources;
3. To explore the different forms and effects of 'power' in the politics of space and resources in the Tonle Sap; and
4. To appreciate that there are non-human hydrological, biological and ecological influences that affect human behaviors, actions, and interactions and also complicate the politics of space in the Tonle Sap.

To explore each of these objectives, empirical research was carried out in four rural fishing communities between 2006 and 2010 (See Chapter 3).

1.4 Organization of the Thesis

This thesis consists of nine Chapters. The brief introduction, followed by Chapter 2, which provides a literature survey in relation to political geography and resource politics. It raises concepts of relevance for the following chapters. In particular, concepts drawn from political geography, such space, place and territory on the one hand, and power, policy and politics on the other, are reviewed in relation to the empirical focus on the Tonle Sap. Chapter 3 outlines the methods and strategies utilized in the process of undertake research to produce this thesis.

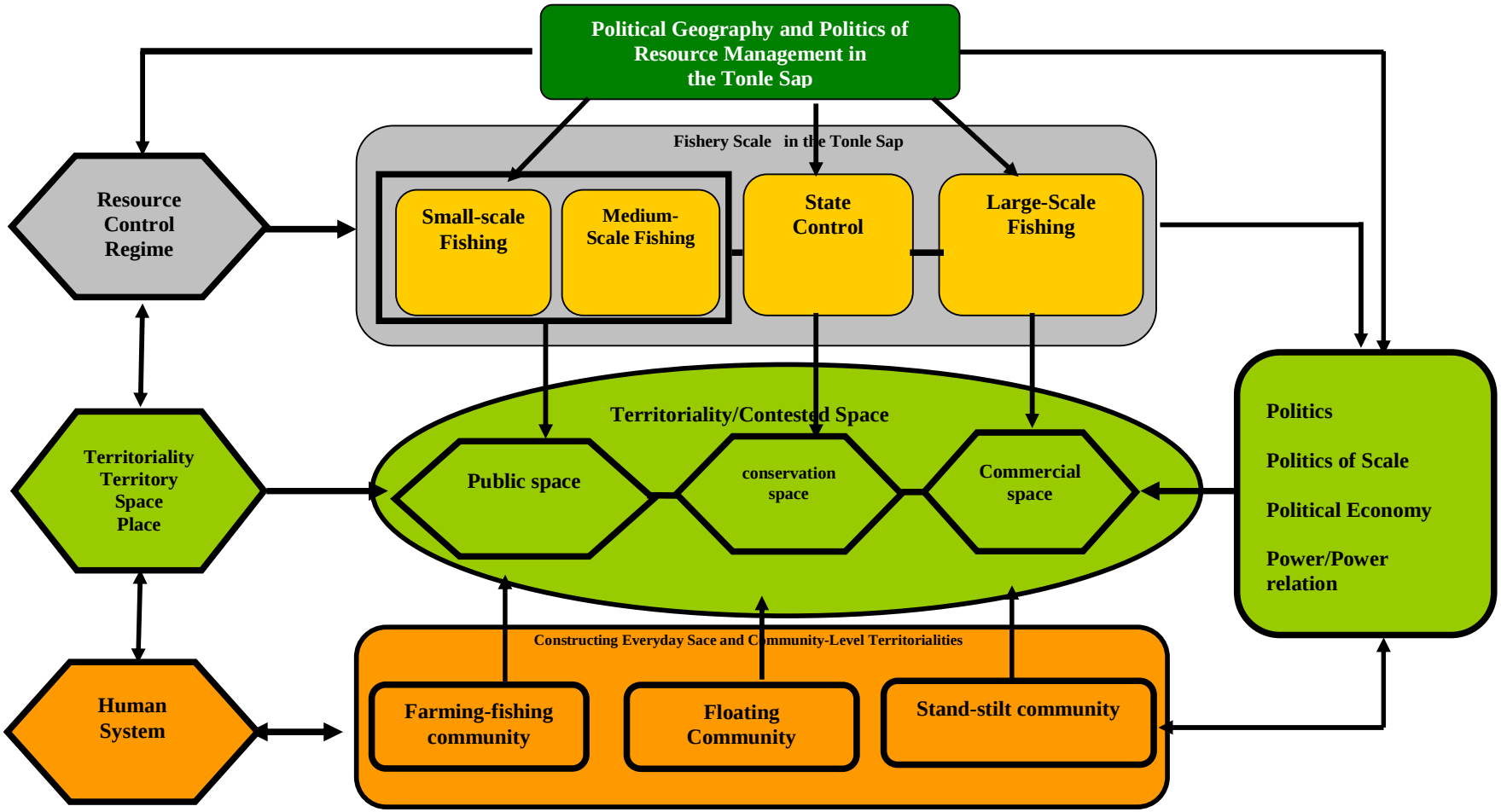


Figure 1. 1: Conceptual framework of political geography and ecology of the Tonle Sap

Chapter 4 highlights there are distinct official representations of space and these official designations have greatly complicated the political geography. I highlight that the Lake is simultaneously considered as a global space, a regional space, and a national space. These relate to the contestations of space at different scales.

Given the huge significance of human-nature relations in the Tonle Sap, Chapter 5 sets out to examine how local communities have adjusted their livelihoods to annual, seasonal, and periodic hydrological and bio-physical environments of the Lake, as well as their 'everyday struggles' to maintain livelihoods and living space in spite of the various different official representations of space. Chapter 5 also explores social-ecology interactions and the community-level territorialities in the Lake-space. Political geographies associated with commercial fishing lots and the ability of patrons to influence who has access to so-called 'public fishing spaces' means that fishers often have to collude with different patrons in order to maintain their fish catches or gain access to better fishing areas. To survive under this system, fishing communities construct their spaces through a politics of patron-client system. This is one of the many 'hidden geographies' of fishing communities in the Lake.

Chapter 6 analyzes the overtly political aspects of territoriality and the political geography of fishing in the Lake. In this Chapter, I use the political dimensions of the concept of human territoriality to analyze strategies in the control of fish and fishing in the Tonle Sap Lake. I introduce three different types of territoriality—commercial territoriality, conservation territoriality and public-communal territoriality—each of which has implications on resource management.

Chapter 7 presents a 'politics of scales of fisheries management' in the Tonle Sap. From the outset, these discussions relate to specific concepts of fishery scale by policy-makers designing fishery law, rather than to discussions in political geography about the

'politics of scale'. In this Chapter, I present three 'scales' used explicitly in fishing in the Tonle Sap Lake— 'small-scale', 'medium-scale', and 'large-scale' fishing, highlighting fishing scale as a strategy to control fishing by grouping people into assigned fishing categories according to Fishery Law and the competent State agencies. The large-scale fishing is designated for commercial fishing areas, while the medium and small-scale fishing is designated to a public fishing areas. The thesis highlights that the official designation of small-scale fishing is problematic given the fact the definition does not take into account the actual fishery practices that exist between and within fishing communities.

Chapter 8 discusses the 'political economy of fishing' in the Tonle Sap by introducing the 'moy system' in fish trading, which is extremely important in the context of the Lake. To catch fishes and to sell fish, fishers rely on fish traders and many fishers borrow money from fish traders, but they also have to sell their fish catches cheaper than market prices. Thus, many fishers are trapped in what I term the web of 'moy system'.

The final Chapter presents the gist of my research findings, including original contributions, and discusses these findings in relation to other research in political geography, resource politics, political ecology and anthropology. In particular, I wish to highlight the academic significance of this research in the field of political geography, and the practical elements of the research in relation to the future resource governance of the Tonle Sap and Lower Mekong region.

CHAPTER 2

Literature Review and Themes: Political Geography, Power, Space and Resources

This chapter focuses on key literature that has influenced this study, including a review of certain conceptual ideas and themes relevant to the thesis. As this manuscript is grounded in political geography and resources governance, the most relevant concepts are summarized as power, politics, and policy on one hand, and space, place, and territory on the other hand (Jones *et al.*, 2004). This thesis tackles core concepts of political geography. The second most relevant concepts are associated with the complex multi-disciplinary fields of 'resources management', which is a more multi-disciplinary field. As this review will also show, some of the direct relevance literature on territory, territoriality and resource politics in Southeast Asia is not written by geographers, but comes from related disciplinary fields, such as anthropology, political science, and sociology. The context of my study is the Mekong Basin, and so literature pertaining to this, particularly that which relates to the politics of space and resources shall be reviewed briefly. As my study focuses on the Tonle Sap, there is a section on the politics of fisheries, livelihood security, and the political geography of a freshwater space. However, the approach adopted by this researcher is not simply to have a stand-alone literature review then to forget pertinent literatures in the more empirical chapters. In fact, each chapter does contain sections that relate some of the arguments advanced to relevant literature. Thus, this chapter introduces key themes and concepts that are discussed in more detail in each of the following chapters.

2.1 Why Political Geography?

First of all, this researcher is perhaps the only person in Cambodia who regularly reads political geography journals! As far as the researcher is aware, there is no formal political geography taught at any level of education in Cambodia, and whenever the researcher mentions that he is studying political geography there are usually polite silences or

bemused glances to suggest that nobody really knows what this sub-discipline means. For these reasons alone, it is probably useful to consider political geography within the context of a country that has definitely had more than its share of major geopolitical upheavals with dire political geographic consequences over time. Whilst, there has been little indigenous engagement with academic political geography, the same is not true of lived historical experience. Cambodians should know more about the 'lived' meanings of geopolitics and political geography in their lives than most people, particularly having experienced literally decades of war followed by a period of peace that has entailed further huge political economic transformations. In addition, political geography scholarship is highly relevant to studies of the politics of space and resources in contemporary Cambodia (see for example, Le Billon, 2002; Sneddon, 2007; Springer, 2009a, 2009b; Marston, 2000; Tyner, 2008; Wyatt and Hirsch, 2004). The major gap in the existing literature is that there are no studies of political geographies in the Great Lake of Cambodia at all. And there exists relatively little empirical research examining how freshwater systems are partitioned between users. For scholarly and practical reasons, this study of the political geographies of the Tonle Sap is a necessary addition to our understanding.

More specifically, as the thesis concerns resource governance, the relevance of political geography to understanding the Lake became much more apparent after a visit by my then soon-to-be thesis advisor, Dr Carl Grundy-Warr, to the Tonle Sap Lake about seven years ago. It was when we visited several 'floating villages' together and discussed the ways in which the everyday 'lived spaces' of these communities has been so affected by various boundaries, such as fishing lots and conservation areas, that the researcher began to see a different way of seeing the space of the Lake. Indeed, it seemed to me that one of the most neglected aspects of Tonle Sap governance is the political geography of resource control, access, utilization and management. Thus, the foundations for this thesis started to take shape. The rest is history so to speak. However, it has taken the researcher a long journey to appreciate the significance and potential applications of political geography ideas to a

resource context that is more familiar to the researcher as a space of real life politics, conflicts, fishing and livelihood struggles. Combining the researcher's practical experience as an NGO officer and as a PhD researcher has been a huge and time-consuming task.

This section presents a general review of the main aspects of political geography and related fields the researcher has drawn upon to help frame ideas for this thesis. In particular, this review covers certain ideas contained in political geography, resource politics, and resource management literature. To begin the survey let us consider some basic definitions of political geography.

Some geographers define political geography as a study of political territorial units, borders and administrative subdivisions. For other geographers, political geography has been about the study of political processes, related but different from political science only in the emphasis given to geographical influences and outcomes and in the application of spatial analysis techniques. However, an important element of political geographic analysis has been the study of the functions and politics of State territorial sovereignty and territorial practices as 'containers' of events, relations and representations, as well as critical examinations as to how we need to 'go beyond containers' when analyzing socio-economic and political spatiality within the world system of states (Elden, 2006; 2010a; Taylor, 1994; 1995). This thesis necessitates consideration of some classic political geographic concepts, such as 'territory' (Elden, 2010; Paasi, 2003; Delaney, 2005; Storey, 2001), 'boundaries' (Newman, 2004), 'scale' (Howitt, 2003), and relate these concepts to notions of 'power' (Allen, 2003a; 2003b) as they affect both the spatial politics and non-spatial socio-political relations involved in Tonle Sap resource governance matters.

As a quick working definition of political geography, I follow Agnew's introduction (2002: 1) that political geography incorporates how ***'politics is informed by geography'*** and ***'how geography is informed by politics.'*** Following Jones *et al.*, (2004), political geography

is about the study of the interactions of 'politics' and 'geography'. The study of 'politics' and 'geography' necessitates understandings of the workings of 'power,' 'politics' and 'policy' in resource uses and how these influence and play upon and through geography, particularly 'space,' 'place' and 'territory' (Jones *et al.,* 2004; Agnew *et al.,* 2003). In this thesis there are many ways in which the actions of agencies and individuals, using 'power,' 'politics' and 'policies' exploit natural resources within, through and affecting the meanings of and organization of 'space,' 'place' and 'territory' (Jones *et al.,* 2004). Power, politics and policy; and space, place and territory are key elements in political geography and these six elements are intrinsically related to an appreciation of resource politics and governance in the Tonle Sap.

2.2 Power, Politics and Policy

Central to numerous discussions about political geography in this thesis are ideas about power. Jones, Jones and Woods (2004: 3) argue that "power is the commodity that sustains politics and policy', and 'politics' is the whole set of processes that are involved in achieving, exercising and resisting power' while policy relates to the 'intended outcome'—the things that power allows one to achieve and that politics is about being in a position to do." The interaction of these three dimensions is a major concern of political geography (see Figure 2.1). As a process, 'politics' operate in and through space and place. Places "are never neutral entities with undisputed objective meanings. Rather, they are socially constructed by individuals and groups who draw on their experiences, beliefs and prejudices to imbue places with particular characteristics, meanings and symbolisms" (Jones *et al.,* 2004: 115). 'Territories' are effectively created out of political processes, and this researcher uses Sack's (1983; 1986) definition, that territories must always involve a precise delimitation of a geographic area, communication to others of that area, and attempts by some authority, agency or person to control that area. Two interrelated concepts, as far as this researcher's understanding is concerned, are 'territory' and 'human territoriality' (Sack, 1986; Storey,

2001; Delaney, 2005), and the way in which different agencies, institutions, communities and individuals create, shape, invent, influence and establish 'territories' and they are affected by the territorialization of the Tonle Sap space. In summary, this thesis covers key concepts of political geography as outlined diagrammatically in Figure 1.1., which are discussed in more detail in chapters 4 – 8.

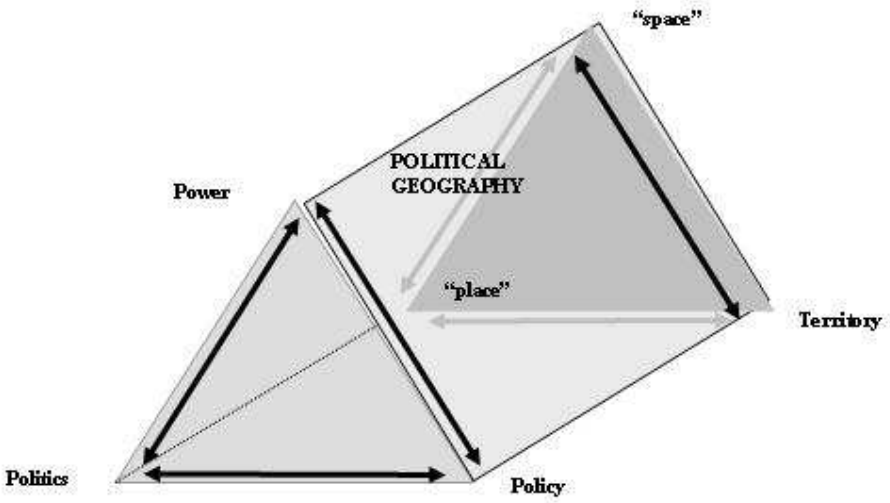


Figure 2. 1: Adapted from Jones *et al.*, (2004)

This simple disgram does not capture the full implications, spatial and non-territorial, of notions of 'power'. But it does help to show that politics, power and policy are related to spatial organization, which forms a large part of this study. On the one hand, this thesis is about the myriad ways in which power may be made more explicit, communicated, and reified through the creation of boundaries and the formation of different kinds of territories (Sack, 1986; Passi, 1996; Delaney, 2005). On the other hand, our discussion of 'power' necessitates examinations beyond mere spatial effects. 'Power' means much more than authorities or individuals being able to 'exercise power over others' (Allen, 2003b: 96), or sovereign bodies exerting 'disciplinary power' which shapes and normalizes subjects to speak, think and act in particular manners (Foucault, 1994), whereby "each individual action is referred to a whole that is at once a field of comparison, a space of differentiation and the principle of a rule to be followed" (Foucault, 1991: 26). The formation of particular territories

frequently require rules, regulations, disciplinary codes, attempts to enforce control, and so on, and certain groups may indeed draw great political and economic advantage from such forms of territorialization. However, the power 'effects', implications, and ways power is mediated through multiple stakeholders, institutions, agencies and individual actors may result in unintended outcomes, generate new conflicts, and produce forms of resistance. This necessitates a perspective on power in relation to political geography and social relations that go beyond an analysis purely of human territoriality (a core focus and concept in this thesis).

In chapters 8 and 9 in particular, the thesis focuses on issues of non-territorial dimensions of power, particularly in relation to the political economy of resources and political patronage issues in Cambodia, applying these ideas to the Tonle Sap. Indeed, one of the major concerns is how territorial and non-territorial power influence politics and relationships within the field of resource governance. Non-territorial political economic concerns (although there are some overlapping issues of political geography) focus on the deeply embedded nature of patron-client relations, which I call the 'power webs' of the Tonle Sap.

Allen (1997) conceptualizes power in three main ways: power as ***an inscribed capacity***; power as ***a resource***; and power as ***strategies, practices and techniques***. Whilst the dominant focus of this research is in relation to the spatial dimensions of power as exercised through the creation of boundaries and territories within the Tonle Sap, there are also various other forms of power that influence spatial practices and the politics of resources in the Lake space. As Jones, Jones and Woods (2004) have argued, when individuals and groups form interactions, collectives and networks, combining resources, then new forms of politics and power can be exercised. As Allen (2003b: 98-9) observes, "power on this account is understood as a rather fluid *medium* which can expand in line with resources available to collective ventures, or it can diminish once collective, short-term goals have been achieved." Such a 'fluid' notion of power as 'something intrinsic to all forms of social interaction' helps us to appreciate the multiple possible 'effects' (spatial and otherwise) that may arise, as well

as to appreciate that political geography necessarily involves ***an understanding of dynamic politics and political relations that operate within, through and across political space***. And it is precisely that this thesis wishes to address in relation to the politics of resources, fisheries, and livelihoods of ordinary people, places and communities within the Tonle Sap.

2.3 Politics of Space: Key Concepts – Place, Space and Territory

Place and space are hugely important concepts in geography, and they have wider application in geography, political science and sociology; often being used inter-changeably and often with too little attempt at precise definition (Agnew, 1987). However, in geography, scholars try to distinguish the 'place' from 'space'. Place is a 'particular point in space' that is always in a process of being defined, being given meaning and of becoming by the emotions and meaning that people apply to specific attachments (Jones *et al.,* 2004). Space is organized into 'places' often thought as bounded settings in which social relations and identity are constituted (Johnston *et al.,* 2000). Nonetheless, 'place' is grounded and particular while 'space' is abstract, non-bounded and not necessarily related to particularized and localized attachments (Staeheli, 2003).

2.3.1 Politics of 'Place'

However, different persons treat the same locality in different ways—a city is viewed as a 'place' by its inhabitants, but may be regarded more as an abstract 'space' to plan, to rearrange, and to develop by urban planners (Cresswell, 2004). Jan Penrose (2002) makes a clear distinction between space, place and territory. He argues that:

> "place and territory are quite different from space…, but space only becomes a place when it acquires a 'perceptual unity', and only become territory when it is delimited in some ways. In other words, both place and territory refer to space that has been defined in some ways and, though a territory is also a place, not all places are territories. The creation of territory creates a place…" (Penrose, 2002:279).

The concept of 'place' is highly significant in cultural geography and is particularly related to ideas of attachment and 'belonging' (Cresswell, 2004). Angew (1987) defined place in terms of three different meaning: locale, location and how different residents, groups and communities come to develop a 'sense of place'. 'Locale' is the structured micro-sociological content of place, the setting for everyday, routine social interaction provided in place. In Johnston word (2000: 583), 'locale' is the setting in which social relation are constituted. 'Location' is the representation in local social interaction of ideas and practice derived from the relationship between places. It is the geographical area encompassing the setting for social interaction and defined by social economic process operating at wider scale. The development of a 'sense of place' is actually subject to considerable pressures in many societies due to globalizing influences, human mobilities, geographical fragmentation and socio-economic ruptures of 'local communities' (Cresswell, 2004: 63-4). According to Jones, Jones *et al.*, (2004): "places have meanings and values attached to them by people; places often have socio-psychological meanings…" (Jones *et al.*, 2004:115). However, the extent to which people identify with places will vary greatly across time and space. The use of place is manifold, to memorize the past, to influence people's behaviors, to control people and areas, and to construct the 'politics of place' (Jones *et al.*, 2004; Penrose, 2002). In this researcher's view, the Tonle Sap is full of 'places' of meaning largely due to the strong local attachments people have to environmental resources, and due to the relative lack of social mobility (except for those seeking work elsewhere). Furthermore, the Tonle Sap has a distinct 'politics' relating to the way in which particular places (such as 'floating villages') are viewed, perceived, have strong attachments, and relate to different ecological resources of the Lake. Indeed, this thesis discusses places in terms of their social-ecological relationships to Lake-space and resources, and the way in which political geography affects those relations and people's livelihood security.

Undoubtedly, the concepts discussed above are closely related to those developed in several papers by Arturo Escobar (1998, 2001, 2006, 2008) revolving around '*defense of*

place' and what he calls *'territories of difference'*. Escobar's ideas seem to be particularly valid in relation to the whole space of the Tonle Sap and myriad place-based struggles existing within the larger space. According to Escobar (2008: 67): "The politics of place can be seen as an *emergent form of politics*, a novel political imaginary in that *it asserts a logic of difference* and possibility that builds on the multiplicity of actions at the level of everyday life. Places are the site of dynamic cultures, economies, and environments rather than just nodes in a global capitalist system (…) Politics of place is a discourse of desire and possibility that builds on subaltern practices of difference for *the construction of alternative socio-natural worlds*" (my emphases added). In this thesis the discussion concerns mostly the ways in which people's 'lived space' (see below) and 'everyday life' has been fundamentally altered by official representations, territorializations and governance practices. However, it is necessary to consider why and how local people, communities, and concerned NGOs, can organize, associate and network to resist and challenge dominant discourses and hegemonic geographies. Political geography, ecology and anthropology seem to offer exciting ideas that help to examine, interpret and critique real space and place-based resource politics. This thesis is a modest attempt to contribute a better political geographic understanding of a significant case study and also to analyze academic ideas that may influence politics and practice.

2.3.2 'Abstract' versus 'Lived Space'

Space is a key central concept of geography, and it should be distinguishable from place. Jan Penrose (2002) put it more specifically about space:

> "First, [space] comprises the substance that is fundamental to human life on this planet. Through its constitution of land, water and atmosphere, space encompasses the basic prerequisites of human survival: the food that we eat, the water that we drink, the air that we breathe and the resources for protecting ourselves... Second... when the substantive qualities of space are filtered through human experiences of time and process, they have the capacity to invoke or release an emotional response. For example … space is perceived as beautiful…; …as threatening…; as powerful…" (Penrose, 2002:279).

Clearly, the connections that people have to land, water and natural resources are highly differentiated across space, and they are very different for people who live and work in a city like Phnom Penh to people who live on the shores of a freshwater lake. The 'space' of the Tonle Sap has all of the qualities highlighted by Penrose. There are also numerous 'places' and 'territories' which give meaning, functions, representation, order, (dis)order, conflicts and contestation over space and resources. There is also a critical distinction to be made between 'abstract' space and 'lived' space. The distinction is largely based upon Henri Lefebvre's (1991) notions of 'representations of space' as 'conceptualized spaces' of planners, scientists, architects, policy-makers, technocrats, cartographers and social engineers who routinely utilize space in abstract and functional ways. As Robert Sack (1986) stressed, space is malleable and can be made and remade over and over again. And of course, it is through representations of abstract space that new functions, properties and territories may be created. But the abstract space of planners is not equivalent to the everyday, experienced and 'lived space' of the majority of people, even though the plans and representations may affect and influence what goes on in that space. The latter relates to Lefebvre's (1991: 39) idea of 'representational spaces' or "space as directly *lived* through its associated images and symbols communities which are vitally connected to the broader physical environment through numerous social practices as well as human-ecological relationships."

All such representations require both 'simplifications' of space (Scott, 1998) and the obliteration or 'silencing' of certain 'lived' aspects of space (Harley, 1989). As Lefebvre (1991: 162) notes: "It is this ability to smother difference, to suggest who should be seen and heard and who should not, that can give particular social spaces the impression of sameness rather than displacement and diversity." 'Abstract space', according to Lefebvre (1991: 370-1), "is a lethal one which destroys … historical conditions … in order to impose abstract homogeneity." This contrasts sharply with 'representational space', which *'is alive; it speaks'* (my emphasis). These are the spaces of different Tonle Sap communities trying to subsist,

fish, trade, make a living, and forge better lives for their children. A large part of this thesis is devoted to the contradictions of space produced through formal representations and political geographies superimposed upon a vibrant, differentiated and contingent 'lived space', and human-nature space with its rhythms, seasons and annual flood pulse (See Chapters 5 **- 7).**

2.3.3 'Politics of Scale', 'Terrains of Resistance', 'Spaces of Dependence' and 'Spaces of Engagement'

Another way we may envision space in a political sense is through the politics of subaltern people trying to protect access to resources or means of livelihoods. Political geographers have examined how and why the politics of scale is socially constructed and how this may enable relatively localized cultural, social and environmental political struggles to become amplified and mediated within bigger national and international arenas by 'jumping scales' (Cox and Mair, 1991; Delaney and Leitner, 1997; Howitt, 2003; Jones, 1998). As Howitt (2003: 151) puts it: "Like another quintessentially geographical term 'place', 'scale' is rendered most meaningful in its development as an empirical generalization – a concept made real by building up an understanding of complex and dynamic relationships and processes in context."

In trying to decipher what forms of indigenous 'politics' may help to challenge dominant political geographies and hegemonic power in the Tonle Sap, the researcher has found that Paul Routledge's notion of 'terrains of resistance' and Kevin Cox's (1998) ideas of the 'space of dependence' and the 'space of engagement', particularly useful. These are terms that take on particularly interesting meanings in applications to rural livelihood, sustainability, and resource politics.

Routledge's (1996) 'terrains of resistance' seems to be useful political concept in analyzing the resource politics of the Tonle Sap. These 'terrains' are free from fixed scales

and maintain the possibility of social movements with layers and contours within place and across space. Such terrains also allow for "contested webs of power / knowledge relations" (Routledge, 1996: 510). This thesis calls for challenges to certain dominant representations of space, and for poorer fishers to defend livelihoods there is a need for greater solidarity and networking within and between community-based groups and NGOs and other activist organizations. The idea of the Tonle Sap consisting of its own political economic 'terrains' of domination and resistance is very appropriate, although the contours and amalgams of power cannot simply be reduced purely to discourses of dominance and resistance. As Routledge (1996: 511) puts it: "forces coalesce power at particular sites, and these sites provide locations where hegemonies are contested." Hegemony is "a dynamic process whereby the groups involved, including dominant and resistant elements, are always shifting, as is the terrain upon which they struggle. Hegemony can thus be viewed as an active site upon which the contestation between forces of resistance and domination are enacted." And within the Tonle Sap there are many such 'active sites' incorporating agents, actors, human-nature relations, and power relations. Routledge is particularly interested in the politics of social movements, and whilst I am reluctant to invoke the term 'social movement' to apply to myriad community struggles, and livelihood politics in the Tonle Sap, the political basis of such 'movements' as forms of resistance are very appropriate in the context of smaller scale fishing communities of the Lake. According to Routledge (1996: 514) "movement struggles are frequently over the practices and meanings of everyday life, and movement politics are symbolically manifested, as expressions of vernacular politics." Such terrains encompass 'macro-politics' of larger connections, alliances, and networks, and 'micro-politics' based upon particular geographical imaginations and 'knowledges of everyday life.' These ideas overlap with Cox's 'spaces of engagement' and Escobar's 'territories of difference.' Finally, Routledge (1996: 517) argues that: "A terrain of resistance is thus both metaphoric and literal. It constitutes the geographical ground upon which conflict takes place, and is a representational space with which to understand and interpret collective actions."

Similar to ‘terrains of resistance’, Cox (1998) developed concepts of spatial politics that are inherently scale flexible and may involve multi-scalar linkages, alliances and practices. According to Cox it is helpful to distinguish between what people are most concerned to defend, to resist in fervor of, or to struggle for, and how they can then go about their particular battles. He does this be discussing two distinct but related ‘spaces’ for the interplay of politics. As Cox (1998: 2) puts it: “Spaces of dependence are defined by those more-or-less localized social relations upon which we depend for the realization of essential interests and for which there are no substitutes elsewhere; they define place-specific conditions for our material well-being and our sense of significance.” This is particularly appropriate in a context like the Tonle Sap, where many people, and even whole communities, are deeply embedded in social-ecological relations associated with particular natural cycles and seasonal biophysical processes, producing fisheries, inundated forests, and various environmental resources upon which people rely for livelihoods, incomes, identity and survival. As this thesis shall illustrate, there are distinct village relations with localized aquatic resources, and it is not too difficult to envisage that many people and communities do have strong place-based connections and overlapping ‘spaces of dependence.’

For Cox (1998), such spaces of dependence are not confined to village-level sites, but may apply to “people, firms, state agencies” who organize “to secure conditions for the continued existence of their spaces of dependence”, and so, we could extend this notion also to conservation agencies, provincial and district level authorities, even private fishing lots. However, this thesis is primarily concerned with the majority of people who primarily rely on the Tonle Sap for their living and sustenance, and people who have relatively few alternative sources of livelihood available, unless they are able to migrate to cities or industrial estates or agro-business operations for work. In other words, there are particular relations (human-ecological, capital-labour, cultural-social) developed over time, which means that it would be difficult, if not impossible, for local people to develop alternative spaces of dependence. Also for many people their skills and associations with the Lake are simply not easily transferrable

or portable. Thus, the terminology 'space of dependence' seems particularly appropriate to a resource politics application in the Tonle Sap.

Spaces of dependence exist within "broader sets of relations", usually but not necessarily at larger scales, "and these constantly threaten to undermine or dissolve them" (Cox, 1998: 2). Similarly, the places, people, communities and localized resource dependence that characterize struggles in the Tonle Sap are subject to commercialization, privatization, territorialization, and other forces, that weaken, undermine or pressure more localized resource dependence. Thus, we need to consider how relatively 'local' struggles may be elevated to different levels or scales. Conceptually, this is done through relational and associational forms of politics which allow for jumping and moving between spatial scales of action by the concerned agents and actors engaging "with other centers of social power." "In so doing they construct a different form of space which I call here a space of engagement: the space in which the politics of securing a space of dependence unfolds" (Cox, 1998: 2). As such, the 'space of engagement' is constructed through specific political relationships, engagements, networks, and acts 'through' space, territories and scales (Allen, 2003b). In reality, the defense of place, of livelihoods, of access to indigenous livelihood resources, all require forms of politics that involve trans-local connections with other agencies, re-scaling the purely 'local' into multi-level action. Indeed, the Mekong Basin has become a dynamic region for examining the politics of scale at sub-national, trans-boundary, international and regional scales (Lebel, Garden and Imamura, 2005; Wyatt and Hirsch, 2004).

Whilst the thesis does not focus specifically upon the politics of developing 'spaces of engagement', it is a relevant political (and economic) geography concept that helps us to consider possibilities beyond the *status quo*. In Chapter 9 it is argued that successful 'scales of engagement' for ordinary fishers and community groups in the Tonle Sap can only come about through intra- and inter-communal institutional networking, collective action of fishers associations in and between different sites, and cohesive CBO-NGO interaction and

affirmative action. Thus, the politics of 'scale' are highly malleable and dependent on the institutions, actor-networks involved, and the forms that spaces of engagement take "is entirely contingent" (Cox, 1998: 20). In the Tonle Sap, there are many ways in which multi- and cross-scale politics are being manifested due to the complex array of agents and actors that use, influence or participate in resource politics. One of the underlying concerns of this research is to examine the political geographies of resource and fishery conflicts. In the process, this leads to an exploration of possible ways in which ordinary villagers and fishers may create their own 'spaces of engagement', offering "a myriad of transformational opportunities" (Howitt, 2003: 151) to improve environmental and social justice, and resource governance.

2.3.4 'Territory' and Territorial Politics

'Territory' is a key and essential concept of political geography (Dahlman, 2009; Delaney, 2005; Elden, 2010a; Gottman, 1973; Paasi, 1996; 2003; Sassen, 2006; Storey, 2001), of understanding 'nationhood' (Winichakul, 1994), and a critical idea that relates to resource politics (Vandergeest and Peluso, 1995; Peluso, 2005a; 2005b; Vandergeest, 1996). In all of these applications, territory and processes of creating territories are essential concepts in relation to understanding the politics of space and resources in the Tonle Sap.

According to Penrose (2002: 279) the creation of territory usually relates to the making of a place, which also requires specific geographical space, but 'space' only becomes a 'place' when it acquires a 'perceptual unity', and is a 'territory' when it is delimited [by boundaries]. 'Territory' often becomes a particular 'geographical space' occupied by individuals, social, groups or institutions for particular purposes (Paasi, 2003; Jone *et al.*, 2004; Storey, 2001; Penrose, 2002). Stuart Elden (2010b: 757) asks: "What do we mean when we talk of territory? There seem to be two dominant definitions in the literature. One sees territory as a bounded space, a container, under the control of a group of people, nowadays

usually a state. The other sees a territory as an outcome of territoriality, a human behavior or strategy. These two definitions are, of course, not mutually exclusive." This researcher tends to see both definitions as important, and the territoriality dimension as something that is highly dynamic, flexible, and contingent in contemporary contexts. Elden's arguments more forcefully apply at the level of national territory, whereas the focus in this thesis is at the sub-national level where human territoriality in relation to specific resources is highly relevant. Many scholars have tended to focus almost exclusively on territory in relation to 'territorial States', in relation to notions of 'territorial integrity', and the creation of the world political map made of inter-locking territorial States (Dahlman, 2009; Elden, 2006; 2010a; 2010b; Sassen, 2006; Taylor, 1988; 1994; 1995). Whilst these ideas about territory are relevant to this thesis (see below), this research is much more focused on territorializing processes 'within' the boundaries of the sovereign state of Cambodia, particularly in the context of a freshwater lake space. It is in this micro context of territorial application that territorial behavior (territoriality) is very lively and relates to many issues of resource access, utilization and control. Furthermore, various grandiose representations of space in the Tonle sap have helped to create new and sometimes overlapping boundaries and territories.

In an often cited work within the sub-discipline, Jean Gottman's *The Significance of Territory* (1973) identifies two critical reasons for territory; firstly, it confers security – 'territory' can be converted into defensible 'space', and second; it can provide opportunities for prosperity by producing territories that enable the economic organization of 'space'. In fact, 'territory' signifies a distinction and a separation from adjacent territories that are under the different jurisdiction (Storey, 2001; Gottman, 1973), and territory may help to bolster different forms of 'inclusion' and 'exclusion' for different purposes, usually defined by states (Delaney, 2005). However, 'attachments to territory' may be very complex due to unclear or permeable boundaries, movements across boundaries, allegiances that transcend territory, and contested identities within and across political territories (Delaney, 2005; Storey, 2001, Penrose, 2002). This researcher argues that such argument apply at the scale of the Tonle Sap

where there are a great many territorialized forms of inclusion and exclusion, boundary conflicts, and many territorial claims of local fishers and communities claiming fishing space rights or traditional access to inundated forests.

The 'enclosure' functions that territory provides are historically significant in relation to other important political economic and legal concepts, particularly that of 'property' (Elden, 2010a; Blomley, 1994; 1998; 2003; Peluso, 1996; 2005a). Whilst much of Elden's work on territory has been in trying to produce "a historical conceptual examination" of territory that is far broader theoretical project in time and space than the specific concerns of this thesis, there are several definitional and conceptual points about 'territory' in Elden's work that do apply to this largely empirical thesis. For instance, in an article entitled 'Land, terrain, territory' Elden (2010a) cites Edward Soja (1971: 7) who proposed "a tripartite analysis of resource, power and social organization," specifically involving three key tendencies: (1) "control over the distribution, allocation, and ownership of scarce resources"; (2) "the maintenance of order and the enforcement of authority"; and (3) "the legitimization of authority through societal integration." Elden (2010a: 6) then proceeds to link Soja's work to a discussion of three "conceptually distinguished" yet "practically intertwined" definitions:

- "*Land* is a relation to property, a finite resource that is distributed, allocated and owned, a political-economic question. Land is a resource over which there is competition."
- *"Terrain* is a relation of power, with a heritage in geology and the military, the control of which allows the establishment and maintenance of order. As a 'field', a site of work or battle, it is a political-strategic question."
- "*Territory* is something that is both of these, and more than these. Territory must be approached in itself rather than territoriality, and in relation to land and terrain."

There are many aspects raised here that do apply to the notion of 'territory' adopted in this study. Territories on water can contain many of the same rationales and purposes of territories on *terra firma*, *la terre* or land, and on terrain. Perhaps *aqua firma* would be more apt to discuss the same issues in freshwater lakes because water space, like land space, is linked to notions of property. There is no question that fisheries space and territories are linked to different ideas property regime or ownership, including forms of state-ownership, privatization, and ideas about 'public space' and 'community fishery spaces.' The materiality of space is often linked to economic 'power' and these may be reified by 'territories' signifying 'property' ownership of one kind of another in the landscape (Blomley, 1998; Sikor and Lund, 2009).

Elden (2010a) is correct to point out certain territorial dimensions of power based on notions of property. "Possession of land is the determinant of power, and conflict over land is a key indicator of power struggles" (Elden, 2010a: 8), and of course, the same may be said of conflicts over fisheries. Control and struggles over propertied 'water' spaces are just as critical to examine as those concerning 'land'. As the title of a recent volume concerning power and politics over water resources in the Mekong region imaginatively conjures up, the thesis is dealing with *Contested Waterscapes* (Molle, Foran and Käkönen, 2009). And much of the contestation concerns issues of property dispute, territorial conflict and differential access to fishing grounds. And there is also a 'strategic-defensive' 'terrain' dimension to some of these conflicts, with armed guards and bamboo-fences regularly employed by fishing-lot owners to keep people out, and questions of enforcement, corruption, and illegal encroachment never far from the discussion of fishing territories (FACT & EJF, 2001; Sithirith and Vikrom, 2008). Indeed, discussion of these issues entails that we consider how territorialization and the portioning out of property rights is often related to issues of social ordering, class and social struggles (Blomley, 2003: 122), as well as different geographies of 'violence.' There is no doubt that even at the scale of the Tonle Sap "territory is a vibrant [and

contested] entity" (Elden, 2010a: 12; author's insertion) deserving close investigation and analysis.

Whilst Elden (2010a) has definitely helped elaborate some of the 'political-economic', 'political-strategic' and 'political-legal' functional elements of 'land, terrain, territory', there are still other dimensions of 'territory' that are relevant, including the cultural and symbolic dimensions. Several aspects of everyday social life and social power come together in territory (Paasi, 2003; Storey, 2001). Paasi (1996; 2003) defines territories as 'social constructs' and discusses how territories generate forms of spatial socialization relating to the boundaries of nation-states, but at lesser scales, this could equally be applied to the many ways in which people become socialized into accepting various boundaries, territories, properties, and zones in that affect their daily life. Research experience and observations of life in the Tonle Sap has shown that fishers come to 'accept', grudgingly or willingly, many of the spatial constraints that fundamentally affect their livelihood security and fishing practices. There is no escaping the fact, that even in the middle of a freshwater lake, people are affected in so many ways by its political and territorial organization.

2.3.5 Property, Law and Geography

Property rights encompass the 'rights' of the person or group to hold land, forest, areas of water (such as fishing lots, conservation areas, or community fisheries) as 'property'. Property rights effectively relate to very distinct forms of regime, control or ownership ranging from 'open access' (free-for-all), to rights or things or resources held as 'common property' (formally or informally regulated access for members of a 'community' or 'group'), to different forms of state property (such as national parks), and privatized property (held exclusively by individuals, agencies or companies). According to Bromley (1991), a *right* is "a capacity to call upon the collective to stand behind one's claim to a benefit stream. *Rights* only have effect when there is some authority system that agrees to defend a *right* holder's

interest in a particular outcome. *Rights* can only exist when there is a social mechanism that gives *duties* and binds individuals to these *duties*." Bromley further argues that: "when one has a *right* one has the expectation both in law and in practice that one's claim will be respected by those with *duty* and it is the essential function of state to stand ready to refrain those from *duty*. If the state is unwilling, or unable, to ensure that compliance to duty, then *rights* become meaningless" (Bromley, 1991: 15).

Property is the result of a secure claim to a resource. Resources may exist where there are no secure claims and therefore, cannot be considered as property (Grima and Berkes, 1989). However, individuals, groups and the state claim resources, and so there are very few 'resources' that would be left unclaimed. These groups eventually translate these claims into 'property' and determine access conditions, and this relationship strongly affects the resource-use pattern (Gibbs and Bromley, 1989). The resources accessed, harvested and managed by the individuals are referred to as a 'private property', by the group is referred to as 'communal property' and by the 'collective choice' refers to as a 'state property'. These are referred to as a 'property rights regimes' or 'property resource regimes'. 'Property rights regime' is the only way in which to limit the access to resources (Bromley, 1991; Charles, 2001; Ostrom, 1990; Berkes, 1989). Further, it should be clear that such regimes may function more effectively through the reification of classification, control, and attempts to enforce rules via territoriality (Sack, 1986).

Central concerns of this thesis are territory, access to resources, and property (Vandergeest and Peluso, 1995; Vandergeest, 1996; Delaney, 2005; Phuc, 2008; Sikor and Lund, 2009). As Blomley observes, 'local landscapes of property are … in a complex state of 'becoming' (Blomley, Delaney and Ford, 2001: 127) meaning that 'property' is often part of legal, political and economic processes of claiming, legitimizing and controlling space and resources. Local landscapes contain many competing properties, territories and claims. Similarly, the freshwater space contains complex legal geographies that relate to the system

of territorialized resource governance. Just like many of the terrestrial and coastal spaces of Southeast Asia, the Tonle Sap has been subject to increasing 'commoditization' (after Vandergeest and Peluso, 1995; Nevins and Peluso, 2008) involving in the process various state agencies, private actors, international organizations and non-governmental bodies, each with their own competing geographical imaginaries and representations of space.

'Property' implies access in relation to natural resources, whether legalized or not. According to Thomas Sikor and Christian Lund (2009: 1) "not all forms of access to resources or their benefits are guaranteed by a politico-legal institution, they may still contribute an important element in people's livelihoods." This thesis has explored various 'grey areas' between what people actually have rights to and what they merely have access to, and contradictions in relation to so-called 'public fishing spaces', as well as the problems of access that many 'floating communities' are confronted with due to their ambiguous status, lack of landed resources, and occasional mobility. The problem is that the politics of the commons is highly territorial nowadays (Peluso, 2005a). Issues of property, access and rights are tied inevitably to territorialized practices and forms of control. ***Struggles over property are also struggles over territory.*** Certain kinds of territorialization have literally squeezed village access rights, areas of commons, and produced conflicts between claimants. It is not a level playing-field for there is differential access to legal and political resources in Cambodia's highly hierarchical society with its myriad patron-client relationships. As Sikor and Lund (2009: 3) succinctly describe, "property is about relationships among social actors with regard to objects of value."

At one level, this thesis has viewed political territoriality as being linked to strategies to authorize property rights and efforts to have claims to space legitimized by relevant state and governing institutions. Thus, some forms of human territoriality hold 'legitimacy' in the eyes of those governing agents and others do not. However, if we adopt a more multi-dimensional perspective, numerous indigenous human territorialities linked to local

conceptions of space, social-ecological adaptations, and various customary practices are not necessarily legitimized or considered valuable to the governing agents. This thesis calls for recognition of certain types of indigenous territorial practice, including mobile and vertical territorialities closely linked to everyday social life and to the 'pulsing ecosystem.'

"The control of spatial ordering and the control of people in space combines different techniques and policies of classification, registration and mapping" (Sikor and Lund, 2009: 13; Harley, 1989; Walker and Peters, 2001; Delaney, 2005). There are also legal processes and social relations of power that produce not only 'representations of space' but forms of social-spatial 'ordering' according to the relevant governing bodies. Territoriality "is often a key element in the exercise of authority" (Lund, 2006: 93; Sikor and Lund, 2009: 14).

2.3.6 State Territorialization and Human Territoriality

As human territoriality is discussed in more detail in the relevant chapters (particularly Chapter 5 and Chapter 6) the discussion here represents only a brief outline of some key issues. One of the key texts that influenced the direction of this researcher is Robert Sack's (1986) classic text *Human Territoriality*. Undoubtedly, Sack's notion of human territoriality has influenced my thinking about the 'social constructions of territory' and the relevance of territorial strategies to matters of contemporary resource politics. However, this thesis has sought to examine how and why territoriality relates to resource management and resource politics in a contemporary Cambodian setting, and as such it is necessary to place these discussions within regional natural resource political economy context.

According to J.B. Harley (1989: Harley, 2000, in Laxton and Andrews) "In modern times the greater the administrative complexity of the state *the more pervasive its territorial and social ambitions* – then the greater its appetite for maps (my emphasis)." In 'modern' Southeast Asia *the internal territorial impulses* of states has more than matched their external

"cartographic anxieties" involving relations with neighbouring states (Krishna, 1994), particularly as far as mapping, claiming and controlling natural resources is concerned (Vandergeest and Peluso, 1995; Peluso, 1996; 2005a; 2005b; Phuc, 2008; McElwee, 1999; 2004; Laungaramsri, 2002; Fadzillah-Cooke, 2003; Sowerwine, 2004; Vandergeest, 1996; 2003). Most of the states in Southeast Asia have employed territorial administration to organize surveillance, gather information on 'units' of population, sedentarize mobile or nomadic groups, relocate people from sensitive areas of national security or important forest reserves, as well as to collect taxes, tolls, and revenues. In other words, political territoriality is readily employed in the service of the state for a range of political, economic, social, administrative, governance, state security, resource expropriation, rents, and other reasons.

Processes of *territorialization within national 'geo-bodies'* are as important to examine as the role of modern political geography in the creation of 'nation' (Winichakul, 1994). Yet the 'territorial trap' of reifying State territories is mostly focused on the issues of inter-locking states, international boundaries, formal political sovereignty, and the significance of 'national space' (Agnew, 1994; Elden, 2010a; 2010b; Taylor, 1994). Whilst Elden (2010a) sees the significance of 'territory' and its links to 'earth and land' the processes of territorializing land, earth, resources, water, and so on, are little discussed in his examination of 'territory.' It is in the field of resource politics and governance, and in the disciplines of anthropology, political science, and to a lesser extent, geography, that we can see some of the most relevant examinations of how the creation of territories, through territoriality, are explicitly used of as a means to exercise and reify state sovereignty and control over so-called 'national' environmental resources.

The researcher begins the territorial analysis of fishing lots in the early 20th century Tonle Sap with French colonial measures to extract rents from the Lake. Similarly processes of utilizing territorial and non-territorial controls were seen in the forests of Burma. As Raymond Bryant (1997: 15) puts it: "To begin with, the British sought to define political

control in terms of 'inside/outside" – that is, it sought to define state control clearly and permanently in terms of what was both within and without its legal jurisdiction. (…) Fixed borders permitted the state to conduct resource management with greater confidence in 'its' territory than was hirtherto the case." The process was far from neat and tidy, as this was often contested by various 'non-state' groups, and sometimes "territorialization was even reversed" (Bryant, 1997: 16). However, there are powerful logics to territorial control over resources, as Bryant (1997:16) explains: "the colonial state sought to develop a national profile of the people and resources under its formal jurisdiction as part of an attempt to enhance political control and commercial activity." For colonial authorities, it seems that superior military force, couple with advanced mapping and surveying techniues, enabled forests and other land to take on more precise 'legal and spatial' definitions.

The forms of resource territorialization that became so important in extracting value, rents, profits for distant imperial and metropolitan powers, were to be extended in post-colonial 'territorializations of national space', often within the boundaries inherited from colonial times. Since the end of colonial rule, the region has witnessed intensive forms of terrtiorialization associated with the extension of state administrative bureaucracies into every district, every periphery, every remaining 'resource frontier' of their so-called national geo-bodies. No matter whether we are talking about centralized socialist states, such as Lao PDR or Vietnam, or relatively free-market democracies, such as Thailand, or military regime states such as Myanmar / Burma, territorialization or resource sectors has been an on-going and emphatic process in spite of ongoing processes of transnationalized production and globalization creating numerous cross-border flows, investments and relations.

State territoriality often generates and relates to different forms of politics. Vandergeest and Peluso (1995; 2001) have examined the history of 'forest politics' in relation to state territorialization strategies, and revealed how applications of territoriality may lead to different forms of social, ethnic and racial exclusion. They have also shown how territorial

processes of civil administration, land-use zoning, and differing jurisdictions over forests help to "constitute and consolidate state power" (1995: 6). Peter Vandergeest (2003) discusses the relationship between spatial strategies of resource control and racialization of forests in relation to particular categories of 'non-Thai' upland groups and so-called 'hill tribes' in northern Thailand, whereby "spatio-ethnic distributions have also been produced and reinforced through administrative mapping" (Vandergeest, 2003: 24). Various other researchers have explored the intersections between boundaries, racial / ethnic identities, community-based natural resource management, and access to resources (Li, 2001; Tsing, 1999; Lohmann, 1999; 2000). Nancy Peluso has explored the roots of 'territorialized violence' involving state and non-state territorialities in West Kalimantan between the Dayaks and Madurese (Peluso and Hawell, 2001; Peluso, 2008). To Xuan Phuc (2008) reveals that many Southeast Asian states have tended to promote notions of 'people-less forest conservation' which has put them into direct conflict with numerous local communities over access to, exploitation rights within, and control of much forest land. "In contrast to the view that forests must be strictly protected, villager forest-dwellers or those living nearby forests see the forest as their source of livelihood and are intimately linked to cultural ties and community management … State law defines and determines the boundaries of criminality, without recognizing the complexity of existing local and / or traditional institutions, and criminalizing all activities considered as not suitable for the state's purpose" (Phuc, 2008: 10 – 11). There are equally numerous studies advocating various forms of counter-territoriality and 'counter-mapping' strategies in community and group responses to dominant state representations and territorializations of space (Laungaramsri, 2002; Fadzillah-Cooke, 2003; Peluso, 2005a; 2005b, Try Thoun & Tek Vannara, 2005).

In Cambodia's fairly authoritarian hybrid democracy environmental resource revenues have been central to the ways in which the State has both maintained and extended networks of political patronage and forged partnerships with investors and companies working within particular resource sectors (Le Billon, 2000; 2001; 2002; Global Witness,

2009; Kheang, 2005). In the Tonle Sap, renewed interest in the commercial value of annual fisheries production revitalized the fishing lot system, leading to intensified territorializations of the Lake, and new fishery conflicts during the 1990s to the current time (Degen, *et.al.*, 2000; FACT & EJF, 2001). As Peluso (2005b: 2) observes elsewhere, "territories are not exclusive zones of influence and they are clashing all over the place." Thus, in the Tonle Sap numerous 'territories' were created and there have been subsequent contestations over claimant rights and responsibilities. Indeed, there are potential 'claimants' everywhere one looks in the freshwater lake, particularly now that so-called 'community fishery organizations' (CFOs) are also making claims for legalized spaces through formal mapping of boundaries and registration submissions to the provincial and national authorities (Bonheur, 2007). As this thesis sets out to demonstrate, however, the Tonle Sap is a very 'unruly space' with many boundary disputes, fishery conflicts, and overlapping claims.

2.4 Political Geographies of the Mekong Basin

Political geographic studies have tended to examine broader issues of resource governance within the Mekong region, focusing more on trans-boundary, upstream – downstream dynamics, politics of scale, hydro-politics, social movements and networks, as well as connections between law and trans-boundary resources management (for example, Bakker, 1999; Hirsch, 2006; Hirsch, 2010; Johns, Saul, Hirsch, Stephens, and Boer, 2010; Lebel, Garden and Imamura, 2005; Sneddon and Fox, 2006; Hirsch & Wyatt, 2004). These studies should also be viewed in the context of a much bigger literature that examines the politics of trans-border resource governance, particularly the issues of hydropower and hydro-politics, inter-state relations, the role of the Mekong River Commission, and increasing geo-economic significance of China in the resource politics of the Mekong Basin (Hirsch, 2010; Lebel, Dore, Daniel, and Koma, 2007; Molle, Foran and Käkönen, 2009; Osborne, 2000).

In the last decade, the most pressing area of debate has probably been the shifting nature of hydropower development in the Mekong Basin, with numerous new dams having been planned, built or proposed in many tributaries and even along the mainstream of the Lower Mekong River. Australian historian Milton Osborne, in writing about hydropower development, is of the opinion that "where once it was appropriate to write of risks, when assessing the Mekong's future it is now time to write of fundamental threats to the river's current and vital role" (*The Cambodian Daily*, 20 January 2010). These threats are truly connected to the future of the Tonle Sap, for hydropower development directly impacts upon the fish migrations of numerous species found in the daily catches and diets of literally millions of people, and the risks relate to the Mekong which is 'one of the most productive fisheries in the world (Coates *et al.*, 2003).

As a quick illustration of the entangled politics of the Mekong Basin in contemporary times, it is worthwhile pointing to the many different parties, organizations, and individuals who have jointly and individually raised their voices against the plans to build the Don Sahong Dam in southern Laos. If constructed this would be the first mainstream dam on the Lower Mekong River, with very adverse consequences on fish migrations (TERRA, 2007; Baran and Ratner, 2007). The project developer, Malaysian company Mega First Corporation Berhad (MFCB) signed a Memorandum of Understanding with the Government of Laos in March 2006 and a Project Development Agreement in February 2008, confirming "the feasibility and social/environmental studies of the proposed Don Sahong project to be technically and financially feasible" (MCFB, 2008, cited in Khamin and Middleton, 2008). Don Sahong is planned for a site just one kilometer north of the Laos-Cambodia border, in the Khone Falls area of Khong District, Champasak Province (Baird, 2009: 4). The Khone Falls function as a 'bio-geographical' zone of great significance, due to the migratory paths along specific channels only of large numbers of fish. The area supports at least 201 fish species, out of which 87% are migratory species (Baran and Ratner, 2007), with many of these believed to come from the Tonle Sap (Baird, 2009). The Don Sahong site would apparently

block the Hou Sahong Channel, “the only channel that migratory fish can effectively use in the lower-water season to get past the Khone Falls” (Baran and Ratner, 2007: 2).

The Don Sahong case illustrates perfectly well how the dominant discourse of hydropower is transforming resource governance issues at a regional and trans-border scale within the Mekong Basin. The concern about hydropower is about the *process* and *politics* behind it, as well as about the complex roles of international financial institutions such as the Asian Development Bank (ADB), World Bank, of the lower Mekong inter-governmental mechanism, the Mekong River Commission (MRC), public-private ventures and companies, individual state agencies, non-governmental organizations, and various civil society groups play. In an article that reviews some of the major developments in hydropower politics since the World Commission on Dams (WCD) report in 2000, Hirsch (2010) has examined China’s growing influence as a hydropower exporter and China’s emphasis on forming friendly bilateral ties within the region, which include hydropower technical expertise, coupled with the growing impatience of certain lower Mekong states, particularly Laos, Myanmar and Cambodia, with long processes of deliberation, public stakeholder consultation, and other procedures that may curtail key ‘developmental projects’ considered of national interest. Indeed, many of the state agencies supporting hydropower are increasingly drawn into geo-economic intra-regional ties due to the development of the Mekong Power Grid enabling easier energy transfers within and between countries (International Rivers Network, 2006; Cronin, 2008).

Philip Hirsch (2010: 321) in examining the geo-economic and geopolitical trends, rather gloomily forecasts that “it truly appears that the status of the Mekong River and its tributaries as relatively free-flowing may be coming to an end.” If this is ‘truly’ the case, then the future vitality of the Tonle Sap as a major socio-ecological source of resources, nutrition, livelihoods and unique wetlands culture, are also in jeopardy from these mostly ‘external’ threats.

Thus, we can see that there is intense debate and broad interest in the politics of resources in the Mekong Basin as a whole. Indeed, this researcher has also actively contributed to some of the academic discussion (Sithirith, 2007), as well as personal involvement in the Fisheries Action Coalition Team (FACT), and through regional civil society networks, such as that created by the group Towards Ecological Regional Recovery and Regional Alliance (TERRA) based in Thailand but with linkages across lower Mekong borders (see *Watershed*, various publications from 1995 to present). All of this background is useful in informing and helping to shape this thesis (see Chapter 3).

Undoubtedly, all the Mekong studies are highly relevant in the sense that they discuss important resource governance processes and form of politics that directly relate to the Cambodian context and to fisheries management in the Tonle Sap. Even so, this thesis is not attempting to examine in any detail the Tonle Sap's numerous socio-ecological and resource politics connections across borders with other parts of the Lower Mekong, even though these are of critical importance to the future of the Lake. Rather the thesis focuses primarily upon how resource politics and processes have transformed the internal space of a freshwater lake. This thesis is much more focused on how and why the Tonle Sap has become partitioned, territorialized, zoned, and transformed into a political geographic maze that is still little researched in relation to resource governance. This is not purely an exercise in political geography, for there are many policy-oriented (see Chapter 9), socio-economic, and environmental concerns underpinning the thesis.

After working for several years in the context of undertaking NGO work with small-scale fishers, I became intensely aware that many fishers faced problems relating to the ways in which the space of the Tonle Sap has been divided into different functional zones and that there are in fact a great many boundaries within the Lake system that have so far been little studied. Many studies have tended to focus on policy frameworks in the fisheries sector, as

well as upon the legal-political notions of community management, fishery reforms and derived policy implications (Ratner, 2006). Whilst there has been a very big interest in the politics of fisheries and resources of the Tonle Sap, there has been virtually no real discussion of the political geographies of resources or of resource management (or conflicts over resources) in the Lake.

One political geography based study focusing purely on the Tonle Sap examines the critical aspects of nature's materiality, paths of accumulation in transforming aspects of the Lake's political economy and political ecology, and some of the resultant dispossessions of small-scale fishers (Sneddon, 2007). By focusing on human-nature relations and how these affect processes of accumulation in relation to wild capture fisheries, Sneddon's study is perhaps the closest that political geographer's have come to the research focus of this particular thesis. Although the research focus here is on the formalized political geographies of the Lake's numerous zones, territories and boundaries. The thesis sets out to consider how and why the politics of space, including non-territorial politics, are central to understanding critical matters of resource access, utilization, ownership, control, and livelihood security relating to the majority of mostly smaller-scale fishers of the Tonle Sap.

2.5 Power and Political Geography in Cambodia

In the context of Cambodia, I would like to briefly mention further studies that have at least drawn my attention to considerations of power, its effects, politics, authority and issues of resource control. From an anthropolitical-sociological perspective, Mona Lilja (2008) has done much to unpack the concept of power in relation to ideas about discourse and resistance of women politicians and activists in Cambodian society. Lilja (2008: 3) argues that "looking at resistance means looking at resistance against power-loaded discourses." She examines gender "stereotyping and hierarchization and how these are played out," as well as the way in which women leaders have managed to develop forms of 'discursive resistance'

(using performativity, identity politics, irony, hidden transcripts, and so on). What is particularly valuable here for a study of small-scale fishers in the Tonle Sap, is that (after Foucault, 1991: 170-194) "each individual is both the subject and the object of power – the subject is exposed to ranking and stereotyping at the same time as s/he promotes the repressive 'truths' – thus being both an agent exercising power and a 'subaltern' who has been subjected and reduced to order by disciplining strategies." One of the key themes of this thesis is the way in which state-centered and other controlling agencies have rationalized the space of the Lake, but at the same time, the territorial (and non-territorial) means of doing so also tend towards stereotyping 'community spaces' and their subaltern subjects. However, in the Tonle Sap, just as in gender politics, there are many subalterns who actively refuse to internalize or comply with dominant discourses and official representations of space (see concluding chapter). Further, indigenous conceptions of space and social-ecological connections may also generate alternative outcomes and possibilities that contradict with dominant notions (chapters on scale and human territoriality).

From a political geographic perspective, two further studies have been particularly relevant in showing how Cambodia has faced different forms of power, authority and violence, which are related to transformations in the human landscape. Tyner's (2008) focus on geography, genocide, and the unmaking of space during the Khmer Rouge period in Cambodia's history discussed how ideology and particular geopolitical imaginaries can lead to extremely coercive transformations of space, place and identity. Drawing on theoretical insights by Henri Lefebvre (1991), and citing Mona Domosh (1998: 210), Tyner (2008: 109) reminds us that space is "purposefully representational of certain social ideas, and therefore the holders of these ideals attempt to control its use." As Tyner continues, "we are socialized, for example, into an understanding of these representations of space, of whom is permitted access, and what behaviours are acceptable." Tyner (2008: 110) discusses how the Khmer Rouge *constructed* their own communist spaces, and in doing so "they deliberately set out to *deconstruct*, or unmake, previous spaces." Of course, the violent removal of whole

populations for cities and creation of large rural collectives led to very distinct transformations in political, cultural, social and economic geographies. What this illustrates is that Cambodia (including the Tonle Sap basin) have been subjected to very dramatic and sudden politico-spatial transformations in recent history.

Different forms of socio-spatial violence have continued in various forms until the current day. As Simon Springer (2009a and 2009b) has illustrated, urban centres, particularly those places and localities occupied by the urban poor, have become particularly subject to coercive measures attempting to relocate, remove and silence their residents, who are often viewed by the authorities as a public nuisance in the way of neoliberal-inspired developmental projects within city spaces. Springer also draws on some of Lefebvre's ideas, by discussing 'public space' (or representational spaces), as potential sites "where the voiceless can make their demands seen and heard, as a medium for the contestation of power, and as the space in which identity is constructed, reified, and contested" (Springer, 2009 a: 3). Whilst I can not do justice to these geographical studies in this short introduction to this thesis, there are important connections to my thesis in that all these studies view space as being coninually a project in process, whereby the politics of space is extremely dynamic, full of different attempts to mould or transform the human and non-human landscape and create new territorialities, as well as 'alternative' politics that challenge official discourses, representations, and attempts to create order and hierarchy.

2.6 Political Geographies of Fisheries in a Freshwater Lake

The Tonle Sap supports one of the most productive freshwater fisheries in the world, with annual yields of 230,000 tons, equivalent to about half of the country's total production (Van Zalinge *et al.,* 2000; UNDP/GEF, 2004), and inland fish production plays a vital role in national economy. Given the rich in fisheries and its high commercial values of fish, the colonial and post-colonial state divides the Tonle Sap into the many 'fishing lots,' marked it

with boundaries, and auctioned for private control. At the same time, the state sets aside fishing areas in the Tonle Sap Lake as a 'public fishing area' for community uses for subsistence fishing (FACT & EJF, 2001; Van Acker, 2005; Keskenen, 2003). Furthermore, the state classifies the Lake into three main geographical functions for conservation purposes—transitional zone, buffer zone and core zone for a conservation purpose (Bonheou and Lane, 2001; 2002; TSBR, 2007).

Not surprisingly, functionally different territories produce conflicts of the interest (Bonheur and Lane, 2001; 2002; TSBR, 2007). On the one hand, the commercial fishing lot and the conservation systems were established by the state ignoring ecological functions and human system of the Tonle Sap. On the other hand, the conservation area overlaps the commercial fishing lots and the nature of the commercial exploitation of fisheries in the fishing lots conflict the conservation efforts in the conservation area (Bonheur and Lane, 2001; 2002; Sithirith & Grundy-Warr, forthcoming).

The 'state spaces' exclude the 'community spaces', for instance, the spaces of 'floating villages', the spaces of 'stand-stilt villages' and the spaces of 'farming-cum-fishing villages'. Therefore, fishing communities around the Tonle Sap Lake are struggling to construct their own spaces within and in the grey areas left by officially constructed spaces. Thus, in the Tonle Sap, space is constructed and reconstructed and it is constructed by agents and actors operating at national, regional and global levels, and some spaces overlapped such as commercial spaces and conservation spaces, leading to institutional, policy and management conflicts. Thus, different forms of spaces in the Tonle Sap can be analyzed across scales, and the management of the Tonle Sap is significantly influenced by spatial arrangements. Territoriality is a highly flexible concept, for it can relate to planning for the whole lake system, but this system contains so many boundaries, so many representations of space, and many examples of overlap and spatial conflicts.

Central to examination of resources governance is the consideration of the how the different constructed 'territories' of the Lake affect the livelihoods of people living dependent on aquatic resources. The political spaces constructed by the state exclude the 'community spaces', for instance, the spaces of 'floating villages', the spaces of 'stand-stilt villages' and the spaces of 'farming-cum-fishing villages'. Therefore, fishing communities around the Tonle Sap Lake are struggling to construct their own spaces within and in the grey areas left by officially constructed spaces.

With the creation of commercial fishing lots in French colonial period of rule and the resurrection of the fishing lot system in the 'transitional period' of Cambodia's political economic transformation in the early 1990s, and the conservation areas, there were many new boundaries created within the Lake space. The demarcation of boundaries cut across many community areas considered to be 'traditional fishing grounds', and they did not take into account the ecological processes and hydrological regime. Thus, territorialization of the Tonle Sap has tended to ignore complex socio-ecological processes, in a similar way to how the whole Lower Mekong Basin involved 'simplifications' by reducing complex ecosystems and hydrology to 'watercourses' management in order to facilitate inter-state cooperation in the 1995 Lower Mekong Agreement (Sneddon and Fox, 2006).

Boundary conflicts are critical given the fact that boundaries are unclearly marked as a result of naturally fluctuating water-levels between the dry and wet seasons, and these implicate resources management and affect the livelihoods of fishing communities. Hitherto, the complexity of the political space of the Tonle Sap has been little explored, and remains a gap in knowledge of resource disputes, conflicts or governance issues (Sneddon, 2007; Sithirith, 2007; FACT & EJF, 2001).

2.6.1 Governance Spaces, Privatization, and Resource Exploitation

We can examine governance in the Tonle Sap Lake in relation to the management of commercial fishing areas, public fishing areas, and conservation areas, which are the key spatial resource 'spaces' of the Tonle Sap Lake. Commercialization of fisheries for state revenue generation lies at the heart of governance. The system is operated through a centralized management hierarchy, which means a high degree of state control of fisheries and resources (FACT & EJF, 2001; Van Acker, 2005; Degen *et al.*, 2000).

Furthermore, the management of fisheries in the Tonle Sap is dominated by the commercial fishing lots, which the researcher views as 'privatized space' because these areas are auctioned for private ownership every 2-4 years. The reality is, however, that fishing lot owners usually end up in control of these areas for more than 10 years, due to their close ties with high level government officials in charge of fishing business, and their bribes in exchange for the continued fishery control. Furthermore, the system works by sub-dividing fishing lots into sub-lots and leasing of these valuable fishing grounds to sub-lease holders who then use high-tech, up-scale equipment, sometimes 'illegal' means, to maximize their fish catches critical to make returns on their capital investments. In this manner, the way the Lake-space is governed, the territorialization of the Lake-space, and its commercialization, are directly contributing to over-exploitation and resource degradation.

Fluctuating water-levels are a concern to the private fishing lots. On the one hand, fishing lot owners are often preoccupied with how to maximize fishing returns within existing lot boundaries, on the other hand, the fluctuating water-levels are conducive for fishing lot owners to silently expand their lots laterally beyond agreed limits. In many cases, the commercial fishing lot owners extend lot boundaries into the public fishing areas, leading to the fishing conflicts with local fishing communities (FACT & EJF, 2001; Van Acker, 2005; Keskenen, 2003).

2.6.2 Threats to Livelihood Security

We may perceive the whole of the Tonle Sap as a 'space of dependence' for fishing communities around the Lake as well as being an important source of protein and livelihood incomes. Different fishing communities have settled around the Lake over time, such as the floating, stand-stilt and farming-cum-fishing communities, and they use the resources around the lake to sustain their livings (Sithirith and Grundy-Warr, forthcoming). At the same time, they have adapted to the lake's ecosystem and developed their system, skills and practices to use resources in the lake, and processing the fish. Their cultural and social lives are based on fishing. Fishing is the main source of income and livelihood security for most communities around the Tonle Sap (Navy *et al.*, 2006).

The commercial fishing lot system and the conservation efforts often conflicts with customary fishing practices of communities living around the Tonle Sap Lake. To access to a good fishing ground, fisher has to collude the powerful and corrupted officials, but many of them struggle to access to fisheries as they do not have enough resources to bribe them. Thus, they tend to encroach into conservation areas or commercial fishing lots, resulting in arrest which is subject to heavy fine, otherwise they are courted. This is one of causes of poverty in the Lake (FACT & EJF, 2001; Van Acker, 2005; Degen *et al.*, 2000).

Moreover, the commercialization of fisheries has led to the over-exploitation and degradation of resources in the Lake. At the same time, lack of alternative livelihood system and the limited access to fisheries for small and poor fishers are the causes of the fisheries destruction in the Lake. Fishers would maximize resources when they have opportunity in order to satisfy their needs. Due to a high population, the competition for resources is increased between fishers and between fishers and commercial fishing lots. Thus, the existing governance system has failed to ensure the sustainability and the well-being of the people (FACT & EJF, 2001). Simultaneously, increased development pressures around the Tonle

Sap, such harbor construction, irrigation and agriculture, and potential oil and gas development, aiming at seeking short-term economic gains at the expenses of long-term (social, economic and environmental) sustainability goals. Furthermore, since the political economic opening up of Cambodia to inward investment from the early 1990s, there has been much state – private sector exploitation of the country's natural resources, including forestry, minerals, and fishery resources (ADB, 2005a; Hughes, 2003; Le Billon, 2000; Sneddon, 2007). This is the national context for intensified commercialization of the Tonle Sap, affecting the livelihoods of millions of Cambodians as well as the national economy (FACT & EJF, 2001; Gum, 2000; Le Billon, 2000).

Despite the abundance of resources, the Tonle Sap sap is considered as of the poorest regions in the country. This is confirmed by the World Bank (2006) indicating that about 35 percent of people living in poverty in Cambodia, but in the Tonle Sap, the poverty headcount is still high accounting for 45 percent of the total population in 2004 (World Bank, 2006). The ADB report (2005) reiterates that the Tonle Sap Lake has a high rate of poverty. Deeper analysis in the incidence of poverty under the Tonle Sap Initiative stated that half of the villages in Tonle Sap estimated to have 40-60 percent of people living below the poverty line and in some areas even 80 percent of people living under the poverty line (ADB, 2005a; UNDP/GEF, 2004). Women constitute about 51% of the population in the Tonle Sap region. Significantly, they also head about 15-30% of households (UNDP/GEF, 2004). The fish catch per unit of effort has been decreasing, making livelihood dependence on fisheries a tough battle, particularly those living in the floating and stand-stilt communities whose livelihoods are entirely dependent on fishing. The situation is more critical for floating and stand-stilt communities given the fact that they do not own agricultural land and declining fish catches makes them more vulnerable. This is a major reason why this research focuses much more closely on these unique communities of the Tonle Sap.

2.6.3 The Politics of Knowledge

In Fikret Berke's (1999) *Sacred Ecology* he raises several important reasons as to why we need to encourage "pluralistic approaches" to resource governance matters. At least a part of this project may be to build upon existing forms of 'indigenous ecological knowledge' (IEK) however we define it. As Berkes (1999: 180) puts it: "pluralism can include non-Western knowledge about specific ecosystems as well as non-Western perspectives in interpreting that knowledge." Furthermore, Berkes (1999: 181) suggests that: "Traditional systems inspire a new resource management science open to the participation of resource users in management, one that uses locally grounded alternatives to top-down centralized resource management. The point is important not only for humanizing resource management, but also for making sure that local needs are addressed and that relevant local knowledge, practice, and values are part of the decision making." These viewpoints are highly relevant for fisheries management, whether on the oceans and in coastal zones (McGoodwin, 1990; Gupta and Sharma, 2008), or in a freshwater lake (Tola and Middleton, 2008). The idea is not to suggest that IEK is best, and there may often be much cross-over between forms of knowledge (Agrawal, 1996). Indeed, in the Tonle Sap, the researcher has noted that some of the now very exploitative commercial technologies used in the fishing lots are actually up-scaled forms of indigenous technology at much smaller scales. Thus, any form of knowledge may lead to bad outcomes.

In the Mekong Basin as a whole, it has been argued that the applications of scientific knowledge have tended to depoliticize important socio-economic and environmental issues relating to major water projects, particularly dams, and that such knowledge production feeds into the "anti-politics' machine of development" (Käkönen and Hirsch, 2009: 350). In other words, certain kinds of scientific knowledge may help to deflect attention away from the pressing issues at the scale of the local and the everyday, or provide a highly sophisticated technocratic smokescreen that makes it hard to challenge without counter-scientific evidence

and research. Nevertheless, scientific evidence can often cut in different directions. For instance, there exists massive biological, ecological and fishery science evidence that stresses the importance of wild capture fisheries in the Lower Mekong Basin (Friend, Arthur and Kestinen, 2009). The problem is that more dominant narratives exist that stress 'trade-offs' between hydropower and fisheries, emphasize aquaculture, and treat wild capture fisheries as being "inevitably in decline" due to more important water utilization projects.

Counter-narratives in support of wild capture fisheries have been developed based on combinations of knowledge, using science backed up by considerable investigation at various localized scales, and by incorporating the ecological understandings or 'local wisdom' of fishers. The Lower Mekong and Tonle Sap have deeply entrenched 'wetlands livelihoods' (Friend, 2007) based upon a very wide variety of fishing practices. Ian Baird has worked extensively with local communities in Laos and has documented how LEK is deeply ingrained in the lives of fishing communities "based on accumulated experiences regarding ecological and social processes that affect natural resources" (Baird, 2000:4). In addition, LEK has also been examined in order to examine and monitor the adverse downstream impacts of building dams along trans-border river systems (Baird and Mean Meach, 2005). These are positive examples of the sorts of 'knowledge partnerships' (Zanetell and Knuth, 2002) that potentially provide more informed appraisals and analyses for policy to be based upon.

What is particularly important in the call for more pluralistic approaches is the genuine need to build upon sustainable local practices and localized forms of knowledge wherever these are likely to help protect fisheries from over-exploitation or enable more broad based commitment to resource management efforts and goals. In a review of community organizations for managing water resources around the Tonle Sap, Carl Middleton and Prom Tola (2008: 150) pointed out that "there are numerous examples throughout Cambodia where artificial community organization arrangements have been

unsuccessfully imposed under the guise of community participation without first examining the potential for adapting or building upon existing local arrangements." This is why it is necessary to thoroughly examine what already exists before trying to impose new structures that may be a misfit or malfunction due to a lack of compliance and genuine cooperation. Whilst we do indeed need to be wary of idealizing 'the local', IEK, and 'the community' (Agrawal and Gibson, 1999), it is still necessary to search for ways we can optimally use the forms of knowledge available, building upon local institutions, and developing partnerships needed for preserving livelihood and environmental security.

2.6.4 Human-Ecology Relations and Territoriality in a Freshwater Lake

The politics of territoriality are central concerns of this thesis. However, it is necessary to note that non-territorial forms of politics are always present, and territoriality as a political (and social) strategy may be turned on and off. Even so, I am interested in how and why territories are made and their significance in terms of what these territories have to say about power relationships. As David Delaney (2005: 16-17) puts it: "The point is that when we look *through* territory what we will always see are constellations of social relational power. Territory may facilitate or impede the workings of power, control, self-determination, or solidarity. Territorializations are the expressions of power, and how power is manifested in the material world. This fundamental relationship to social power is one of the features that distinguishes territory from other forms of social space (…) What makes an enclosed space a territory is, first, that it signifies, and second, that the meanings it carries or conveys refer to or implicate social power." Further, the thesis examines both the 'territorial' and 'extra-territorial' combinations of power that affect resource governance in the Tonle Sap Lake. For as Alatout (2006) observes, human territoriality reflects particular spatialities associated with complex mediated relations of power implicated by resource governance systems.

Viewing human territoriality as being 'always socially constructed' (Sack, 1986)

tends to obscure some fundementally socio-ecological connextions and human-nature relations that characterize a freshwater lake with pronounced 'pulsing ecosystem' dynamics and seasonal fluctuations in water-levels. The rising and falling water-levels cause the areas around the Lake to be flooded during the water 'rising' period and to dry out during the water 'falling' period (Lamberts, 2001; Kummu and Sarkkular, 2008; Nikula, 2005). Those areas that oscillate between a terrestrial and an aquatic status are defined as the 'Aquatic-Terrestrial Transition Zone' (ATTZ) (Junk, 1997). Ecosystems that experience fluctuations between terrestrial and aquatic conditions are called 'pulsing ecosystems', and are characterized by the 'flood pulse concept' (Junk, 1997; Lamberts, 2001; Nikula, 2005). This thesis utilizes both the scientific understanding of the 'pulsing ecosystem' and ethnographic observations of spatial behavior (human territoriality) in relation to it.

Social scientists and human geographers have tended to ignore "ecosystem scales and ecosystem territories" (O' Lear, 2005: 300; Natter & Ziehofer, 2002). Whilst political geographers interested in resource governance matters would do well to learn from political ecology approaches in order to produce more "conceptually sophisticated accounts of complex human-environmental relations" (Sneddon and Fox, 2006: 183; Robbins, 2003). In this thesis there is much consideration of how the biophysical processes influence indigenous territorialities. For instance, with regard to the 'floating communities' it seems that socially constructed adaptations and mobilities are as much related to the 'flood pulse', water-levels, and seasonal environmental changes, as they are to political economic influences and political boundaries (see Chapters 5 and 6). One of the unique contributions of this thesis is that it highlights how spatial practices and human territoriality relates to rising and falling waters, seasonal changes in the biophysical properties of the Lake, the annual flood pulse, and to other 'natural' phenomena such as fish migrations. The fact is that political and social organization, particularly 'from above', often complicates social-ecological relations that have developed over time in adaptation to water-level changes. Thus, territorial issues have vertical, horizontal and temporal dimensions that are not influenced by but not fully

controlled by humans. This has produced some peculiar indigenous spatial adaptations and territorialities within the Tonle Sap that are significant dimensions of the social-ecological 'lived space' (such as 'vertical', 'mobile' and 'pulsing' territorialities, see Chapter 5) and complicate our understanding of the effects of formal political territories (Chapter 6).

This thesis focuses on the political geographies of a freshwater lake, which unlike maritime space (see Grundy-Warr and Schofield, 2010) and most terrestrial resources, has received relatively little academic attention from political geographers. It is not surprising that Elden (2010a) makes a strong connection between 'territory' and 'land', and most of the focus on resource mapping, territories and territoriality in the region has focused on landed resources (Vandergeest and Peluso, 1995; Laungaramsri, 2002; Fadzillah-Cooke, 2003; Peluso, 2005a; 2005b). Nevertheless, the huge importance of the wetlands, rivers, ponds, reservoirs and lakes of the Mekong system deserve greater attention from political geographers interested in the politics of space and how spatial political organization affects resource access, utilization and control. Thus, this research extends the discussion of human territoriality and political territorialization to include the Great freshwater Lake of Cambodia.

As this thesis argues, some communities are side-lined or ignored or subordinated by dominant representations and territorializations. This is where discussions concerning indigenous territoriality within the Tonle Sap link to a wider and important literature on property, access and territory on the one hand, and discussions of 'public space' in urban contexts (Blomley, Delaney and Ford, 2001; Sikor and Lund, 2009; Springer, 2009a) and territorial 'commons', community forests and 'counter mapping' (Laungaramsri, 2002; Peluso, 1992; 2005a; 2009). How are alternative geographies and 'orders' based on 'the defense of place' (Escobar, 2008) and 'everyday' practices (Rigg, 2007) to be created? How can local communities and organizations develop strategies to maintain and extend areas of 'commons'?

CHAPTER 3

METHODOLOGY

3.1 Engagement as Activist and Academic

This research is founded upon a long-term engagement with the Tonle Sap in a professional capacity, previously (until October 2010) as Director of the Fisheries Action Coalition Team (FACT), and also over the past five years as a research scholar. The thesis is partially influenced by my previous experience as a director of non-governmental organization working with ordinary fishing communities, as well as by this academic research. Thus, there are insights that the thesis contains issues relating to differing personal critical engagements in the politics of resource governance. This long-term involvement, spanning over a decade, is responsible for my interest in central themes explored here. For instance, the existence of spatial politics over resources in the Tonle Sap is nothing new or exceptional (it has existed as long as human-beings have fished there and intensified recently with commercialization), but there is a definite gap in tackling spatial politics in the literature, both at practical policy levels (see Conclusion) and within the academic literature about the Tonle Sap (as discussed in Chapter Two). Thus, the researcher became directly interested in political geography, first in recognizing this gap whilst being fully engaged as an NGO office-holder, then latterly as a research scholar becoming involved in this important sub-discipline as the thesis has evolved.

As a dedicated University researcher it is possible to devote the necessary time to developing an in-depth critical understanding of the Tonle Sap's social-ecological system, the politics of resources and political geographies. Being the former director of FACT has provided this research with additional information, and helped to frame relevant questions to the most pressing livelihood problems and resource conflicts faced by communities living around and within the Tonle Sap. From an early stage in the thesis plan there was a clear

need for micro-level locality and place-based research that relates to broader resource governance issues. As Tania Murray Li (2007: 3-4), an experienced anthropologist and occasional development consultant in Indonesia, states, regarding her dual role as academic and advocate: “I believe my predicament is diagnostic. It enables me to ask what ways of thinking, what practices and assumptions are required to translate messy conjunctures, with all the processes that run through them, into linear narratives of problems, interventions, and beneficial results.” The Tonle Sap is also full of ‘messy conjunctures’ and understanding more about these necessitates additional research into the complex political economy and geographies of resources within the Lake.

Straddling the academic and activist spheres enables what geographer Paul Routledge (1996) calls “critical engagement” in the analysis of “terrains of resistance” in the field of resource politics, for the researcher has direct experience of being involved in livelihood and governance questions in an advocacy, and not purely in an academic context. As Routledge (1996: 510) aptly points out there are frequently many “struggles within and between academia and activism, particularly the contradictions that arise between an intellectual grasp of those directly involved in those events.” Experience of being involved as a research scholar studying the Tonle Sap has revealed that there are often potential gaps in the reading of events, processes and issues from the relatively isolated archives and materials of the University and multiple “localized understandings.”

As an NGO activist concerned with small-scale fishers, it became apparent that there are other sorts of intellectual contradictions and gaps between those making key policy decisions at national, provincial and agency levels and the “messy” “life worlds” and “lived space” of ordinary people. As such, it is imperative to attempt to provide deeper research insights concerning the human landscape, localities, people and places that are under the resource governance spotlight. Many official agency reports at government or international institutional levels provide superficial or only passing reference to the heterogeneity and

complex “lived space” (after Lefebvre, 1991) and multiple differentiated communities of the Tonle Sap. This research seeks to fill certain gaps in our understanding of complex social-ecological and political situations confronting small-scale fishers, communities, stakeholders and agents enmeshed in the politics of environmental resources. For instance, certain types of knowledge and rationalizations of the Lake-space are privileged and other knowledge(s) and meanings are relatively silenced in the processes of resource governance.

This thesis has a simple objective of trying to make more visible the various localized politics and practices that relate to what are termed ‘fishery conflicts’ in the Tonle Sap and relate these to broader political economic changes affecting Cambodia. In so doing, the thesis also relates to what Escobar (2001; 2008) calls “the defense of place” which entails uncovering various alternative subaltern strategies that relate to the politics of resources and struggles to maintain livelihoods, the cultural politics of resources, and social adaptations to overarching transformations of human-nature relations induced by broader political economic forces.

3.2 Approach and Methods

This thesis is explorative in the sense that very little research, and practically zero academic research, has focused on the politics of space in the Tonle Sap (See Chapter Two). Due to previous engagement with FACT, as an academic researcher I was advantaged by knowing where to look for macro-level data almost as a routine task. The researcher already had detailed pre-thesis knowledge of reports undertaken by various other agencies and institutions involved in different aspects of Tonle Sap affairs. At every stage, prior consent was sought from all the people involved in this research, and in every case the researcher informed people about the key purposes of this research. In addition, whilst researching this thesis, it was possible for the researcher to undertake detailed micro-level empirical research in places that were already familiar, which was critical to the initial formulation and

subsequent implementation of feasible methodological practices. The following sub-sections will explore research methods (including ethnographic and other qualitative and quantitative methods); ethical concerns; field site and household selection; and the politics of research.

3.2.1 Micro-level Fieldwork

Too many agency reports and academic arguments about the Tonle Sap are based on local-level assumptions rather than detailed primary research or actual detailed knowledge of peoples' lives on the Lake. The bulk of this thesis is based on first-hand macro- and micro-level research, practical experience of working on Tonle Sap issues for one decade, and the author's deep concerns about the livelihoods, resources and environmental future of the Lake. A great deal of time and effort has been made to collect data from primary sources and numerous field-based observations. Most of the materials presented are original. The research process involved considerable adjustment from city-life (the researcher's office and home are in Phnom Penh), and it is very demanding for any city-dweller to undertake primary fieldwork in the Tonle Sap for any reasonable length of time because many villages lack proper sanitation and public services, and access to them can also be very challenging. However, long stays in study sites and participant observation are the only ways to develop an understanding of 'floating village' life, of appreciating what aquatic resources really mean for peoples' livelihood security, and why seasonal variations affect those ways of life. This thesis is mostly based upon important fieldwork in four different fishing villages in the Tonle Sap Lake—Kampong La, Kampong Phluk, Kampong Loung and Peam Bang (See Table 3.1 below).

In gathering primary data, three qualitative approaches were employed: (a) ethnographic-type fieldwork, in particular, participant observations in the selected study sites; (b) semi-structured interviews and group interview with those who work and live in these areas; and (c) archival research into documents, maps, and other relevant historical and

contemporary materials. In addition, the researcher had access to the quantitative data collected by numerous competent agencies, including Fisheries Administration (FiA), the Mekong River Commission (MRC), the World Fish Center, FAO, Asian Development Bank (ADB), independent scientific studies, and an organization most familiar to the researcher, the Fisheries Action Coalition Team (FACT).

3.2.2 Ethnographic fieldwork and human geography

Steve Hebert (2000: 550) observed that in top geographical journals (notably, *ANNALS of the Association of American Geographers* and *Society and Space*) there has been only a small fraction of papers deploying ethnographic methodologies, and Nick Megoran (2006: 623) has argued that such methods have been largely "neglected by political geographers." This seems at odds with those human (mostly cultural and social geographers) who have elaborated the merits of ethnography within geography most eloquently, or who have utilized these methods effectively in their own research (Ley, 1974, 1988; Western, 1981, 1999; Rowells, 1978; Gregory, 1981; Cook and Crang, 1995; Crang, 1994; Katz, 2004; Valdivia, 2005; for a useful discussion of ethnography within geography, see Cloke *et al*., 2004). As Hebert (2004: 551) asked: "How better to determine how place and agency intertwine and recreate each other than by closely examining how different social groups meaningfully define, inhabit, manipulate and dominate space?" This also relates strongly to political geographic research. Megoran (2006: 627) utilized ethnographic methods in his research on the porous borderlands of the Uzbekistan – Kyrgyzstan Ferghana Valley, and argues that "used alongside textual and (in the context of boundaries) technico-legal studies, ethnographic participant observation could be a helpful tool to build up a fuller understanding of geopolitics and international relations." Donnan and Wilson (1998) have also illustrated the relevance of cultural, social, and political anthropology research in the field of international boundary and borderlands studies. This researcher believes such methods are helpful in the study of the "everyday", sometimes unusual, mostly banal implications of internal

boundaries, zones and territories, and in the examination of how certain dominant representations of space are played out, experienced, and influence the "everyday spaces" of ordinary people in the Tonle Sap area.

3.2.3 Ethnographies of 'lived space' and notions of 'the Field'

Many official studies of the Tonle Sap make policy statements, scientific observations or rational judgments about all manner of issues concerning fisheries, biodiversity, sustainability, governance, and so on, but usually these are statements are made from a rarified level that does not seem contaminated by "the messiness" of human life on and around the Lake. Yet, as many human geographers realize we must grapple with "the inescapable entanglements of people and place" and examine the "intimate attachments" that all sorts of people have to the places that encircle them (Cloke *et al.*, 2004: 172). The lived space of the Tonle Sap incorporates numerous different kinds of villages, each linked to the Lake and its resources in peculiar ways associated with unique amalgams of non-human biophysical forms and processes, human demographic and settlement patterns.

Employing ethnographic participant observation allows for a fuller appreciation of human behavior in relation to localized space and local practices, much of which, in the author's view, remain too little understood in relevant policy-making circles. In particular, in chapters 4 – 8, the thesis is concerned mostly with micro-level political geographies, human territoriality, conflicts over space, fishery scales, and patron-client relations at district and village levels. Whilst the researcher does not claim to fully comprehend all "the inner workings" of the communities researched, the plain matter is that without the effort to spend time with people in these places and to make lots of observations, the thesis would be empirically much poorer, and this would also handicap efforts to link grounded realities to broader conceptual concerns and issues of resource governance (see Chapter Nine).

This research thesis follows previous research in the Mekong Basin which has taken indigenous ecological knowledge, local understandings and meanings of place, and ethnographic research as a serious engagement to appreciate fundamental questions, problems and resource management issues more thoroughly. For example, Baird and Shoemaker (2008) provide a wonderfully rich ethnographic study of people, livelihoods, and development in the Xekong River Basin, Lao PDR. Their study was founded on Ian Baird's research on and off over 15 years along the Xekong River, in Attepeu and Champasak provinces, as well as upon utilizing insights from a group of Lao videographers, and from colleagues in the Global Association for People and the Environment (GAPE). Such duration, detail, contacts and engagement enable researchers to uncover intimate place-based localized knowledge as well as highly nuanced meanings of place. The level of engagement with the people and places in this research is at a similar level of intensity, primarily due to the researcher's dual role as both researcher-scholar and activist-NGO worker. It is also aided by the fact that the author is a Cambodian researching within Cambodia. This meant that the very real research barriers of being "lost in translation" and "culture shock" were significantly reduced.

Within anthropology and geography there is a need to interrogate what is meant by 'the field'. Below there are listed specific communities and sites that have become significant places that relate to the research process. However, as Gupta and Ferguson (1997: 15) have argued, choice of fieldwork sites can enable some forms of "situated knowledge" but "block off others". By choosing certain sites over others is inevitably highly selective and skews empirical research to specific places that may or may not necessarily be comparative or reflect broader theoretical or governance issues. Furthermore, researchers need to be sensitive to "less localized relations", "trans-local" processes, and multi-scale processes (Howitt, 2003). Thus, in any piece of ethnographic research it is useful to adopt other methods that enable broader social and power relations, interconnections and flows between places to be analyzed in relation to the specific sites under the microscope. Gupta and Ferguson sought to re-think meanings of 'the field' in the discipline of anthropology, but their idea of a malleable

and flexible 'field' incorporating "shifting locations rather than bounded fields" (1997: 38) is applicable to much human geographic work too. Socio-cultural units are not spatially and temporally isolated from broader political economic, social and ecological processes. Furthermore, deeper 'local' understandings of specific sites, places, localities and territories also require knowledge of the 'power webs' of interconnections, processes and relations that are at once local, trans-local and multi-scalar (Gupta and Ferguson, 1997; Howitt, 2003).

The notion of 'the field' adopted in this study is very broad. Definitely it does include the different chosen village sites (discussed below), but the fieldwork in these sites is only a part of a temporally larger enterprise, which actually began years before the author decided to undertake PhD research and became instead an NGO activist examining fishery issues in Cambodia. 'The field' is further stretched out to include many insights, secondary reports, unpublished documents, statistics and other materials that 'my position' made me familiar with. Thus, networking and working in offices in Phnom Penh does sometimes allow access to privileged information unavailable at the actual fieldwork village-sites. In a sense 'fieldwork' has also included numerous conferences, meetings and workshops on the Mekong Basin, on fisheries management, on all manner of economic and social issues relating to the Tonle Sap, in which I have participated over the years. Thus, the 'boundaries' of 'the field' are flexible, and involve more than simply participant observations at village level (which are still very necessary).

'The field' is flexible, relating both to the experience, positions, networks, and contacts of the researcher, as much as to the deep ethnographic engagement in the actual places one is studying. However, this researcher believes that without understanding these various sources it is hard to develop a deep understanding of the Tonle Sap. A vital part of this process has been becoming concerned about what Jonathan Rigg (2007) and others have termed 'the geographies of everyday life.'

3.2.4 Relating abstract concepts to 'everyday life'

Cloke *et al.*, (2004: 186) argue that "the 'nitty-gritty' of everyday life [could not] be represented as raw, unmediated data – the empiricist fallacy, data speaking for itself – nor [could] it be presented through abstract theoretical categories – the theoreticist and idealist trap, the lack of interest in empirical findings … [What's] best for the relation – data / theory – is the 'surprise' … That each can bring to the other [through a] continuous process of shifting back and forth … between 'induction' and 'deduction'" (also see Willis and Trondman, 2000). Ethnographers often argue that theory needs to be derived *from the ground up*, thus allowing social phenomena to be revealed through intensive fieldwork, which is more important to them than testing particular hypotheses or applying abstract theory (Eyles, 1988; Atkinson and Hammersley, 1994). As Heibert (2000: 551) puts it: "Ethnography explores the tissues of everyday life to reveal the processes and meanings which undergird social action, and which enable order to be reproduced and sometimes challenged." However, ethnography is not "purely inductive" (Heibert, 2000: 552). In this thesis, the researcher has drawn upon conceptual apparatus mostly from the sub-disciplinary field of political geography, which provides a range of important concepts and theoretical notions that have enable sharper analysis of the politics of space, and simultaneously these ideas have 'come alive' through detailed micro-level ethnographies, interviews and surveys that are integral to this thesis. For instance, human territoriality (Sack, 1986; Delaney, 2005) is a social geographic theory relating to human social interactions, and as such, detailed empirical work can help to highlight critical aspects of territorial behaviour and strategy in relation to superimposed structures, forms of governance and political boundaries. This is largely why in the field of resource politics, anthropological and sociological approaches have added much to our understandings of state territoriality, contestations over land use and common property resources in Southeast Asia (Vandergeest and Peluso, 1995; Peluso, 1992; 2005a; 2005b; Vandergeest, 1996; Li, 2007). Sad to say, there is very little attention from hardcore geographers, let alone political geographers (Sithirith and Grundy-Warr, forthcoming). To

cite Heibert (2004: 553) again: “A theoretically informed, structurally sensitive, ethnography, however, can uncover how structures are made real in the contexts and commotions of daily life.”

3.2.5 Relating the ‘micro’ to the ‘macro’

One of the key empirical aims of this research is to highlight the complex politics of space in the Tonle Sap through a series of detailed studies of localized problems concerning fishery access, boundary disputes, clashes in conceptions of space, and so on. Key thesis objectives are *to highlight the significance of political space in relation to natural resources and fisheries governance*; *to explore competing territorialities affecting the management and governance of resources*; and *to explore different forms and effects of ‘power’ in the politics of space and resources in the Tonle Sap* (see Chapters 1 and 2). All of these are ‘macro-level’ objectives that relate to broader politics concerning the current and future governance of natural resources. The trick is to be able to relate the ‘micro’ empirical findings to the ‘macro’ conceptual and political issues? Once again, ethnographic approaches are helpful. “Ethnography can elucidate the linkages between the macrological and the micrological, between enduring and structured aspects of social life and the particulars of the everyday” (Heibert, 2000: 554).

This thesis examines the socio-economic, political and spatial implications of expanded commercialization and commercial fishing lots on the fisheries of the Lake. In order to ‘get at’ numerous ‘micro’ dimensions it is necessary to engage in grounded (or literally, on the water) fieldwork to appreciate the various different ways in which commercialization has affected ordinary fishers’ access to fishing grounds, fishery practices, and fishery scales. Each chapter in this thesis represents a conscious research effort to examine moments when broader processes, constraints and structures impinge upon the lived spaces and daily life-worlds of ordinary fishers, thus connecting micro with macro and macro

with micro events, incidents, and changes. Ethnographic approaches and local-level empirical research are undoubtedly relevant to the geographer's engagement with how landscapes are continually being made and remade through broader political economic transformations, as well as how these contested landscapes are actually being lived and experienced by ordinary people.

3.3 Reflexivity and Positionality

As Del Casino (2001: 462) put it: "ethnography is always a partial and contested narrative informed by the decisions we make before we begin, after we have started, and once we have completed our research." This is an interested statement, and one that is certainly applicable in the case of this thesis, which has undergone numerous twists and turns, changes in direction, and title changes, as the researcher has tried to come to grips with the project, purposes and process of undertaking the lengthy and often arduous PhD thesis research. Indeed, the process has often led to considerable self-questioning at different stages of the thesis, partly because the topic and subject matter are issues I am personally very passionate about.

Cloke *et al.* (2004: 192) raised numerous questions that seem pertinent to many human geography research projects. For example, "how can you justify using methods designed to develop sufficient trust for participants to yield sensitive information and then risk betraying this by publicly writing what may upset (or perhaps even disadvantage) them?" This statement addresses real ethical dilemmas, for instance, does the research in any way disadvantage or hurt the key human subjects of the research? Sensitive handling of ethnographic data, avoiding as far as possible attributions to particular individuals of families, and being honest about key research purposes with all respondents has been central to the approach adopted for this thesis. However, the thesis process is not without dilemmas and contradictions. This researcher is a relatively middle-class urbanite with a decent social status

as a previous director of an NGO examining fisheries issues. That is somewhat at odds with the socio-economic realities, social status and class of people living in the Tonle Sap area. Many of my respondents are relatively poor fishers, sometimes living off meager resources with little to supplement their fishery incomes. Whilst the researcher is from the same country, the Tonle Sap could often be on a different world from the busy hustle and bustle of life in Phnom Penh. Indeed, it is not too difficult to come across people who live and work in the city who have never visited the Tonle Sap. To help bridge social gaps the researcher should remember to treat "people as knowledgeable, situated agents from whom researchers can learn a great deal about how the world is seen, lived and works in and through real places, communities and people" (Cloke *et al.*, 2004: 193). Using ethnographic-type research methods helps the researcher to better understand ways in which embodiments, emotions and feelings are bound up with places and identities. Understanding the constraints and enabling aspects of one's position, as researcher and in terms of other identifiers, is a vital part of asking oneself important questions about the biases, assumptions and contradictions often inherent in any research process.

To overcome the social barrier between the life-worlds of researcher and subjects takes a conscious effort to de-emphasize 'position' and to focus clearly on the research goals. Ethnographic methods recognize that the researcher is not a neutral, objective, recorder of events, an 'observer' in the field (Cloke *et al.,* 2004). No longer seen as the 'expert' who is qualified to 'uncover' information, the researcher is now seen as having an impact on the research process and the 'selecting', 'ordering', 'filtering' and 'prioritizing' of information collected (Gibson-Graham, 1994; Cloke *et al.*, 2004). The researcher is 'positioned' as part of the research process and her/his 'positionality' in part determines the outcome of the research. Gibson-Graham (1994: 220) described a shift from the metaphor of 'mining' for data in which the researcher must simply discover information, to metaphors of 'conversation' and 'performance', in which research is seen as a way to produce new ways of seeing, new configurations of theory and new subject positions. Knowing this, the researcher needs to

continually reflect upon her/his role and approach to so-called human 'subjects' in the research process.

Undertaking this research has involved various ethical concerns, and at all times the researcher has tried to be reflexive about strategies whilst remaining sensitive to the places and people being studied. Through some of the empirical insights uncovered about the political geographies, ecologies and human life of the Tonle Sap, the researcher seeks not just scholarly fulfillment, but also a thesis that can in some way help towards a better understanding of, engagement with, and empowerment of those ordinary people whose daily lives are so intimately bound to the Lake's biophysical space and natural resources. Self-reflexivity is important when undertaking detailed fieldwork, for it leads to a more sensitive handling of methods and data, furthermore it can help to connect what is happening to in the research process to broader contexts affecting the research 'field'. Finally, it "can help researchers to explain – to themselves and to others – what they did and why *under the circumstances''* (Cloke *et al., 2004*: 194-95, original emphasis).

3.4 Politics of research

The above discussion also relates to the 'politics' of undertaking research. 'Political purpose' relates to this simple statement by Derek Gregory (1981: 5) that human geographic research should "restore human beings to their worlds in such a way that they can take part in the collective transformation of their human geographies." This fits with Rigg's (2007: 9) privileging of "the local and the everyday geographies" as a way of forcing "a consideration of human agency." As suggested above, many ordinary people who live in the Tonle Sap often get only passing mention within official documents, or when they are mentioned, they are either marginalized populations living in poverty, 'victims' of environmental damage, or they are 'culprits' contributing to diminishing resources, environmental degradation, and the

need to protect fisheries from over-fishing (without specifying the complex social and political relations involved).

As a researcher with strong interests in political geography, it should be recognized that the researcher's role and purpose do sometimes have significant 'political' dimensions, whether by accident or design. Paul Routledge (2001: 114-15) described his research in connection to the Free Namada Movement as "standing within the river." "First, it is a *representational struggle* over the meaning of processes such as democracy and development, a discursive conflict over different imagined geographies. The abstract space of the state stands against the lived space of tribal and peasant communities. Second, it is a *material struggle* over land and water resources, with the people of the valley struggling to protect cash crops, subsistence livelihoods, and cultures." This is very like Escobar's concerns with 'defense of place' struggles briefly mentioned earlier. Routledge goes onto explain and justify why he as an academic became activated to do more advocacy work in addition to his scholarly outputs "on one side of the struggle", in other words, consciously taking sides in a political struggle. He talks about the need for critical "collaborative methodologies" combining sound academic research with activist aims, and working alongside groups and organizations that are bound up in processes of struggle. As he puts is: "Resisting is about being within the river, within the flow of action, rather than watching it from the banks. It is about making politics the subject, rather than the object, of research so that life will not be drenched in tears!" (Routledge, 2001: 119).

Whilst this researcher does not exactly "stand in the river" as part of a social movement (or rather "stand in the lake") in a collaborative struggle with the people and places that are central to this thesis, but the research does have underlying political goals that strongly relate to some of Routledge's arguments about the need to identify "politics as the subject" and to consider seriously the concerns of those groups and communities that are often engaged in "defense of place" type struggles. Gupta and Ferguson (1997: 39) have also

stressed that research and fieldwork practices should not be merely aloof academic exercises, even if "the most politically engaged "experts" may still conceive of themselves as occupying an external and epistemologically privileged position." They go on to say, that rather than anthropologists simply "sharing" their work with "ordinary people" they should also forge links "between *different* knowledges" in order to be able to transform "the field(s)" of research into "a site for strategic intervention." These words are full of meaning in the context of the Tonle Sap and the researcher's engagements with it, pre-, during and post-research for this thesis, and as a scholar-researcher and NGO-activist. The Tonle Sap represents both a field arena writ large containing numerous potential field sites within, and represents "a site for strategic intervention" containing many possible "situated interventions" between different forms of knowledge, different social locations, in order to develop "a political purpose with allies who stand elsewhere" (Gupta and Ferguson, 1997: 39). Indeed, this is very much like what various civil society groups, social movements, and concerned academics are already engaged in within the politics of resources, livelihoods and water in the Mekong region (see Hirsch, 2006). These are also related strongly to some of the political perspectives that underpin some of the key conclusions of this thesis (Chapter 9).

3.5 Other Research Methods

3.5.1 Semi-structured Individual and Group Interviews

While there are many helpful reports and documents available to the researcher, many of these have not been based on detailed qualitative social research. Thus, a lot of valuable insights may be gained from in-depth and semi-structured interviews directly with fishers and household members because their voices, concerns, experiences and otherwise would otherwise be mostly unheard. The semi-structured interview is useful as the researcher is able to guide the discussion while the same time allowing interviewees to speak more broadly about their experiences. Such interviews enable understanding numerous contemporary issues

in relation to resource management, which are often differing perspectives from those gained by reading official reports and agency research documents (See Appendices).

It is important to record that the researcher has only interviewed adults, over 18 years of age, after receiving their prior-permission, and with their anonymity respected unless they agree to have real names (usually shortened) recorded. Furthermore, before any interviews were conducted the interviewees were informed about my research focus and purpose of study. As the author is a relatively well-known figure in the villages concerned, it is necessary to maintain honest and open relations with all the villagers. And like other researchers, there exists a strong sense of 'commitment' towards the people and places with whom this author has come into contact. This researcher's role and engagement with the Tonle Sap is a long-term one, and it goes well beyond writing this thesis. Thus, the author agrees with Stan Stevens (2001: 72) perspective on such fieldwork that "returning to a place often, and over many years, and for long periods of time, changes accountability … the obligation is one you take on as someone who wants to be welcomed and valued in a community." The engagement this researcher has goes well beyond the writing of this thesis.

The researcher has conducted group discussions with community members in the four study sites. These discussions focus on the history of the villages, livelihoods, and the fisheries situation confronting their communities. These discussions allow community members to express their opinions about the resource management regime, the impacts of policy and institutions on them and resources on the lake and to identify possible ways forward. The group discussions are valuable background to enable the researcher to undertake more detailed interview later. From these interviews, the researcher is able to piece together how politics help shape the 'local' resource uses, management and distribution and how each community in my four chosen sites exercise their politics in response to the national politics in efforts to protect their livelihoods.

3.5.2 Archival and Published Document Research

Archival materials are a valuable source from which we may trace the historical geographical classifications and policy shifts in the resources sector. Archives can be thought of as an integral part of the apparatus of modern government and a key to understanding state functions and the process of knowledge construction (Anderson, 1983; Latour, 1987). More than just a record of the state's activity, archives are part of the state's construction and use of power (Blunt *et al.*, 2003). Archives can reveal who benefit most from policies; how official ideology becomes normalized; how assumptions underlying key discourses permeate decision-making; and how images are selected through which ideas and events are recorded and disseminated for public consumption.

By critically observing the content of archives, this researcher has been able to gain insights into state actions. Just like maps, archives can also reveal important inclusion and exclusion strategies in policy making (Harley, 1989; Anderson, 1983). Reading archival material is an interpretive strategy based on the assumption that there is a hierarchy of discourses affecting policy-making (O'Tuathail, 1996). It should be clear that archival research about documented and published materials is relevant to discourse analysis. This is particularly important when many reports about the Tonle Sap are found in international and national agency publications from organizations as diverse as the Asian Development Bank (ADB), Mekong River Commission (MRC), Fisheries and Agriculture Organization (FAO), Oxfam, the World Fish Center, and the Fisheries Department of the Government.

3.6 Site Selection

In order to accomplish research objectives, choice of field-sites is extremely careful. The Tonle Sap is simply too big a space for a single thesis on the politics of space and resources, consisting of six provinces, of which 1158 villages are located in the floodplain

areas, of these villages, about 170 villages are floating villages (Keskinen, 2003; 2006). To study the politics of resources management, the researcher has selected four different sites in the Tonle Sap for in-depth study based upon prior research, knowledge of their problems, accessibility to the researcher, and their differing characteristics in relation to the flood-pulse: (i) Kampong La—a farming-cum-fishing village in Pursat Province; (ii) Kampong Loung—a floating community in Pursat Province; (iii) Peam Bang—a floating community in Kampong Thom Province, and (iv) Kampong Phluk—a stand-stilt community located in Siem Reap Province (see Table 3.1).

Table 3. 1: The characteristics of studied communities in the Tonle Sap

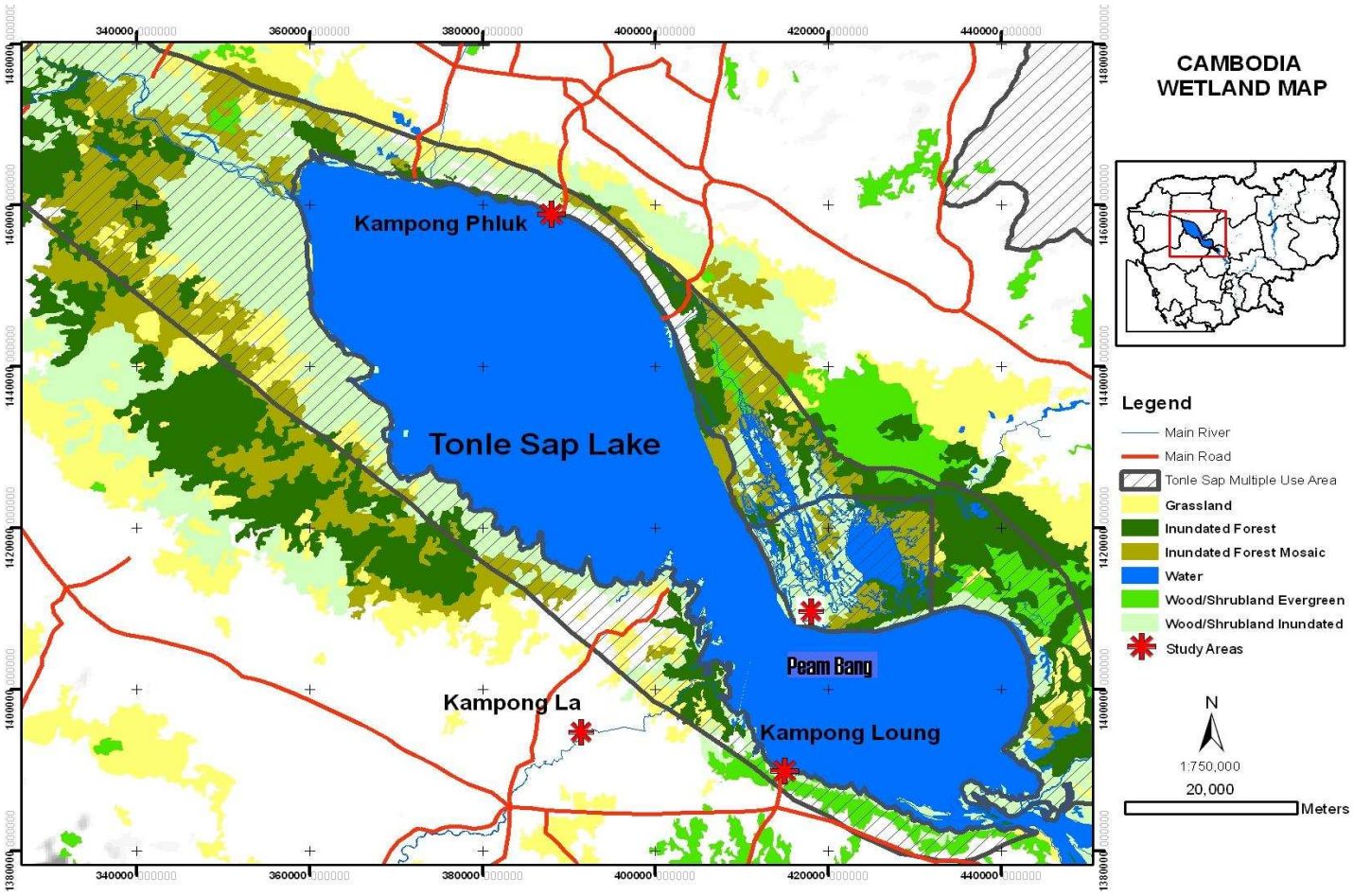
Studied Site	No. of households	Type of community	Main livelihood activities	Reason for choosing
Kampong La	• 189 households in Kampong La, • 93 household Anlong Raing	Kampong La consists of Kampong La as farming-cum-fishing, and Anlong Raing as a "floating village"	Farming and Fishing for Kampong La, and more than 90% of households in Anlong Raing are engaged in fishing.	The contested space of farming-cum-fishing and fishing space
Kampong Loung	1029 households living in five villages.	Floating community	Fishing—82%, general merchandise selling and petty trading—8%, others—10%.	Mobile floating spaces of floating community in Kampong Loung in the Tonle Sap.
Peam Bang	619 households living in five villages	Floating community	More than 90 percent of households in Peam Bang are fishing	Floating community and fishing lots surrounding Peam Bang.
Kampong Phluk	513 households living in three villages	Stand-stilt community	More than 94% of households are engaged in fishing as a primary source of living.	The stand-stilt community stays in water for six months and on land for six months.

The following discussion relates to the descriptive distinctions of the villages in terms of location, size, population, and their respective characteristics in relation to the annual rising and falling water-levels of the Tonle Sap. This is critical to the aims of the thesis seeking to reveal how and why there are human-ecological aspects to territoriality as well as purely political-economic ones.

Peam Bang

Peam Bang is a floating commune, located in Stung District, Kampong Thom Province, consisting of five floating villages, all of them geographically surrounded largely by the 'water body'. Peam Bang's 5 villages are home to 619 families in 2005 with a total of 2929 people of which women constitute 51% of the total population, and the rest are male (See Table 3.1). On average, each family has roughly 5 members. Some Vietnamese households settle in Peam Bang for fishing, but the record is not available in public documents. Peam Bang is located near to 'commercial space' or 'fishing lots'. The 'commercial space' refers to fishing areas of 'fishing lots'. There are three fishing lots in Peam Bang, namely fishing lot no.4, fishing lot no.5 and fishing lot no.6, covering 55,203ha as a "commercial space". Fishing lot no. 4 covers 19,390ha and the fishing no.5 covers an area of 9,908ha. The fishing lot no.6 is the most important fishing lot in Peam Bang, covering a huge area, estimating about 25,905ha (DoF, 2001). However, a large area around Peam Bang is also categorized as a conservation area, designating as a 'Biosphere Reserve' located in Boeung Chhmar (Kosal and Vanna, 2001).

The 'Biosphere Reserve' in Boeung Chmar is one of the three Biosphere Reserve areas in the Tonle Sap Lake, covering an area of 28,000 ha (ADB, 2006a). Boeung Chhmar Lake which is a permanent water body in the Tonle Sap Lake is located in the center of a 'core area' of Boeung Chmar Biosphere Reserve, covering an area of 14,560 hectares, consisting of 'open water' and 'flooded scrub' in dry season (Vathana, 2001). Boeung Chhmar Lake and its associated creek system had been designated as a 'Ramsar Site' in 1996 together with other sites in the country and gained its formal recognition by the Ramsar Convention in late 1999 in which Cambodia is a signatory. Thus, there are several political, geographic and ecological issues that relate directly to Peam Bang. It has been complex territorial system, especially the overlapping spaces between fishing lot areas, the Biosphere Reserve Areas, and the so-called 'community areas' overlap with the fishing lots and Biosphere Reserve Areas. It is precisely this real and grounded politics of the space that underlies my thesis research motives.



Map 3. 1: Map of the study areas in the Tonle Sap Lake

Kampong Loung

Kampong Loung is also a floating community located in the western shore of the Tonle Sap Lake in Pursat Province. This community is a largest floating community in the Tonle Sap Lake inhabited by 1029 households. Many researchers consider Kampong Loung as a 'floating town' of the Tonle Sap, and there are more Vietnamese households living as either fisherman or fish traders. Access to this community is mainly by boat and it is very remote from District and Provincial Towns (about 7 km from the Krakor district center). Kampong Loung is fascinating as an ethnically mixed space with its own unique human territoriality associated with rising and falling water-levels (See Table 3.1).

As a 'floating town', people settle their houses on water. In the dry season, the water level in the Tonle Sap is very low, making the space for community more restricted and lower, while in the wet season, the rising waters in the Tonle Sap push the location of the community upward in a deeper lake. The water level affects the location and space throughout the year which makes the political geography of this 'floating town' only understandable through careful imphirical research. One of the contributions of this study is to reveal the human-recological dimensions of mobile and floating territoriality and the complex politics over spaces and resources faced by these communities.

Kampong La

Kampong La is a farming-cum-fishing community, but it is divided into two parts. The first part is called a Kampong La which is a typical farming-cum-fishing village whereby most households are engaged in both farming and fishing in the Tonle Sap, and the second part names as an Anlong Raing which is a 'floating village' whereby people living in Anlong Raing are primarily engaged in fishing as a way of life. Kampong La and Anlong Raing is officially one village, but physically there are two different villages, located 12 km away from

each other, making the political control of this village difficult. The peculiar classification of distinct settlement types as one village is a motivation for me to study politics of space in this area. For the purpose of this study, I focus on the different politics of space faced by Kampong La, and also Anlong Raing.

Kampong La is home to about 189 households (See Table 3.1). Farming is a 'primary occupation' while fishing is 'secondary occupation' for most households. Kampong La is surrounded by rice field paddies in which land access is critical. In the wet season, the floodplain is inundated. The land covers an area of 874 ha, classified into five functional geographical spaces—land for housing, land for rice-farming, the forest lands and uncultivated lands (CFDS, 2002).

Anlong Raing is a floating community. It is located in the west Shore of the Tonle Sap Lake. It is estimated that this floating settlement is existed there for more than 100 years. It is surrounded by the fishing lot areas, a fish sanctuary and the protected inundated forest. An access to the forest resources is limited. Fisheries and forest resources are over-exploited by commercial and non-commercial exploitation, legal and illegal. At present, Anglong Raing is home to 93 families with a total population of about 431 people (202 males and 229 females) of which Vietnamese consist of 36 families and with total people of 186 (100 males and 86 females). Villagers in Anglong Raing own no farm land, and they are primarily dependent on fishing as the main occupation. They catch and sell fish for income. Incomes from fish sales are used for different purposes; buying rice, clothes, medicine, kitchen items, ceremony contribution, school fee for their children. The struggle of these villagers to maintain their livelihoods and to subsist without land is another motivation for my research.

Kampong Phluk

Kompong Phluk is a small commune in Prasat Bakong district, Siem Reap Province, located about 12km south of the district headquarters and about 16km southeast of Siem Reap Town. Kampong Phluk is home to about 513 families in 2005, most of them are fishing as their main occupation (See Table 3.1). While fishing occupies 90% of the population, Kampong Phluk residents are also engaged in farming and other trade activities to supplement their incomes. Kampong Phluk is neither a floating nor land-based village in the Tonle Sap, but it is a 'stand-stilt' community within which houses are built on long stilts about 5-7m above the ground and the village itself is located six months within water and six months on land.

As a fishing community, Kampong Phluk is located on the edge of the lake proper, covering by an area of 14, 249 hectares. This area is divided into flooded forest (water forest) covering 7328 ha, cultivated areas covering 1409 ha, open water in the lake covering 5378 ha, swamp land covering 118 ha and housing areas covering 14 ha (Commune data, 2006; Marschke and Berkes, 2005b).

The everyday geography of the stand-stilt village is affected by the daily water level fluctuations in the Tonle Sap. The change in water level everyday in the Tonle Sap shapes the 'everyday geography' of the stand-stilt village, the 'everyday space' of fishing, and the 'everyday life' of villagers. Seasonally, the space and life of stand-stilt community is affected by being six months within water and six months on land (AFN, 2004; Marschke, 2005; Marschke and Berkes, 2005a). This happens due to the 'flood pulse' when the whole floodplain is inundated by rising water level, and in the dry season, the flood recedes in the lake and so some areas become free of flood waters (Kummu *et al.*, 2008). "Ecosystems that experience fluctuations between terrestrial and aquatic conditions are called pulsing ecosystems, and fall within the domain of the flood pulse concept" *(*Junk, 1997quoted in

Kummu *et al.,* 2006:503). Kampong Phluk is one of many communities in the Tonle Sap experienced a 'pulsing environment' in which the whole community stays six months on land and six months within water.

The reason for selecting this community is due to its characteristic as a stand-stilt village. It thus provides yet another settlement type different in character from my other two study sites. Secondly, people are engaged in fishing, but supplement incomes by some faming activities. This makes for helpful comparative analysis with Kampong La. Thirdly, a hotly contested fisheries space exists because the community has conflicts with Fisheries Administration (FiA) over access to the community conservation areas. It is precisely the differing relations to space and resources that help to generate political geography problems.

3.6.1 Household Selection

The total number of households in four different sites of the study area is estimated at about 1100 households with a total population of 8,810 people. Given a larger geographical coverage of the study areas, it is not possible to reach out to all households. Thus, the researcher had to select specific households to work with. To ensure a diversity of households, the selection criteria for households in each community included: female-headed and male-headed households; a range of ages for the key contact persons in each household; economically diverse households; full-time fishers and part-time fishers. A key aspect the researcher sought to uncover were socio-economic differentiation at village level.

Among many households, only 259 households were included for interviews, of which 45 households in Kampong La, 29 households in Kampong Loung, 49 households in Kampong Phluk and 136 households in Peam Bang (Field study, 2007-2009). The main contact person for each household was generally the household head. The household as a unit of analysis enables particular insights into the livelihood dependency on resources; access to

resources for everyday life; the dynamics of how households interact with state and non-state actors to ensure their access to resources (see Table 3.2).

Table 3. 2: Demographic characteristics of the households interviewed in the study areas

Community	No. of family	No. of population	Average Household Size	No. of interviewed households
Village name: Kampong La Commune: Kampong Pou District: Krakor Province: Pursat	189	857	5	45
Kampong Loung—Phum 3 Commune: Kampong Luong District: Krakor Province: Pursat	114	575	5	29
Peam Bang Commune District—Stung Province—Kampong Thom	619	2929	5	136
Kampong Phluk Commune Village name: Thnoat Kambot District –Prasat Bakong Siem Reap Province	178	1035	6	49
Total	1100	8810	5	259

Stratified random sampling was employed in the selection of households for the household level interviews, although some prior selection was possible based on earlier visits and my existing contacts. With stratified random sampling, the population was first divided into a number of parts or 'strata' according to some characteristic, chosen to be related to the major variables being studied. For this survey, wealth categories were used as main strata and livelihood activities and female headed households as sub-strata. Table 3.2 gives some demographic features of the sample households in the four study sites. A copy of the questionnaire is provided in Appendix 1-3.

3.7 Executing the Field Work

To put into practice my selected methods, there are some steps I needed to take in terms of selecting specific community representatives to interview. This section provides a preliminary explanation of the sites and interviewees. This research was conducted in three

phases. The first phase was carried out as a baseline data collection in the study sites to gain some background knowledge of the information of the village such as: wealth ranking, household list and characteristics, social map, and the second phase, the field notes through meetings and household interviews. The third phase involved verification or validation of the survey results. The bulk of the research was undertaken in 2007-2008, and it was undertaken with frequent discussions with my thesis supervisor. Subsequent fieldwork was carried out at different times during 2009, and much of my writing-up phase has been during 2009 until mid-2010. Due to requested adjustments required prior to thesis submission, there have been some further re-writes in the latter part of 2010.

a) Data Collection

Two types of data were collected—secondary and primary data. The study relies on documents, books and research papers for secondary data, but this researcher believes that primary data is absolutely critical in this study. For this research, the author needed to generate a lot of primary data due to the extremely limited research previously done on these field sites, with virtually no studies available on political geography in the Tonle Sap. Relevant secondary data included socio-economic, demographic, geographical, hydrological, and natural conditions of Tonle Sap Basin core areas were used to analyze current planning, management policy, and project implementation of concerned government agencies and civil society. But the author found that there is very little reliable public data pertaining to his field sites. This has meant that longer periods of research were undertaken than were originally planned for. The thesis has been an exhausting personal journey and a time-consuming effort. At every stage new data has come to light.

Secondary Data

The data and information concerning the Tonle Sap is available at national level, but it is limited at the village and commune levels. Thus, the secondary data is gathered largely at the national level and provincial level prior to the field investigation. National level data on the Tonle Sap available includes the population census, the Seila data on population in all provinces in the Tonle Sap, the statistics of fish catch from the 'commercial fishing lot'. If most policy makers, policy analysts and academics rely mostly on such statistical data, I believe they will make some misguided assumptions, particularly at micro levels. Thus, detailed empirical research is necessary to help fill in critical gaps. As noted above, the researcher has gathered much published documentation in addition to some archival materials.

Primary Data

The word 'primary data' denotes a rather strict academic relationship and like many other pre-planned notions, it does not always fit the field work where in most cases, the researcher establishes more than academically defined strict subject-object relationships. Doubtless, the fishermen living in the Tonle Sap have been the 'primary sources' of information, knowledge and insight in much of my research. However, referring to the fishermen as 'sources' after lengthy period of time, effort, patience and help that may have unsparingly been given to the researcher, calling these people a 'source' definitely sounds inadequate. A 'source' also unpleasantly implies unequal power relations and/or disparity between the researcher and people whom she/he studies.

The 'primary data' could be generated from interviewing people who become 'respondents' or people providing information for the researcher. In the Tonle Sap, to get an interview with local fisher-folk, the most important issue is 'building trust' and with trust, the researcher may access to information. Apart from 'building trust', the researcher has to use a

range of interview styles and other techniques to obtain reliable data. Therefore, it is important to identify the research methods applicable to the areas, respondents and situational context.

b) Household Interviews

About 259 households from four different sites were randomly selected for households interview (See Table 3.2). Structured interviews were undertaken between January and October, 2007 to understand the complexity of spaces in the Tonle Sap Lake; how community constructs their spaces; and their access to resources for daily living; and how resources are used and managed at the community level. More importantly, the household interviews examined how the complex spaces and territoriality affects the everyday life of rural households and how these households cope with increased resources scarcity and competition. The interview also focuses on how community practice and customary rights are institutionalized. Further, interviews were conducted with the government officials and staff of non-governmental organizations, focusing on the institutional arrangements and policy frameworks for resource management, and also the future resource management in the Lake.

All households gave prior permission to the researcher to take part in the interviews. However, some households were unable to be contacted for interview, so thus, were replaced by the next households. Households were visited, and these questions were asked verbally in Khmer. Each interview took an average 30 minutes. The data was entered into 'excel sheet' and then to SPSS for analysis and creation of frequency tables (See Appendix 1 & 2 for the questionnaires).

Between February and May 2008, I paid numerous visits to Kampong Phluk, in March to Kampong Loung and Kampong La, and in May to Peam Bang. I did follow up visits to each site and met with key informants that I also arranged focus group discussions (FGDs).

During these visits, I collected additional information and tried to verify early data with key informants.

c) Focus Group Discussions

The focus group discussion (FGD) is a semi-structured primary data gathering method in which in-depth conversation is conducted with a purposively selected set of participants to discuss issues based on key questions identified by the researcher. For this study, the guide questions were on topics dealing with general livelihoods, poverty and water-related problems, the history of the village, fisheries, situation, fishing areas, fishing catch, fishing trade with fish trader, and fishing relation with the fishing lots. These discussions allowed community members to express their opinion about the resource management regime, the impacts of policy and institutions on them and resources in the lake and identify the way forward. Larry Lohman (1995) observed the oral traditions of many rural communities, and the fishers of the Tonle Sap often discuss issues in small group, and prefer face-face encounters. Thus, focus groups are more structural to local people than rigid interviews, and these worrying than formal questionnaires.

A copy of the guide questions is provided in Appendix 3. In each research site, one focus group discussion was organized. In total, four separate focus group discussions were organized in the research sites. About 7 to 9 participants were involved in each focus group discussion including key informants, men and women identified based on their wealth status, the key fishers, and Village Chief. These discussions enabled the researcher to gain insights about the resources management taking place in their communities. Participatory methods were used during the FGDs including “what makes a good quality of life”, ranking and scoring, historical analysis, and brainstorming. The method on “what makes a good quality of life” aims to identify and prioritize the components of a good quality of life and what influences people’s capacity to manage their lives successfully. In this context, it exposes

people's challenges in relation to their livelihoods and their dependence and relation to water resources.

3.7.1 Research Problems

The particular problems encountered are restricted information, or many things being non-documented. The author has occasionally encountered reluctance to be interviewed, or even resistance from civil servants and representatives of civil society, some of whom are unwilling to discuss sensitive political topics. There are numerous cases of unrealistic (sometimes unbelievable) statistics. The difficulties listed above all need to be dealt with through the research methods applied. The lack of existing information is dealt with through a cautious treatment of secondary literature and the use of primary sources. The reluctance to share information has been addressed in two different ways: the first is through diplomatic probing, the second is triangulating information (through different ways of asking the same question). The former has been carried out through extended and repeated interviews, where the core issue has been approached from different angles. Patience, politeness, and honestly have helped me to probe deeper into delicate issues. Statistics are sparingly used and statistical analysis has added more information where available. But qualitative methods are the main tools of this empirically and ethnographically informed thesis. Thus, the thesis utilizes a combination of qualitative and quantitative analysis, and it employs both interview techniques, primary and secondary sources. It rests to a high degree on primary research.

Relatively little (in fact almost zero) academic research has been carried out in the spheres of political geography in the Tonle Sap, rendering a knowledge deficit. I have been encouraged by my supervisor's knowledge of political geography in Southeast Asia, and by a select few geographers who are specializing in the Mekong Basin, such as Philip Hirsh, Chris Sneddon and Ian Baird. However, there is very little geographical research of contested space in the Tonle Sap. In the Tonle Sap, most research carried out is in the field of fisheries

management, but less on the overall resource management in the Tonle Sap. For more generic analyses, sources such as the Mekong River Commission, the ADB, World Fish Center and studies by NGOs help to provide some background data, and materials for analysis.

A structural problem is of course that most actors engaged in information gathering in the Tonle Sap have 'a stake' in the selected proposed developments. Hard data, seemingly presented as fact must be critically assessed, and there are at least two aspects that need to be considered. First, the reliability issue, is it correct? Given the difficulties of measuring and the little baseline information to draw upon, I must constantly question information presented as fact. For instance, the fish catch data seems to be generally underestimated for a variety of reasons in relation to vested interests, and since there is little research on which to contrast this information it is temping to take these data for fact. Second, the validity issue: is it the relevant information? Who is setting the development agenda? One piece of information might be correct, but one must ask if it is that particular piece of information I am interested in obtaining? These questions are obviously necessary to ask when researching political matters, but they should also be asked in cases where the informant regards his/her information as facts. This situation is endemic in the crossroad between politics and natural resource management. Each institution has a budget, an agenda and a target audience. So we must ask who does that data serve?

Concretely, on the empirical side, a number of publications have documented the zoning in the Tonle Sap, the human settlements in each in the Tonle Sap zone, the livelihoods of people living in each zone as a fulltime and part time fishing and resource management. For instance, the CNMC and NEDECO report (1998) discussed the development strategy for resource management in the Tonle Sap in which it highlighted the zoning in the Tonle Sap. The latter and Keskinen (2003; 2006) further discussed the zoning in the Tonle Sap in relation to the socio-economy of the Tonle Sap. Apart from zoning study in the Tonle Sap, many documents were prepared by the fisheries scientists including the report produced by Ahmed

et al., (1998), Degen and Thouk (2000), Van Zalinge *et al.,* (2000), among many others listed in my bibliography.

The extensive work and documentation done by the Fisheries Administration in various forms, the WUP-FIN/MRC Program, the Tonle Sap Technical Coordination Unit under the Ministry of Environment and Food and Agriculture Organization (FAO) are of course of great value for my study, focusing on the politics of resource management in the Tonle Sap. However, in spite of a huge amount of data, there are surprisingly few studies of relevance for political geography. There is also a systematic self-promoting bias in their materials. Other sources, such as contemporary consultancy studies, the UN reports, the World Fish Center reports on fisheries in the Tonle Sap and brief research reports, have also been consulted, but needs to be carefully valued in relation to their reliability. Sometimes, it is easy to take-for-granted authoritative statistical tables, scientific foundations of an international or national agency, and convincing recommendation, without raising possible alternatives, new questions or highlighting probable gaps in such studies.

The value of different sources of information needs to be cautiously weighed. For example, an interviewed decision-maker may discuss his or her field of activity in one part of the interview, but in another part the interviewee uses general knowledge slightly outside his or her special area of competence. The source may discuss the ministry's own researched figures, but also draw on reports or studies from somewhere else. Likewise, a government report on the planned development may come directly from the Ministry of Planning or Ministry of Agriculture which is normally responsible for this work. In reality, however, these ministries might be subordinated to more central power acting on other rationales. My approach has been to question and prove deeper wherever I think it appropriate to do so.

3.7.2 Research and Data Collection before Beginning My Thesis

Although much of the information included in this dissertation was collected during my 'official' research period, the author began field research in the Tonle Sap in 2000 when working with the NGO Forum on Cambodia. Some of the data and facts included in this dissertation were collected before the beginning of official PhD fieldwork. Personal experiences and long associations have deepened the researcher's understanding of Tonle Sap life and politics.

The researcher first looked into the Tonle Sap issue in 2000 when at that time there were widespread fishing conflicts in the Tonle Sap, and NGOs were involved in facilitating the conflict resolution. The fishing conflicts eventually led to an official Fisheries Reform in which about 56 percent of commercial fishing lot areas were released for local community use (FACT & EJF, 2001). Later, during the same year, the researcher studied the 'social vulnerability of fisheries in Cambodia' and the study report was presented at an International Conference in Sydney on 'Accounting for Development'. During this time, the author began a long-time research interest in the Tonle Sap as it is a source of food for the Cambodian population, but it is under threat due to poor governance (Sithirith, 2000)[5].

In 2002, the author became involved in a study of hydropower development processes in Cambodia. This study reviewed the impacts of hydropower dams on fisheries in the Mekong and the Tonle Sap Lake. From this time, the researcher began to realize that the Tonle Sap Lake was under external pressure due to the impacts of hydropower dam development in the upstream countries of the Mekong. This led to an acute awareness in the researcher that the Tonle Sap is not only impacted by national issues, but by also international issues (Öjendal *et al.*, 2002). Thus, the researcher had established a critical understanding

[5] Sithirith, M. 2000. Accounting for Development: Austrlia and the Asian Development Bank in the Mekong Region" Conference on in Sydney, Australia 22-24 June 2000.

about the politics of scale operating within the Mekong Basin before even realizing what political geography as a sub-discipline is really about.

In 2003, the author undertook a further study of cooperation in the Mekong River Basin, reflecting Cambodia's experiences in the development of the Mekong Region for Regional Center for Social Science and Sustainable Development (RCSD) at Chiang Mai University. In this research looked at the Tonle Sap Lake and fishing community and how they deal with the changes in the environment of the Lake. From this, the researcher developed a deeper scholarly understanding of the Tonle Sap. The study was eventually published (Sithirith, 2007). The experience at RCSD also encouraged a desire to undertake deeper academic study.

Apart from these studies, the researcher as NGO official undertook detailed work for the Fisheries Action Coalition Team (FACT)—a non-governmental organization—working on fisheries and natural resources. The organization works with fishing communities in the Tonle Sap Lake, organizing them to protect fisheries and natural resources for their livelihoods. Through working with FACT, the author was able to build up experience and knowledge about the Tonle Sap Lake. Hence, the author was already gathering information on the Tonle Sap before becoming a doctoral student in NUS. These various studies frequently entailed contacts with fishing communities in the Tonle Sap. Recognizing the importance of (but few studies of) spatial politics in resource governance, and having been engaged with my supervisor on a couple of fieldtrips involving an educational film work project about the Lake, the idea was hatched to undertake in-depth study of the politics of resource space and fisheries in the Tonle Sap.

3.7.3 Reliability and Limitation

Although every attempt was made to guarantee the reliability and validity of the research methods and techniques as much as possible, it should be emphasized that the findings of this research may have some problems. In order to minimize the potential problems, the applied research methods and techniques were closely prepared, discussed, and reconsidered following numerous and frequent discussions with my supervisor, and also with other academic colleagues. We discussed all the methods to be used prior to entering the field. While it may be argued that just four study sites offers a small basis for generalization to the lake as a whole, these sites were carefully selected and can be regarded as representative, at least to a great extent, of other communities in the Tonle Sap Lake. In many ways, certain characteristics of the households in the research sites represent a great part of the Tonle Sap Lake. This is based on previous field-based understanding.

Nevertheless, there are definite limitations of this research due to the fact that the coverage area is huge compared with the limited funding, time and human power available for PhD research. Thus, obtaining information about all individual households in study areas was not feasible. However, this research lies on the household as one key unit of analysis and not so much on the individuals concerned (although many are involved). In the Cambodian social context, a focus on households and families seems highly appropriate. To increase the reliability and validity of household surveys the researcher employed several techniques: through conducting the interviews with the person in the presence of household or family members; consulting key informants; and using statistical data obtained through the village headmen.

Although many individuals were interviewed, the most consistent, in-depth work took place with the focus group discussions. The group discussions provide an avenue to raise many relevant issues in an interactive manner whereby the researcher becomes an observer, and it allows me to contextualize the issues in particular communities. However, the

household interviews provide additional information to clarify the results of the group discussions. Taking all limitations into account, after collecting and analyzing all data, research findings from interviews and group meetings were often presented to key informants in order to check whether the finding are relatively accurate or have misrepresented their views. Some additional comments or suggestions from those people have ended up in the final thesis report. As thesis researcher I take full responsibility for all the contents and any mistakes herein are mine.

3.8 Research Rationale

This thesis focuses on the Tonle Sap Lake for a number of reasons: first, it is due to the author's experience and working knowledge of the Tonle Sap. My long-time involvement in management, politics, and fisheries issues of the Lake makes this a logical empirical focus. Second, resources in the Tonle Sap Lake are degraded, and one of the reasons, explored in this thesis, is due to the territorially contested space, giving rise to conflicts and contributing to the poor resource governance, affecting the livelihoods of millions of people. Thus, the possibility of doing things better increases, assuming that it is possible to learn from the past and current mistakes. Third, the competition over and degradation of resources in the Cambodian context is a huge issue directly related to political economy, human livelihoods and poverty issues in the country. There have been management systems seemingly allowing the governance of spaces in the Tonle Sap, but these have produced devastating conflicts in the Tonle Sap, which is another urgent motivation to conduct research. Fourth, good resource management, particularly in fisheries, is arguably one efficient way of contributing to alleviating poverty and its undesired consequences. High developmental pressure in the region around the Tonle Sap Lake, relating to relative resource abundance is actually generating conflicts and intensifying problems of poverty for many people. Fifth, the Tonle Sap Lake is rich in resources. Many studies tend to focus merely on fisheries resources in the discourse of management of the Lake or assume the lake management is equal to fisheries

management (UNDP/GEF, 2004). The fisheries management in the Lake so far mainly focuses on issues of exploitation for commercial reasons and enforcement problems, favoring privatized exploitation for revenue generation—mainly for economic purposes (Van Zalinge and Thouk, 2000; Thouk and Sina, 1997; ADB, 2005a). However, there are many alternative ways we can envisage the Lake system, particularly given its intricate human-ecological relations and myriad communities. This thesis represents an attempt to stress why and how political geography insights can help to generate improvements in the way the Tonle Sap is conceived, managed, and politically governed.

Many studies look at the Lake from scientific, technocratic, and engineering aspects, such as the hydrological modeling, the sedimentation, erosion, water quality—all of importance, but these studies tend to leave behind, ignore, or sideline the human and social dimensions of water management (MRC, 2003; MRC/WUP-FIN, 2003). A number of studies look at the Lake from fisheries perspectives, but these tend to exclude the real complexities relating to the human landscape and human associations with a range of aquatic resources, as well as social-environmental aspects (FACT & EJF, 2001). Hitherto, no study of the Tonle Sap deals specifically with the political geography and the politics of resource spaces in the management in the Lake.

A major gap in an existing literature concerning resource management in the Tonle Sap is the lack of concern over the spatial and temporal-spatial dimensions of many disputes over resources in the Lake (see Chapter Two). This thesis helps fill that gap by focusing on complex political geographies of the Lake, particularly the politics underpinning geographical classifications, boundaries and zones, and how spatial (and non-spatial) politics and practices affect fishing, resource access, sustainability, conservation, practices of exclusion/inclusion, and long term livelihood security of people in the Tonle Sap area. In addition to tackling the territorialized politics of resource management, the thesis also explores the complex relations between actors and agencies in the lake and the associated ‘patron-client’ relations affecting

resource management. Thus, the thesis represents the first major study of resource politics from a political geographic perspective, incorporating political ecological ideas and approaches to examine the complex questions of power. This study helps toward a better geographical understanding of the complexity of the Lake, and will hopefully, contribute to the future management of the resources in the Lake. The author is very eager to write a thesis that can be both academically and practically useful, not just filling gaps in the existing literature, but adding new thoughts and ideas to the study of resource governance in the Mekong Basin, and specifically in the Tonle Sap.

CHAPTER 4

Spatial Representations and the Production of Space in the Tonle Sap

4.1 Producing Space in the Tonle Sap

This chapter shall utilize ideas that relate to Henri Lefebvre's (1991) *The Production of Space* in order to reveal different ways the Tonle Sap is represented and imagined by the State, Fisheries Administration (FiA), key international and regional agencies concerned with resource governance, fisheries management, revenues, conservation and biodiversity issues in the Tonle Sap. To appreciate the competing demands and different stakeholders concerned with the Lake space it is necessary to consider how and why it is officially represented in different, sometimes contradictory ways. It is also necessary to consider why the Lake is at once of 'global', 'regional' and 'national' political, economic and environmental significance (not to mention the myriad sub-national meanings and imaginings of the Lake). Sometimes the formal rationalizations and representations of space at policy-making levels are at odds with the social reality of hundreds of thousands of people who are extremely dependent upon aquatic resources and whose livelihood security remain vulnerable to human-induced and environmental changes to natural resources and environmental conditions.

In this section, I would like to discuss the various representations of space that relate to the governance of the Lake and have enormous implications for resource access, utilization, control and management. According to Lefebvre (1991: 360) there is 'nothing innocent' or neutral about space, and as other critical human geographers have noted, we need to examine how space becomes implicated in broader political economic and social processes (Massey, 2005). This is not to suggest that all of Lefebvre's ideas regarding the production of space , which were mostly applied to capitalist urban spaces, are applicable directly to the Tonle Sap, but Lefebvre's key ideas can be helpful in highlighting the central importance of producing and (re)making SPACE as a key element of any analysis of resource governance

and conflicts. Some of the fundamental elements of Lefebvre's spatial analysis are applicable in the distinctive context of a freshwater lake and river system, and within the political economy context of an authoritarian 'developing' state influenced by neoliberal capitalist modes of 'development' (Springer, 2009a).

"If space is a product, our knowledge of it must be expected to reproduce and expound the process of production" (Lefebvre, 1991: 36). The production of space relates to its valorization, commercialization, and the vital role that space plays in processes of capital accumulation. Thus, space becomes at once *a product* and part of *a process*, serving various productive roles that help to generate revenues and profits for different agents. Dominant ways in which the Tonle Sap is conceived by planners is usually in terms of parcels of productive space, such as the commercial fishing lots, conservation zones, public fishing areas, and community spaces. The Tonle Sap is subdivided into many territories, each with functional specializations, and as such, contains numerous spatial representations, which sometimes overlap and contradict one another. However, space is not only 'a product' and 'a process', but also 'a medium' (Shield, 2005: 212), which is an idea that significantly relates to the potential for various forms of imaginative and popular resistance, multiple spatial contestations, and (re)conceptualizations of space. Thus, the Tonle Sap is constantly in the process of being made, (re)produced, conceived in different ways, planned, mapped, territorialized, as well as contested, resisted and (re)imagined. This dynamic notion of space (as product, process and medium) helps us to understand real resource management issues and problems that frequently relate to differing spatial conceptions of distinct agencies involved in resource governance.

Following Lefebvre (1991: 38), 'representations of space' relate to "conceptualized space, the space of scientists, planners, urbanists, technocratic subdividers and social engineers," and various state and other institutions with the ability and knowledge to 'represent' space in particular ways for specific purposes. Crucially, representations of space

often require ‘simplifications’ of complex spatial realities for bureaucratic and administrative purposes (Scott, 1998), and the creation of specific ‘territories’ that may be emptied and filled according to functions (Sack, 1986). Thus, territoriality is fundamental to the implementation of abstract representations, as it refers to a social (and political) strategy to control human / nature relations and environmental resources in communicated, classified and controlled space (Sack, 1986; Vandergeest and Peluso, 1995; Vandergeest, 1996; Delaney, 2005; Peluso, 2005a). State territorializations of ‘nature’ frequently involve forms of zoning for functional specialization in order to simultaneously bring unruly spaces under tighter ‘control’ (taming nature), enhance ‘legibility’ for planning, exploiting and productivity measurements, and the displacement of certain other forms of knowledge, use, practices, and sometimes people. Functionalist, abstract, and technocratic simplifications of space frequently override more messy localized poly-uses and multi-purpose meanings of the same space (Scott, 1998: 262-306). Just as mono-cultures associated with agro-business affect land-use patterns, commercialized zones for fisheries similarly affect water-bodies.

Space is not simply produced, however, for it is also vital for everyday lives and livelihoods. Lefebvre shows how space is *conceived* by different organizations in their various representations of space, and the ways in which space is actually *perceived* in the ‘lived space’ of ‘users’, residents, and ordinary people. The latter relates to Lefebvre’s (1991: 39) idea of ‘representational spaces’ which embraces the loci of passion, of action and of lived situations, and thus immediately implies time. Consequently it may be qualified in various ways: “It may be directional, situational or relational, because it is essentially qualitative, fluid and dynamic.” This dynamic, relational and contingent idea of ‘lived space’ applies strongly to the everyday places and spaces of the various villages situated in the Lower Mekong wetlands. Indeed, the Tonle Sap is a ‘lived space’ writ large with its daily routines, ways of life geared towards fishing, seasonal and daily rhythms, production, reproduction, consumption, markets, seasons, cycles, livelihoods and life-cycles.

Lefebvre's (1991) attention is mostly about urbanized contexts where representational space is more likely to be intensively planned and influenced very thoroughly by formal representations, but the Tonle Sap has numerous chaotic, grey areas (as we discuss in relation to 'floating communities'), involving multiple subjectivities relating to actual 'lived' perceptions of space. Whilst the official representations of space undoubtedly interfere with 'lived space' by producing spatial divisions of labour, social differentiation, differing spatial functions, and objects at localized levels, there are also aspects of the social ecology and community life of the Lake which contradict official representations by their very existence. For instance, some 'floating villages' do move seasonally to different fixed positions, which makes them unsuitable for cadastral mapping and means that village territorialities fluctuate depending on the spatial location of the villages at a particular time of the year (see Chapter 5).

Sneddon (2007) has correctly stressed the 'lively materiality' of 'nature' involving multiple social interactions that are extremely important in the examination of processes of capital accumulation in freshwater fisheries. Equally, there are various non-human nature - human society relations that are unique to the Tonle Sap and also serve to complicate, confuse and contradict dominant spatial representations of official organizations, Fisheries Administration (FiA), and international agencies. Thus, the 'pulsating ecosystem' and natural rhythms of the Lake have enormous significance to people with high levels of dependence on aquatic livelihood resources. Fluctuations in water-levels and seasonal changes also complicate the attempts by different agencies to fix boundaries and zones for various purposes. Furthermore, formal representations are often confounded by poor governance systems, degrees of corruption, and lack of enforcement. As a result, representational space in the Lake is dominated, but not as fully dominated as key state and non-state agencies responsible for representing space would probably prefer. In other words, there are grey areas that relate to the complex social – ecological rhythms of the Lake that complicate the

different, sometimes overlapping, projects of resource governance, capital accumulation, fisheries management and conservation.

The production of space involves tendencies towards spatial 'homogenization' according to the demands of represented 'abstract space.' Formal representations help to materialize, prioritize and order space, and in the process, they can also lead to displacements and dispossessions. For instance, commercial fishing lots benefit a few powerful agents who gain large profits from bounded spaces that exclude many small-scale fishers, and in some areas, such fishing zones have actually displaced fishers from traditional fishing grounds. Community fishing zones also produce another kind of homogeneity, which sometimes they do not reflect the very different types of 'community' and villages that share the lake space (Sithirith and Grundy-Warr, forthcoming). Also, the very notion of fixed territorial spaces is problematic for those communities that are relatively mobile, such as the 'floating villages', which have their own territorial adaptability to the rhythms, seasons and annual flood pulse (Chapter 5).

The abstract space of planners and technocrats "is never entirely effective," for as Allen (2003a: 165) observes, people may be able "to subvert the codes of the dominant space' or create 'an alternative way of inhabiting it." Elmhirst (1999: 818-20) described how on the indigenous margins of 'representational spaces' in parts of Indonesia lie various 'unruly spaces' where actual practices and active resistance is challenging the "hegemonic representations of an authoritarian state." Lefebvre (1991: 365) holds out the possibility of conflicts to be voiced provided that spatial contradictions are 'perceived' and people do not subscribe "to representations of space as generally conceived." These ideas seem to be applicable in the case of fishery conflicts on the Tonle Sap, which are frequently related to overlapping representations of space, or active resistance to particular representations due to the manner in which they restrict resource access, create exclusions, and adversely affect livelihood security for certain groups.

Lefebvre (1999: 373) also argues that it is often "on the margins of the homogenized realm, that is within what is 'excluded', that there are potentials for alternative spontaneity, forms of resistance and of 'spatial duality' that may help to weaken 'dominated space'." Furthermore, "within all 'representational space' there lies the possibility of 'clandestine and underground spatial practices' to develop outside the norms of the prevailing (enforced) social spatialization" (Lefebvre, 1999: 210). I argue that the 'lived space' of the Tonle Sap contains many examples of 'dominated space', yet the Lake is socially differentiated and politically dynamic with numerous potential and actual spatial contestations due to intensive competition for scarce resources, poor governance, multiple stakeholders, and difficulties in managing spatial representations. However, it is also important to recognize that the dominant ways in which space is produced and represented in the lake has created certain 'hidden geographies', or rather the mobile spatiality of 'floating communities' has been effectively 'smothered' by the dominant representations of commercial fishing lots, conservation zones, and community boundaries that recognize fixed settlements. Thus, part of the livelihood struggle for such communities is being able to re-appropriate space and to be able to legitimize their mobile territorial rights and 'floating' way of life.

4.2 Power and Representations of Space

As indicated above, space is constructed and re-constructed, and actors are involved in the construction of space. Different actors; community, state and non-state; from different levels—local, national, regional and global—construct different spaces on the same geographical areas, and much of the spatial exercise involves power. Space holds two sources of latent power for human being; first, a latent *material power—the power to sustain human life and second, a latent emotional power. S*pace comprises the substance that is fundamental to human life on this planet. Through its constitution of land, water and atmosphere, space encompasses the basic prerequisites of human survival: the food that we eat, the water that we

drink, the air that we breathe and the resources for protecting ourselves. This is a *latent material power* of space. Second, when the substantive qualities of space are filtered through human experiences of time and process, strong attachments to space has the capacity to invoke or release an emotional response. This is *a latent emotional power of space*. (Penrose, 2002:279).

Power is relational to space. Different actors employ different spatial techniques and strategies to exercise power over space. John Allen demonstrates 'power' in three key ways: power as *an inscribed capacity*; power as *a resource*; and power as *strategies, practices and techniques* (Allen, 1997). The exercise of power may employ spatial techniques and strategies (Sack, 1986). All three conceptions of power: power as a capacity; power as a resource; and power as a strategy possess spatial characteristics. Power as a strategy, practice and technique involves the *organization of space* and inserts the control over the space, which requires forms of territoriality in attempts to control relations and resources in space through classification of precise geographic areas, boundaries and communication of those to people.

The organization of space is actually rationalized based on technical and scientific capacity, economic and political interests (Lefebvre, 1991). In rationalizing the space of engagement, agencies begin by identifying 'the problems' affecting the space or the area, and then apply spatial and non-spatial strategies to address those problems. This is clearly illustrated through the Tonle Sap Biosphere Reserve, which was established following the rationalization of space in relation to the global significance of biodiversity of the Tonle Sap under threat of environmental degradation. As a consequence, global agencies have engaged in the Tonle Sap conservation, such as UNESCO, UNDP and FAO (UNDP/GEF, 2004).

Fisheries specialists construct their technical spaces based on their technico-professional specialization. I call this process creating spaces of specialization. Henri Lefebvre (1991) highlights that:

> Specializations divide space among them and act upon its truncated parts, setting up mental barriers and practice-social frontiers. Thus architects are assigned architectural space as their private property, economists come into possession of economic space, geographers get their own place in the sun, and so on. The ideologically dominant tendency divides space up into parts and parcels in accordance with the social division of labor (Lefebvre, 1991: 89-90).

These are examples of Lefebvre's (1991) 'representation of space'. Thus, the specialized spaces are dominated by the knowledge and skills of scientists, technocrats, experts, and bureaucrats. However, in the Tonle Sap, the specialization divides the Tonle Sap into different spaces. The Tonle Sap is politically divided into six geographical provinces, economically into commercial fishing spaces, publicly into a public fishing space and as a bio reserve arena into various conservation spaces. Different competent agencies (international organizations, NGOs, state agencies, community-based bodies) tend to have different ways of perceiving the space and resources of the Tonle Sap, based on their specialized interests and functional ways of seeing the Lake.

To illustrate this more clearly, we can view the Tonle Sap as a space that is predominantly functionally constructed in three major ways (commercial fisheries, conservation zones, and public space). In addition, there are three broad scalar ways of perceiving the space of the Tonle Sap, as 'global space', 'regional space', and 'national space.'

4.3 The 'Global Space' of the Tonle Sap

The Tonle Sap has a global significance of biodiversity. However, various international agencies and INGOs (including UN bodies, IUCN, WWF) have argued that the biodiversity in the Tonle Sap is under threat. One way of addressing these threats is through the conservationist paradigm, which requires specific forms of spatial specialization.

4.3.1 The Global significance of biodiversity in the Tonle Sap

> "The Great Lake is the last stronghold in Southeast Asia for a number of large number of rare water birds and many species of endangered reptiles (…) Together with the annual reversal of water flow, the existence and role of the vegetation encircling the lake are the main wonders of the Tonle Sap. Through a phenomenon of decomposition, the flora is the source of the lake's phenomenal fish productivity, making it one of the world's most productive bodies of inland water. It also creates nesting niches for fish, provides an important habitat for many wildlife species, as well as a means of livelihood and subsistence for many people" (Renaud Bailleux, 2003: 89 and 103).

Undoubtedly, these statements about the rich biodiversity, ecological and social linkages, and importance of the inundated forests, vegetation to the fisheries and livelihoods of the Lake, touch on the concerns of a variety of international and national agencies dealing with issues of conservation and environment in Cambodia. Arturo Escobar (1998) in a paper entitled '*Whose knowledge, whose nature?'* argued for the need to consider who is appropriating and conserving 'nature' and who benefits from such politics? As Escobar (1998: 53) points out we are dealing with a "highly transnationalized nature/culture field" where techno-scientific networks operating under the banner of the Convention of Biological Diversity are operating across political boundaries and influencing all sorts of policies and strategies relating to conservation, natural resource management, wildlife protection, and property rights. In Cambodia, conservation paradigms have recently been developed through a mixture of what Escobar terms 'globalocentric' and national 'sovereignty' perspectives, primarily involving key 'global' agencies and state agencies.

The Tonle Sap is conceptualized as a '**global space**' based on three key principles:

1. The Lake is the one of the most important locations for globally significant biodiversity including the 'flooded forests', with its many endemic plant and reptile species, and endangered species of fish and birds.
2. The 'global space' is legalized based on Cambodia signing the 1992 Rio Declaration on Environment and Development and the September 2000 Millennium Declaration.
3. The global space of the Tonle Sap is defined by a global environmental agencies of the UN and also INGO bodies such as WWF as an important area for 'conservation' in which

Cambodia has to sacrifice parts the 'Tonle Sap' for the protection of biodiversity. In 1997, the Tonle Sap is transformed into a 'conservation space' for the world. Initially, the State of Cambodia was reluctant to put the Tonle Sap forward as a 'conservation space' of global significance due to the fact that the Lake is also a major source of economic value and national revenue. Moreover, international aid compensating this loss is provided by international inter-governmental agencies, such the United Nation Development Program (UNDP), UNESCO, ADB and others. Thus, the State has realized that global recognition as biosphere reserves, important and unique wetlands, can also earn international aid money.

About 500 inland fish species have been recorded in Cambodia and at least 280 species reside in the Tonle Sap (Van Zalienge *et al.*, 2000; ADB, 2005c), classifying into 48 species of *cyprinids*, 7 species of *Pangasidae*, 5 species of *Bagridae* and 5 species *of Siluridae*, of which seven inland fish species identified in the Tonle Sap have a global significance (UNDP/GEF, 2004). Some 42 reptile species are identified in the Tonle Sap, including one species endemic to the Tonle Sap—the Tonle Sap water snake *Enhydris longicauda;* nineteen global significance reptile species including two critically endangered and three listed as endangered species; seven turtles and a crocodile (UNDP/GEF, 2004; ADB, 2002). Apart from reptiles, the Tonle Sap is also home to some 225 bird species, of which 45%– mainly the larger species (ADB, 2002), and Prek Toal and Boeng Chhmar – the Core Areas of the Tonle Sap Lake – sustain the most significant colonies of water-birds in the whole of mainland Southeast Asia, including twenty-four species of global significance (UNDP/GEF, 2004; ADB, 2005c). Although key species such as Asiatic elephant and tiger have disappeared during the past decades, at least 15 mammal species have been recorded in the Tonle Sap Lake and floodplain during recent years, including at least ten species of global significance such as the Indochinese hog deer, hairy-nosed otter, smooth otter, long-tailed macaque, Irrawaddy dolphin, fishing cat, Lyle's flying fox, large flying fox and silvered langur (UNDP/GEF, 2004).

Given the biodiversity and some rare species in the Lake, the UNESCO and other UN put the Lake as a 'global space' for biodiversity conservation. In other word, UNESCO has worked with RGC to designate the Tonle Sap as a 'Biosphere Reserve' which is part of a global UNESCO Man and Biosphere Program. The Biosphere Reserves or the 'global space' are areas of representative ecosystems that have been recognized by the UNESCO and Biosphere Program for their value in providing the scientific knowledge, skills and human value needed to support the sustainable development. The Biosphere Reserves have three main functions—the conservation, the development and logistical supports for demonstration project (Gum, 1998). Since then, the Tonle Sap becomes a 'global space' for biodiversity conservation. As a result, the UNDP/GEF and UNDP/Capacity 21 have developed a project known as a Tonle Sap Conservation Project starting in 2003 and has a period of 7 years. This project aimed at conserving the Biosphere Reserves (UNDP/GEF, 2004).

4.3.2 Specialization and Rationalization of the Tonle Sap as a Conservation Space

The RGC supports the initiatives to put the Tonle Sap as a 'Biosphere Reserves Areas. In 1997, the Lake was declared as a 'Biosphere Reserves', but it was until 2001 the Royal Decree was enacted by the RGC to declare the Tonle Sap as a Biosphere Reserves Area. The 'Biosphere Reserve' as a 'conservation space' classifies the Tonle Sap into three spaces—the transitional area; the buffer area and the core area. The core area covers only three areas—Prek Toal, Boeung Tonle Chmar and Stun Sen—covering an area of 27,697ha (Bunhoeur and Lane, 2002; Campbell *et al.*, 2006). The Ministry of Environment (MoE) established in 1993 by Royal Government of Cambodia manages this space.

In the transition zone, sustainable resource management practices are to be established, while the buffer zone is an area where activities are to be compatible with conservation, in order to protect the core zones. The three core zones are Prek Toal

(21,342ha), Boeng Chhmar (14,560 ha) and Stung Sen (14,560 ha), which were established because of their importance for bird colonies (Prek Toal), bird feeding areas (Boeng Chhmar) and unique gallery forests (Stung Sen). Boeng Chhmar has also been designated as a Ramsar site under the Ramsar Convention, which was ratified by RGC in 1999. At present, only Prek Toal is protected to some degree, but even there poaching remains a significant problem (UNDP/GEF, 2004; Campbell *et al.*, 2006; Gum, 1998).

Conservation provides a strong rationale for partitioning the Lake into different protective zones. However, to manage these zones, specific specialists need to be employed to conserve biodiversity and resources. The MoE has authority and technical capacity to manage the Biosphere Reserves. However, there is a practical problem in that the 'conservation space' or the TSBR in the Tonle Sap Lake overlaps commercial fishing lots in some areas, and as a consequence of this, they become unclear zones of divergence and disagreement. Conservation areas are supposed to preserve patches of flooded forest, fish habitats, wildlife reserves, hydrological systems and natural beauty, but in practice there are problems due to the grant of fishing concessions in the 'buffer zones,' and also due to the fact that there are other multiple uses in and around flooded forests (dry season rice, mung bean cropping, vegetable gardens, and so on). Thus conflicts between stakeholders and competition over resources within designated conservation areas are quite common.

4.4 The 'Regional Space' of the Tonle Sap

The Tonle Sap River acts as a key valve or artery connecting the Mekong River to the Lake, and thus, we cannot consider the Tonle Sap's biophysical characteristics without reference to the Mekong hydrological regime. First, the Tonle Sap Lake takes in a lot of water and helps reduce flooding in the Mekong River during the peak flood season and it releases water from the Lake to the Mekong River

in the dry season helping to reduce salt intrusion in the Mekong Delta. Second, the Tonle Sap Lake is a key space for migratory fishes from the Lower Mekong Basin into the Lake system during the wet season, and as a key space for fish production. For these critical reasons, fishery specialists, biologists and natural scientists perceive the Tonle Sap as a critical **'regional space'** that is a fundamental barometer of changes in the Mekong Basin as a whole.

4.4.1 The 'pulsing ecosystem' and 'heartbeat' of the Mekong

The Lake owes its uniqueness to the natural phenomenon of reverse water flow, with approximately half of an annual pulse absorbed by the Lake area from the Mekong River during the wet season (May to October) and released back during the dry season.[6] This 'flood pulse' has led one specialist, Anders Poulsen, to describe the Tonle Sap as 'the pulsating heart' of the Mekong, and goes on to argue that "the flood pulse is what keeps the heart beating. If the heart stops, the system dies" (Nikula, 2005:13[7]; Kammu *et al.*, 2008[8]).

- **The Tonle Sap a Natural Reservoir for Flood Reduction in the Mekong Region**

The Mekong has one flood pulse a year (Lamberts 2001). During May and June when the Southwest monsoon arrives, the water level in the Mekong River increases only gradually, but does not increase noticeably until July and August when the Mekong River rises. Other streams originating in two mountain chains, the *Phnom Dangreks* and *Phnom Kravagn* (Cardamom chain), also flow into this large reservoir. During September and October, water

[6] In the wet season, the surface area of the Lake increases from 250,000-300,000 ha to approximately 1.0-1.6 million ha, with depth increasing correspondingly from 1–2 m amsl to 9–11 m amsl (CNMC and Nedeco, 1998), and storage capacity reaching a maximum of 80 million cubic meters (Sopharith, 1998). It absorbs 20 per cent of the Mekong River's floodwaters and serves as a flood regulator (MRC, 2004; ADB, 2002). The drop of the water level in the Mekong in the dry season creates the "reverse flow" from the Lake into the Mekong.
[7] Jussi Nikula, *The Lake and its People*. MSc Thesis, Helsinki University of Technology, 2005.
[8] Jussi Nikula, *The Lake and its People*. MSc Thesis, Helsinki University of Technology, 2005.

in the Mekong River is at its maximum level in Kratie province (Nikula, 2005). Annually, the Mekong River releases an estimate of 475 km³ to the China Sea (Kummu *et al.*, 2008).

The volume of water flowing downstream floods the areas along the Mekong and the Mekong Delta in Cambodia and in Vietnam. As part of the Mekong River, the Tonle Sap Lake absorbs a volume of water from the Mekong River in the wet season, estimating at about about 45 km³, which is about 10 percent of the Mekong water volume, reducing the flood in Mekong Delta in Cambodia below Phnom Penh and in Vietnam[9] (Kummu *et al.*, 2008; Matsui *et al*, 2005; CNMC, 2004). Given the reduction of flood due to the existence of the Tonle Sap, the flooded area in the Mekong Delta in Vietnam is maintained between 1.2 and 1.4 million hectares (Käkönen, 2008)[10]. However, under the high flood, the flooded areas in the Mekong Delta in Vietnam increase to 1.9 million hectares (Tuan *et al.*, 2007)[11].

This creates a vast natural reservoir which the Tonle Sap becomes a 'bladder' of the Mekong basin helping to reduce flooding downstream. Thus, the area along the Mekong, the Mekong Delta both in Cambodia and Vietnam is saved from flooding due to large volume of flood is absorbed by the Tonle Sap Lake (Bakker 1999; Nikula, 2005; Kummu *et al.*, 2008; CNMC, 2004).

- **Reducing Salty Intrusion in the Mekong Delta**

Apart from absorbing water from the Mekong River in the wet season, the Tonle Sap Lake also releases water from the Lake to the Mekong River in the dry season and volume of water flow downstream to the Mekong Delta and to the China Sea. This happens due to the level of the Mekong water quickly drops to the point below the level of the Tonle Sap Lake,

[9] Kummu et al (2008) estimates that the annual inflow of the Tonle Sap is estimated at about 79 km³. About 57% of water in the Tonle Sap originates from the Mekong main stem.
[10] The Mekong Delta in Vietnam covers an area of 39,200 km² (Kakonen, 2008).
[11] Thanh Be *et al.*, 2007. Challenges to Sustainable Development in the Mekong Delta: Regional and National Policy Issues and Research Needs.

and thus, creating a condition for water flowing from the Tonle Sap Lake to the Mekong and then continue to flow down to the China Sea. It subsides slowly until January and February and continues to gradually recede during March and April. Out-flow water from the floodplain and the lake increases the flow of water in the lower Mekong River, improving the condition of the Mekong estuary after saline intrusion during the dry period. The water released from this storage can also be used to irrigate the dry season crop in many parts of the Mekong delta. In this sense, the Tonle Sap Lake is considered by many Khmers to be the 'backbone of their struggling nation's agricultural system'.

The annual average outflow of the Tonle Sap Lake is estimated at about 78.6 km^3. About 69 km^3 (88% of outflow) from the Tonle Sap Lake returns to the Mekong River via the Tonle Sap River (Kummu *et al.,* 2008; Matsui *et al.,* 2005; CNMC, 2004). The release of water from the Tonle Sap to the Mekong River during the dry season distributes water to the Mekong Delta. This water saves the Mekong Delta from salty intrusion. About 2.1 million hectares of the Mekong Delta are affected by the salinity during the dry season (Tuan *et al.,* 2007), and the volume of water from the Tonle Sap acts to reduce the intrusion of salty water into the mainland areas. Thus Tonle Sap waters act as a natural flush helping to reduce salinity levels in the Delta, which may still be rising probably due to sea-incursions and long-term sea-level rise.

4.4.2 The Tonle Sap as an integral part of the Lower Mekong fisheries

The inflow of water from the Mekong to the Tonle Sap Lake during the wet season induces the fish migrations. Water flows into the Tonle Sap, inundating the forests, swamps, special long rice paddies, and the fishes find habitats where they may breed, lay eggs and grow there with abundant nutrition. In the dry season, fish also migrate into the Mekong River and may move both upstream and downstream. According to Van Zalienge *et al.,* (2000), fish

from the Tonle Sap migrates as far up as Laos and far down as the Mekong Delta in Vietnam. Thus, fish from the Tonle Sap Lake are distributed all over the Mekong.

According to Rainboth (1996), some 1,200 fish species have been identified in the Mekong River Basin. However, Baran (2005) suggests 758 –1500 fish species in the Mekong River Basin. Of these, 500 species have been identified in the freshwater bodies in Cambodia (Van Zalinge and Thouk, 2000), of which about 280 fish species reside in the Tonle Sap Lake (Wright *et al.*, 2004).

These fish species are classified into two main groups—'black fish' and 'white fish'. The 'black fish' spend most time in the shallow and relatively still waters of the floodplain whereas 'white fish' tend to migrate in the main river channels depending on dominant water currents. 'White species' include many species of catfish and river carps. During the dry season such white species may be found in deep pools upstream of the main floodplain areas, for example in the Mekong and large tributaries in Kratie and Stung Treng Provinces (Deap, *et al.*, 2003). In the wet season, the adult fish species migrate downstream and spawn; thus, more than 200 billion of fish eggs and fries are carried downstream by currents and swept into the floodplain areas that are inundated, where conditions are ideal for the rapid growth of young fish. The flooded land provides the nutrients for fish to grow rapidly (Deap *et al.*, 2003; Thouk, 2009). In addition, there are about 23 migratory species that move downstream from the Lake (Thanh Be *et al.*, 2007). Undoubtedly, the Tonle Sap is not just a rich fishery for Cambodia but it is a fishery that is intimately linked to other fisheries of the Lower Mekong.

4.4.3 Regional impacts and external ecological threats on the Tonle Sap

For many international and national NGOs concerned with environmental affairs, the Tonle Sap is inseparable from the threats to nature and humans in the greater Mekong Basin as a whole (TERRA, 2007; 2008; IR and RCC, 2008; IR, 2009). Hydropower dams on upstream tributaries and increasingly planned for the mainstream of the Mekong represent one of the major regional threats to the future of the Tonle Sap. By 2007, 82 major Mekong Basin hydropower dams were operating in the six countries sharing the River (See Table 4.1). Between 1965 and 2005, 23 major hydropower dams were completely built in the Mekong River Basin, including mainstream dams along the Lancang River (Mekong in Chinese), such as, Manwan and Dachaoshan (CNMC & NEDECO, 1998; MRC, 2003).

Table 4. 1: Major Hydropower Dams in the Mekong River Basin

	Existing large Project (operating and Under Construction)		Potential Large Project (Committed and Planned and Identified)	
	Number	MW	Number	MW
Cambodia	2	222	33	8,009
Laos PDR	11	1779	32	5788
Vietnam	30	5,910	65	11,160
Thailand	11	744	0	0
Myanmar	21	1,506	15	7,852
China	5	21,150	34	83,360
Total	82	31,311	149	116,170
Source: Peter King, Jeremy Bird, Lawrence Haas, 2007[12]				

The hydropower dams in the Mekong River Basin since 1965 have a capacity to retain an estimate of 15,328 million cubic meters (mcm) (See Table 4.2). This reduces the flow downstream. The MRC suggests a decrease in discharge of around 10-12% happening since the commencement of major dam building in the middle and upper basin in the 1960s (MRC, 2003; CNMC & NEDECO, 1998; CNMC, 2004).

[12] Peter King, Jeremy Bird, Lawrence Haas. 2007. The Current Status of Environmental Criteria for Hydropower Development in the Mekong Region: A Literature Compilation.

Table 4. 2: Major water resource development projects in the Mekong basin

Year	No. of Projects	Power characteristic		Irrigation potential (ha)		Active storage (mcm)
		MW	GWh/year	Wet season	Dry season	
1965-1975	*9*	*257*	*1,266*	*209000*	*189000*	*10012*
1975-1995	*6*	*1681*	*8330*	*53000*	*35000*	*1058*
1996-2005	*8*	*3240*	*17597*	*0*	*0*	*4148*
Grant Total 1965-2005	23	5178	27,193	275,000	227,000	15,328
Source: CNMC & NEDECO, 1998; CNMC, 2004						

The dams in the Mekong River Basin induces two main impacts on the Tonle Sap; first, the dam and weir construction for hydroelectric power results in an increased water level in the dry season, increased turbidity and reduction in nutrient for fish (Kummu and Sarkkula, 2008); and second, the dams induce the reduction of the wet seasonal flow of the Mekong River.

Due to the considerable variety and ambiguity of different development plan in the Mekong River Basin, there is an concern about the impacts on the Tonle Sap and Kummu and Sarkkula (2008) assesses the impacts of the flow alteration on the Tonle Sap Lake, based on the existing cumulative impact assessments (CIA) conducted by the MRC in 2004 for the whole Mekong, the ADB in 2004 for the Nam Thuon 2 environmental impact assessment study, and Adamson in 2001 for the analysis of the downstream hydrological impacts of the Chinese cascade of dams. Under the CIA conducted by MRC, the wet-season water level would be reduced by 0.36m and the dry season water level would be increased by 0.15m; whereas under the CIA conducted by the ADB, the water level would be reduced by 0.54 and the dry-season water level would be increased by 0.60m. However, under the CIA conducted by Adamson (2001), the dry season water level increased by 0.30m (Kummu and Sarkkula, 2008).

Based on these CIAs, Kummu and Sarkkula (2008) estimate that “the lake areas corresponding to water level of 1.44m amsl is 2,300km². Rises of 0.15m, 0.3m, and 0.6, representing each analyzed CIA, would result in a permanent lake area of 2,700km²,

3000km², and 3,200km² respectively. Thus, the permanent lake area would increase between 400 and 1,000km² (17%-40%)" (Kummu and Sarkkula, 2008: 189).

Kummu and Sarkkula (2008) further illustrate that the predicted dry-season water-level rise of 0.15-0.60m would mean permanent inundation of large areas of flooded forest around the lake. This suggests that if the dry season water level rise by 0.6m, 80.4 km^2 of the total area of the flooded forest (197.2 km^2) will be inundated. That would mean that 41% of the present flooded forest area would be lost. The same happens to the protected areas in the Tonle Sap Lake. If the dry-season water level rise by 0.15m, 0.30m or 0.60m respectively, about 6%, 31% or 83% of the total area of 149km² of the Ramsar site in Boeung Chhmar would be inundated.

The wet season flow in the Mekong River will be decreased, and so does the wet-season water level. Thus, there would be less water to flood the flooded forest and floodplain around the Lake and reduces the fishery productivity (Lieng and Van Zalienge, 2001). Kummu and Sarkkula (2008) estimate that the area to be flooded would be decreased between 7% and 16% (Kummu and Sarkkula, 2008). This would have direct impact on the ecosystem productivity: the smaller the area that becomes flooded, the smaller the area between aquatic and terrestrial phase, and the smaller the potential transfer of floodplain terrestrial organic matter and energy into the aquatic phase (Kummu and Sarkkula, 2008; Lieng and Van Zalienge, 2000).

The change in hydrological flow in the Mekong River due to the operation of hydropower dams for electricity affects fish migration. Dams physically block fish migration, and the change in water temperature, flow and turbidity associated with dam may also negatively affect fisheries (Kummu and Sarkkula, 2008). The increased risk of extreme flood events, either by dam disaster or through a sudden release of water, is another issue. There are

at present no plans to coordinate water release from various planned and existing dams in the region (Bakker, 1999).

4.4.4 Regional institutions and the Tonle Sap

4.4.4.1 The Mekong River Commission (MRC)

To address issues and problems facing the Tonle Sap, the Tonle Sap is framed as part of the Mekong River Basin, and the Mekong Agreement was designed to guide the four Lower Mekong Countries—Cambodia, Laos, Thailand and Vietnam—in the utilization of water resources in the Mekong River Basin as well as the Tonle Sap in a sustainable manner. The Mekong Agreement in 1995 recognizes the Tonle Sap as an important area in the Lower Mekong River Basin and the four Lower Mekong Countries—Cambodia, Laos, Thailand and Vietnam—agree to protect it (MRC Agreement, 1995).

The Tonle Sap is one of 10 "sub-areas" of the Mekong Basin (See Map 4.1) in which institutional arrangements, plans, and programs are developed to address issues and problems facing the Lake (MRC, 2003; CNMC, 2004). Among 10 "sub-areas", the Tonle Sap is given a high priority under the regional framework in which nine areas of intervention were identified to address the problems and issues raised above, using regional specialization (MRC, 2003; CNMC, 2004). These include an irrigated agriculture, irrigation, fisheries, navigation, flood control-management, hydropower, watersheds management, tourism and water supply. Each of these areas requires a specific specialization; for instance hydrology, fisheries, agriculture, and environment; thus, each specialization—fisheries, hydrology, agriculture and environment—establishes a particular 'spaces' of bureaucratic, technical and scientific engagement for the MRC to dabble in certain affairs of the Tonle Sap.

The MRC Agreement in 1995 protects the Tonle Sap in two ways: first, the Agreement provides a general direction to safeguard the Tonle Sap and second, it provides a specific guarantee to protect the Tonle Sap (Ojendal *et al.*, 2002; Sithirith, 2007; MRC Agreement, 1995; Sneddon, 2003). The general direction in the Agreement includes the efforts by all parties "to protect environment, natural resources, aquatic life, and conditions, and ecological balance of the Mekong River Basin from the pollution and other harmful effects resulting from any development plans and uses of water and related resources in the Basin" (Article 3). However, dam or hydropower dam is still possible under this Agreement as states in the Article:

> The parties agree... To cooperate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin including, but not limited to irrigation, hydropower, navigation, flood control, fisheries, timber floating, recreation and tourism, in a manner to optimize the multiple-use from natural occurrences and man-made activities (Agreement 1995, Article 1).

The Agreement provides the direct protection of the Tonle Sap. The Article 5 of the Agreement guarantees the equitable and reasonable utilization of the Mekong water. It spells out a specific clause to protect the Tonle Sap as a 'tributary' of the Mekong River and any intra-basin uses or inter-basin diversions shall be subject to notification to the Joint Committee. The Article 5 also limits activities of riparian states in using water resources from the Mainstream Mekong River in both the dry and wet seasons as it states:

> 1. During the wet season:
> a) Intra-basin use shall be subject to notification to the Joint Committee.
> b) Inter-Basin diversion shall be subject to prior consultation which aims at arriving at an agreement by the Joint Committee.
> 2. During the dry season:
> a) Intra-basin use shall be subject to prior consultation which aims at arriving at an agreement by the Joint Committee.
> b) Any inter-basin diversion project shall be agreed upon by the Joint Committee through a specific agreement for each project prior to any proposed diversion. However, should there be a surplus quantity of water available in excess of the proposed uses of all parties in any dry season, verified and unanimously confirmed as such by the Joint Committee, an inter-basin diversion of the surplus could be made subject to prior consultation (Article 5, MRC Agreement in 1995).

The Article 5 forms the strong bases for Cambodia to protect the Tone Sap Lake. However, it is argued that the Article 5 can be translated into three different ways: First, the Mekong can be dammed and diverted; second, the average flows can be maintained; and third, that maintaining average flows in the Mekong during the rainy season is a healthy optimum. The question is how to protect the Tonle Sap using this article given it vague mearning and confused terms (Ojendal, 2000; Sithirith, 2007). Article 6 also raises two concrete points in maintaining flows in the mainstream:

> a) Of not less than the acceptable minimum monthly natural flow during each month of the dry season;
> b) To enable the acceptable natural reverse flow of the Tonle Sap to take place during the wet season (Article 6, MRC Agreement in 1995).

Despite the assurance to protect the Tonle Sap, it is very vague, and it is clear on protecting the dry season flow and the flow levels in general, but what is the dry season? How much is the acceptable low flow? How can we ensure the 'acceptable' dry and wet season flow under the scenarios of hydropower dam development? (Ojendal, 2000; Sithirith, 2007). Hitherto, the real meaning of these terms is left out with no clarification and explanation (Sneddon, 2003).

4.4.4.2 Cambodia's National Mekong Committee

Following the MRC Agreement, each riparian country establishes a National Mekong Committee to coordinate the MRC activities at the national level. Under the regional agreement, each country in the Lower Mekong Region forms a National Mekong Committee. The Cambodia National Mekong Committee (CNMC) was formed under the Mekong Agreement as the primary government agency coordinating natural resources management in the entire Mekong Basin as well as in the Tonle Sap (Sokhmem & Sunada, 2006). The CNMC has 10 ministries as a member, and it is chaired by the Minister of Water Resources and Meteology (MOWRAM).

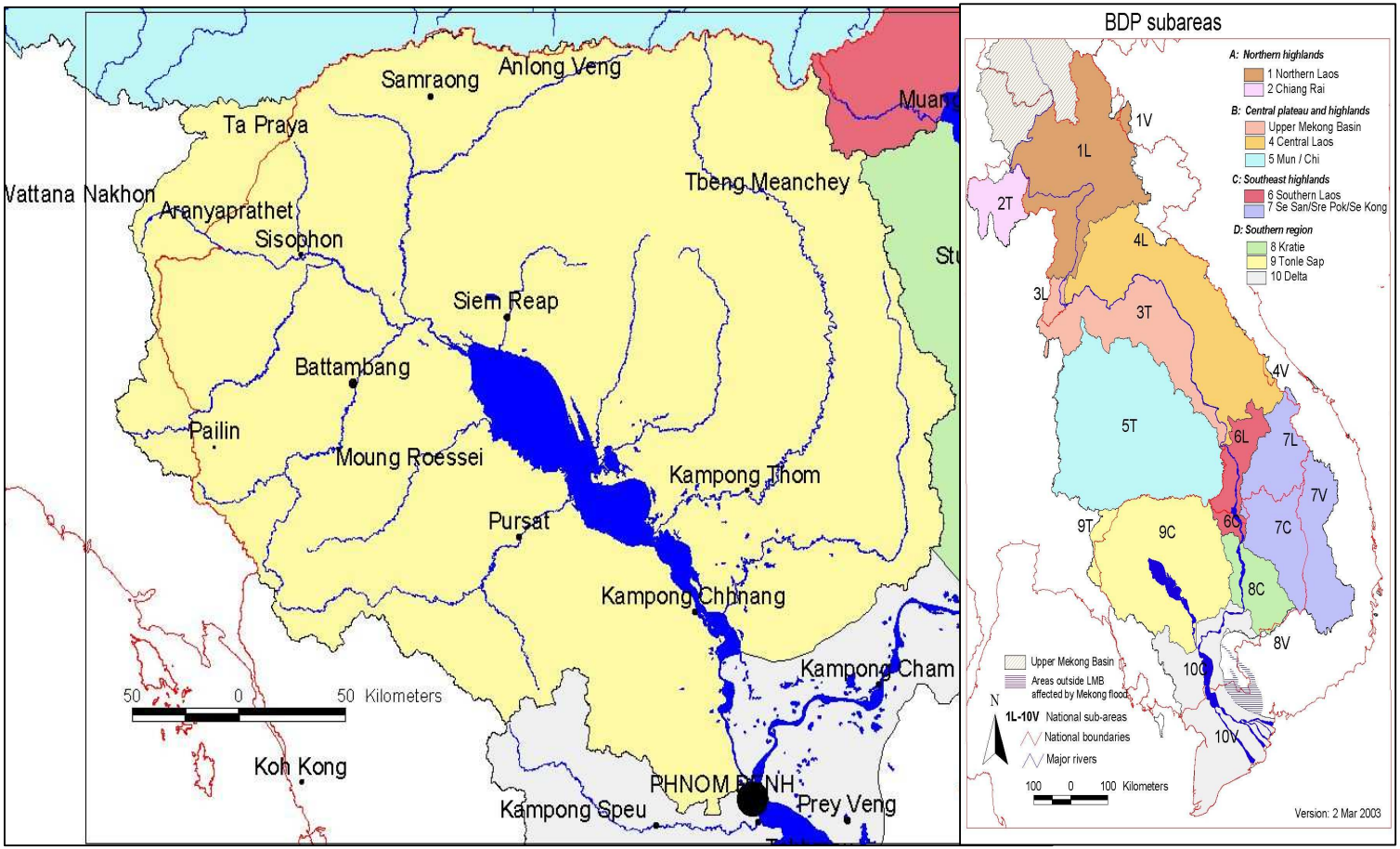
The CNMC externally maintains a direct linkage with the MRC and nationally, the CNMC is tasked to assist and advise the government in all matters relating to water policy and strategy as well as management and development of the water and natural resource of the Mekong River Basin (Sokhem & Sunada 2006; CNMC, 2004). Since 1998, the Tonle Sap has attracted international attention both globally and regionally. Thus, the roles of CNMC were broadened. Yet the CNMC has to carry out these ambitious tasks with different and often conflicting priorities, values and perceptions posed by its member ministries, often with particular sector and business interests, and the CNMC has therefore 'often complained about being by-passed or ignored' (Sokhem & Sunada 2006).Given these limitations of CNMC in relation to the Tonle Sap, the UNESCO and the ADB see the needs to persuade the RCG to set up the specific institutions coordinating the Tonle Sap work. The UNESCO and UNDP influence the RGC to establish the institution responsible for biodiversity conservation while ADB attempts to work with RGC to establish the Tonle Sap Basin Management Organization (TSBMO) (ADB, 2005b). Thus, the CNMC was established to link the regional level activities to national level activities, although national committees frequently have even blunter teeth than the regional mechanism, and they are not necessarily influential in policy-making circles or on other national bodies concerned with aspects of water governance (Hirsch, 2006).

4.4.4.3 Asian Development Bank (ADB) and the Greater Mekong Sub-Region (GMS): Rationalizing Space in the Tonle Sap

Apart from MRC, the Asian Development Bank (ADB) is also active in the Mekong Region. In 1992, the Asian Development Bank (ADB) initiated the 'Greater Mekong Sub-Region (GMS)' to; first, promoting a regional cooperation of six riparian countries and second, boosting economic development of six countries—Cambodia, China, Myanmar, Laos, Thailand and Vietnam (ADB, 2005a). Seven priority areas have been initiated by the Bank to drive the regional cooperation and economic development of the six countries in the

Mekong including transportation, telecommunication, energy, trade and investment, human resource development, tourism and environment. Trade between countries is the central element of the seven priority areas (ADB, 2005a; Sithirith, 2007).

In the Tonle Sap, the ADB initiates the 'Tonle Sap Initiative' in 2002, and this is part of the Bank's Regional Cooperation Strategy and Program (RCSP) for the Greater Mekong Subregion (GMS). The GMS-RCSP aims at facilitating economic growth and development in the region. Through the Tonle Sap Initiative, the ADB establishes itself as a lead funding agency for the Tonle Sap (Rosien, 2006), and since 1998, the Tonle Sap has been heavily funded by the ADB. Between 1998 and 2007, ADB financed 29 projects for the Tonle Sap with a total budget of US$72.66 million. Out of these, 11 projects were completed, and 9 projects were active while 9 others were in the pipeline. While 24 projects were financed through TA's, and 4 projects through the ADB grants, one project was financed through a loan.



Map 4. 1: Map of the Tonle Sap Lake in the Mekong Region (Adopted from CNMC, 2004)

The ADB initiated the projects for the Tonle Sap based on spatial differences. The study identifies four spatial differences of the ADB Projects in the Tonle Sap namely the 'water body of the Lake', the 'floodplain area', the 'lowland agricultural area', and the 'watershed area'. I take the example of the ADB projects in the Tonle Sap that demonstrates spatial characteristics to show the spatial construction of the ADB in the Tonle Sap.

The Tonle Sap Environmental Management Projects (TSEMP) was designed by the ADB, rationalizing environmental problems in the Mekong as a threat to the Tonle Sap. It also rationalizes the needs to address these problems using specialization and experiences of the Bank. In doing so, the project of US$ 19 million was proposed in 2002 with funding of US$10.9 million as loan from the ADB, and about US$ 4.53 million as a grant from UNDP.[13] This is the first ADB lending project for the environmental management and conservation, focusing on fisheries and community based resources management in the 'water body' of the Tonle Sap Lake. The project proposes three main activities; first, developing the coordination system and planning for fisheries management; second, building the capacity for biodiversity conservation; and third establishing the community fishery (ADB, FAO and DoF, 2003).

A second ADB funded project is the Tonle Sap Sustainable Livelihoods Project. The project is funded by ADB (US$15 million), the Government of Finland (US$4.7 million) and the Royal Government of Cambodia (US$0.6 million), aiming at producing three important outputs (components); first, 'supporting community-driven development'; second, 'safeguarding the core areas' of the Tonle Sap Lake; and third, 'building skills and awareness for sustainable livelihoods' (ADB, 2005d). The project covers 37 communes, comprising 316 villages, including most floating and stand-stilt villages, and some farming-cum-fishing villages, with a population of 287,430 in 54,857 families in five provinces (ADB, 2005d). The project is effective from June 2006 and will be completed in December 2009 (ADB, 2005d).

[13] The UNDP-GEF and UNDP Capacity 21 provides US$3.9 million and US$ 636,000 respectively.

The ‘lowland agricultural area’ is an area where people living around the Tonle Sap Lake cultivate the rice paddy. In this area, the ADB has proposed a ‘Tonle Sap Lowland Stabilization Project (TSLSP)’ covering 30 communes in 12 districts located in six provinces around the Tonle Sap Lake. The project lays down key activities; first, the project facilitates commune participatory development planning (ongoing) for infrastructure development such as road, irrigation and rural marketing, and second, the project trains Community Level Facilitator (CLFT) to form income generating activity (IGA) groups and facilitating group and individual access to technical and financial services. The project cost US$21.5 million, of which about US$10 million come as a loan and US$9 million as a grant from the ADB. The remaining budget will be provided by the Royal government of Cambodia (ADB, 2007).

The ‘watershed area’ surrounding the Tonle Sap is an important area having a close connection with the Tonle Sap Lake. It is covered largely by a dense forest contributing to maintaining the ecological balance of the Tonle Sap (ADB, 2007). However, the watershed area has been heavily deforested, contributing to the decline in forest covers and increasing the deposit of siltation into the Tonle Sap Lake (ADB, 2007). To address these concerns, the ADB proposes a ‘watershed management’ project. The total cost of this project is estimated at about US$15 million and this project is scheduled to start in 2010 (ADB, 2007).

Most of projects funded by ADB for the Tonle Sap tend to be executed by government agencies, regional and global actors, and consultant firms. The international organizations, international consultant firms and international individual consultants benefit most from these projects. Thus, the projects funded by ADB for the Tonle Sap have enlarged the ‘regional space’ and ‘global space’ of the Tonle Sap for numerous global, regional and national actors to become engaged in the Tonle Sap, reifying the ADB role as both financial and investment broker in developing the resources of the Lake and GMS as a whole.

4.5 Tonle Sap as a 'National' Resource and Sovereign Space

The Tonle Sap is largely constructed as a 'national space' based on cultural, social and economic importance of the resources in the Lake. Indeed, there are frequent historical references to the Lake in relation to ancient Khmer Kingdoms, particularly Angkor, as Lake Fauna is richly depicted on the stone bas-reliefs on the Bayon temple within the Angkor complex. In contemporary times, the Lake's vital importance is as a source of food for million of people, and through its natural resources helps provide common pool resources for people living in the Basin. It is the latter dimension that will now be considered.

4.5.1 Safety Net, Communal Bank and 'Space of Dependence'

The Cambodian population was 13.4 million people in 2008. About 80.5 percent of its population lives in rural area with a great dependence on natural resources for their living, and about 10-11 percent of the total population live in the Tonle Sap floodplain[14] (NIS, 2008[15]; CNMC & Nedeco, 1998; Keskinen, 2003). About 1.4 million people live in the Tonle Sap's floodplain in 2008 (between Highway no.5 and no.6) (See Table 4.3). Of these, about 892722 people live in floating and stand-stilt villages in the Tonle Sap. This suggests that abut 64 percent of the Tonle Sap population is engaged in fishing as a primary occupation. Furthermore, at the national level, about 10 percent of Cambodian population is engaged in fishing in the Tonle Sap (See Table 4.3).

Fishing in the Tonle Sap is considered as a 'social safety net' in which it provides food for people that keeps them away from hungry, and due to the presence of the Tonle Sap Lake, many people never worry about the famine or food crisis given the fact that the Lake is a main source of food. People may live in poverty, but they do not die of hunger as

[14] about 1.18-1.20 million people live in the Tonle Sap floodplain (CNMC & Nedeco, 1998; Keskinen, 2003)
[15] http://www.nis.gov.kh/index.php/statistics/surveys/census2008/provisional-population-totals

the Lake functions as a sort of 'social safety net' (Baran, 2005; Degen, *et al.*, 2000; DoF, 2001; 2003; Gum, 2000; Van Acker, 2005). In situations of economically or institutionally restricted access to capital (i.e. financial capital such as credit) or production factors (such as private land), the allegedly relatively easy and/free access to fishing grounds in the Lake allows poor people to rely more heavily on local common resources to obtain/ extract the goods and service they need to sustain their livelihoods (Van Acker, 2005). Inland fisheries are particularly important in this context. The total inland fish catch of small-scale fishing in the Tonle Sap is estimated, from the small-scale fishing of five provinces in the Tonle Sap, at about 60,900 tons in 1998 (Baran, 2005). This suggests that the total fish catch of small-scale fishing in the Tonle Sap constitute about 50 percent of the national fish catch of small-scale fishing (See Table 4.4)[16].

Table 4. 3: Fishing population in the Tonle Sap and national population

Type of population	No. of Population	Percentage of fishing population against the Tonle Sap population an national population (%)
Fishing population in the Tonle Sap	892722[a]	
Population of the Tonle Sap	1,388,555[a]	64.29
National Population	13,388,910[b]	10.37
Source: a) Field Notes, 2007 and 2008; b) NIS, 2008[17].		

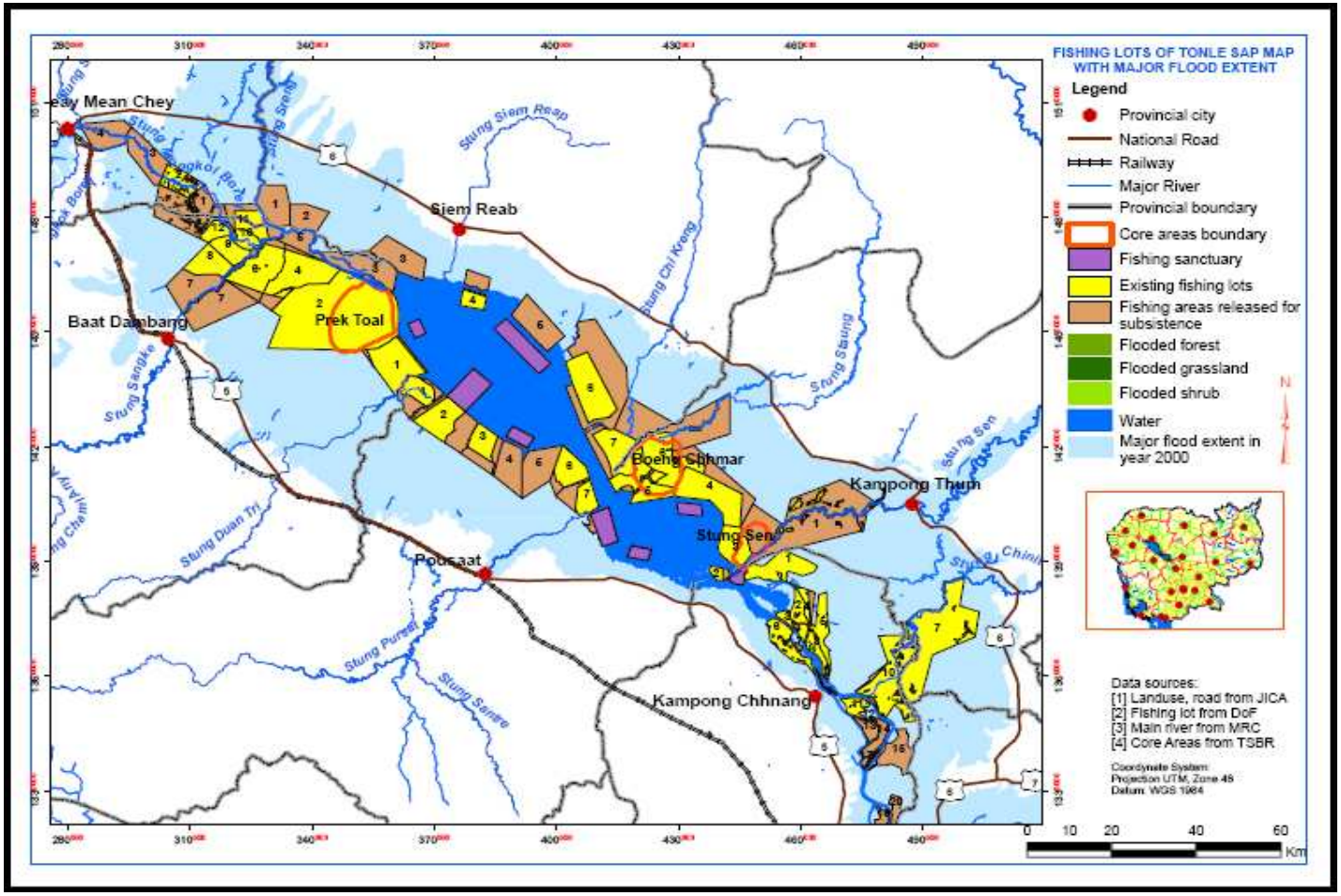
According to Van Acker (2005) many fishers use the Lake as a sort of 'communal bank', but it is only the 'public fishing areas' under the Fisheries Law, which are effectively 'open access' for the majority of fishers (Thouk and Sina, 1997). 'Open-access' or 'communal bank' in this sense provides a critical 'safety net' for vulnerable households, especially 'landless household' when they face a sudden decline in their food. This often occurs when the rice harvest is failed and households with many household members often face food crisis given their small landholding, and the landlessness has no other sources of food part from fishing (Van Acker, 2005; Ahmed *et al.*, 1998).

[16] The total small-scale fish catch is estimated at about 115,000-140,000 tons between 1999 and 20003 (Baran, 2005).
[17] http://www.nis.gov.kh/index.php/statistics/surveys/census2008/provisional-population-totals

Table 4. 4: The catch of small-scale fisheries by province in the Tonle Sap

Province	Small-scale fishing/family-scale fishing (tons)
Kampong Chhnang	26,300
Siem Reap	6,500
Pursat	6,400
Battambang	15,500
Kampong Thom	6,200
Total	60,900
Source: Ahmed *et al.,* 1998; Baran, 2005	

Thus, the Tonle Sap is a critical source of food for the Cambodia population over many generations. Thus, access to the Lake's resources provides a 'safety-net' and food security for Cambodian population. Hence, people living around the Lake have never realized the famine or food crisis in the past. I define these as 'spaces of dependence' after Kevin Cox (1998: 2) "defined by those more-or-less localized social relations upon which we depend for the realization of essential interests and for which there is no substitute elsewhere; they define place-specific conditions for our material well-being and sense of significance." In the Tonle Sap, 'spaces of dependence' have greater direct meaning than for many urban environments due to the presence of natural capital in the form of fisheries, inundated non-timber forest products, a variety of flora and fauna, and for farming-cum-fishing communities, terrestrial resources that are critical to livelihood security. However, whether we are talking about predominantly urban or rural environments, "these spaces are inserted in broader sets of relationships of a more global character and these constantly threaten to undermine or dissolve them" (Cox, 1998: 2-3). The different 'global', 'regional', and 'national' imaginings of the Lake are based upon very distinct representations of space and divergent stakeholder interests, which in turn have differing implications for the way in which 'spaces of dependence' are perceived and managed.



Map 4. 2: Map showing the complex space of the Tonle Sap (MoE, 2005)

4.5.2 State control and commercialization of the Tonle Sap

Two forms of control have tended to squeeze the area of common pool resources since colonial times to the present. First, the French Protectorate transformed the Lake into a revenue earner for the colonial authority through the creation of fishing lots. In a sense this made it easier for post-colonial states to extend their own versions of the fishing lots, and to create research lots as well as conservation zones in the Tonle Sap.

The space in the Tonle Sap is constructed and reconstructed based on the rationalities developed around the interests and benefits of concerned actors. For the economic benefits, the state rationalizes the Tonle Sap; first, as a 'commercial fishing space,' territorializing and privatizing it for private control; second, as a conservation area (different from the Biosphere Reserves discussed earlier); and third, as a 'public fishing space', allowing small-scale fisher to fish in these areas for 'subsistence' only, not for trade (Degen *et al.*, 2000).

The commercial fishing space was invented by the French Protectorate Administration in the 19th century to exploit fisheries in Cambodia, aimed at generating revenues for colonial administration. The commercial fishing space is territorialized into the commercial fishing lots and it is auctioned for private control[18]. Under the French Protectorate Administration up until 1908, fisheries revenue contributed to 17 percent of national revenue for the French Protectorate Regime, and by 1910, the incomes from fishing tax covered one-third of the administrative budget of the French Protectorate (Degen *et al.,* 2000).

After the French Protectorate Regime, fisheries in the Tonle Sap remain an important sector for national economy. The State had depended on fisheries as a major source of

[18] The 'commercial fishing area' in the Tonle Sap covered 603,880 ha in 1919, but reduced to 444,970 ha in 1940, and then further down to 390,000ha in 1998. However, between 1998 and 2000, the 'commercial fishing area' increased to 507,371 ha and then it dropped to nearly half between 1998 and 2000 (See Appendix 4).

national revenue. Between 1964 and 1975, the fish production in the Tonle Sap increased to 54,000 tons and 75,000 tons respectively. Fisheries had been an important sector for a national economy after the colonial period as indicated by John Bardach (1959):

> In the view of the fact that the fiscal revenue from fisheries, 50 million riels, exceeds the fiscal revenue from forest, and also in the view of the fact that the value of fishery produces to the first the producer is over 300 million riels a year against an estimate 170 million riels from forest at present (Bardarch, 1958: 42).

Between 1999 and 2001, it is estimated that the inland freshwater fish catch was estimated at about 295,000-420,000 tons annually. About 60 percent of this catch came from a commercial fish catch in the Tonle Sap (Ahmed *et al.,* 1998; Van Zalinge *et al.,* 2000; Van Lieng and Zalienge, 2001), equivalent to about 235,000 tons (Van Zalinge *et al*., 2001). With an estimated annual inland fish production, the landing value of inland fisheries is estimated at about US$150-200 million (Van Zalinge *et al*., 2000; FACT & EJF, 2001), but it increases to about US$ 250-500 million in the marketing chain (Van Zalienge *et al.,* 2000). In comparison, the total monetary value of paddy rice in Cambodia is roughly $350-400 million. This indicates the high dependence of the State on the 'commercial space' as main source revenue for the national budget (Baran, 2005).

In 1995, Thouk and Sina (1997) estimated that fisheries contributed to 3.2-7.4 percent of GDP. However, between 2002 and 2003, the contribution of fisheries to the GDP increased to about 11.7% (Starr, 2003). After 2003, Van Zalinge *et al.,* (2004) re-estimate the contribution of fisheries to GDP and conclude that fisheries sector contributes to about 16% of GDP (Van Zalinge *et al.,* 2004). Thus, fisheries section plays an important role in a national economy and the Tonle Sap plays a vital role in the fisheries sector. Significantly, much of the space of the Tonle Sap has become represented as 'commercial fishing lots', even though technically-speaking these are zones that could normally be under state control.

4.5.3 'Public Fishing Space' in the Tonle Sap

It should be noted that the concept of 'public fishing space' applies to both marine and inland fisheries[19] that is referred to as an inland fishery domain and the marine fishery domain, which in turn constitute the fishery domain. The inland fishery domain entails rivers, tributaries, lakes, streams, canals, inundated forest areas, natural ponds, and water channels (Fiat Law, 1987). The marine fishery domain comprises marine areas extending from the coastline to the outer limit of the Cambodian exclusive economic zone (EEZ)[20] (Thomson and Somony, 2003; Fiat Law, 1987). The notion of *domain* used in fisheries is derived from the French concept of *public domain*. The 'public domain' is translated into Khmer by fisheries experts as a '*den nesat sathirnak*' or in English as a 'public fishing space' (Thouk and Sina, 1997; Tana and Todd, 2002). This idea of 'public space' in a freshwater lake is not totally analogous with public spaces within urban contexts, except that the use of such spaces should be ideally be part of some form of 'common property' notion. In fact, in Cambodia, the idea of a 'public fishery space' follows the French concept of the 'public domain' in fisheries, in which it is defined first as a state property, second as allowing regulated access areas for 'the public', and third as an 'open space' (Thomson and Somony, 2003; Thouk and Sina, 1997; Tana and Todd, 2002).

The 'public domain' as a 'state property' means that 'public fishing' is not the same as common property. The public state properties are inalienable. Consequently, no water body or land belonging to the inland or marine fishery domain can be disposed of by the State. In other words, these areas cannot be privately owned by any natural or legal private person (Thomson and Somony, 2003; Thouk and Sina, 1997; Tana and Todd, 2002). The public state property belongs to the state and people who are citizens of this state are technically the

[19] See Kram n° 87-NS of 23 April 1956 on Inland Fisheries and Kram n° 249-NS of 24 January 1958 on Marine Fisheries.
[20] See Article 54 of the United Nations Convention on the Law of the Sea adopted on 10 December 1982 in Montego Bay, Jamaica.

rightful users of this property. In this sense, the state property belongs to all, and yet 'everybody property' is no one's property (Bromley, 1994). Thus, the public fishing space can be accessed by everybody. In other words, the 'public fishery space' in the Tonle Sap is effectively an 'open access' space (Gum, 2000; Sithirith, 2000; Swift, 1997).

The public fishing space is opened up to all people and it is accessible by everybody as a citizen of Cambodia (Fishery Law, 2006). However, the accessibility to the public fishing space for fishing is regulated by the State through the use of fishing gear and other regulations. Everybody could access and fish in the public fishing space using small-scale fishing gears and fishing with this scale in this area is only for household consumption, not for trade (Fiat Law, 1987; Fisheries Law, 2006). For small-scale fisheries or subsistence fisheries, access can be free and open.

As a consequence of the definition of commercial, conservation and public fishing areas, we can perceive the Tonle Sap space as one that is intensively partitioned, controlled, contested, and where there are likely to be clashes between differing conceptions of space, across and within scales of operation. All these issues are discussed in chapters 5 – 8.

4.6 The Management of the Tonle Sap

4.6.1 Fisheries Administration

The state agency responsible for management of the Tonle Sap is the Fisheries Administration (FiA). FiA manages all fishing areas including marine and inland fisheries, but among these, the Tonle Sap is the main fishing areas that give Fisheries Administration an essential role in the national economy and an important sector in the country's economy. The uses of fishing areas in the Tonle Sap either fishing or non-fishing affecting the fisheries

subject to approval from FiA and without this approval, it is considered as illegal in which the FiA has the full authority to act to stop its.

4.6.2 The Tonle Sap Biosphere Reserve Secretariat—Induced by Global Actor such as UNDP

As discussed above, certain 'global' agency perspectives of the Tonle Sap as a 'global hotspot' in terms of biodiversity significance and a key area where native, exotic and rare species survive, has influenced the management of resources in the Lake. The conservation of the biodiversity started for the first time in the Tonle Sap in 1997 in which the conservation space is organized with financial and technical support from various international agencies.

In 2001, the Tonle Sap Biosphere Reserve Secretariat (TSBRS) was established by Royal Degree as a state agency responsible for the management of the conservation area, and it has been considered as a first major step forward in the establishment of environmental governance structure in the Tonle Sap (Sokhem & Sunada 2006). The impetus for the establishment of TSBR was –like its name says– closely linked to conservation of the Tonle Sap system: "Recognizing the unique ecological, environmental, economical, social, and cultural significance of the Tonle Sap Lake, a Tonle Sap Biosphere Reserve is hereby established in accordance with the statutory framework of the World Network of Biosphere Reserve" (Royal Government of Cambodia, 2001).

The Degree divides the TSBR into three zones, namely the core areas, a buffer zone and a flexible transition zone. It also gives to the TSBR three complementary functions on conservation, development and logistics (Royal Government of Cambodia, 2001):

> "The Tonle Sap Biosphere Reserve shall fulfill three complementary functions:
> (ii) a conservation function to contribute to the conservation of biological diversity, landscapes, and ecosystem, including genetic resources, plant, fishery and animal species, and to the restoration of the essential character of the environment and habitat of biodiversity;

(ii) a development function to foster sustainable development of ecology, environment, economy, society, and culture;
(iii) a logistic function to provide support for demonstration projects, environmental education and training, research and monitoring of environment related to the local, national and global issues of conservation and sustainable development".

The Royal Degree establishes the TSBR Secretariat "...under Cambodia National Mekong Committee (CNMC) to coordinate and strengthen cooperation between ministries, agencies, local authorities and communities concerned for the protection and sustainable management of the Tonle Sap Biosphere Reserve." This has two interesting implications: first, the TSBR Secretariat's main role is described as to coordinate and strengthen the cooperation between different actors working with the Tonle Sap, including sustainable development of the area . Secondly, the fact that the TSBR Secretariat operated under the CNMC forms a natural connection to the Mekong River Commission (MRC)[21], and thus links the conservation and development of the Tonle Sap to water management in the entire Mekong River Basin.

In 2002, the ADB, GEF and UNDP funded Tonle Sap Environmental Management Project (TSEMP). The project was coordinated by the TSBR Secretariat and its central part was to establish a coordination framework and information dissemination mechanisms as well as to support the TSBR Secretariat in fulfilling its tasks. The project had following aims: "The Project will strengthen the TSBR Secretariat. It will create the capacity to address legal and coordination issues in the TSBR, rationalize the designation of the various protected areas in the TSBR, and formulate common policy objectives for managing the TSBR. The issues include agricultural and fisheries practices (especially pesticides), hazardous goods transport, solid waste management, and ecotourism. The common policy objectives will be formulated

[21] Mekong River Commission (MRC) was established in its current form in 1995, with four Lower Mekong countries of Cambodia, Laos, Thailand and Vietnam being its member countries. The MRC mission is "To promote and coordinate sustainable management and development of water and related resources for the countries' mutual benefit and the people's well-being" (MRC 2006).

by the TSBR Secretariat through quarterly inter-ministerial meetings called and chaired by CNMC" (ADB 2002:25).

In 2007, the TSBR Secretariat published a policy paper describing the management challenges in the Tonle Sap area from its viewpoint. The paper emphasizes the need for coordinated management and suggests a framework for 'Common Policy Coordination' that would consist of the TSBR Committee, Technical Advisory Groups, Provincial TSBR Management Working Groups and Provincial TSBR Advocacy Forums, with close linkages to CNMC and TSBR Partner Agencies, i.e. different ministries and provincial governors (the Tonle Sap Biosphere Reserve Secretariat, 2007). The paper also recognizes three policy goals for the TSBR: 1) Contribute to Biodiversity Conservation and Habitat Restoration; 2) Foster Sustainable Socioeconomic Development and Equitable Access to Resources, and 3) Build a Support System for Biodiversity Conservation and Sustainable Development.

4.7 The Tonle Sap Basin Management Organization

The 'Tonle Sap Initiative' is established by the ADB under the Cambodia Program focusing on the Tonle Sap. Thus, the Tonle Sap Initiative has both financial and technical leverages, but it is not a program institutionalized and legalized by the Royal Government of Cambodian; hence, making this initiative less active in Cambodian context, particularly with Royal Government of Cambodia. Thus, to promote this initiative, the only way is to influence the institutional arrangement in which the principles of the Tonle Sap Initiative are integrated. The effort has been made to institutionalize the Tonle Sap Initiative through formalizing the Tonle Sap Basin Management Organization (TBMO) in which to integrate this initiative into the government system as noted by ADB (See ADB, 2006c; ADB, 2005b):

> "the Tonle Sap Basin Strategy identified early the imperative to develop better institutional arrangements for basin management. It specified that natural resource management plans developed in partnership by communities and the Government would outline a transparent and equitable process of resource management over the next 10 years. The plans would incorporate community

> aspirations regarding natural resources and contain the necessary rules relating to their management. ... There would be regular reporting between the Government and communities on the extent to which the plans are being effective in achieving their objectives. In this way, there would be more accountability to communities to ensure that all efforts and investments are best placed to deliver on results" (ADB, 2006c:15).

The Tonle Sap Basin Management Organization (TSBMO), also called the Tonle Sap Basin Organization (TSBO), was proposed by the Asian Development Bank (ADB) to the RGC. In doing so, the ADB provided two technical assistance (TA) projects for Cambodian Government to establish the Tonle Sap Basin Management Organization to improve institutional and organizational arrangements for managing land, water and biotic resources in the Tonle Sap basin (ADB 2005b). The outcome of these TA is that the Tonle Sap Basin Organization (TSBO) is proposed to assist the Royal Cambodian Government to sustainably develop the Tonle Sap Basin's economy and infrastructure, advising on (ADB 2006b:36):

> a) Formulation of water policy and strategy to manage, preserve, investigate, plan, and develop water and related natural resources, and
> b) Policy and strategy to conserve biological diversity and maintain, use and manage natural resources within the TSBR" (ADB, 2006b:86)

The TSBO was proposed to set up by ADB as part of CNMC and to complement the CNMC in coordinating the works relating to the Tonle Sap as indicated by Sokhem & Sunada (2006) that the "ADB supports the CNMC with technical assistance to define the institutional framework for the Tonle Sap management in terms of constitutional mandate; the areas of responsibility; the structure; the capacity building and technical and financial support needed" (Sokhem & Sunada; 2006:413). The reason of doing this is because the CNMC covers the Mekong River Basin as well as the Tonle Sap and the focus on the Tonle Sap needs more attention and therefore, TSBO is proposed to fill the gap that CNMC is missing (Sokhem & Sunada 2006).

Under the proposed TSBO, the Tonle Sap is heavily spatialized in which the proposed TSBO has a four-level administrative structure, consisting of the Tonle Sap Basin Coordination Committee (TSBCC) and two Secretariats; Sub-basin Committees; Provincial Water and Related Resource Committees and secretariats; and District Water and Related

Resource Taskforces and secretariats (ADB 2006b). Administratively, the TSBO is proposed to be under the CNMC, and then it has the Tonle Sap Basin Coordination Committee (TSBCC) as a major institution coordinating the actions of different partner organizations and sub-committees. Large part of the actual responsibility for planning and implementation is planned to be at lower governance levels i.e. in the sub-basins, provinces, and districts.

The ADB suggested that the TSBO should neither be a new special purpose organization nor the new authority to an existing institution, but rather a committee, established through new legislation requiring that it exercise broad vision and accept formal obligations and mandates (ADB 2006a). The attempt was to promote the basin-wide coordination through a Basin Management Organization rather than a more powerful basin authority that would absorb most or all functions of line ministries (Sokhem & Sunada 2006). The TSBO comprises representatives from all key water ministries, governors from all basin provinces, and selected NGOs and research institutions to deal with policy and planning as well as developing procedures and quality control matters and to serve as a forum for ministries and local government agencies to consider and agree on common rules of operation. Most operating functions and day-to-day management issues would thus remain with individual ministries and agencies concerned (Keskinen and Sithirith, 2010; Sokhem & Sunada 2006; ADB 2006c).

Despite a plenty of time and resources putting into the planning of the TSBMO as well as a considerably well-run process, the ADB's plan for the establishment of the Tonle Sap Basin Management Organization has since 2006 been in essence completely halted. The main reason for the halt has not been the criticism by the NGOs, nor the lack of future plans or funds (as is clearly illustrated by several ADB's documents (see e.g. ADB 2006b, ADB 2006c; Keskinen and Sithirith, 2010), but by the fact that the ADB's plans for the TSBMO is likely to be found from yet another process focusing on setting up a management organization

for the Tonle Sap known as the Tonole Sap Authority. More information on this can be found below.

4.7.1 The Tonle Sap Basin Authority

The Tonle Sap Basin Authority (TSBA) was established by a Royal Decree in September 2007 (RGC, 2007). The establishment of a such authority took many –even experts working on the Tonle Sap– by surprise, as the establishment process didn't include similar kind of public engagement and communication procedure as e.g. in the case of ADB's TSBMO. The Royal Decree established the TSBA with following description: "An Authority is established for coordination of the management, conservation and development of the Tonle Sap Basin areas, called 'The Tonle Sap Basin Authority' which is written as (TSBA) under direct guidance of the Royal Government of Cambodia". According to the Degree, the TSBA "Serves directly as headquarter of the Royal Government in TSI projects by conducting research, monitoring, and providing comments to the Royal Government of Cambodia" (RGC, 2007:35). It is interesting to note that although the TSBA was established without practically any involvement by the ADB, the Degree refers directly to the ADB-initiated the Tonle Sap Initiative (TSI), and in essence moves all TSI activities under the supervision of the TSBA. Even more important is to realise that the Royal Degree gives the authority considerable power, including the possibility to sign agreements, protocols and contracts as well as to participate in Cabinet Meetings and inter-ministerial meetings.

The position and authority of the TSBA and its General Secretariat was further strengthened by a Sub-degree on organizing and functioning of the General Secretariat of the TSBA (RGC, 2008). The sub-degree provides details on the organizational structure of the TSBA and its Secretariat, giving remarkable power to Secretariat, including task to: "Communicate, cooperate and coordinate with relevant line ministries, institutions, local authorities, international organizations, national organizations, non-governmental

organizations, and civil societies on all activities concerning the management, conservation and sustainable development of the Tonle Sap Basin" (RGC, 2008). The decision on the nominations for the composition of the TSBA highlights the strong political powers and connections of the TSBA as well. According to the Decision (RGC, 2007), the composition of the TSBA consists of a Chairman (Senior Minister), six Vice Chairmen (including five Ministers) and 29 Members (including 10 Ministers, 4 Secretary Generals and 11 Governors from provinces surrounding the Tonle Sap Lake and River). The TSBA Members also include the Secretary General of the CNMC as well as Ministers from all CNMC member ministries except Ministry of Foreign Affairs and International Cooperation. An interesting twist in the establishment of the TSBA is that the first news about the authority, published in October 2007 focused on the authority's potential role in conducting studies and managing possible oil reserves in the lake area for interested private investors. Indeed, according to the head of the new authority, the authority was established to manage the Tonle Sap Basin and coordinate future oil and gas projects with the international partners. In addition, it was noted that Cambodia's Prime Minister Hun Sen has "expressed his opposition to the Tonle Sap Basin being designated a World Heritage Site, saying that fishing and extraction of oil and mineral resources might be constrained as a result of its protected status." These kinds of views from the top representatives of the government raise concerns about the actual motivations for establishing the TSBA, and also provide a rather conflicting message on whether management, conservation and development of the Tonle Sap Basin (RGC, 2007:45).

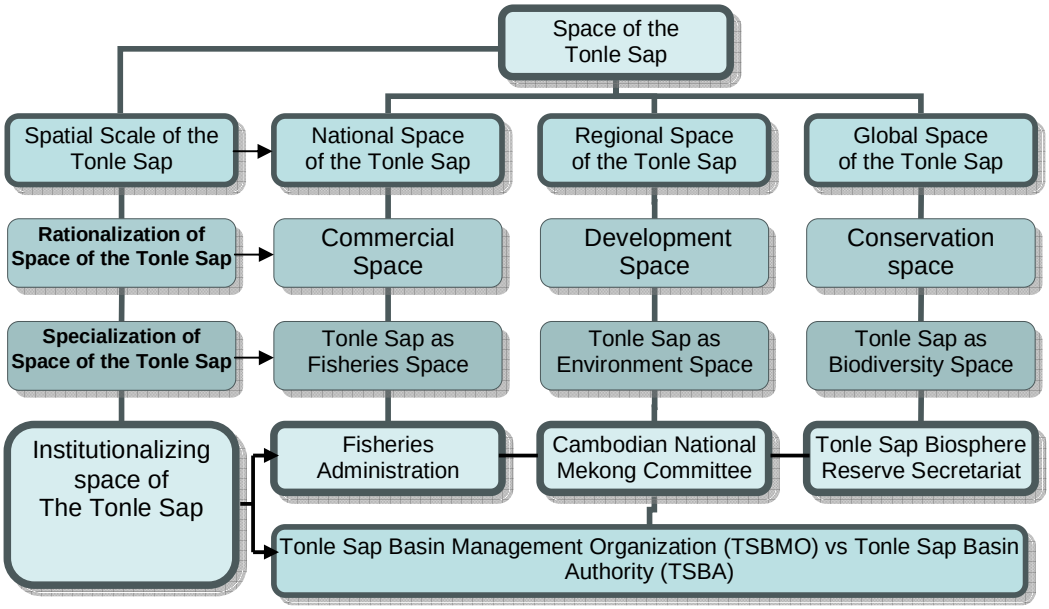


Figure 4. 1: The Contested and Abstract Spaces of the Tonle Sap

4.8 Conclusion

The Tonle Sap has a very complex space. On one hand, the Tonle Sap is conceptualized into three dimentaions of spaces — the *national space*, the *regional space* and the *global space*, and on the oher hand, it is classified into three main functional geographical spaces—the *commercial space*, the *conservaton space* and the *public space*. As a '*national space'*, the state commercializes the Tonle Sap space as a way to generates revenue for national budget that could be used to support the national economy, the administration of the country as well as the community (See Figure 4.1). To do this, 'fishery' is the key sector in which the Tonle Sap is the primary place in the country that is abundant in fisheries. The fishery production in the Tonle Sap generates million of dollars to support the country's economy as well as livelihoods of people living dependent on fisheries resources. Thus, the Tonle Sap is considered as a '*fisheries space'*. Given this importance, Fisheries Administration (FiA) is the sole state agency responsible for fisheries management in the Tonle Sap.

Similarly, under the framework of '*regional space'*, the regional actors such as MRC and ADB rationalize their space of engagement in the Tonle Sap. The rationalization of regional space of the Tonle Sap by regional actor centers around the concerns of impacts of upper development projects on the Tonle Sap, for instance the hydropower development, and a result, the regional actors such as MRC and ADB claims their relevances, and their specialization could be utilized to address these concerns. The MRC rationalizes its engagement in the Tonle Sap based on its specialization in studying and monitoring while the ADB under the GMS rationalizes its engagement in the Tonle Sap based on its approach of pro-poor development intervention. In particular, to engage in the Tonle Sap, ADB uses its specialization as a Bank to operate in the Tonle Sap in which it lends money through a 'Tonle Sap Initiative' for the so-called development intervention in the Tonle Sap. The Bank rationalizes these development projects as a pro-poor intervention in which it promotes the pro-poor economic growth.

A global actor is also engaged in the Tonle Sap as it is defined as a '*global space*'. A global actor rationalizes its engagement in the Tonle Sap for conservation purposes, especially to conserve the global significance of biodiversity. In doing this, the global actor such as UNESCO and UNDP influences the institutionalization of the biodiversity conservation in the Tonle Sap through zoning the Lake into transition zone, buffer zone and core zone. The Tonle Sap Biosphere Reserve Secretariat (TBSR) was established under the CNMC also to promote the development and conservation of biodiversity in the Tonle Sap. At present, the Tonle Sap Basin Authority (TSBA) is established by the RGC aiming at coordinating and promoting development in the Tonle Sap. The TSBA has replaced the TSBMO which was proposed by ADB and it has specific roles in relation to the Tonle Sap while the CNMC is more focused on the Mekong River Basin.

CHAPTER 5

Human-Nature Interactions, Everyday Spaces of Dependence, and Community-Level Territorialities of the Tonle Sap

The space in the Tonle Sap discussed in Chapter 4 is very complex from a political spatial perspective. It is constructed based on actors and the power of actors at numerous interrelated scales. The various official 'representations of space' in the Tonle Sap Lake, while 'abstract', tend to sideline or exclude important elements of the diverse 'representational space', or what I call the 'everyday space' of fishing communities (terms after Lefebvre, 1991; adapted in Sithirith and Grundy-Warr, forthcoming). For fishing communities the real struggles are to maintain their livelihoods within the highly contested 'lived space'. However, it is clear that they live within a very highly rationalized and zoned lake, which has global, regional and national dimensions.

In this Chapter, I wish to shed more light on the lived 'everyday' representational space of ordinary fishing communities, which I argue is largely made up of 'hidden geographies' or partially obscured geographies (see Chapter 6 for further elaboration). Focusing on the banal and 'everyday geographies' of ordinary people is critical in order to develop more 'grounded', potentially more participatory and democratized systems of governance. Jonathan Rigg's (2007) notion of 'everyday geography' is based on ideas of 'the spaces of everyday experience', similar to Henri Lefebrvre's (1991) 'representational space', where 'routinized', social relations of production and consumption help to continually (re)produce the human landscape, and where people formulate their multifaceted notions of space and their unique senses of 'place'. There is an 'everyday' politics of space, for as Tania Li (1999: 316) has observed, space is being continually affected by many "routine and intimate compromise through which relations of domination and subordination are lived." Thus, what is actually conceived by planners may become compromised in actual practice,

and there is a need to appreciate how ordinary people's experiences, actions and interactions influence the politics of space.

The title of this chapter also borrows the term 'spaces of dependence' used by Kevin Cox (1998), and I have utilized it here to relate to particularly important fishery and environmental resource spaces upon which localized communities depend greatly for their livelihood needs. Of course, such spaces are usually highly differentiated, do not necessarily have any clear boundaries, and are subject to multi-scalar human influences (Cox, 1998). In the context of the Lower Mekong Basin, there is often a direct relationship between people and their immediate environs, with strong human-nature interactions, and a large degree of dependence upon living and non-living environmental resources. I wish to examine how people and communities have adjusted their spatial behavior to the annual, seasonal, and periodic hydrological and bio-physical changes in their environment. Human territoriality is socially constructed (Sack, 1986; Paasi, 1996; Taylor, 1988; Vandergeest and Peluso, 1995; Storey, 2001; Peluso, 2005a, 2005b; Delaney, 2005), but there is also critical non-human and ecological influences on human spatial strategies when people are highly dependent upon particular physical environments and the ecological services these provide (Casimir and Rao, 1992; Berkes, 1999; Peluso, 2005b).

A contribution of this research to the discussion of human territoriality in the context of the Mekong Basin is to highlight the significance of different types of village organization in relation to the annual 'flood pulse'. I identify three main types of fishing community in the Tonle Sap (water-based 'floating communities'; water and terrestrial 'stand-stilt communities'; mostly terrestrial 'farming-cum-fishing communities'), which stresses the huge transformations to the human landscape associated with the annual rising and falling of water-levels. Each community 'type', and there a variations on these types within the lake system, tend to deploy differing social and spatial strategies to maintain, defend or improve their

access to vital environmental resources, especially fisheries. In this chapter, I wish to highlight peculiar human territorial responses, such as 'floating', 'vertical' and 'mobile' territorialities, that have become a central focus of this research project. Before doing that, the chapter shall briefly explore why meanings of such geographical terms as 'landscape', 'place', and 'territoriality' often can overlap and blur, particularly when we are discussing a space which is characterized by interactions between the physical and human, between natural and human processes.

5.1 Connections between 'Landscape', 'Belonging' and 'Place' within the Water World

Before we discuss territoriality and its influences on the human landscape of the Tonle Sap, it is useful to consider the Lake-space as one vast "water world" landscape. As Colin Poole (2005: 46) describes in his richly illustrated *Tonle Sap: The Heart of Cambodia's Natural Heritage*: "Whilst in the dry season the Tonle Sap Lake 'only' stretches for approximately 150 kilometres in width, new radar satellite imagery has revealed the true extent of the lake's flood. At the peak of the wet season the Tonle Sap can expand to 250 kilometres wide. The lake is shallow, measuring only 1-2 metres at its deepest in the dry season, rising to more than 10 metres in the wet season. As a result of the floods the total inundated area increases four-fold, from 2,500 square kilometers to over 13,000 suare kilometers." Poole's book is a reminder of the enormous cultural, social, environmental and economic values associated with the natural capital of the Lake system, and particularly of the incredible biodiversity that lies within this important water world landscape. A key issue to stress is that this is a unique and vital freshwater ecosystem, and so, any discussion about the political geographies and politics of so-called 'natural resources' derived from the Lake need also to consider that there are powerful natural influences helping to shape people's ideas, inform and give meaning to the cultural and social landscape. Furthermore, the waxing and waning of the areal extent of water has a huge impact on human social and spatial behaviour,

actions and livelihoods. Thus, the very physicality of the Lake, the rising and falling waters, the wetlands environment, floodplain, and living resources associated with it, have to be included in the study of social and political transformations of the Lake's space.

Over time, the *neak tonle* (river and lake people) have developed life-styles that are in tune with the natural rhythms and cycles of the Lake system. The watery landscape holds deep spiritual and symbolic meanings for the people who live there. Special places where they erect spirit houses or shrines near to the inundated forest, or where they go to set fish-traps at particular times of the year, or where they anchor their house-boats, or erect temporary fishing shelters, or where they remember particular events or mark important rituals in the annual calendar, or celebrate the Khmer new year, are all part and parcel of a heavily 'inscribed' human landscape connected to the natural world. As David and Wilson (2002: 6) observe, "all landscapes embody memories," and for people whose livelihoods are strongly tied to particular localities and the environmental resources found within there are extremely deep attachments, not simply to 'place' but to the physical landscape. And there is in such settings a deep connection between landscape, sense of belonging and place. "Landscapes are thus inscribed, not just through physical marks such as monuments or rock-art, but through social engagement that serves to anchor people in place" (Wilsom and David, 2002: 6). Whilst in industrialized and postmodern societies a 'return to nature' helps to reinvigorate vital connections with the earth and "takes away our alienation from our land and our community" (Lovell, 1998: 2), for people who live so closely to natural elements, as in the Tonle Sap, there has developed a social symbiosis within the natural world that is hard for 'outsiders' (including the researcher) to fully appreciate without deep immersion within that water world.

As noted in earlier chapters, this comes through in the way local people use terminology like '*tuk tonle*' (rising river water), '*tuk long*' (rising water), and '*prey ronnim*' (water forest) as opposed to using the common city-folk or international terms for 'flooding'.

To these people, the rising waters are perfectly 'natural' and 'social' in that they adjust their practices and behaviour in accordance with what is happening in the physical space. The feelings of belonging that people have to specific localities within the Lake means that particular parts of the Lake landscape take on even deeper meanings and associations, but these are still informed by broader ecological and social mechanisms (Folke, Berkes, and Colding, 1998). The fact is that people need their 'place' to live but that space is also part of a larger human-physical landscape where access to aquatic resources provides the basis for numerous livelihoods. Tim Cresswell (2004: 11) observes, "place is not just a thing in the world but a way of understanding the world." If your 'place' is defined by rising and falling waters, by access to patches of inundated forest, by the urgency (and necessity) of fishing to make a living, then 'understanding the world' is intensively influenced by numerous social-ecological connections which is hard for urbanites to comprehend.

As noted above, this chapter examined different types of communities, including water-based 'floating communities'; water and terrestrial 'stand-stilt communities'; and terrestrial 'farming-cum-fishing communities' that are integral to the overall Tonle Sap human landscape. However, each of these communities in a sense represents unique 'places' influenced by the differential ways the rising and falling of the Lake waters produces distinct place-based associations and different strategies in terms of fishing, territoriality and even 'ways of seeing' the world. The fact that some of the 'places' are also mobile adds another interesting dimension to the notion of 'belonging' and 'rootedness' for truly 'floating communities' do not have the same sorts of roots (or indeed, may not have roots) as say a fixed paddy settlement on the edge of the floodplain does. Thus, this chapter is not simply about differing territorialities, but also different social-ecological connections that define the myriad places of the Tonle Sap.

5.2 Social-Ecological Aspects of Territoriality and Territories

In Chapter 2 the key conceptual foundations of this thesis were introduced, particularly the concept of 'human territoriality' (emphasis added). Whilst a large part of this thesis concerns the 'politics of space' and discusses boundaries and territories as critical issues in many resource conflicts in the Lake space, there are other significant dimensions to the concept of territoriality that require attention. Social geographer, Robert Sack (1983; 1986) argued that human territoriality is *always* socially-constructed and disassociates the theory of human territoriality from biological, instinct, and purely environmental determinants. This perspective does not mean that we should ignore the ways in which non-human 'natural' elements and processes affect human territorial behaviour. Indeed, this idea is embedded into Sack's analysis when he compares the hunter-gathering and seasonal agriculturalist Chippewa Indians' 'social definitions of territory' with the 'territorial definitions of society' eventually superimposed across vast areas of North American space by the 'white settlers of European decent' (Sack, 1986: ch.2). In a sense, the clash in conceptions of space and 'territory' was also related to fundamentally different social-economic and cultural connections with the natural physical environment. Nevertheless, Sack (1986) also argued that territorial behaviour is dynamic over time and can fundamentally change with altered conditions, including demographic, socio-economic changes and more intensive competition over physical space and resources.

Natter and Zierhofer (2002) call for epistemology which 'presumes the co-existence of humans and non-humans as co-determinants of any given territory' in order that we are better able to take into account ecological dynamics. Their ideas lie within studies of the political economy of ecology focusing on the transformations of human and non-human elements and processes within 'unsentimental' regimes of resource accumulation. For Natter and Zierhofer (2002: 226) observe: "For 'Nature', we hardly need to remind ourselves, displays quite a variety of spatialities and territorialities; many animals and plants claim their

own territories and they all show specific mobilities." As discussed earlier, the human/non-human and social-ecological aspects of life and landscape in the Tonle Sap are very direct, immediate and profoundly affect, influence and impinge upon many aspects of human and social life, livelihood choices and decisions, as well as strategies in relation to subsistence, survival, advantage, profit and loss. Rivers, streams, hydrological processes, the ebb and flow of the lake produce numerous complex non-human and human spatial dynamics, which are never totally within or under 'human' control. The way humans negotiate the non-human dimensions help to continually define or make and (re)make 'social nature' in the Lake (after Castree and Braun, 2001). Further, as Natter and Zierhofer (2002: 226) point out: "[Nature's] spatialities do usually not and can very often not correspond to the spatialities of human activities, particularly to the territorialities and their orders / structures of scale in politico-administrative activities." In other words, non-human 'agencies' frequently do not match the human-made representations, and 'escape mapping and regulation', often 'causing trouble' (Ibid., 227) to human policy-makers, resource users and ordinary people. As we shall see (this chapter and chapter 6), political representations 'from above' have greatly complicated the territorial and non-territorial strategies that ordinary communities living on and around the Lake have already adopted and adapted to non-human processes associated with the rising and falling waters. Human territorialization has tended to create further mis-match between human and non-human 'nature' and has also helped create highly differential access, utilization and ownership of space and resources in a Lake which now has a dense population, intense competition over environmental resources, and very distinct community-places sharing the same landscape.

Following from the above, it is important to note that not all forms of territoriality are the result of political imposition 'from above' and that 'indigenous knowledge' and social – ecological connections also help to shape human territoriality (Barnard, 1992; Casimir and Rao, 1992; Berkes and Folke, 1998). Of particular relevance here are the ways in which inter-generational and socio-ecological adaptations have helped to develop creative social and

sometimes territorial adaptations in the human-physical landscape. This relates to issues of horizontal and vertical territoriality associated with the annual flood pulse and rising and falling waters of the Tonle Sap (discussed below). As Nancy Peluso (2005b:2) has discussed in relation to her study of Selako Dayak inter-generational and inheritance tree practices in West Kalimantan, such "alternative territorialities or ways of seeing property in the landscape can confound the intended rationalities of formal government and property practices." In a similar way, it is important to consider the ways in which communities and places on the Tonle Sap have developed particular social and spatial adaptations in response to human and *physical* processes affecting their 'everyday spaces'.

Whilst there still exist many uniquely 'indigenous' dimensions to human territoriality in the Tonle Sap lake it is important to stress that these are also impinged upon and influenced by modern political geography, which has accompanied both colonial and post-colonial state-led attempts to territorialize the governance of the Lake and its abundant resources. These processes of representation, mapping and actual territorialization are related to 'global' processes that have shaped the world political map. As Thongchai Winichakul (1994) so brilliantly explained in relation to the history of the geo-body of the nation of Siam, 'the coming of modern geography' to Southeast Asia and other parts of the world, has tended to lead towards a dilution, loss or domination over multiple pre-existing indigenous geographies and concepts of space. What he was describing was the formation of distinct and indivisible national territories with clear sovereignty, "a new kind of political geography in which neither overlapping margin nor multiple sovereignty was permitted" (Winichakul, 1994: 106). Any indigenous geographic alternatives that did not conform to this modern political geography were literally removed or completely ignored on the new geopolitical map. In a similar way, internal processes of state-centred territorialization (Vandergeest and Peluso, 1995) have continued where the national boundary lines left off, by literally creating a whole plethora of new forms of zones, territories—concessions, parks and boundaries within each national geo-body (see chapter 6). The purpose of mentioning it here, is that there has been a strong

tendency over time, in many parts of the world, region, and within Cambodia, for previously loosely defined 'bundles of rights' and 'common property arrangements' to also be subject to the rigours of modern political territoriality. Thus, the politics of the commons has increasingly become more territorial (Cuasay and Vaddhanaphuti, 2005). And as Peluso (2005a: 6) has aptly argued: "Territorialization differs from place-making because territorialization produces places *in relation to* claimants: it makes places into territories." This is something that is particularly profound in the Lake space, and especially for those communities with almost complete reliance upon aquatic resources as a basis of livelihoods as shall be illustrated in the case of 'floating' and 'stand-slilt' villages.

5.3 Human-Nature Interactions and the 'Pulsing Ecosystem'

As already observed, the Tonle Sap is characterized by a 'flood pulsed ecosystem' (Eloheimo *et al.,* 2001; Sarkkula *et al.,* 2003; Kummu *et al.,* 2006; Lamberts, 2006), a term that is applied to the Lower Mekong based on research in other tropical river-floodplain systems (Junk *et al*., 1989; Junk, 1997; Junk and Wantzen, 2004), which I prefer to call the 'pulsing ecosystem'[22] (Junk, 2007, quoted in Kummu *et al.,* 2006:503). As Lamberts (2006:491-2) in attempting to assess the productivity of the pulsing ecosystem of the Tonle Sap has stressed the current lack of sophisticated knowledge of its various dynamic components, arguing that a lack of understanding of ecosystem productivity seriously undermines any effort to create more integrated water resource management measures. However, there is no doubting that the annual 'flood pulse' (timing, modality, speed, height, duration) is of tremendous importance to fisheries productivity and fish migrations in the lower Mekong Basin and Tonle Sap system (Rainboth, 1996; Poulsen, *et.al.,* 2002; MRC, 2003). It is also a fact that the 'flood pulse' transforms both the physical and the human landscape of the Lower Mekong, and the Tonle Sap, submerging vast areas during the wet

[22] "Ecosystems that experience fluctuations between terrestrial and aquatic conditions are called pulsing ecosystems, and fall within the domain of the flood pulse concept"

season, exposing those areas in the dry season, creating inundated forests with unique species adapted to the rhythms and cycles of the pulsing ecosystem, and providing a wonderful habitat for many species of flora and fauna.

In this chapter, I wish to focus on particular spatial adaptations of human beings to the pulsing ecosystem. Human territoriality normally stresses the political, economic and cultural influences on human spatial behavior, but this chapter examines how territoriality is both socially and ecologically influenced in the lake system. In a sense, this builds upon studies of resource governance that also take into account 'non-material' as well as 'material' aspects of 'nature' (Castree, 2001; Sneddon, 2007), and the urgent need to understand the complexity of local social-ecological systems (Gadgil, *et.al.*, 1993; Folke, Berkes, Colding, 1998). I believe that a stronger empirical understanding of how and why different communities in the lower Mekong adjust their social and spatial behavior to changing ecological conditions is relevant to a broader appreciation of livelihood practices and livelihood security, and it is consistent with a better appreciation of how to incorporate local indigenous knowledge into more sustainable management practices (Folke, Berkes, Colding, 1998; Ostrom, *et.al.*, 2002).

5.4 Fishing Communities in the Tonle Sap

Fishing villages in the Tonle Sap Lake are classified into three different groups; land-based village, water-based village and water-land based village (Rab *et al.*, 2005; Navy *et al.*, 2006; CDRI, 2007a; Field Notes, 2007-2008). The 'land-based village' is a village where villagers are engaged more in farming and less in fishing depending on the distance between the lake and land (Rab *et al.*, 2005; Navy *et al.*, 2006; CDRI, 2007a; Field Notes, 2007-2008). The 'water-based village' refers to a floating village, where fishing is a primary occupation for villagers. The third group is the 'water-land based villages', which are physically located six months within water and six months on land. These villages are in the ecological zone

mostly affected by seasonal water level (Field Notes, 2007-2008). Details of each community are listed in Table 5.1.

The water-based community is literally based on floating homes which make up 'floating villages'. Floating villages float and move from one location to another on water, for instance, Anlong Raing or Kampong Loung communities float and move approximately 5–7km/year in distance (Sithirith, 2007; Field Notes, 2007). Based on a village survey in the Tonle Sap, I identify 53 floating villages in the Tonle Sap Lake, having similar characteristics with Anlong Raing and Kampong Loung. These floating villages are located in 10 districts and 18 communes spread over five provinces. Each floating community has a unique cycle of movement and settlement in line with the rise and fall of the lake water. Floating communities consists of many floating houses, which can be classified into four different types: boat houses, ferry floating houses, bamboo rafting floating houses and pen floating houses. Each of these dwelling types has its own characteristics and provides material indications relating to household socio-economic status in the village. Rafting boat house is a floating house constructed on bamboo rafts while boat houses are houses built on boats. The ferry boat house is a type of floating house that is built on iron ferry and this is a modern floating house (Field Notes, 2007).

Water and land based community is a community where people live six months on land and six months over water in the Tonle Sap. The house is built on stilts about 6–8m above the ground which could stand in water for six months without any effect. In the dry season, water recedes in the lake and the whole village is located on land. The community thus lives on land as with other normal land-based villages. In the wet season, the water flows into the lake and floods the village's areas around the village. The whole village is in water for six months and individual houses become 'individual islands' (AFN, 2004; Field Notes, 2007; Marschke, 2005; Marschke and Berkes, 2005a; Marschke and Berkes, 2005b). The water level rises almost up to the house floor which is about 6–8m high from the ground. The

house is located in the same position all year, although the community experiences two extreme environmental conditions—flooding and drought conditions. Thus, in my typology, I call these 'permanent stand-stilt communities'. Many of these settlements are located in Siem Reap, Bantey Meanchey and Kampong Chhnang. It is estimated that there are about 36 stand-stilt villages, home to 5,527 families living in 12 communes of 7 districts in Siem Reap, Kampong Chhnang, and Banteay Meanchey (See Table 5.1).

The land-based community is a community where people settle on land and the rising Tonle Sap waters do not usually flood the village. Most of these villages are located in higher areas between the area 6m above sea level (asl) and along National Roads 5 and 6 (Keskinen, 2003, 2006; Field Notes, 2007). People living in the land-based communities are engaged in farming and fishing, depending on how near the villages are located to the water body. They cultivate rice as a primary occupation and fishing is a secondary occupation to supplement their farming (Field Notes, 2007).

About 948 villages in the Tonle Sap floodplain are identified as land-based villages which are home to about 0.8 million people (See Table 5.1). According to Rab *et al.*, (2005), farming communities are those communities with at least 80 percent of households engaged in farming. However, fishing is also a key activity of most farming communities in the Tonle Sap floodplain, but the degree of fishing among villages in this area depends on distance to water body. Rab *et al.,* (2005) call the community engaged in both farming and fishing as a 'farming-cum-fishing' community. Based on the 2003-2004 survey of 270 households in Kampong Chhnang and Siem Reap provinces, Rab *et al.,* (2005) indicated that almost 66 percent of fishing-cum-farming households fished all year round. However, fishing is an important source of income for fishing-cum-farming villages (Hori *et al.,* 2006; Field Notes, 2007). Hori *et al.,* (2006) examined the significance of fishing to farmer-cum-fisher communities in Srey Rangit and Svay Ear in Chamnakroun commune, Stung district of Kompong Thom province. This study (Hori *et al.,* 2006) found that almost all households

conducted rice cultivation and 75% of them are engaged in fishing. Fishing was an important income source for households and a supplement to rice production (Hori *et al.,* 2005).

Table 5. 1: Typology of fishing villages by province in the Tonle Sap

Province	Water-based village	Water-land based village	Land-based village	Total
Battambang	10	2	117	129
Siem Reap	12	14	269	295
Kampong Thom	10	0	109	119
Kampong Chhnang	6	16	63	85
Pursat	15	1	238	254
Banteay Meanchey	0	3	152	155
Tototal	53	36	948	1037
Source: Field Notes, 2007				

Rice and fish form the backbone of the Khmer Society. Traditionally, rice is cultivated by farming communities and fish is caught by fishing communities. Every year, after the rice harvest and during the peak fishing season, farmers travel to the river with a sack of rice to barter for fish. Similarly, fishers collect fish to barter for rice. They meet one a year at the Kampong (landing area near to the river) to exchange their produce, especially fish and rice (Bonhoeur and Lane, 2001; Ahmed *et al.*, 1998; Field Notes, 2007-2008). This represents the 'rice-fish economy' in the Tonle Sap.

5.5 The 'Flood Pulse' and Territorialities of Fishing Villages in the Tonle Sap

The communities of the lower Mekong Basin, in the Tonle Sap and the delta zone of the Mekong are literally on the front-line of ecosystem functioning and long-term environmental changes. These myriad and diverse communities form a dense population in the Basin, and hitherto, there has been a tendency to regard their struggles, livelihoods, dependence on fisheries, relation to the wetlands, and fish-rice economies as being relatively similar. In fact, there are very interesting and important distinctions to be made between different types of community, location, and human-nature interactions. The foregoing discussion about three distinct kinds of community is not just ethnographically significant, but

also relates to distinctive associations with aquatic resources according to the pulsing ecosystem and seasonal patterns. In this regard, we should consider 'natural' in terms of non-material and non-political influences on human territoriality.

Whilst there has been much scholarship devoted to social-ecological systems (Ostrom, 1990; Gadgil, *et.al.*, 1993; Folke, *et.al.*, 1998; Berkes, 1999; Ostrom, *et.al.*, 2002) there has been relatively little focused attention given to indigenous territorialities. Casimir and Rao (1992) provide one of the rare collections that examines 'the social and spatial boundaries among foragers, fishers, pastoralists and peripatetics (nomadic groups)', and what is significant here is that such groups have not been fully integrated into markets, not fully incorporated into state systems, and whose alternative territorialities are shaped by unique human-nature relations, as well as ecological influences upon access to vital livelihood resources and food security. Whilst there are many disturbances on those ways of living as a result of state territorialization and commodification, there are still important ways in which bio-physical forces, natural rhythms and cycles affect human social and spatial behavior. Thus, whilst I strongly agree with Robert Sack's (1983; 1986) conception of human territoriality as always being 'socially constructed' and as being a 'human strategy' to affect and influence relations in space between people, things and resources through the delineation, communication and control of precise geographic areas, I also see that in the Tonle Sap there are powerful non-human and ecological influences on human spatiality. Thus, the following definition of territoriality has direct relevance to the discussion here: "Human territorial behavior is a cognitive and behaviorally flexible system which aims at optimizing the individual's and hence also a group's access to temporarily or permanently localized resources, which satisfy either basic and universal or culture-specific needs and wants, or both, while simultaneously minimizing the probability of conflicts over them" (Casimir, 1992: 20).

Adopting the above idea of territoriality brings into play different ways indigenous groups adapt flexible responses to both ecological and social constraints upon their access to vital 'localized resources' in order to meet basic livelihood, subsistence or income-earning needs. Whilst a lot of attention in this thesis is on the political and economic geographic dimensions of human territoriality, it should be clear that in a wetlands environment, social-ecological interactions can and do influence spatial actions. Furthermore, territoriality can be examined as a way in which individuals and groups use space to maintain, improve or expand livelihood options. The banal forms of human territoriality discussed by Casimir and Rao (1992) often involve religious, cultural and symbolic attachments to resource spaces that do not easily fit modern political geographic spatial practices. Also, indigenous territorial behavior in relation to the pulsing ecosystem of the Tonle Sap has been in existence for many generations, and in only recently, such spatial behavior has become more problematic within (and partly due to) the context of multiple stakeholder demands, as well as increasingly commercialized spaces and contested resources in the lake system (see Chapter 6). As Taylor (1988:9-10) observes, territoriality often helps groups and individuals to 'get along', and "relations within groups, and across groups, in particular settings, would be even more strife-torn without territorial functioning." In a sense, this chapter sets out to examine different indigenous territorialities and socio-spatial adjustments to the pulsing ecosystem and changing socio-political context of the lake. Chapter 6 focuses much more explicitly on state territorialization and formal political geographic divisions of the lake, which has had numerous consequences upon indigenous communities and geographies.

The different settlement types imply significant human-nature and human-Lake relation distinctions. Each village within the same broad category may have similar adaptations, but there are some marked distinctions between categories. In May, the water level in the Tonle Sap Lake reaches the lowest level, estimated at about 0.77-0.89m between 2000 and 2003 (MRC, 2005; Field Notes, 2007), and then, the location of floating villages is located well into the lake (MRC, 2005; Field Notes, 2007). In June, water levels in the Tonle

Sap Lake rise up to approximately 0.5-1m. The water level continues to rise up until it reaches 9-9.5m in October (see Figure 5.1). As a consequence, floating communities move up and then, it reaches the highest position in October. Thus, floating communities move upward when the water level rises up and moves downward into the lake when water level goes down. They also move location at the seasonal extremes (MRC, 2005; Field Notes, 2007).

Different fishing communities have multiple ways of adapting to water levels in the Tonle Sap through the seasons. According to Barnard (1992), territoriality is a way in which a particular community may organize themselves to adapt to the environment and social pressures, particularly ensuring access to vital resources for their living (Barnard, 1992; Casmir and Rao, 1992). My research reveals that in the Tonle Sap, human territoriality is very dynamic in terms of its intimate connections with 'nature', particularly as ecological conditions affect fishery resources. For instance, some fishers of the Lake exhibit forms of 'mobile territoriality' similar to other social groups living closely and directly to livelihood resources (Berland, 1992; Streck, 1992). As Casimir (1992: 5-6) notes, "the practice of mobility itself can be considered a resource; maintaining flexibility through mobility is, for instance for herding communities, the best guarantee of continued and optimal exploitation of resources in unpredictable ecological conditions." For the 'floating communities' of the Tonle Sap, micro-mobility is an aspect of gaining access to 'living space' and resources in the absence of clearly defined property rights, no claims to terrestrial resources, and indigenous knowledge of rising and falling water-levels, fisheries and the inundated forests. There are other non-spatial ways in which fishing communities organize themselves to respond to changing environmental conditions, including setting up distinctive homes better adapted to the flood pulse, and altering resource uses according to water levels.

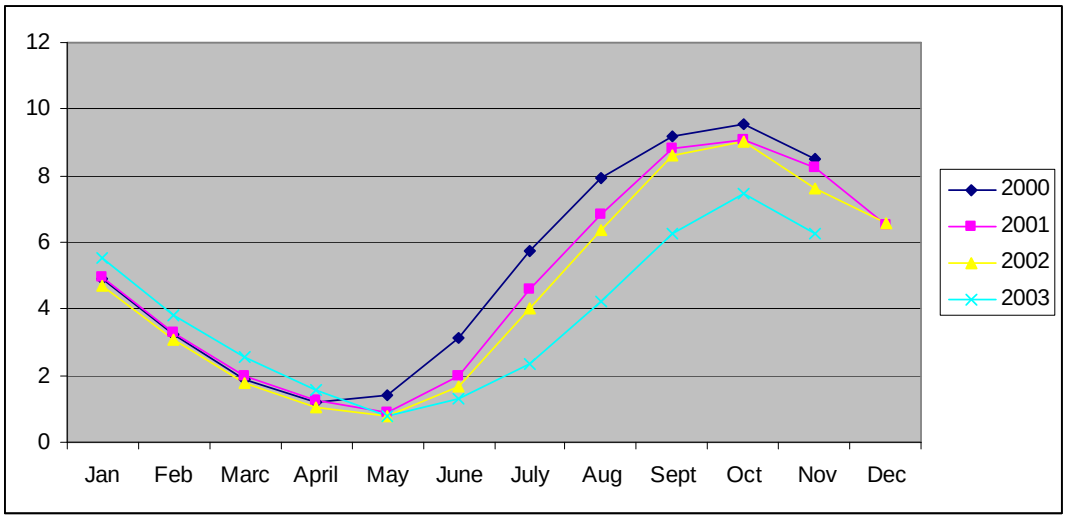


Figure 5. 1: Water level in the Tonle Sap measured in Kampong Loung (MRC, 2005)

The annual flood pulse generates rising/falling water levels in the Tonle Sap, which in turn influences the everyday life of floating communities. Rising waters in May urge floating communities to develop their strategies and systems to live in the high water level environment; first, they have transformed their fishing gears to continue fishing in the high water levels; and second, they protect themselves from natural disasters due to the sudden and violent storm surges and strong winds. In late October or early November, water recedes, the water level starts to drop drastically, forcing floating communities to float further into the lake proper and they prepare themselves to actively engage in fishing. This 'floating territoriality' is highly distinctive in that is based in close human-nature interaction.

However, floating territoriality is not the same for every floating village as some floating villages float and move laterally, whilst others float, but do not move in the horizontal plane. For the first group, when water rises, they alter location moving up rivers or near to flooded forest. When the water falls, they move to the lake's natural margins (permanent water edges), which is a process I call a 'mobile territoriality.' The latter villages do not move location ever though the waters rise and fall, this is largely due to that fact that

they are in areas near to fishing lots and the Biosphere Reserves Areas. These villages exhibit what I call a 'vertical territoriality.'

In contrast, the stand-stilt homes are static, but are well adapted to the flood pulse, spending half the year on dry land and half the year over the water (See Figure 5.2) (Kummu *et al.*, 2008; AFN, 2004; Field Notes, 2007-2008). Even though the village does not physically move, I argue that their home constructions, livelihood adaptations, and altered fishing practices are part and parcel of their territoriality in relations to the Tonle Sap's ecosystem and seasonality (Field Notes, 2007). I call this 'pulsing territoriality' (see Figure 5.4).

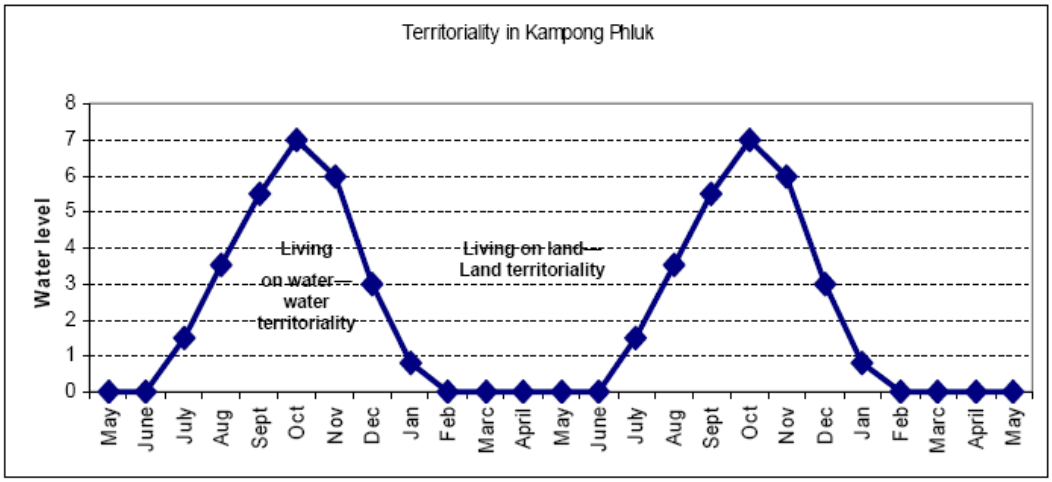


Figure 5.2: Territorial system of stand-stilt communities studied in Kampong Phluk

The farming-cum-fishing communities are much less directly affected by the rising and falling of waters in the Tonle Sap. Although the water rises up to the peak level, it does not flood or submerge the farming-cum-fishing village. Thus, people living in farming-cum-fishing communities live on land (Field Notes, 2007). Thus, their livelihoods are organized around the organization of land, and this is what I call a 'farming-fishing territoriality'.

5.6 Maps, Political Geography and Community Spaces

As a fisheries researcher and activist, I have often been aware that many so-called fishery specialists are either too engrossed in particular scientific aspects of management, or are too preoccupied in the top-level administration of fisheries, that they seem to be largely remote and oblivious of the day-to-day livelihood struggles of ordinary fishers on the Tonle Sap. As a political geography researcher, I have become more and more aware of the power of maps and political significance of modern mapping in the resource planning and policy environment. Critical historical cartographer, J.B. Harley (1989), has helped to deepen scholarly awareness of the representational distortions of maps, plans and official spatial orderings, which frequently and often deliberately ignore, marginalize or omit indigenous notions of space for overtly power-political and economic reasons. His valuable work has emphasized how the 'spatial disciplining' brought about through mapping, has been as important as the 'time disciplining' of the clock in factories of the industrial world. As discussed in Chapter 4, different rationalizations and representations of space by state agencies, international agencies and resource managers have led to a top-down view of a thoroughly 'disciplined' space, complete with fishery zones, biosphere reserves, research lots, conservation lots, and even community territories. However, the reality of the 'lived space' of the Tonle Sap is much more complex, far less ordered, and there are many over-lapping and unplanned actions within the Lake space. There are many 'silences' in the official map, whether by design or accident.

Mapping is a process which can be a double-edged sword for many small local communities that were previously largely 'off the map' and beyond state 'gaze' (Fox, 2002; Fadzilah-Cooke, 2003; Laungaramsri, 2002; Scott, 1998). It is double-edged precisely because modern mapping exposes complex commons and cultural spaces to state simplifications, to potential privatizations, new forms of enclosure, spatial surveillance, and territorialization processes that may not necessarily reflect the nuances and values of pre-

existing social arrangements, complex bundles of rights, and community systems for organizing space (Peluso, 2005a and 2005b). As Fadzilah-Cooke (2003) observed, participatory counter-mapping by local communities in Sarawak faced by the extensions of logging and plantation regimes into their resources spaces, has often produced contradictory results. As she notes, "being included in official conservation maps can be a double-edged sword" primarily due to the loss of decision-making powers over key access and utilization decisions which are taken away from the local communities (Fadzilah-Cooke, 2003:273). Similarly, Nancy Lee Peluso (2005b) reveals in West Kalimantan that dominant state-led and international territorialization processes do not 'see property rights' in the same ways as the indigenous Dayak communities. Indeed, these modern maps are often incompatible with indigenous ways of seeing space and property rights, for the latter often involve inter-generational, temporal, fluid and flexible boundaries, cultural and spiritual dimensions that are simply not necessarily translatable into the 'Cartesian-Newtonian space embedded in our (modern) cartography and GIS' dominated world (Rundstrom, 1995; 1998).

Chapin (1998:7) has observed that "people with maps come to perceive their landscapes differently." I believe this is a very profound statement when applied to the space of the Tonle Sap. Looked at from the perspective of an ADB map or a Fisheries Department map, the Tonle Sap is a 'knowable' and rational space. However, many of the fishers in the Lake are illiterate, and many of them are carto-illiterate, and they do not use maps. Even if they do use maps, they tend to perceive space very differently from the 'abstract space' of planners and policy-makers. To them, 'localized resources' are absolutely critical for their livelihoods, for feeding families, for obtaining basic needs, for barter or trade. Whilst there has been little research on this, it would be fascinating to understand the mental maps of the 'areas' ordinary fishers utilize in the Lake. For sure these maps would indicate that territoriality is not fixed the whole year round, for all fishers are subject to immense changes in their lifestyle and practices according to the annual 'flood pulse' and variations in the horizontal extent of the Lake and vertical water-levels. Fishers with access to both land and

water resources will have different territorial behavior from those who rely totally, the whole year round, upon the fisheries and aquatic resources. This is why empirical examination of different social and spatial behavior is central to a better appreciation of human-nature relationships, fishery management issues, and livelihood security.

In the following section I wish to draw attention to communities who are still by and large obscured, ignored, or only partially recognized on the modern maps of Cambodia – the 'floating communities'. Jefferson Fox (2002) has written that many peripheral areas of Cambodia, such as Ratanakiri Province in the country's northeast, have only in relatively recent transitional political and economic times become subject to the sorts of intensive territorialization that affected neighbouring Siam (Thailand) since the late 19th century. However, the mapping process in Cambodia is rapid, partly fuelled by the greed for land and the expropriation of resources in the frontier zones. Mapping and claims to resources go hand in hand and are voracious process, and as Fox (2002:75) bluntly asserts: "we have to map – there is no alternative – you are either on the map or you run the risk of being gnawed away." Whilst the Tonle Sap is in many ways situated in the heartlands of Cambodia, I argue that the spatial representations of top-down agencies actually serve to obscure, ignore or confuse different localized realities. This is particularly the case with many 'floating communities'. Whilst the larger of these communities are officially recognized, being firmly, if statically, 'on the map', several smaller floating villages are still mostly 'off the map'. They are poorly served with services such as schools, clinics, and so on, and they have continual struggles to maintain access to vital fishery resources, flooded forest resources, and basic survival needs. To be floating is not to be free, and due to the impact of other forms of territorialization, these communities are not freely floating. In the following section, the intention is to highlight peculiar human-nature aspects of human territoriality, and in chapter 6 to discuss in much more detail the implications of state territorialization upon the politics of space in the Tonle Sap.

5.7 Floating Territoriality

As discussed above, there is still relatively little empirical understanding of what it means to be a 'floating community' on the Tonle Sap. Many of these floating people are relatively poor (Field Notes, 2007). Marginalization is partly related to their lack of official recognition, notwithstanding some of the potential problems that recognizing them officially on the map may also bring (Fadzilah-Cooke, 2003). Floating communities often have no sense of real 'ownership' over water space, although as communities they do have their own sense of 'communal space', but as they definitely have no legal property rights over land-based resources, access to water-space is absolutely critical to their cultural and livelihood survival. Floating communities have also been part of the Tonle Sap 'waterscape' for many, many generations, which means that they are deeply embedded communities in the rich cultural landscape of Cambodia as a whole (Field Notes, 2007). Nevertheless, as my research indicates, many of these floating communities lie at the razor's edge of cultural and economic survival within a rapidly transforming national economy and highly competitive fishery sector. Thus, empirical research is needed to better appreciate the lives and livelihoods of such communities, particularly as these people are the most dependent on fisheries, but the least represented in terms of fishery governance mechanisms and specialist knowledge(s) about the Lake system.

'Floating' has become a lifestyle associated with the rise and fall of water levels in the Tonle Sap Lake. I classify the 'floating territoriality' into two main types— one, *mobile territoriality*, and two, *vertical territoriality*; each of which will be discussed in detail below.

5.7.1 Mobile Territoriality

The rise and fall of waters in the Tonle Sap Lake between the wet and dry season induces the floating villages to move up and down in the lake. The mobility of the floating

villages occurs within space that is often bounded or zones designated for other uses, such as fishing lots, and fish sanctuaries. Thus, the floating village floats and moves, but this is not without restrictions, as they often have to define their own territorial space in accordance with other stakeholder zones. The unique forms of mobility, resource use and fishing practice adaptations, the design of homes and collective strategies they follow to ensure continued access to livelihood materials forms a very important component of my unfolding ideas about human-nature adaptations through human territoriality (Field Notes, 2007).

5.7.1.1 'Floating territory' of a floating community

Upward and downward mobility and floating takes place within defined territories and boundaries set by other functions and stakeholders. Villages do not float and move freely. For the purpose of this study, I take an example from Kampong Loung, for instance, in Kampong Loung, there are approximately 1029 households and it is assumed that one household occupies one house (Seila, 2005). Kampong Loung houses are all 'floating' (See Appendix 6, Picture 1). There are four types of floating houses—boat houses, ferry floating houses, bamboo rafting floating houses and pen floating houses. Each of these types has its own characteristics and could tell us the household status in the village. The house is classified according to the household status; the rich, the medium, the poor and the poorest. As a rough guide to the status and incomes of people living in this floating village, the richer occupants own houses of 4.5m in width, and 15m in length, the medium owns house of 3m in width and 12m in length, the poor and the poorest own house of 3m in width and 8m and 6m respectively in length. An average the size of house in Kampong Loung is estimated at about 34.59 m^2. If one house occupies 34.59m^2, the whole Kampong Loung occupies roughly 35593 m^2 (3.55ha) (Field Notes, 2007 and 2008; see Table 5.2).

An interesting aspect of floating existence is that legal-political space is often well defined on land, but not in rivers and lakes. Floating houses are built on water. The ownership

over the 'space' on water is not discussed in most of Cambodian Laws. According to Fisheries Law and the Cambodian Constitution, the river, stream and seas are state property, but these laws assume no human settlement on water and therefore, none of Cambodian Laws discuss the ownership of the floating communities on water. At the same time, the ownership becomes more problematic as the floating houses move up and down following the rising and falling waters in the Tonle Sap Lake. In the case of Kampong Loung, ownership is ambiguous and could give occasion for competition over rights to space for houses, because on water no legal body recognizes their house location from the previous year and therefore they may not be able to return to the old location to park their houses.

Table 5. 2: The size of the floating house by household categories.

Size of the House	Width	Length	Size of the house (m^2)
House of the rich household	4.5	15	67.5
House of the medium	3	12	36
House of the poor	3	8	24
House of the poorest	3	6	18
Total	13.5	41	553.5
Average	3.375	10.25	34.59
Source: Field Notes, 2007			

Kampong Loung, like other communities, is not free floating. It floats within defined territory and within this territory; it floats back and forth within a year. In a year, Kampong Loung moves up and down 5-6km according to rising and falling waters, thus the total movement of the floating town is 10-12km annually. Thus, the households use valuable productive time to move location. Moreover, the width of the main channel (for boats) of Kampong Loung is estimated at about 500-1000m. Thus, Kampong Loung has a sizeable territory, but the precise configuration of houses, shops, clinics, schools and religious boats institutions may alter considerably due to mobile territoriality (Field Notes, 2007). The 'floating territory' is organized into different sections in which each section is used by floating community to park their houses according to the rise and fall of water in the Tonle

Sap Lake (See Figure 5.3). By having different sections, the community knows when to park where, which help provides them with some security and a safety net for their daily living.

5.7.1.2 Restricted boundaries of a floating community

As I have stressed, a floating village is not free floating and free mobility. It floats and moves within a limited and defined territory, which is set by official representations of space. The boundaries of floating villages are not defined by community leaders, but external entities such as fishing lot operators, fish sanctuary limits, and Biosphere Reserves. For instance, two fish sanctuaries are located close to Kampong Loung in the eastern site, namely Kampong Prak and Chroy Sdey, which effectively mark the outermost boundaries of Kampong Loung. The in-lake movement of Kampong Loung can not encroach closer to either the Kampong Prak or Chroy Sdey sanctuaries. Kampong Prak covers an area of about 4,500 ha while Chroy Sdey is estimated at about 1,950 ha (DoF, 2003). As the name suggests, a fish sanctuary is an area where fish are protected and encouraged to breed in order to increase the fish stock. By their characteristics they belong to the Lake's 'conservation space'.

Totally, Chroy Sdey and Kampong Prak cover 6,450 ha. These fish sanctuaries are also protected by the Fisheries Administration and fishing in these areas is prohibited. These fish sanctuaries have existed there for a long time, in fact since the 1940s (Thomson and Somony, 2003; Field Notes, 2007). As fishing is prohibited, fish sanctuaries play a major role in protecting some fish stocks and the threatened fish species from over-fished, and maintaining a breeding stock for replenishment. Local fishery offices known as '*sangkat nesat'*, in Kampong Loung—the lowest rung of Fishery Administration Offices help manage the fishery resources and protect the fish sanctuaries.

These areas are controlled by the Fishery Administration, whereby fishery officials assert their power over this space through various rules and regulations. The floating

community is restricted to fish in that space and they have not been consulted since the beginning of the establishment of the fish sanctuary, but local people had accepted these zones across generations. As a result, community residents accept the authority of the Fisheries Administration in these areas, and realize that activities such as encroaching inside are technically 'illegal' (DoF, 2003; Field Notes, 2007).

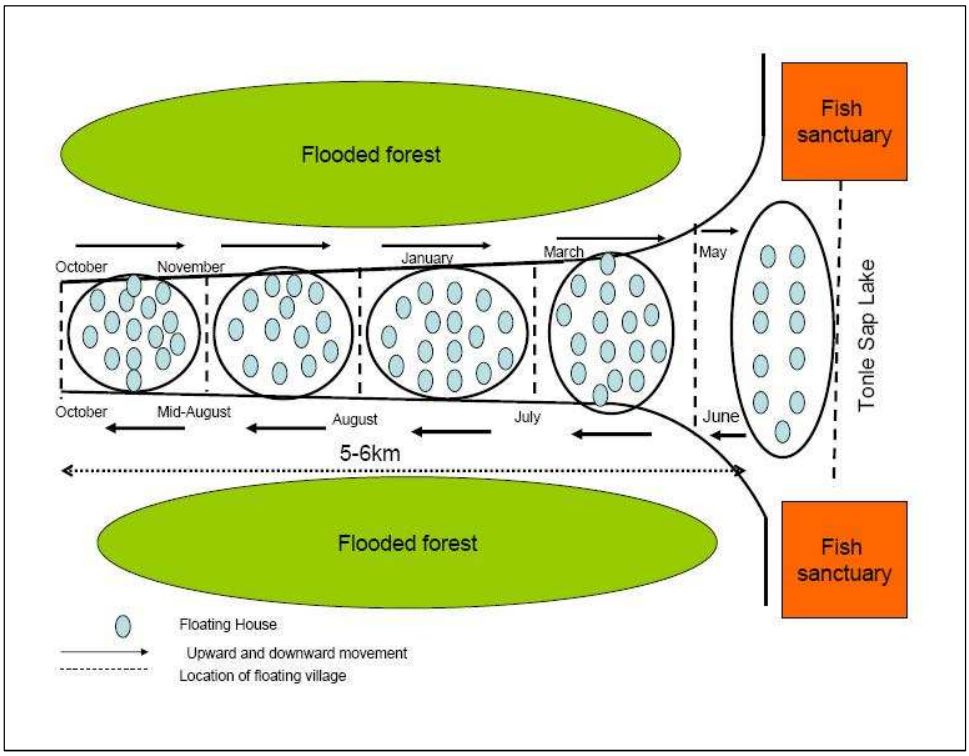


Figure 5.3: Mobile territoriality of floating community

Another terrestrial dimension close to Kampong Loung relates to the space of the flooded forest. These forests are protected by FiA for fish habitats. In Kampong Loung, the flooded forest along the earth road acts as a boundary line for floating territory of Kampong Loung and floating houses, while floating could not move beyond the flooded forest areas. This is the boundary of Kampong Loung as well (See Figure 5.3).

5.7.2 Vertical territoriality of a floating community

The verticality of rising and falling is significant aspect of the human territoriality of floating communities. Many floating villages float and move from areas of about 1.50m above the sea level in the lake in the dry season to an area of about 9-10m above the sea level in the lake in the wet season (See Figure 5.4). This is what I call a 'vertical territoriality.' There is another and differing political meaning to 'verticality', which relates more to socio-political relations between actors within special boundaries. The verticality I refer to here is related to biophysical and human-nature relations, and should not be confused with other types of vertical social relations that may influence human territoriality (see Delaney, 2005). The kinds of physical space verticality I wish to stress here are driven by the pulsing ecosystem and annual flooding cycle.

Furthermore, in the Tonle Sap, I classify the floating communities into two types; first, some floating communities float vertically and move laterally as the water level of the lake rises up gradually, and I call this type of floating a 'mobile vertical territoriality'; and second, however, some floating communities float up vertically, but do not move laterally and I call this 'vertical territoriality'. The following section discusses each type of territoriality.

5.7.2.1 Mobile Vertical Territoriality

To understand this idea clearly, I take an example again from Kampong Loung to illustrate what is 'mobile vertical territoriality.'

a) The Wet Seasonal Mobility of Floating Community

In the dry season, as water recedes the lake, the floating community such as Kampong Loung moves downward into the lake and it reaches the 'lowest position' in the lake in March

when the water level reaches the minimum of about 0.50-1m. The entire floating community of Kampong Loung stagnates in that 'lowest position' in the lake from March to May.

When the monsoons start, roughly in late May or June, the water levels in the lake gradually rise up from around 1m in May to 1.50-2m in June (MRC, 2005; Field Notes, 2007). By mid-June, there is enough water to push the floating houses upward in Kampong Loung. The upward movement of floating houses in a narrow channel creates traffic congestion (for boats) and heavy water pollution is created by the movement of engine boats.

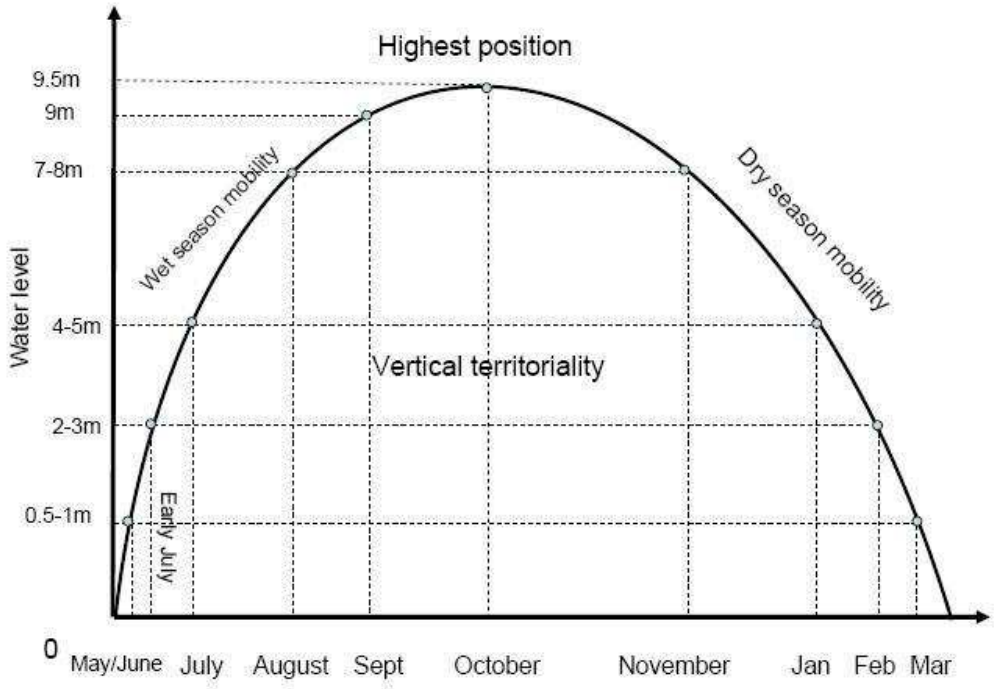


Figure 5.4: Mobile vertical territoriality of floating community

The floating houses start to move upward in the lake by mid-June (water level is 2-3m) from their 'lowest position.' For 15 days (Mid-June to July), the water level reaches 2.50-5m and each floating house moves up approximately 10-15 times; each time takes a very short distance, and totally each house could move upward approximately one kilometer.

From July to August, the water level rises up from 5m to approximately 7m, and the whole floating community moves 3-4 times and each movement take one kilometer. In other words, for 30 days between July and August, the floating houses could move 3-4km upward. From August to mid-August, the floating houses move slowly and by late September or early October, they reach their 'highest position' at the end of the rainy season. The whole floating community stays in the highest position when the water is estimated at about 9-9.50m (see Figure 5.4).

I call the 'highest position' of the floating community in Kampong Loung a 'resting space,' because during this period sudden and heavy showers affect ecological and fishery conditions on the open lake, making life more difficult and sometimes dangerous for floating houses. By positioning floating houses in the 'highest position' area, they are better able to attach their houses to trees in the inundated forests, which serve as a protective barrier from strong waves and lake storm surges. Thus, mobile vertical territoriality is a human strategy in response to changes in the season, weather, water levels and environmental conditions of the Lake.

b) The Dry Seasonal Mobility of Floating Community

In the dry season, especially starting in later October, the water level in the Tonle Sap is estimated at about 9-9.50m. From October onwards, the water recedes in the lake system. From their 'highest position' (9-9.50m), floating houses follow reductions in water level to approximately 7-8m, and for around 15 days, the floating village could move about one km in position. During this period, the physical mobility of the village is a very sluggish process, and each day, each floating house organizes their movements, but progress is tedious. In January, the water level reduces to 4-5m, and the whole floating community of Kampong Loung reaches the 'mid-way' level, which is about 2.5-3km from the highest position (Field Notes, 2007).

From January to February, the water level is reduced to approximately 3m, and the floating community moves down slowly, but with frequent small adjustments. In this period, the area around Kampong Loung becomes shallower, making the movement more disturbing of the living environment and unpleasant due to the pollution generated by dense housing on shallow water. The heavy and large floating houses cause the water to be muddy and create awful stink. The floating houses which are pulled downward by sturdy engine boats generate a lot of noise pollution and nasty fumes from engine fuel.

In early March, the whole floating community reaches the 'lowest position' (0.77-0.90m in depth) of the floating mobility path, which is the last stop of downward and lateral movement of about 5-5.5km from the 'highest position'. The 'lowest position' of Kampong Loung is very restricted and all floating houses assemble in a relatively small and densely populated area. The whole floating community stays permanently in this area for a period of 3.5 months from March to mid-June (Field Notes, 2007). Low water levels of 0.5-0.8m or less mean that between April and May, the high density of people and floating houses generate massive human effluent around the village, but the whole Kampong Loung is literally trapped *in situ* and so people have to cope with extremely shallow and relatively unpleasant living conditions (Field Notes, 2007).

When water in the lake recedes, the fishing season starts. The whole floating community moves down into the lake partly to do fishing. If the floating houses do not move down, they will have difficulty in fishing as the fishermen have to consider distance to fishing grounds, fuel cost, time and efforts devoted to moving. Competition for fishing access is extreme and so close proximity to fishing grounds is advantageous.

During the fishing season, farmers complete the rice harvesting. Many farmers move down to the lake with a large bag of rice to exchange for fish to make a fermented fish known

as '*prohok.*' In Cambodia, most people love to eat *prohoc* as a key ingredient in their food and the *prohoc* business is deeply intertwined with the fish-rice economy and local food culture. Indeed, the air is thick with the pungent aroma of *prahoc* in many settlements of the Tonle Sap. Fishers from floating communities catch fish and sell fish for rice at the Kampong Loung. Fishers from many floating communities take their fish catches to Kampong Loung. Thus, Kampong Loung becomes a local regional 'market place' for fishers from many floating communities (Field Notes, 2007).

Obviously, movements up and down also relate to lateral mobility of the whole community. This mobility and up and down movement is 'mobile vertical territoriality.' No studies have focused on these actions as a territorial strategy, and when these movements and complex spatiality are better understood we can see how they relate to survival, livelihoods and the fish-rice economy.

Upward and downward movements are within restricted geographical spaces or territories created by the boundaries of others. In this sense, the issue of 'mobile vertical territoriality' is also geopolitical in that contested spaces, unclear boundaries and access to fisheries (and forest) are involved.

5.7.2.2 Vertical territoriality: Floating up and down without changing location

Some floating communities float, but they do not alter locations. This happens to floating communities that are surrounded by a fishing lot, for instance, the floating villages in Peam Bang Commune. Peam Bang is subject to seasonal up and down vertical movement, but the houses remain within relatively fixed positions. This is what I call a 'vertical territoriality'. Within Peam Bang, I focus in details on Pov Veuy and Doun Sdoeung Villages (See Map 5.1).

a) 'Floating' fishing lots and floating territoriality of villages

Peam Bang commune is home to 619 families with a total of 2929 people living in five villages (Seila, 2005). Khmer ethnics are predominant in this commune and following by Vietnamese. It was reported that there are around 30 Vietnamese households in Peam Pang village (Sophat *et al.*, 2005). The commune covers an area of 15,755ha (Commune Data, 2006). The whole commune area falls within the commercial fishing space and this area is classified into three commercial fishing lots, namely fishing lot no.4, fishing lot no.5 and fishing lot no.6, covering 55,203 ha as a 'commercial space' (DoF, 2001). The fishing lot no.6 and fishing lot no.5 are almost entirely located in Peam Bang, covering, estimating of 25,905 ha and 9,908 ha respectively (DoF, 2001). In addition, large areas of about 28,000 ha in Peam Bang are designated as a Biosphere Reserve Areas. There is an overlapped space between fishing lot areas and Biosphere Reserve Areas (ADB, 2006a; Kosal and Vanna, 2001; Field Notes, 2007).

When water levels are low around 0.5-1.40m, the fishing lot area is estimated at about 55,203ha, and when water level reaches the maximum of 7.50-9.50m in the wet season (MRC, 2005), the fishing lot territory is still maintained at about 55,203ha. This has notable consequences in terms of the limited space devoted to public and community fishing access (Field Notes, 2007). This relates to the commercial fishing territoriality and to what I classify as a 'floating territories' of fishing lots.

The fishing lots cover a large space in the Peam Bang vicinity. Apart from the fishing lot area, large areas in Peam Bang are allocated as a Biosphere Reserve named as 'Beoung Chmar Core Area.' The remaining area from the fishing lot and conservation in Peam Bang is a village space. To understand the 'village space' in Peam Bang, it is important to look at the 'house space' of individual households, the territory and boundaries of the floating villages.

(i) Floating territory of floating villages in Peam Bang

Peam Bang Commune is home to about 619 households living in five floating villages. Based on the discussion with key informants in Peam Bang, households in Peam Bang are classified into four different types: the rich households, the medium households, the poor households and the poorest households. Whilst these distinctions are not always easy to make, there are some clear socio-economic status divisions within the Commune. According to my own Field Notes taken at various times in 2007 and 2008, the richer households tend to be in Peam Bang proper, but not in the other villages of Peam Bang Commune - Pov Veuy, Daun Sdeang, Balat and Pechakrey. Many poorer and medium household are found in all villages in Peam Bang Commune. While socio-economic indicators vary, there is a strong tendency for 'space of houses' to indicate relative wealth and social status in the Tonle Sap communities, especially those houses that are 'floating' and also have land entitlements. Other relevant criteria are ownership of fishing boats, gears, nets, and household consumer goods. This is complicated due to the fact many fishers loan money to purchase equipment, boats, and nets. So indebtedness is a fact of life for many people, even those with relative household luxuries such as TV and karaoke machines (Field Notes, 2007 and 2008).

Definitely you need a lot of capital to build a house with a 'large space,' estimating at about 5m x 16m (Field Notes, 2007). Such houses are usually built on floating tanks, and each house would have a zinc roof and solid wooden floors and walls. The 'rich household' usually owns 1-2 small engine boats and one big engine boat and they fish with 'large fishing gear' employing 3-4 hired workers. The 'medium household' owns the house that covers less space than the larger houses, estimated at about 3.5m x 12m, whilst the 'poor household' and the 'poorest household' owns a 'house space' estimated at about 3m x 8m and 2.5m x 6m respectively (Field Notes, 2007). It is more important to consider size of 'house space' in a context where communities live on the water and rely almost entirely on that water space their

survival. This would not be the same criteria for land-and-water based or farming-and-fishing communities, because they have land ownership (See Table 5.3).

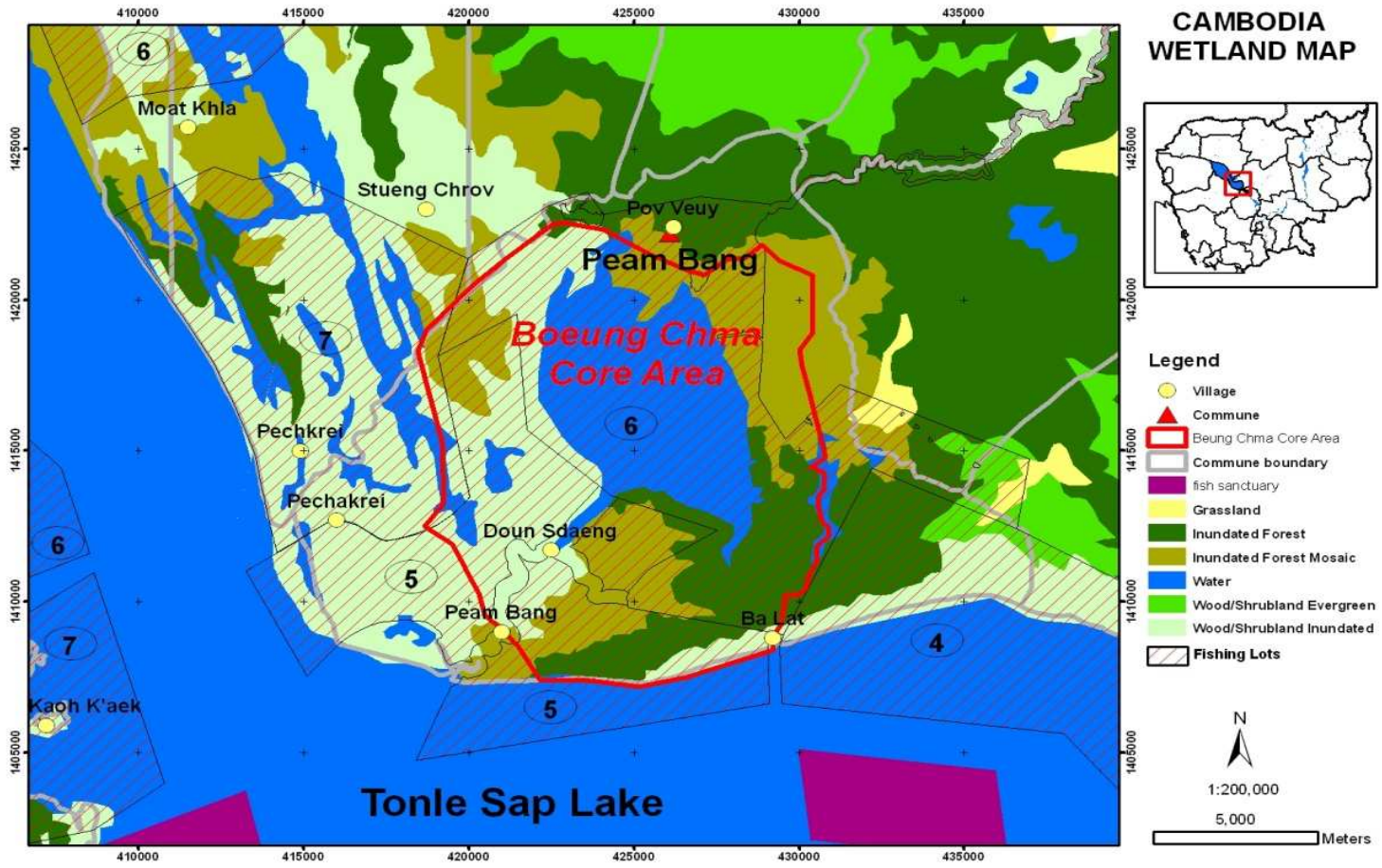
Table 5. 3: The house space by house category

Size of the House	Width	Length	Size of the house (m^2)
House of the rich household	5	16	80
House of the medium household	3.5	12	42
House of the poor household	3	8	24
House of the poorest households	2.5	6	15
Average	3.5	10.5	40.25
Source: Field Notes, 2007			

Based on my estimates, the average size of house is estimated at about 40.25 m^2. With the total number of houses of 619 houses, the total area of the floating houses in Peam Bang is estimated at about 21,335m^2. Peam Bang village covers the largest area, estimating at about 7,325m^2, while Pechakrey cover the smallest area in the Stung River. The floating villages in Peam Bang are floated year round, but the 'floating space' of these floating villages is unlike the other floating villages in the Tonle Sap. The 'floating space' of these villages in Peam Bang is zone-locked by the existence of the 'fishing lots' and the 'Biosphere Reserves' (Field Notes, 2007). Thus, there exist few opportunities for the boat houses of Peam Bang to move laterally and plenty of scope for incursions, transgressions and poaching. All this means a greater likelihood of conflicts over space and resources (See Table 5.4).

Table 5. 4: The village space by village

Village	No. Family	Thatch roof	Zinc Roof	Total houses	Total area (m^2)
Pov Veuy	113	81	9	90	3622.5
Pechakrei	76	56	6	62	2495.5
Peam Bang	207	169	13	182	7325.5
Ba Lat	115	98	9	107	4306.75
Doun Sdaeng	108	83	6	89	3582.25
Total	619	487(91.89%)	43 (8.11)	530	21332.5
Source: Field Notes, 2007					



Map 5. 1: The overlapped space of fishing lots and the Biosphere Reserve

(ii) 'Floating boundaries' of floating villages in Peam Bang

The boundaries of the floating village are marked in some areas by fishing lot boundaries. The fishing lot owners often erect bamboo fences, stuck into the mud beneath the water around their fishing lot areas. During the open fishing season, from October to May, the fishing lot owners build fences around their fishing lots to protect property and maximize catches within the lot. Bamboo fences around the lots effectively create a large pen to catch fish. The fishing lot owner no.6 fence around Boung Tonle Chhmar has blocked the river at the entrance and the outlet. The fishing lots no.5 and no.4 do the same as fishing lot no.6. The floating villages float, but they are effectively zone-locked by the 'territories' of fishing lots (Field Notes, 2007). This is similar to the ways in which maritime boundaries, exclusive economic zones, and territorial waters sometimes create zone-locking situations at sea (Grundy-Warr and Schofield, 2010). However, in the Tonle Sap it is not the territories of States that are zone-locked but the fishing areas and living spaces of small village communities that are surrounded by fishing lots and overlapping Biosphere Reserve Areas. Thus, the official boundaries of commercial lots or Biosphere Reserves form the official limits of the space of floating villages. Official territorialization defines communal spaces by default.

Pov Veuy Village

Pov Veuy floating village is located in Stung River. However, the whole Stung River from Boeung Chmar upward belongs to fishing lot no.6, and Pov Veuy is located in Stung River inside the fishing lot. Moreover, Pov Veuy is a floating village, but it is not mobile and it is located in a given location defined by the fishing lot owner. The areas of the village in Stung River inside the fishing lot no.6 is estimated at approximately 3622m^2 in the dry season and it is two to three times larger in the wet season (Field Notes, 2007).

The territory of Pov Veuy village is actually located inside the fishing lot and it is the fishing lot owner who permits villagers to settle their houses inside the fishing lot. It seems that this 'village area' was not a 'village space', but it was given to villagers to settle their houses at the mercy of the fishing lot owner no.6. In the Tonle Sap, the officially designated representations of space take precedence over the fishing and living spaces of ordinary people.

Pov Veuy covers about 3,622m² in the dry season. Beyond this area is the commercial fishing zone. At the both ends of Pov Veuy village, the fishing lot No.6 placed a bamboo fence to demarcate the boundary and the 'village space'. The floating house could only move within this classified space. Often villagers move in and out everyday to fish in the public fishing areas. The public space for fishing extends beyond the river bank. In fact, the 'public fishing space' is mostly dry in the dry season and the area is fully under the protected flooded forest, which is not officially meant as a fishing area. People in Pov Veuy complain that the 'public fishing space' near their village is often fished by '*neak leu*' (highlanders) whereas people in Pov Veuy are '*neak tonle*' (river and lake people) often move to fish in the areas near the lake. Thus, conflicts sometimes arise between the *neak leu* and *neak tonle* over rights of access to the lake resources. As such, this is an example of clashing indigenous territorialities, as some people perceive the Tonle Sap as a free-for-all common property space, whilst resident floating communities view it more in terms of their own vital livelihood space belonging to *neak tonle*, not to the outsider *neak leu* (Field Notes, 2007).

Doun Sdaeng Village

Doun Sdaeng village consists of Doun Sdaeng and Anlong Taour hamlets. However, these two hamlets are grouped into one village known as a *Doun Sdaeng*, which is a floating village located in the Stung River below Boeung Chmar Lake in Peam Bang Commune.

Below Boeung Chmar, Stung River is considered as a 'public fishing space', and the fishing areas located along both river banks are under the fishing lot no.5.

The geographical location of this village varies between the dry and wet season. In the dry season, Doun Sdaeng village is located in Stung River, and surrounded by fishing lot no.5 and No.6. On the eastern area of the Doun Sdaeng village, about 300-500m from the village, we can see the bamboo fence trap placing as a boundary line of the fishing lot not.6 cutting across the Stung River, and there is a 'small entrance' and 'check point' that control the movement of boats that travel across the fishing lot no.6. Inside the check point, 2-3 fishing lot guards watch out the entrance for boat movement (Field Notes, 2007 and 2008).

Behind (southern area of the village) and in front (northern area of the village) of Doun Sdaeng village in the dry season, we can see the 'bamboo fence' placing along both side of the Stung River Bank, marking the 'boundary' and 'territory' of the fishing lot no.5. As a result, Doun Sdaeng village could not move eastward, northward and southward as it has been limited by the fishing lot. The only area this village can move is the 'westward,' particularly along the Stung River. However, along this river there are a number of 'brush park' (fishing traps) belonging to powerful people who are also entitled to utilize the 'public fishing area.' The further westward movement of this village would create serious conflict with the 'brush park' owners. This scenario only applies in the 'open fishing season' from October to May every year. As a consequence, as a floating village, the location of Doun Sdaeng village seems to be fixed in a particular area. As a floating village, it does not move when the water rises and falls, unlike the other floating villages in the Tonle Sap. As a fishing lot area surrounds the village, except the River, the floating houses congregate in the body of the Stung River, and the village space of Doun Sdaeng covers an area of a minimum of $3582m^2$.

However, in the wet season from the end of May to the end of September, the bamboo fence traps along the river banks and the boundary of the fishing lot are removed. The activities of the commercial fishing lot business are not supposed to be active at this time. The security guards and workers are removed from the fishing lot areas. During this period, the floating houses of Doun Sdaeng Village face less restriction from the fishing lots in locating their houses. The villagers spread their floating houses in the huge 'water space' and they enjoy a large area for their houses. However, the floating houses cannot move further inside the fishing lot areas because they would have a conflict with the fishing lot owners. In fact, although the fishing lot owners remove their fishing equipment from the fishing lot areas and do not have any activity during the dry season, they still have *de facto* 'power' over the area. They keep up surveillance on their fishing lot areas to ensure that they are not damaged by other fishers. Furthermore, they often put tree branches inside the fishing lot areas during the wet season to attract fish to accumulate in their lots. Any activity by the villagers that threaten their fishing lot areas would lead to quick responses by lot owners, who are usually close to senior government people and official fisheries agencies.

Therefore, although the villagers in Doun Sdaeng village enjoy more space during the wet season, this does not mean that they could float their houses all over the place, even in the fishing lot areas. In this case, the eastward, the southward and northward movement of Doun Sdaeng village is highly restricted. The only area that the village could move during the wet season is the westward, but moving westward is against the direction of the water current as it flows eastward while rising up. Naturally when the water level rises up, the floating villages move upward in a parallel direction with the water flow. Thus, Doun Sdaeng's territorial adaptations are not as they would be if it was more freely floating and moving. Thus, floating territoriality is a human strategy of what is possible to do only in response to official territorial designations, boundaries and the highly constrained space for floating community movement in the Lake.

5.8 "Pulsing Territoriality"

Many communities in the Tonle Sap experience the 'flood pulse' in which the whole community stays six months on land and six months on water. As noted earlier, I call these communities 'stand-stilt communities' (a term I have adapted from AFN, 2004). The everyday geography of stand-stilt communities is affected by the 'everyday water level fluctuation' in the Tonle Sap Lake. The changes in water level shape the 'everyday geography' of the stand-stilt community, and the 'everyday space' for fishing (AFN, 2004; Rigg, 2007; Kummu *et al.,* 2008; (Field Notes, 2007 and 2008). As noted earlier, the 'pulsing ecosystem' has both terrestrial and aquatic dynamics, and what is of interest here is the particular human-ecological relationships that are made according to the annual flood pulse. My preferred term is 'pulsing territoriality' which relates to human responses to natural cycles and rhythms, although in the context of the lower Mekong, human adaptations are increasingly affected by the political territorialization of space and commodification of environmental resources. Even so, the seasonal ecosystem dynamics are still powerful influences on human actions.

To help illustrate the notion of 'pulsing territoriality', I utilize the example of Kampong Phluk—a fishing community in the Tonle Sap Lake. Under the influence of the 'pulsing ecosystem,' each stand-stilt community such as Kampong Phluk has both terrestrial and aquatic phases (See Appendix 6, Picture 2 to 4). First, in the terrestrial phase about six months of the year, people in stand-stilt communities adapt their living strategy according to land system and they engage in fishing and farming as a primary occupation—this is a 'terrestrial territoriality,' with access to parcels of land and forest. Second, in the aquatic phase about six months of the year, people adapt their living based on a water system and they use boats as a mean of their living, and I call this 'aquatic territoriality.' I will discuss each of these in the following section.

5.8.1 Human terrestrial territoriality in Kampong Phluk

As I have argued, there are distinctly bio-physical elements affecting human-nature interactions and human territoriality in the Tonle Sap. In Kampong Phluk, houses are built based on knowledge of 'flood pulse,' and each house is built on tall stilt that will not be submerged under the water during the peak flood season, but it could stand in the water for at least six months as well as another six months on the dry land. House stilts are 5-6m above the ground, so this is what I call a 'stand-stilt house'. There are four different types of houses in Kampong Phluk; thatch houses, tile houses, fibro houses, zinc houses and concrete houses. About 58 percent of houses in Kampong Phluk are built on stilts with zinc roofing and 41 percent are stand-stilts roofed with thatch. The houses with fibro cement roof account for one percent (Field Notes, 2007 and 2008).

In Kampong Phluk, the 'stand-stilt house' is classified into two types—the 'permanent stand-stilt house' and the 'seasonal stand-stilt house.' The houses are built face to face and are permanent stilt house structures. As such, they do not migrate upland as the water rises, as some other communities in the lake do. The housing is dense with a little space between the houses. Underneath the houses, people keep some spaces for keeping fishing gears and some spaces to rest during the day time given that they do not need to claim the house frequently.

People walk on land for approximately six months, especially from January to May. Local people say in Khmer that they '*chheung chan dei*' or 'step on land' for six months, and this is the period that people could walk from house to house by bare feet, or sometimes they use motorcycle or bicycle during the dry season. At the back yard of the house, the Kampong Phluk River stands as a source of water for fishing as well as a navigation channel and people do practice agriculture. Houses built here extend the edge of the house into the river. The river is also considered as a 'public space,' but those who live close to the river take

advantages over other users for fish cage culture, making navigation in the dry season difficult and narrow.

The '*seasonal stand-stilt house'* is based upon seasonal patterns of settlement. During the dry season, especially in February every year when water levels in the Tonle Sap Lake are reduced to 1-1.5m, Kampong Phluk residents move down from the 'permanent stand-stilt house' into the Tonle Sap Lake, and build a 'seasonal stand-stilt house' there for fishing. This stand-stilt house is built on stilt about 1.5-2m above the water. However, in late May or early June, the water level in the Tonle Sap rises up, and it is time then for Kampong Phluk people to move their 'seasonal stand-stilt house' upland and villagers return to 'permanent stand-stilt house' in Kampong Phluk. People practice this every year as an integral part of their livelihood strategies. The 'seasonal stand-stilt house' is a '*mobile stand-stilt house*' is an aspect of temporal mobility, similar to the strategies employed by the floating communities. The location of each 'settlement' is *not* fixed in any particular place, and there is no ownership over the area that each 'settlement' occupies. Villagers have developed their own social agreement to determine who stays where. These localized indigenous understandings are usually determined within communities, and outsiders are often unaware of these arrangements.

Prior to the 1970s (a period of civil conflict followed by the Khmer Rouge era), during the driest months, all households (100 percent) moved to settle in the lake during the dry season, firstly because they could access to water for their fish cage culture, and secondly, they could easily fish in the lake. In the current time, only about 50 percent of households in Kampong Phluk move out into the open lake and establish 'temporary housing' there from where it is easier to care for their cages of fish or crocodiles, as well as perform their daily fishing activities, because of two reasons: firstly, fish cage culture with carnivore species is banned, and secondly, the Kampong Phluk River was enlarged, allowing more water flowing into the village and therefore, 50 percent of household did not need to move into the lake

anymore (AFN, 2004). This is a wonderful illustration of how the changing ecological and local environmental conditions affect human territoriality over time (Field Notes, 2007).

5.8.2 Terrestrial territoriality

As indicated above, the 'terrestrial territoriality' is a strategy of a stand-stilt community to adapt their living strategies to the terrestrial phase of 'pulsing ecosystem' of the Tonle Sap. It is organized according to the land system that is submerged under the water for a period of six months a year.

In order to live on 'land space', first, households prepare their houses in two ways: (1) building their semi-floor structure under the permanent stand-stilt house so that they could rest or stay there day and night rather than climbing up and down every hour to their tall stilt house; (2) building the houses close to the fishing areas so that they could have easier access to catch more fish. Given these circumstances, many households move into the lake and build 'mobile' or 'temporal stand-stilt houses' in the lake between January and April.

In addition, each household uses certain fishing gears in order to improve their catch sizes. The 'rich' households use large-scale fishing gears, usually long bamboo fence traps that require large fishing grounds, especially in the open lake. Similarly, the 'medium income' households act to the rich households and often they compete with other fishing groups for fishing grounds. The 'poor' and the 'poorest', households gain access only to less productive fishing grounds, with limited access to the streams, the creeks and the ponds, and their fishing gears are smaller and some of these people are hired as labor by larger fishers.

However, the poor and the poorest household fish with different fishing gears given their weak social position in defining their fishing space. Mostly, the poor and the poorest fishing households actually fish with '*saiyoeun kampeh*' or 'shrimp traps' to catch the

freshwater shrimp known as '*kampech'*. This gear is fixed to one or two poles which are firmly pushed into the soil in order to anchor the trap in the current, mainly in the period from July to January. One fisher may utilize 30 to 80 shrimp traps at a time. Frequently the traps are connected by a long line for easy collection. Another shrimp trap used for fishing by the poor and the poorest household is '*kansom kampeh'* or 'brush bundle for shrimp' made of small branches. The bundle is attached by means of a nylon rope to a floating wooden stick indicating the location of the bundle. It is operated in the open water of the Tonle Sap Lake from June to February.

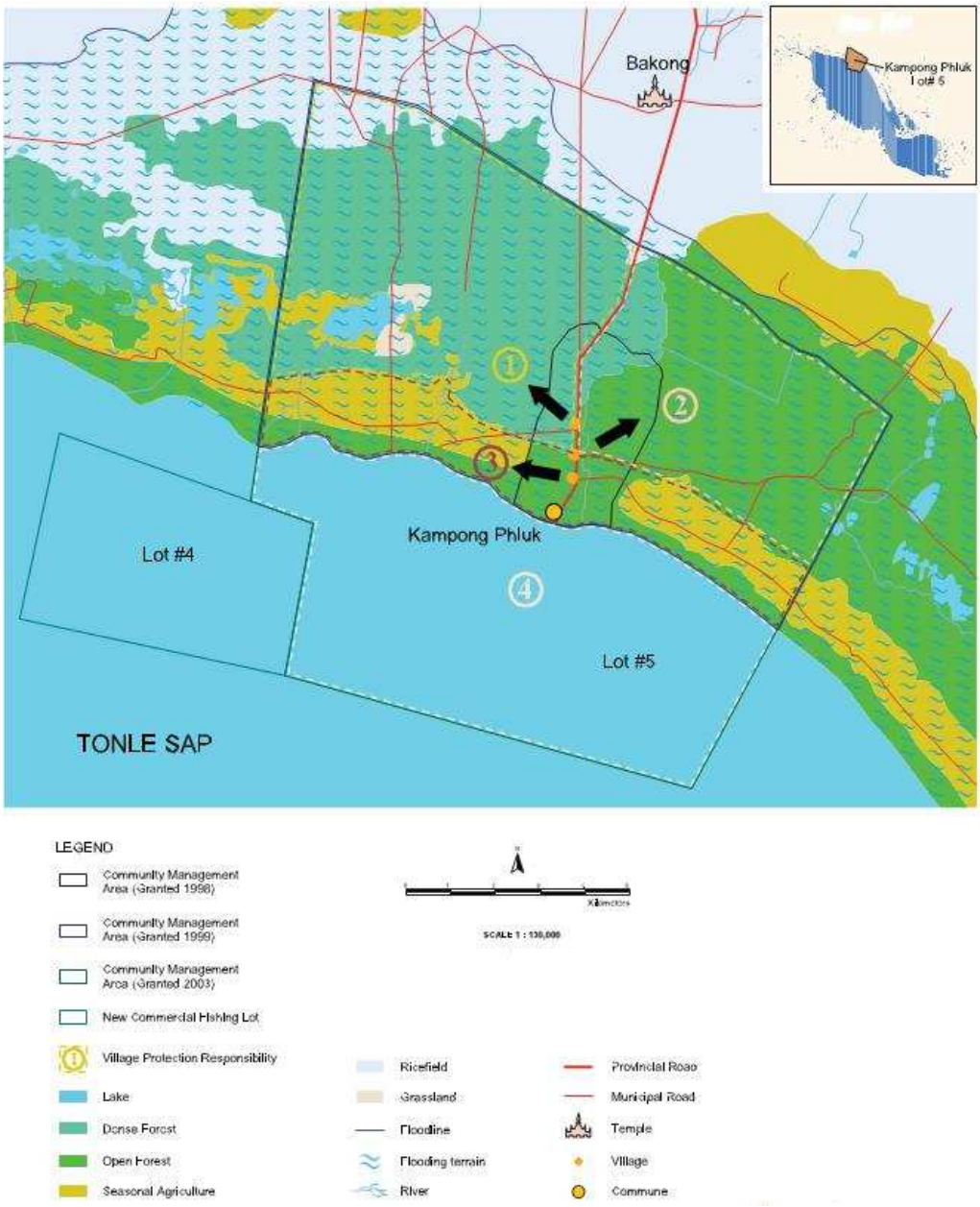
Thirdly, the household has to sell their fish catch for the cash and to buy rice and other household items. People in Kampong Phluk sell fish differently, depending on household types. Given their motor boats and frozen facilities available, some rich households take their fish catches to sell at Chong Kneas' fish landing area (12 km from Siem Ream Town). However, some rich households sell their fish catches to the fish trading middlemen at the village level. Due to the geographical location close to Siem Reap, the 'clientele system' is developed in Kampong Phluk between the fishing households either the rich, the medium or the poor and the fish trading middlemen. The 'clientele system' is called in a local term as a '*moy'* which means that the fish trader is a '*moy'* who buys the fish from the fishing households, and the fishing household is a '*moy'* to sell the fish to only that fish trading middlemen, and no one else (for details, see Chapters 8 and 9).

However, politically, Kampong Phluk is organized into a community fishery (CF). Under the pulsing ecosystem, in the terrestrial phase, Kampong Phluk is zoned into four different zones for fishing and control of fishing areas: Zone 1, zone 2, zone 3, and zone 4 (see Map 5.2). Each zone is defined by boundary lines demarcating territory. Among these zones, zone 4 is the most important for Kampong Phluk, which I term a 'primary space of dependence' (a term I have adapted to Lake conditions from a reading by Cox, 1998). The rest of the zone is considered as a 'secondary space of dependence'. 'Primary' and

'secondary' here merely refer to areas that are considered of first-order or second-order importance to villagers in terms of livelihood resources, fish, and incomes. As Kampong Phluk people testify (Field Notes, 2007 and 2008), not many fishing households from Kampong Phluk fish in the 'secondary space of dependence,' but this space is fished mostly by people from Kandek or Rolous, neighbouring communities of Kampong Phluk. Instead, all fishing households fish in zone 4, which has effectively become a 'primary space of dependence' in that villager reliance upon the fisheries here is critical for livelihood security needs.

To fish in these zones, the 'license system' was introduced in which all households from within and from outside the Community fisheries (CF) Kampong Phluk must apply and must fish according to the defined fishing gears for both close and open fishing seasons. To limit the number of fishers in this zone, the best way forward was to introduce license system in which fishing households must apply to fish in those areas and must follow instructions about the use of gears.

In practice, such zoning promotes a 'commercialization of space' within the most productive CF areas and increases the control and surveillance of relations in space. Whilst the 'license system' was introduced to help generate incomes, in fact it has tended to disturb the relative harmony of fishing practices within Kampong Phluk as well beyond the community. The question is that will the fishers from outside the Kampong Phluk Community Fishery buy the 'fishing license' to fish in these zones? For example, 'outsiders' from Kandek, Rolous, Kchas and Danrun tend to consider the Tonle Sap as a 'communal bank', and they migrate every year down to fish in the Tonle Sap Lake after the rice harvest in order to catch fish for food during the cultivating season. Thus, the license system must regulate and restrict the practice of 'outsiders' moving freely into the zone.



Map 5. 2: The zoning of Kampong Phluk (Adopted from AFN, 2004)

The notion of a 'communal bank' is similar to notions of 'natural' and 'social' capital, values that are hard to calculate as they are based upon extensive and intensive indigenous knowledge of the lake, fisheries and ecological system 'services' (Lansing, Lansing and Erazo, 1998; Berkes, 1999; Hirsch, 2003). However, indigenous ideas about resources have become much more territorial and possessive than in the past. What we see happening within

the Tonle Sap seems to be part of a global tendency associated with the expansion of markets, territorialization of space with the introduction of more exclusive property rights, and commodification of natural resources, transforming definitions of 'communal property' away from 'bundles of rights' into 'territories' (Vandergeest and Peluso, 1995; Peluso, 2005a; Le Billon, 2000; Nevins and Peluso, 2008). In the Mekong Basin as a whole, rivers have become commodities for use by large-scale irrigation and hydropower developments, which is reducing common property access and wild-capture fisheries, which are vital components of natural and social capital (Baird, 1999; 2000; 2006; Baird & Flaherty, 2004; Baran & Myschowada, 2009; Baran & Ratner, 2007; Lebel *et al*., 2007; Molle *et al*., 2009). Commercial uses are also gradually transforming the meanings of 'community' and 'communal property' within the Lake. Within the territorial Lake system, the zoning of the CF areas and the boundaries marked on the CF areas has begun to exclude neighboring communities and seasonal inward migrants from using the so-called 'communal bank'.

As indicated in Chapter 3, empirical ethnographic-type research is very necessary in order to appreciate how and why zoning is often a very imperfect management tool. In the case of Kampong Phluk, zoning is made ineffective due to heavy competition in zone 4 and rather slack enforcement of community regulations. This raises the question about why 'zoning' is used at all since each village does not use chosen zones for the purposes they were originally designed. For instance, in the Kampong Phluk area only zone 4 seems to have become a heavily used community fishing zone, and not the other designated zones. If people do not use the zones following community set rules, it reflects the probability that they do not consider these zones as imperative, and therefore, they do not pay attention to 'protect' these zones. In such circumstances, it is very hard to mobilize people to participate in long-term resource management. Further research on the implications of more intensive territorial community measures and its applications for managing community fisheries is very much needed in the Tonle Sap. My research represents an initial examination, for indeed, there are a great many cases like this in the Lake, some of which have become the source of real conflict.

The fact that fisheries are so vital to household incomes, to food security and to livelihoods, means that researching on sensitive issues of managing community spaces is time-consuming and requires considerable patience in order to find out how and why social and spatial measures are actually operating in the lake space.

One purpose of zoning is to affect the use of the fishing gears in each zone during the close and open fishing seasons. The CF has technical supports from FAO and Provincial Fisheries Office to define the fishing gears to be used in zone 4 and the CF regulations include fines for violations of these rules. However, each fishing household tend to want to fish in this zone do not use fishing gears defined by the CF regulations, but tend to utilize gears designed to maximize fish catches. As I have indicated elsewhere in this thesis, there is a strong inclination for village fishers to continually search ways to up-scale, rather than to conserve resources.

Not every household has joined the Community Fishery and so there exist loopholes for illegal fishing activity to take place within the CF areas. For instance, 'illegal fishing' known as '*bor*' is widely spread out during July-Sept, 2007[23]. About 50-60 households in Kampong Phluk do practice illegal fishing with *bor*. The Community Fishery arrangement does not stop them, primarily because local Fisheries officials and the 'Commune Chief' have vested interests in not helping the CF to enforce all of its rules for certain payments are at stake (Field Notes, 2007 and 2008). Those who practice *bor* pay 300,000-500,000 Riel per fishing season to local corrupted officials, including economic police, local fishery personnel, and *kla* 5 (tiger 5), not part of the CF. This undermines the notion of the Community Fishery, and some other agents are able to invade the boundaries of the CF to take money away from other fishing households (pers.comm. with Ouk Bunna, owner of *bor* from Thnoat Kampot, 11 Sept., 2007). Issues of patronage and petty corruption are discussed in Chapter 8.

[23] 'Bor' is fishing gear and it is arrow-shaped capture chamber with a fishing trap attaching to it, made of nylon mesh size net. The use of this gear for fishing is illegal given the size of net.

5.8.3 Aquatic territoriality of Kampong Phluk

The rise of water levels in the Lake begins in May. The gradual rise of water levels urges people settling in the Lake to move their temporal settlements back to Kampong Phluk. When people return to their 'permanent stand-stilt house' in Kampong Phluk, water levels in the Tonle Sap Lake rise up slowly, inundating village areas and creeping up to the base and stilts of the houses. From August to December, the entire area of Kampong Phluk is submerged, except for a small area around the temple.

The depth of the water is estimated about 8-9 m deep in Kampong Phluk River and 6-7m in the village. The 'public space' in front of houses becomes the navigation channels for boats and a natural swimming pool for children. Boats are parked in the public space and children swim around, making this space crowded. Access to these houses is by boat and economic activity with villagers during this period is through boat, but less active.

To live in a 'water space', the high stilt homes, estimated at 6-7 m high, keep homes dry even at the peak of the rising waters; secondly, each house effectively becomes an 'individual island' during the high flood of the aquatic phase; third, boats are essential as a means of transportation; fourth, people make sure that they reserve enough rice reserves to last at least for the period of six months. Therefore, during the fishing season, they do their best to maximize fish catches, some of which is used to barter for rice, reserving the rest for food during the wet season. They also fish in the wet season, but they tend to catch less fishes because water levels are so deep, and most of their gears are less suited to such water conditions.

5.9 Farming-fishing territoriality in the Tonle Sap Lake

Numerous farming-fishing communities surround the Lake and edges of the Basin, and understanding these settlements is critical to appreciating human-nature relations in relation to the flood pulse, human adaptations to the changing ecosystem and access to environmental resources, as well as for examining differing human territorialities. These villages are extremely common in the wider floodplain of the Tonle Sap, indeed in the whole of the lower Mekong region. As Figure 5.5 shows, there is a high density of these types of village around the Tonle Sap**.**

Farming-fishing communities lie upon elevated land that is not usually flooded during the wet season, but situated close to the Lake. Households in this community engage both in farming and fishing. For more understanding of the farming-fishing communities, I examine Kampong La village (See Appendix 6, Picture 5).

Households in Kampong La organize their lands, water and resources around the village into two main categories - a 'primary space of dependence' and 'secondary space of dependence' (using my own adaptations from a term I have adapted from Cox, 1998). The 'primary space of dependence' is a 'farming space' where villagers cultivate rice as a 'primary crop' and a 'primary occupation' over this area for living. The 'secondary space of dependence' is also a 'fishing space', which is a 'secondary occupation'. However, some villagers engage in both farming and fishing whilst others are engaged either in fishing or farming. Only a small percentage of households in Kampong La is engaged purely in fishing. This does not imply that fishing is unimportant, for as many agency reports by the ADB, FAO, MRC, Fisheries Department, the World Fish Center, and FACT, have revealed, fishing is an essential element of the rice-fish culture of the lower Mekong.

In the wet season, villagers organize a 'farming space' into two categories—'*sreleu'* (rainfed lowland rice field) and '*srekrom'* (floating rice field) for rice cultivation (see Javier, 1997). Furthermore, villagers territorialize *srekrom* into '*srekrom vealreap*' (medium deepwater rice-field) and '*srekrom tomneap*' (lower deepwater rice-field). This classification is based on the nature of the rising and falling water, the geographical location of the area, the productivity of the area, and the influence of the hydrological regime of the Tonle Sap. By 2007, *sreleu* in Kampong La covers only 108 ha while *Srekrom* covers an estimate of about 188 ha. Rice is the main crop cultivated in *sreleu* and *srekrom* for mainly household food (Field Notes, 2007 and 2008).

a) "Sreleu" (rainfed lowland ricefield)

The geography of *sreleu* has three main characteristics— geographical location, the level of dependence on rainfall of *sreleu* for rice cultivation and the influence of the Lake hydrology on *sreleu (*Javier, 1997). It is called *sreleu* because it is located in the upper geographical area of the Tonle Sap floodplain. *Sreleu* is translated by agriculturalist experts as 'rain-fed lowland rice fields', which are geographically located in low-lying areas between eight and ten meters above sea-level in the Tonle Sap floodplain (Keskinen, 2003). The rice cultivation in *sreleu* is entirely dependent on rainfall, not on the lake hydrology. However, *sreleu* and *srekrom* is important for people livelihoods and it is considered as a 'primary space of dependence' for farming-cum-fishing communities.

In 2007, out of 189 households in Kampong La village, 137 households owned *sreleu*. *Sreleu* for households in Kampong La is a productive territory, producing a lot of rice paddy, feeding people for many generations in Kampong La. One crop a year is cultivated in the *sreleu*, starting in May, ending in August. Farming in *sreleu* is a labour intensive exercise, employing many people. If local people could not cultivate *sreleu* it would lead many

households to food shortages. Thus, it is not difficult to conclude that *sreleu* is both a 'primary space' of production and dependence for the people of Kompong La.

b) "Srekrom" (Deep water rice/floating rice field)

Srekrom means 'lower field' and it is a term used by local people in Kampong La based on the deeper geographical location inside the floodplain, and the dependence of rice cultivation in *srekrom* on the hydrology of the Tonle Sap Lake (Javier, 1997). S*rekrom* is translated into 'a deep-water rice-field, geographically located closely to the Lake, approximately within the zone of 6-8m above sea level (Keskinen, 2003). *Srekrom* is submerged by the rising water in the Tonle Sap Lake during the wet season, and as a consequence, it is classified into two categories - *srekrom tomneap* (lower deepwater rice field-field) and *srekrom vealreap* (medium deepwater rice field).

Srekrom vealreap (or medium deepwater rice-field) is located deeper inside the floodplain area, lower than *sreleu*, but higher than *srekorm tomneap*, about 1500m from the village. The soil quality in *srekrom vealreap* is sandy soil or sandy clay, and it yields relatively low rice productivity, estimated at about 400-500 kg per hectare (Field Notes, 2007 and 2008). Farmers cultivate "*srove leung tuk*" in *srekrom*, known as a 'floating rice' in English, but local people call this rice a 'rising water rice', as naturally it grows according to water level - when water levels rise up with the flood pulse, thus the rice also grows up high. This is another indigenous and vernacular difference to the common idea in English of rice that is suitable in conditions of flood. Actually, the local people do not regard the land as 'flooded' and see this purely as a 'natural rising of the waters', which is a regular and not an unusual event (Field Notes, 2007).

Despite the distance of *srekrom vealreap* from the village, and low rice yield compared with *sreleu*, Kampong La villagers see the value of cultivating in *srekrom vealreap*.

As a 'primary space of dependence', *srekrom vealreap* provides a substantial quantity of rice production for households and it ensures food security for farming-cum-fishing villagers. Thus, *srekrom vealreap*, for Kampong La villagers, is a crucial 'secondary space of production' in the villagers' rice-economy.

Srekrom Tomneap

'*Srekrom Tomneap'* is located deeper inside the Tonle Sap floodplain, which means about 4 km from Kampong La village. Soil is fertile and the rice yield is estimated at 1.5-2 tons per hectare. However, given the relative remoteness in terms of walking distance from the village, villagers do not provide enough attention to *srekrom tomneap*, contributing lower yields. At the same time, the rising water in the Tonle Sap influences the rice productivity of *srekrom tomneap*. Thus, farmers cultivate rice varieties that grow and rise according to water levels named as a '*srove leung teuk*', translated as 'rising water rice' in English.

The hydrological regime of the Tonle Sap affects the rice yields in *srekrom tomneap* in several ways; some times, water stay longer in the Tonle Sap, affecting the harvesting season; some time, low water quality in the Tonle Sap affecting the rice production in '*Srekrom* Tomneap'; and some time the rat damage the rice field, contributing to low yield. For Kampong La residents, *srekrom tomneap* is important, but it is considered as a '*tertiary space of production'* of rice.

Srekrom tomneap is plowed in mid-March or early April while *srekrom vealreap* is plowed in mid April or early May and they broadcast immediately after plowing. *Srekrom* in Kampong La is owned by 133 households out of 189 households. However, the rice yield is still low due to less protection and care over *srekrom*. Moreover, in some years, *srekrom* is not cultivated due to the sudden rise of water levels in the Tonle Sap Lake.

Sreleu, *Srekrom*, *Srekrom tomneap* and *srekrom vealream* are further classified into a smaller field known as '*sre*' (ricefield), and hundreds of rice-fields exist in *sreleu* and *srekrom* separated one from another by high and low dykes. Thus, it is possible to envisage agricultural and aquatic resource spaces ion terms of human-nature relations and the territorialization of space as both a livelihood security measure and in terms of the political economy of resources in a commercializing, but not yet fully commercialized space. The production space in the Tonle Sap is both top-down through various representations, plans, boundaries, and territories created by State and other agencies, and also bottom-up in relation to myriad human-nature adaptations to the annual flood pulse, pulsing ecosystem, and adaptations within the rice-fish economy.

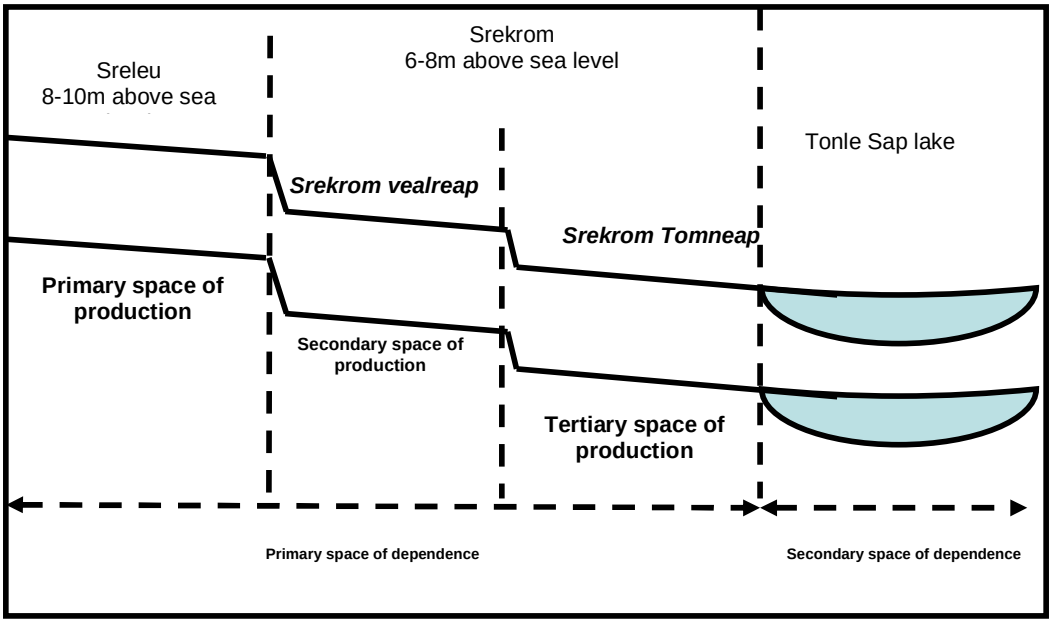


Figure 5.5: Territorial system of farming-cum-fishing community in the Tonle Sap

c) Fishing Areas as a Secondary Space of Dependence

Kampong La has borders with the lake proper in an easterly direction, and to the west with land areas. The geography of Kampong La is dominated by wetlands and water spaces such as rivers, the lake proper, streams, creeks, canals and natural ponds. The wetlands and

the water bodies form a natural *secondary space of dependence* for people in Kampong La. People fish and collect non-fish resources in this area for their food.

Fishing is secondary occupation for the majority of villagers in Kampong La, but for some, it is a primary occupation for two reasons: First, households in Kampong La treat fishing as a 'safety net' for food; and second, the Tonle Sap is not only a 'space of dependence,' but also a 'communal bank' belonging to everybody (Van Acker, 2005). In the high flood season, people fish in an area about 2-3km from the village, but in the dry season, they fish in the lake about 9-10 km from the village.

The majority of households in Kampong La do fish all year round, but fishing is considered as an 'off-farm' activity. People fish according to the seasons. The 'high fishing season' starts from November to March. During this period, villagers migrate down with the whole family to the lake and settle for fishing in an area about more than 10km from Kampong La. Some households move down to the Lake with draft animals since they do not return home within 3-5 days. Many of them stay in fishing areas until the rainy season starts, and they return home when the water levels rise up, particularly in May. As water levels rise up, fishing is not so active and catches are not that high in the low fishing season. The 'low fishing season' does not mean they do not fish, but their fishing activity is less than in the 'high fishing season'.

Villagers from farming-fishing areas set up what they call 'fishing camps,' or '*tov prang'* or '*tov mat'* in local Khmer terms. The 'fishing camp' or '*tov prang'* or '*tov mat*,' is a temporary fishing settlement where people from Kampong La and residents from farming-fishing villages settle for fishing during the off-farm season in the Tonle Sap floodplain. The temporal settlement in this sense lasts about 2-3 months. As this thesis demonstrates, temporal territoriality is a common and significant facet of human-nature relations in the Tonle Sap. It is still relatively little understood by fishery managers at higher levels, and its relevance to

fishery governance should be carefully considered as it is related to fishery productivity and food security matters in the Lake system.

About 30-40 households from different farming villages, for instance, Kampong La, Chek Chao and Moat Prey villages settle in an average ‘fishing camp’ at a time. Within the fishing camp, there is a small market where people sell their consumer goods like rice, instant noodles, salt, soap, clothes, fishing nets and fishers sell their fish. Fish traders travel to the 'camp' everyday to buy fish from fishers in the ‘camp.’ The ‘fishing camp’ is a ‘small community’ that farmer-fishers assemble there once every year to fish in the Tonle Sap. In order word, this is a ‘traditional temporal fishing community,’ that has been practiced for many generations. There are many other fishing camps around the Lake, and this is one of them around the lake.

The fact that temporary fish camps are another deeply embedded feature of the human landscape or waterscape of the Lake, and one that is so critical for food security is another reason why it is necessary to undertake empirical research on the territorial adaptations of ordinary people and communities of the Tonle Sap. By organizing their resources, households could ensure high benefits and they could access and use these resources more effectively.

5.10 Everyday forms of conflict and resistance of fishing communities in the Tonle Sap

Given the partially ‘hidden geographies’ of these villages, through this research we see that many fishing communities struggle everyday to construct their ‘everyday space’ for fishing and for rice-farming to feed their family members. These struggles are forms of ‘everyday resistance’ in the face of State mappings and simplifications (Harley, 1989; Scott, 1998) and rationalizations of space, particularly privatization (see Chapter 6). Forms of ‘everyday resistance’ apply to all fishing villages in the Tonle Sap, but as the above sections

have tried to show, each community 'type' has differing human-nature relations and adopt slightly different territorial adjustments and strategies to meet their livelihood security needs. But, in addition to social-ecological changes and responses by ordinary people, there are other political geographic issues that the village people of the Lake must face. In James Scott's (1985) *Weapons of the Weak* he defines resistance is a constant struggle between the peasantry and those who seek to extract labour, food, taxes, rents and interests from them. In Jonathan Rigg's (2007) *Everyday Geographies of the Global South*, the author also refers to 'everyday forms of peasant resistance.' What I have been describing in this chapter are different *everyday* forms of territoriality, and different social and spatial responses to changing ecological, economic and political conditions in the Lake.

In the Tonle Sap, the everyday forms of resistance are also struggles against the diminishing of open access fishing areas, partly due to the commercialization of fisheries by the powerful groups. And the resistance against the extension of fishing lot boundaries into the public fishing areas, the resistance against the water gates across the fishing lot areas by the fishing lot owners and the conflicts between agriculture and fishing inside the fishing lots. Some of these important issues are discussed below.

5.10.1 The 'closing water gate' across the fishing lot area

Fishers from fishing villages around the Tonle Sap struggle everyday with the fishing lots surrounding their villages, in which villagers have no right to enter the fishing lot area without permission from the fishing lot owner, even to collect firewood or pass thought the lot area. If they want to go through the area, they have to pay for *kbal touk* (per boat per entry) as a fee to enter the lot or rowing the boat along the designated areas defining as a navigation channel such as in fishing lot no.6. The payment is about 3,800R (nearly 1US$) for each boat even when villagers just enter to collect firewood or cut some tree branches for attracting shrimps (*ta som*) (Gum, 1998; Vuthy *et al.*, 2000; Piseth, 2002).

The lot boundary has been restricted and guards are hired to patrol it at all times. The guards are equipped with guns and they are given orders to shoot at or arrest anyone who tries to enter the fishing lot without permission. The chief of the guards is usually a very powerful. Villagers are very afraid of them. During the lot operation, people are not allowed to enter the fishing lot during day or night (Gum, 1998; Vuthy *et al.*, 2000).

Villagers in fishing villages depend exclusively on natural resources: fishing for food and collecting firewoods for cooking. Since the fishing owners have extended the fishing lot boundary, fishers are denied access to their tradition fishing areas. As a consequence, fishers have very often resorted to sneaking into the lot and looting as a mean of accessing their fishing areas in order to extract fisheries resources for their livelihoods. Consequently, a variety of serious conflicts arise. However, the conflicts tent to be less intensified among others who can afford to pay for access to fishing or have good relations with the lot owners.

5.10.2 The 'extension of fishing lot boundaries'

Extending the fishing lot boundaries commonly occurs in the lots located around the Tonle Sap Lake. This happens when the fishing lot boundaries are not clearly marked. For example, one side of the fishing lot boundary is open ended. This allows the lot owner to extend the lot. Extending the fishing lot boundaries bring more benefit to the lot owners. The conflicts in fishery resources have accelerated as the lot owners try to expand their lot boundary and deny access of small-and medium scale fishers to fish.

Villagers in many fishing villages recognized that the demarcation of fishing lot boundaries show on the map by the lot owner was not correct because even their houses were included in the lot. Since no one had officially complained about the problem, the lot owner insisted on maintaining the rights to patrol the lot boundary (Swift, 1997; Hasselskog *et al.*, 2000). The situations described above reflect the general condition faced by fishers living

near the fishing lots around the Tonle Sap Lake who depend on fishing for their livelihood. The conflict over access to fishing area continues to remain as serious issues and sometimes leads to violence between the fishing lot owner and local villagers.

The fishing lot owners claim that 'everything within the lot boundaries except for specially designated common property areas are under the jurisdiction of the lot owners during the open season' (Swift, 1997:17). Hence, even peoples' housing area may be under the jurisdiction of the lot owners if water reaches it during the open season. People living in the fishing lot areas have no legal right to fish at any scale during the open season, even if their own homes fall within the lot boundaries. As a consequence, conflict occurs in areas where villagers are forbidden to fish ever around their own homes (Swift, 1997).

5.10.3 The sale of open access fishing areas

Powerful people, such as politicians and senior officials or military officers sometimes take and sell away the public fishing areas to individual fishermen. The benefits will then go to the individual lot owners and their patrons. The livelihoods of the communities are adversely affected by diminished public fishing zones. The process of selling good fishing grounds was common before 2000, but is less so following widespread public protests, and subsequent fishery reforms that have established official recognition of community fisheries.

I take the case studied by Hesselskog *et al.,* (2000) in Peam Ek in Battambang Province where the selling of a public fishing-grounds had high level support; first, district officials sold some fishing areas to the lot owners; then, the provincial governor sold more fishing areas; and finally, the Ministry of Agriculture, Forestry and Fishery sold all fishing grounds in the area (Hesselskog *et al.,* 2000). According to Heasselskog *et al. (*2000), both the process of selling the fishing-grounds and the commercial lot boundary expansions were carried out through collusion between businessmen and government officials. In Chapter 8, I

discuss the entrenched and peculiar system of patron-client relations in the Tonle Sap, which in turn, facilitates forms of encroachment and displacement to take place.

5.10.4 Conflicts between agriculture and fishing

During the rainy season, the villagers' farmland is flooded and some parts of that farmland fall within the fishing lot areas. The proclaiming of the Fiat-Law clearly prohibits activities that are 'detrimental to fisheries production' (Gum 2000). It includes prohibition of inundated forest including the transportation, stocking or trading of firewood and charcoal originating from the inundated forest. It means that all activities in the fishing lot including farming in the flooded area is totally prohibited (FACT & EJF, 2001).

However, farmers use some areas within the fishing lot for rice farming long before the issue of this law. Hence, conflicts often happen as the fishing lot owners try to control the area. The flooded forest is a place for fish to thrive, but people need to cut forest for firewood and use the land for agricultural purposes. Another type of conflict comes from overlapping usage of water (Sithirith, 2000; Swift, 1997). During the flooding season, some farmers dig canals to bring water into their rice fields, but the fishing lot owners do not agree and threaten to destroy the irrigation dikes. The commercial lot owners argue that when water flows into the rice fields, fish also follow, thereby reducing the quantity of fish in the lots. However, during the dry season, some lot operators pump water and drain the ponds surrounding the Lake, which are used for catching fish (Sithirith, 2000; FACT & EJF, 2001; Swift, 1997). This water is crucial for agricultural irrigation during the dry season. Some conflicts have resulted in the shooting incidents directed at farmers by fishing lot guards in Battambang and Siem Reap province. Several fishers have previously been injured in conflicts with lot operators and guards (Degen *et al.,* 2000; FACT & EJF, 2001).

5.11 'Everyday space' and 'everyday practices'

Most of the time, small-scale and medium-scale fishers compete for their access to fishing-grounds. Two places where small and medium-scale fishers could gain access to fishing are in the public fishing area and the lot areas. To access to the public fishing area, fishers have to build a good relationship with officials in charge of the fishing ground. However, access to fishing lot areas depends on social relations fishers have with the lot owners. In the contractual relation system, each fisher has to negotiate and bargain with the lot owners. Some fishers may gain more and some may get exploited.

The space constructed by the state such as the commercial fishing space, conservation and the public fishing space ignores or excludes everyday space of fishers, but fishers fish everyday and therefore, they construct their 'own space' despite official ignorance of relevant State agencies. None of the 'representation of spaces' mentioned above relate easily to 'everyday lived spaces' of fishing villages. An 'everyday space' for fishers in the Tonle Sap is the 'public fishing space', within which each fisher has a tendency to maximize their fish catches in the 'everyday space' due in part to the intensive territorialization and exploitation of the Lake space squeezing available fishing zones. Hence, the maximization of fisheries resources in 'everyday space' has induced a decline in household fish catches, making fishing less reliable as a source of livelihood (Field Notes, 2007, 2008, 2009). Thus, fishers worry about their 'everyday survival' and so, they practice a 'safety first principle' in order to maintain catch sizes above the minimum level for subsistence (Scott, 1976). To do this they need constant access to the 'everyday space' for fishing, upgrade fishing gears to ensure the maximum catch, and seek protection from powerful people or 'patrons' to fish in good fishing spaces. To do this fishers construct 'spatial relations' with 'patrons' who are able to *influence* the distribution of access rights to the 'public spaces'. Many patrons are government employees (Piseth, 2002; Gum, 1998; Vuthy *et al.,* 2000). In order to make a living in a duty

station with low salary, ‘patrons’ provide a service to fishers who become their ‘clients’ (Field Notes in Peam Bang, Kampong Phluk, and Kampong Loung, 2007).

To fish in an ‘everyday space’ or ‘public fishing space’, fishers pay for the access, and fishers maximize the fish catch. In doing this, small-fisher often upgrades their fishing gears. Moreover, most of fishers in the Tonle Sap claim they fish for subsistence or as legally designated ‘small-scale’ operators, but ‘everyday practice’ the ‘small-scale’ fishing is misleading (Field Notes, 2007). However, according to Fisheries Law, small-scale fisher is allowed to fish in small-scale for subsistence only, and if they fished using gears larger than small-scale must get permission from Fisheries Administration (FiA) (Fiat Law, 1987; Fisheries Law, 2006). Thus, using upgraded fishing gear for fishing is illegal according to Fisheries Law, but they still fish with those gears. If they did not pay, but fish with illegal fishing gears, immediately they are pushed out, arrested or gear confiscated (pers.comm. with Sangkat fishery official, Chief, in Peam Bang, 2007).

5.11.1 Everyday practices for fishers in the fishing lots

Most of fishing lots in the Tonle Sap are classified into ‘sub-lots’ which the fishing lot owners lease out to small-leaseholders. In addition, the lot owners and small-leaseholders sell fishing rights to individual fishers or groups of fishers from local communities (Vuthy *et al.,* 2000; Degen *et al.,* 2000). This makes it possible for smaller scale fishers to fish inside the fishing lots. But frequently this means that fishers have to have a good relationship with lot owners, the leaseholders and the sub-leaseholders; second, fishers have to protect the interests of the lot owners, the leaseholders and the sub-leaseholders, who are all ‘patrons’; and third, fishers have to share portions of their fish catches with their ‘patrons’ by as much as 50 or 60 percent.

5.12 The freshwater lake as an ecological-political-territorial 'matrix'

Spaces in the Tonle Sap are very complex, but as much of this chapter has discussed, some of the complexity relates to human-nature relations. Mobile, vertical and floating territorialities involve particular place-specific social adaptations to biophysical, ecological and political constraints. Many of these territorial strategies have really not been discussed in detail by other researchers and this is one of the contributions of this thesis. Chapter 4 discussed how State agencies, global agencies and regional agencies construct or represent spaces in the Tonle Sap. These spaces frequently 'lived spaces' of the many fishing communities in the Tonle Sap. In this chapter we have seen that there is a 'hidden geography' of fishing communities, particularly 'floating communities' in the Tonle Sap. Furthermore, these small communities struggle everyday to maintain, construct and defend their spaces of dependence in spite of the multiple abstract spaces constructed by the State, global and regional agents as well as commercial and conservation agents operating in the Tonle Sap.

The geography of fishing communities is 'hidden' in two critical ways; first, the different territorialities of farming-cum-fishing, stand-stilt and floating communities is little understood at official governance levels, rarely discussed, and everyday adaptations to ecological and hydrological dimensions are not considered to be important elements of fishery management by relevant agencies, including the Fishery Administration; and second, geographies are 'hidden' as a result of dominant politics that promote certain viewpoints at the expense of smaller-scale fishers and often sideline the floating communities completely. Finally, in order for ordinary fishers to subsist, to maintain livelihoods, and to survive in the highly competitive and increasingly territorialized Lake environment they have to collude with officials, which often means bribes, gifts or payments of one kind or another. Sharing fish catches with lot owners, leaseholders and sub-leaseholders adds to the complex social-political-spatial power webs of the Tonle Sap.

CHAPTER 6

Territorialities and Political Geographies of a Freshwater Lake

One of the most often cited phrases from Robert Sack's (1986) *Human Territoriality* is "territoriality is a primary geographical expression of social power" (p.5). Less widely cited are the following statements which are just as vital to the concept, that territoriality "is the means by which space and society are interrelated. Territoriality's changing functions helps us to understand the historical relationships between society, space, and time." This statement is particularly relevant for analyzing the long-term changes in state and inter-state sovereignty in Southeast Asia over the past two hundred years or so. Thongchai Winichakul (1994: 17) is acutely aware of the centrality of 'modern' geographical notions of political space, boundaries and territories in his analysis of the making of the national 'geo-body' of Siam. "We all know how important the territoriality of a nation is. Unarguably it is the most concrete feature, the most solid foundation, literally and connotatively, of nationhood as a whole." What is very important here is that the Siamese state eventually became as adept as rival colonial powers, Britain and France, at utilizing the political map alongside military force to delineate, carve out (by coercion when necessary), and create a territorial 'nation'. Having done so, *internal* state-led nation-building processes became territorialized too, and national space (as still evidenced in territorial and boundary disputes between Cambodia and Thailand) became a fundamental part of inter-state relations, linked with active spatial socialization within the 'nation', involving intense material, psychological and emotive ingredients (Paasi, 1996; Hassner, 1997; Storey, 2001; Penrose, 2002; Delaney, 2005). As Jan Penrose (2002: 280) put it: "Through territoriality, specific places (including territories) are constructed and it is this process that allows people to harness the material and emotional potential of space." In Penrose's terminology, territoriality helps harness 'the latent powers of space'. Furthermore, territoriality, viewed as *a component of power* is not only a medium of creating and reproducing social order, but it also creates much of the geographic context through which we

experience the world and give it meaning (Storey, 2001; Paasi, 2003; Delaney, 2005; Peluso, 2005a).

This Chapter sets out to examine territoriality as "a geographical expression of social power" (Sack, 1983; 1986) within the national geo-body of Cambodia, primarily through the territorialization of natural resource management on the Tonle Sap lake. I examine territoriality of the Tonle Sap in three different ways. First, I focus on 'commercial fishing territoriality'; second, I examine 'public fishing territoriality' for ordinary family fishers; and third, I discuss 'conservation territoriality'. Last, but not least, I explore the implication of the territorialized system of the Lake on broader issues of resources and fisheries management. However, before examining specific ways political territories and boundaries are applied to fishing (commercial, community and subsistence) and conservation issues in the Tonle Sap, I wish to explore how and why political territoriality relates to ideas about power, bio-power, state-society relations, and resource governance conceptually and within the empirical realm of Southeast Asia, before returning to the Cambodian context more specifically.

6.1 Political Territoriality, Access and Resource Politics

I conceptualize territoriality as a strategy aimed at reifying aspects of political control for different purposes, often economic ones, and with specific applicability to the management and control of natural resources. Territoriality as a geographical human behaviour and strategy is not necessarily benign or malevolent, but it could be either: "Overall there is the suggestion that territoriality can help increase the efficiency of an organization (whether it is a state, a business or a church) up to a point, and that it can help shift an organization's goals from benign to malevolent" (Sack, 1986:41). In other words, territoriality is a strategy for controlling relations within precisely defined 'territories' which can be at any scale, and as a strategy of control the purposes can be manifold. Political geographer, Richard Muir (1997:12) who discusses Sack's concept of human territoriality points out that Sack's

definition is largely based on 'rational' economic and political reasoning and therefore sometimes omits the 'human irrationality' factor, which means that some aspects of territoriality may be chaotic, and less ordered in practice. However, Muir and Sack both argue that territoriality is always socially or humanly constructed and should be kept distinct from many scientific studies animal or biological territoriality. That said, as noted in chapter 4, there is no denying that there exist significant human-ecological dimensions to 'human' territoriality, and bio-physical factors do influence fishing and spatial behaviour in the Tonle Sap.

Johnston (1995:213-225) and Delaney (2005) take Sack's treatment of territoriality as an essential component and strategy utilized by modern territorial States to maintain order, to extend administrative-bureaucratic administrative mechanisms, and to control environmental resources (and citizens). Indeed, as noted above, human territoriality is a core notion and 'concrete manifestation' of ideas about nationhood (Winichakul, 1994: 17), within which strong societal attachments to 'territory' and 'place' are central (Penrose, 2002). Within national geo-body spaces, territoriality is often employed in strategies by states as a means to exert, influence and extend forms of 'state control' over people, things and resources within national territory (Vandergeest and Peluso, 1995; Vandergeest, 1996; Paasi, 2003; Peluso, 2005a; Alatout, 2006).

Resource politics is largely a politics of 'access' (see Ribot and Peluso, 2003) and about issues of state centralization and decentralization (see Wittayapak and Vandergeest, 2010), and within these important political strategies and policies relating to allocating and distributing rights to ordinary people there are both territorial and non-territorial aspects. This chapter is focusing on the how and why 'political' territorialization has become so significant in resource governance matters in the Tonle Sap. Returning to Sack's (1986) ideas we get valuable clues from the way he outlines the theory of human territoriality. As Sack (1986: 26) puts it: "Setting places aside and *enforcing degrees of access* means that individuals and

groups have removed some activities and people from places and included others. That is, they have established *different degrees of access to things*" (my emphasis). The 'access' politics associated with all the forms of territoriality discussed later in this chapter are fundamental problems of resource governance for the whole Tonle Sap. In this way, territorial boundaries do bring to the forefront the 'latent powers of space' and in turn help to 'reify power' (Sack, 1986: 32) of particular commercial users, whilst "displacing attention from the relationship between the controller and the controlled" (Ibid., 33). For the actual fishing lot, users are not the ones who are ultimately responsible within the state for the auctioning and allocating of primary fishing space in the Tonle Sap. The key 'controllers' are mostly hidden from view of the supposedly 'controlled.' Furthermore, some of the geographical classifications of space for conservation activities really do help to make some relationships about access, and decisions about resource use, more impersonalized, because local communities are largely remote from the agencies and individuals who have determined some zones are for conservation and others are not. In these and many more ways, Sack's ideas about territoriality have direct things to tell us about the formal political representations of space in the Tonle Sap. But, the concept of human territoriality alone does not explain all of the complications and aspects of 'power relations' involved in the everyday politics of territories and contested space in the Lake. For this we need to consider some other ideas relating to 'power'.

6.2 Territories, Power and Bio-Power

'Power is present everywhere' and in all social practices (Foucault, 1980), thus there are territorial and non-territorial aspects to power (Sack, 1986). And as Paasi (1996: 20-21, after, Cosgrove, 1989) observes: "geography is everywhere – both in the large-scale territorial processes and in the local contexts of everyday life and inherent experiences and meanings (…) Social life, like everyday activity, is essentially a practice of demarcation, of continually making social and cultural distinctions. 'Geography' in this sense distinguishes and connects

individuals, groups and states, human beings and nature." Further, as Johnston (1986: 364) observes: "the exercise of power over people necessarily involves the creation of geographies." Sack (1986: 26) argues that "human spatial relations are *the results of influence and power*. Territoriality is *the primary spatial form power takes*" (my emphasis). But, it is important to add here that human spatial relations are not necessarily always *territorial*, and many are not, and that 'influence and power' may have complex relations and influences on particular territories, which relate to the different way in which 'power' is mediated and activated simultaneously in various ways and forms through actors and agents. Further, territoriality as 'the primary spatial form power takes' means that there may be other forms of power operating simultaneously and other 'power effects' that relate to the operation of particular territories and territorial behaviour.

Power is not 'a thing' that can be containerized or held. Power necessarily involves social relations and 'relational' dimensions. John Allen (2003a: 1-2) writes in *Lost Geographies of Power*: "In a world where it has almost become commonplace to talk about power as networked or concentrated, distributed or centralized, even decentred, deterritorialized or radically dispersed, it is all too easy to miss the diverse geographies of power that put us in place." Allen argues that the geographies of power are not simply related to the creation of walls, boundaries and fences, but involve complex power relations, vertical and horizontal, that lie within and across politically classified 'territories' and 'places'. Similarly, Delaney (2005) argues that even though territoriality is a key expression of power and territories do help to make certain forms of 'power' more visible, there are also many cross-cutting social relations, which complicate the functions and meanings of territories (such as complex social hierarchies and stratified relations of power, and relations of power that affect policies, events and influence social relations within and between territories). Allen (2003b) draws our attention to what he calls 'the particularities of power' and 'diverse and specific modalities of power', which are exhibited in both territorial and non-territorial social relations. In other words, Allen (2003b: 3) suggests that political geographers tend to

be too obsessive about the 'spaces of power' and do not consider enough "how geography affects the workings of power" for "power is *inherently* spatial, and conversely, spatiality is *imbued* with power." As such, Allen is concerned with how power works across space, rather than simply through territories. Nevertheless, Allen acknowledges that power is frequently 'situated' and that we are all "placed *within* a tangled arrangement of power relationships" (Allen, 2003b: 10). Most people experience 'power' at first hand through relationships that are situated within particular places or territories. There are many types of power involved, including state 'infrastructural power', institutional 'power over', various forms of 'associational power' (through alliances, unions, networks), and power functioning through people's own behaviour (Foucault, 1991; Allen, 2003b). Whilst power is 'an imminent force' and is 'inseparable from its effects', there are still variable geographical effects as power is mediated through particular places and territories (Allen, 2003b: 103).

This brief consideration of the various forms that power takes, of the spatiality of power, and of various power effects (geographical and social), means that we should realize that human territoriality is one way of considering how power may be reified and produces certain effects, but there are numerous other forms of power at play that have 'extra-territorial' attributes. Samer Alatout (2006) offers some insights that are of direct relevance to this research on human territoriality within the Tonle Sap. Alatout's main concern was on the politics and storylines (after Hajer, 1995) associated with hydro-politics in the Israel-Palestine context. His work examines statist hydro-political discourses that reflect dominant structural forces (institutional and discursive) and are deeply embedded in socio-political structures. This relates to ideas about dominant 'representations of space' by politicians, policy-makers, technocrats, and map-makers influencing the complex realities of 'representational space' within which most people, things and resources interplay (Lefebvre, 1991; Sithirith and Grundy-Warr, forthcoming).

Alatout (2006: 603) argues that Sack's (1983; 1986) ideas about human territoriality are isolated from theories of power. However, it is very clear from this author's reading of Sack's theory of human territoriality that his socially constructed notion of territoriality has power relations, the politics of space, and unequal socio-economic and political access to resources running through the entire discussion of territoriality. In other words, power relations are always present within the theory of human territoriality, although there is no particular theory of power within Sack's study. As Alatout (2006: 603) concedes, "the very definition [of territoriality] implies territoriality's embeddedness in relations of power." As noted earlier, unequal power relations comes through in the fact that territoriality is "a strategy for establishing differential access to things and people" (Sack, 1983: 55). And this is central to the political geographies that relate to and result from applications of territoriality in the Tonle Sap Lake. In addition to this recognition, Alatout applies Foucault's notion of 'bio-power' to discuss some of the 'extra-territorial forms of power' that are inherent in hydro-politics and the politics of resources, calling these 'extra-territorial (bio) power' (Alatout, 2006: 604). Thus, at any one time there are 'mutually constitutive' territorial and extra-territorial forms of bio-power operating through the institutions, actors and agencies, through the places, specific territories and people of the Tonle Sap. This chapter focuses primarily on particular applications of political territoriality and its effects, but the following chapters, particularly chapter 8 on the political economic transformations in the rice-fish economy and patron-client relations deals much more with issues that could be examined as 'extra-territorial (bio) power.' The following section examines the extensive processes of territorialization in relation to state-building and environmental resource control.

6.3 State Territorialization and Resources in Southeast Asia

Using Sack's theory as a basis, Vandergeest and Peluso (1995) discussed the importance of controlling rural space, people and resources through the strategy of

'territorialization', which they define as the "process by which states attempt to control people and their actions by drawing boundaries around geographic space, excluding some categories of individuals from this space, and proscribing or prescribing specific activities within these boundaries" (Vandergeest and Peluso, 1995: 257). Following their analysis we can see that many states in Southeast Asia have "territorialized state power to achieve a variety of goals," including making claims to space in order to gain income from taxes and revenues from environmental resources; to advance commercial plantations and market economics to outlying rural peripheries; to extend modern state bureaucracies; and to utilize territorial means as forms of control and surveillance about different local populations, especially ethnic minority and racial groups viewed with suspicion (see also, Vandergeest, 2003; Roth, 2004). Vandergeest and Peluso (1995) write specifically about 'territorialization and state power' in Thailand, although many of their observations and arguments would be usefully applied in different parts of the region. They focus on *internal territorialization* and its applications to the allocation, ownership, distribution and realization of natural resource access rights. They argue that all modern states divide their territories into complex and overlapping political and economic zones, rearrange people and resources within these units and create regulations delineating how and by whom these areas can be used.

Many of the state-led applications of territoriality in the sphere of forestry and land-use enable certain orderings, categorizing and simplifying for specific purposes and functions deemed rational to particular agencies of control. Indeed, one of the key political dimensions of creating national parks, forest reserves, plantations and other forms of enclosure is to transform areas that were once unruly and messy commons into orderly and systematic territories serving 'national' (read, 'state') interests. Indeed, state territorialization can often serve to transform and make more legible "the complexity and variability of local production" (Scott, 1998: ch.1).

Practically all the states in post-colonial circumstances have utilized colonially inherited ideas about 'scientific' and territorial resources management, including Thailand which was never formally under direct colonial rule in the same way that Burma and Indochinese states were (Sowerwine, 2004; Tho Xuan Phuc, 2008). Vandergeest (1996) has argued that many developing states attempted to subvert or take over local resource management regimes through the employment of territorial control. For instance, in Thailand the administrative definition of the forest has changed from one based on classification by species to one based on territory. The Thai central government claimed a monopoly on the administration of property right to natural resources. The process took 'place' in three stages; first the government declared that all territory not claimed by permanent cultivators or other government agencies was forest under the jurisdiction of the Royal Forestry Department. Second, it demarcated the forest into reserve and protected forest. Third, it mapped all forest land as well as non-forest land according to 'scientific' land use classifications, which became the basis for policies to determine control, rights of use, access and occupation, and in the process excluded many highland people and upland 'minorities' from extensive areas of designated superior watershed areas and protected zones (Vandergeest and Peluso, 1995; Vandergeest, 1996). However, this approach has not always been successful for the state to control all natural resources within these territories. Furthermore, the evidence of forest loss shows that in the 1950s probably over half Thai national territory, was still under forest cover, compared with today where the figure is between 10% and 20% (Vandergeest, 1996). Thus, we need to scrutinize the purposes of territoriality and to carefully examine the consequence, which may contradict intended goals.

Finally, another pertinent aspect of the territorialization of resources concerns the notion of 'abstract space' (Tuan, 1977) versus ideas about 'lived space' (Lefebvre, 1991). As Vandergeest and Peluso (1995: 388) put it: "Abstract space dimensions are 'linear,' they can be cut up into discrete unit … and measured. Abstract space is homogenous in that it is represented as uniform within any given territory; any unit can be compared and rendered

equivalent to another unit by spatial categories. The construction of such abstract, comparable grids permits the location or nesting of an area in a larger abstract space." Such as, the location of fishing lot number 7 and a fishery conservation area nearby, both within Pursat Provincial boundaries, within a larger grid of precise delimitations making up the space of the Tonle Sap. In this way space through the process of becoming 'abstract' is actually made knowable and controllable through a grid-like system to key state agencies, management institutions, planners, scientists and officials. Thus, territorialization is integral to ongoing efforts to submit everything to the 'discipline' of modern maps, which "are instruments by which state agencies draw boundaries, create territories, and make claims enforced by their courts of law" (Vandergeest and Peluso, 1995: 389). Nevertheless, the creation of territories on the map does not necessarily imply that these may be neatly and unambiguously applied on the ground, or in the Tonle Sap's case, on the water. Localized messiness, indigenous practices and various forms of resistance may likely result in contested applications of enclosure and conflicts over boundaries and their meanings.

In contrast to attempts to rationalize space by employing 'abstract' notions of space to create functional territories, we may view 'lived space' as being literally 'alive' and a space 'of action and of lived situations' much as Lefebvre's (1991: 42) notion of 'representational space.' Or as Vandergeest and Peluso (1995: 389) describe, 'lived space' is "experienced territory or space' which is 'located, relative, and varied." One of the major concerns of this chapter is in fact "the lack of fit between lived space and abstract space" (Ibid.). Indeed, this lies at the core of some of the most serious and seemingly intractable resource and spatial conflicts in the Tonle Sap over the past decade.

6.4 Territorialization and Mapping in Cambodia

In many respects, the most intensive period of territorialization and (re)territorialization within Cambodia has been during the last two decades, since the

transitional ‘peace’ phase and opening up of Cambodia’s resource economy to greater investment from outside. Indeed, Cambodia’s forests and environmental resources have witnessed unprecedented levels of exploitation (Le Billon, 2002). The lure of huge revenues has led to a transformation in the property rights landscape as speculators, investors, state agencies and transnational companies all competitively and often in alliance strive to carve out timber concessions areas, land for commercial plantations, and other revenue-earning opportunities.

Jefferson Fox (2002) examined how and why the process of land-grabbing and claiming space in the northeast province of Ratanakiri was leading to pressures on local communities to urgently become more territorialized themselves through processes of ‘counter-mapping’. For whilst modern mapping has the tendency to destroy ‘indigenous conceptions of space’ by replacing ancestral and deeply held social meanings with ‘imagined lines on the ground’ (Fox, 1998, 2002; Kosek, 1998; Rundstrom, 1998), participatory exercises in counter-mapping can at least help to make communal practices and commons more legible in effort to defend community rights of access, sacred forests, and alternative resource practices. In the vast border spaces of northeastern Cambodia the ‘coming of modern geography’ has been historically recent but very sudden and violent, generating many actual conflicts. Fox (2002) realized the difficult dilemmas faced by ordinary people as they are more or less coerced into having to map their lands in order to prevent further encroachments, and enclosures crossing over into once common property spaces. As Fox (2002: 73) observes: ‘Fluid and flexible boundaries within and between villages help to minimize conflicts.’ It is once the boundaries are ‘mapped’, fixed, ‘legitimized by the state’ that “conflicting images of reality cannot be overlooked any longer and must be addressed.” However, as discussed elsewhere in this thesis, formal mapping and territorialization, even by ordinary villagers, does not guarantee that traditional and communal rights will be protected, and may also create new territorial conflicts within and between villages.

Unlike Ratanakiri, the Tonle Sap territorial system was heavily influenced by the fishing lot system introduced by the French colonial rulers, and so internal territorialization for resource revenues has at least one hundred years of history in the Lake. Even so, the Lake space continues to be re-envisioned and (re)territorialized 'from above' (commercial and conservation territorialities) and 'from above' and 'below' (public fishing spaces and community fishing territories), and the rest of the chapter shall focus on these processes.

6.5 Freshwater Lake Territoriality and the Tonle Sap

Virtually all discussions of territoriality in rural areas have focused on terrestrial issues, whether this be related to state territoriality associated with different institutions, land-uses, or in Southeast Asia, control over forest resources (Vandergeest and Peluso, 1995; Vandergeest, 1996, 2003; Laungaramsri, 2002; Peluso, 2005a, 2005b). Relatively little attention has been afforded to the intensive territorialization affecting rivers, inland lakes and wetlands, which is 'freshwater territoriality' (Sithirith and Grundy-Warr, forthcoming). In the study of 'freshwater territoriality', I discuss how and why the Tonle Sap is territorialized by different agencies, sometimes in contradictory functional ways, which has fed into real tussles over resource rights, resource utilization and access. Prior to this research, these have not been much analysis of territoriality in relation to the lake, or indeed the Mekong Basin. Thus, this thesis intends to fill this gap. Furthermore, territoriality in the Tonle Sap involves great fluctuations of water level between the dry and wet seasons which is characteristic of the monsoonal Lower MekongWetlands. The ecological influences on human territoriality in this region are highly relevant and thus political territoriality discussion requires analysis of human-nature relations.

'Land territoriality' controls movement in/out and within particular zones, and rules may be applied relatively to particular activities, such as cutting trees, collecting firewood, or other non-forest timber forest products. In 'freshwater territoriality' rules are applied zonnally

and territories relate to commercialization of fishing. The difference between freshwater bodies and forest on land is that there is already a natural waxing and waning, a rhythm of nature that affects water levels and the areal extent of water bodies.

Water territoriality in the Tonle Sap is complex, partly due to its varied physical landscape, ecology and micro-habitats (Asian Development Bank, 2004; Campbell *et al.*, 2006; CNMC / Nedeco, 1998; Tana, 2000), and partly due to the political, economic, administrative and environmental divisions and zones affecting natural resource management. There are numerous ways in which the Tonle Sap area is territorialized and affects fishery practices. As Peluso (2005a: 6) has stressed: "territorialization produces places *in relation to* claimants", and there are numerous territories and places in and around the Tonle Sap. In addition there exist problems of over-lapping claims, multi-functions (often with contradictions between fishery and conservation goals) in the same zones, boundary disputes exist between commercial, middle-scale and family fishers, and there is great ambiguity over the specific territorial and resource access rights afforded to different communities (even those within the same communities) (Sithirith & Grudy-Warr, forthcoming).

As discussed earlier, the territorialization of the lake into fishing lots began with French Protectorate regime and has taken on new functional boundaries over time. The territoriality in the Tonle Sap is complex due to physical geographical, ecological, political and economic functions, and also due to population density around the lake with many settlements. My typology of different territorialities affecting the politics of space and resources follows.

6.6 The Commercial Fishing Territoriality

In this section, I discuss the territorialization of freshwater lake of the Tonle Sap, tracing back to the history of the fishing lot and its evolution, and examine the implication of this system on the current fisheries management in the Tonle Sap.

6.6.1 The Commercial Fishing Lot Territory in the Tonle Sap

Large fishing area in the Tonle Sap is territorialized as a commercial fishing area. In 1919, the commercial fishing area in the Tonle Sap Lake covered 603,880ha, but declined in 1940 to about 444,970ha. However, after the Khmer Rouge (1979), the areas under the commercial fishing areas in the Tonle Sap Lake increased to about 507,731ha (Cheyvy and Le Poulain, 1940[24]; Degen *et al.*, 2000). By year 2000, the total commercial fishing lot area in the Tonle Sap remained an estimate of approximately 500,000 ha (DoF, 2001) and in 2001, the Royal Government of Cambodian reformed the fisheries sectors and released 46 percent of commercial fishing lot areas in the Tonle Sap Lake for public uses; thus, brought the total areas under the commercial fishing lot down to 271,127 ha (DoF, 2001).

To promote a commercial exploitation of fisheries, the commercial fishing area is territorialized into different fishing territories, and each is demarcated with a boundary, covering a specific fishing territory, naming as a 'fishing lot'. The fishing lot system was first established by the French Protectorate Regime and had been used even after the French Protectorate Regime (Degen and Thouk, 2000). However, the fishing lot system was put into dysfunctional by the Khmer Rouge between 1975 and 1979, and then by the Vietnamese supported government between 1979 and 1989 (Degen *et al.*, 2000; Sneddon, 2007). Until late1980s, the State of Cambodia revisited the fishing lot system and re-introduced to inland fisheries management in Cambodia. The government's main motivation for a return to the

[24] Chevy and Le Poulain, 1940 is cited by Degen *et al.*, 2000.

fishing lot system in 1989s appears to have been the need to raise national revenue (Degen *et al.,* 2000; Gum, 2000; Sneddon, 2007). Such a motive has intensified in the transitional political economic period from an isolated socialist state to a multi-party, but still authoritarian state open to the world economy in the 1990s to the current time (Le Billon, 2000; Springer, 2009b). So-called economic liberalization has served to enhance commercial territoriality in the country as a whole, and the fisheries of the Tonle Sap in particular.

After the fisheries reform in 2001, the remaining commercial fishing areas in the Tonle Sap Lake were territorialized into 38 fishing lots; of which 9 fishing lots are located in Battambang province, covering 102,718 ha; 12 fishing lots in Kampong Chhnang Province, covering 45,085 ha; 7 fishing lots in Kampong Thom covering 69,353 ha; 5 fishing lots in Pursat Province covering 24,848 ha; 3 fishing lots in Siem Ream Province covering 22,725ha, and 2 fishing lots in Bantey Meanchey Province covering 6,398 ha (DoF, 2001). These range from 20 km^2 to 350 km^2 and include lake areas, river areas and inundated forest[2] (DoF, 2001).

The fishing lots in Cambodia and in the Tonle Sap Lake are classified into two major types, namely the 'fishing lot' and 'Dai lot'. First, 'Dai lot' is a kind of bagnet or stationary trawler positioned in the river to capture migratory fish. Many of these are located along the Tonle Sap and Mekong Rivers. Second, the 'fishing lot' is also classified into the 'sand bank fishing lot', which is found in the upper Mekong River in Kampong Cham and Kratie provinces; and riverine and lacustrine fishing lots, which are located around the Tonle Sap Lake and the major flood plains of the Mekong and Bassac river systems (Fiat Law, 1987; ADB, FAO and FiA, 2003; Vuthy *et al.,* 2000; Degen and Thouk, 2000).

As discussed previously, there are 'auctioned fishing lot' and those lots set aside for state fishing enterprise as 'research fishing lot' (ADB, FAO & DoF, 2003; Sneddon, 2007). While the former lots are at least auctioned to high bidders, the research lots are more communist inspiration in which it is not auctioned but granted based on connections (See

Figure 6.2). These lots were formulated by ‘comrades’ during the communist regime in 1997 when Cambodia moved into the ‘market economy’ from a command economy, but they are still given over to private ownership without a public bidding process (Fisheries Law, 2006). The procedure governing these territorial lot determinations are not transparent and have reportedly led to irregularities (ADB, FAO & DoF, 2003).

The territorialization of water in the Tonle Sap has serious implications for the the management of fisheries and it generates conflicts between the fishing lot and communities such as the boundary conflicts, the destructive fishing and poaching. These conflicts have produced many local tensions between fishing communities and fishing lot owners and caused intervention by the Royal Government of Cambodia (See Figure 6.2).

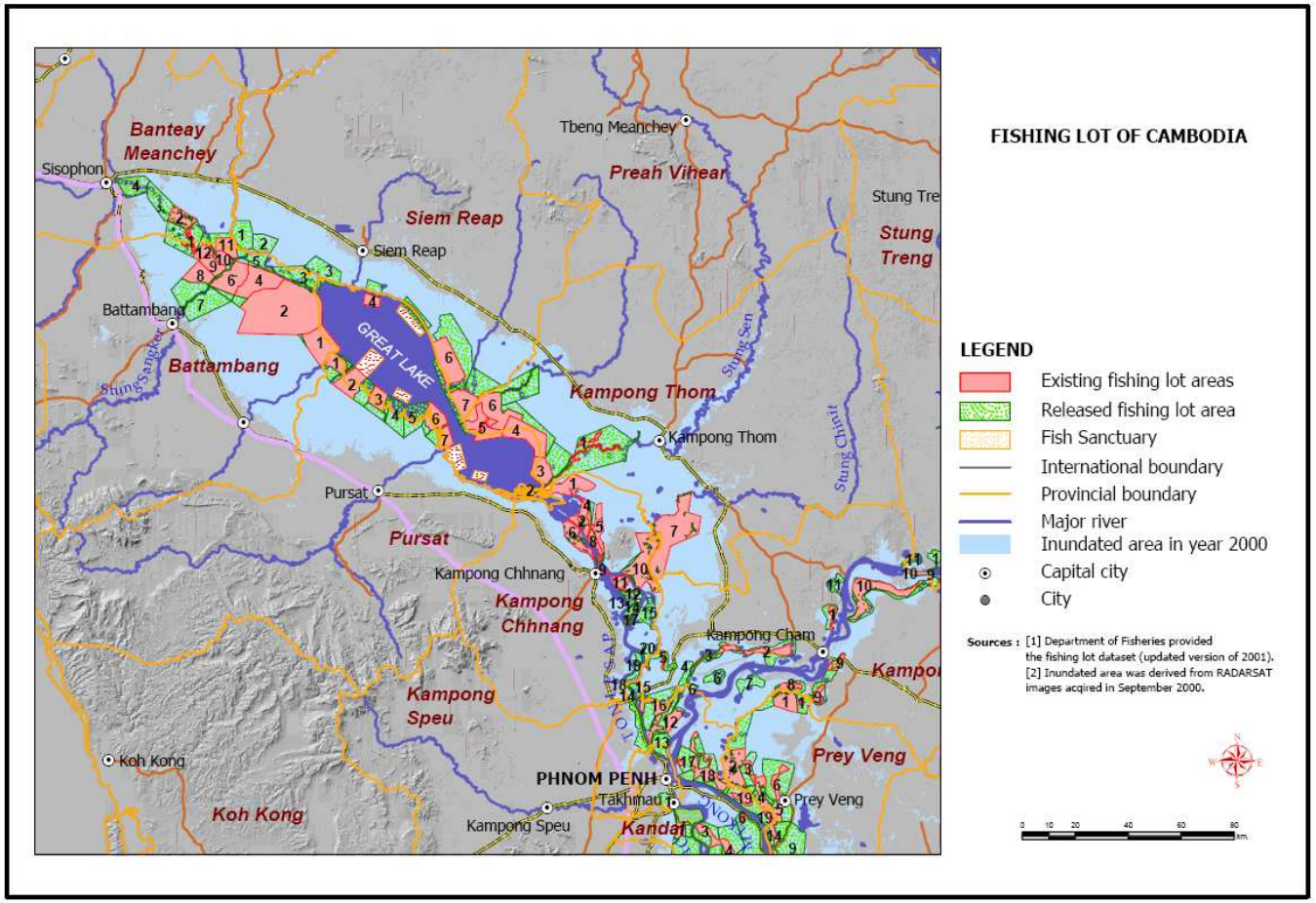
6.6.2 The Power of the Fishing Lot Owners

In political geography, ‘power’ is often seen in contigent, dispersed, and not necessarily territorial ways (Allen, 2003b). However, it is also the case that territorial control is significant in many environmental resource disputes (Vanergeest and Peluso, 1995; Peluso, 2005b; Sithirith and Grundy-Warr, forthcoming). The analysis of power is relevant in the study of the fishing lot system in the Tonle Sap, and the analysis of power is detailed in the following section. Fishing lot owner is powerful in the Tonle Sap. This power can be seen in seven forms, which is territorial in different ways. First, fishing lot represents ‘power’ in two ways; (i) it is rich in fisheries and (ii) it covers huge fishing areas. Thus, as a space, fishing lots is a source of ‘latent material power’ (Penrose, 2002), which is a power to sustain life through extracting resources for commercial business. Those who have authority over the fishing lot areas are powerful because they win in a competition of politically and economically influential people to get control over the fishing lots. To be awarded a big ‘fishing lot’, fishing lot owners employ ‘political power’ sometimes through their influence

upon or bribes to corrupted officials for protecting them in the competition. This represents the 'terrestrial power' of the fishing lot owners.

Second, the large space of the fishing lot contains resources and Allen (1997) describes 'resources' as 'power'. Third, the big fishing lot generates 'big money'. The money represents the 'wealth' and 'influence' of the fishing lot owners over the management of the fishing lot, and this is another form of 'power' described by CDRI (2007a) and Allen (1997) as an 'economic power' and with this power, he/she is able to influence those who make decision over the allocation of the fishing lots and provide pay off to protectors to protect their benefits.

Fourth, with 'wealth' and 'influence', fishing lot owner is powerful and as I have discussed, power is everywhere, it is mediated and contigent, and it is never static (Allen, 2003b; Routledge, 1996). The power associated with fishing territoriality is partly related to extra-territorial bio-political relation and connetion (Alatout, 2006) found in Cambodia's deeply entrenched patronage networks (Le Billon, 2000; 2001; 2002). This power can be represented at different levels with different people. At the national level, the fishing lot owners relate their power to the high ranking Government officials or 'patrons' of the Fisheries Administration in order to maintain their 'long-term control' over the fishing lots. In this context, the fishing lot owners build political connections in order to gain more 'political power' in this business. In building 'political power', the fishing lot owners flex their economic muscles. Such 'political power' support is vital because most key decisions are made at national level and without such 'political support'; it is not possible to get control over the fishing lots.



Map 6. 1: Map of the Fishing Lots in the Tonle Sap Lake

With a 'political support,' the fishing lot owner has '*khnong'* (backing) or political supporters at their backs, which could ensure their business security over rivals (Piseth, 2002; CDRI, 2007a). '*Khnong'* is not easy to build, for it could develop only on 'economic power'. However, even with economic power, it is difficult to have '*knong'* or political supporters. In order to have *'khnong'*, they need to have a '*khser'* (string or line) that connect them with the higher level officials. Some bodies with '*khnong'* and '*khser'* build the foundation of business opportunities for the fishing lot owners in the fishing lot.

Fifth, the 'big fishing lot' is often located in 'productive fishing spaces' with 'high productivity', such as fishing lot no.6 in Peam Bang in Kampong Thom Province. The power of the fishing lot owners may be presented in the form of employing the labourers and armed groups to protect their fishing lot areas, and engaging the commune chiefs or district governors on their side. The analysis of this 'power' could be seen in the form of 'dependency' on favor, economic inducements, and paymenrs for services rendered. Lastly, brute force or 'coercive power' is evident in the use of armed guards and private militia in order to guard lots. To control the big fishing lot, the fishing lot owner employs a 'military power', which means they employ security personnel with guns to protect the fishing lot areas.

Sixth, as indicated above, many fishing lot owners, for instance fishing lot no.6, no.5 and no.4 in Peam Bang, have been running their fishing lots more than 10 years. These prove that these owners have advantages over new challengers. The current fishing lot owners are in possession of extensive knowledge about the real productivity of the fishing lots, which may differ substantially from the official reported figure. The current fishing lot owners have empirical knowledge about the social relations and behavior of poachers. They have built relations with fisheries officials and have developed efficient protection mechanisms for the fishing lots. These advantages reduce transaction costs, such as the cost of acquiring information, negotiating contracts and enforcing them (Degen and Thouk, 2000; Piseth,

2002). This suggests that knowledge is power. The current fishing lot owners have ownership over large-scale fishing equipments.

Last, but not least, the fishing lot owners use 'discursive power', which is provided by the legal framework such as existing 'fisheries laws' and sub-decrees in their control over fisheries, following the wining in the bidding process. With this power, the fishing lot owners have received exclusive power over the fishing lot areas and they act to include those who supports and exclude those who are against them.

6.6.3 The Management of the Fishing Lots in the Tonle Sap

The fishing lots are effectively privatized state property. The state controls and manages the fishing lots through renting it to private investors through auctions as well as other means. In this system, the high bidders will win the auction process and will have exclusive ownership over the fishing lots while the non-auctioned systems are the so-called research fishing lots which are granted to private owners without bidding. The following section discusses the management of fishing lots.

6.6.3.1 The Fishing lot Territoriality in the Tonle Sap

Fishing lot is controlled and managed by the fishing lot owner. Many fishing lot owners have run their lots for more than 10 years, for instance, the fishing lot no.6 in Kampong Thom and fishing lot no.2 in Battambang Provinces; and thus, they have developed a fundamental control system over their fishing lot area. Generally, fishing lot owners agree on sub-contracts prior to the auction in order to collect the starting capitals for bidding. The fishing lot might be owned by only one fishing lot owner, for instance the Dai fishing lot (bagnet fisheries) or by more than one owners in the case of riverine and lacustraine lots, but followed by various sub-leaseholder and sizeable number of sub-sub subcontractors (Vuthy

et al., 2000; Degen *et al.*, 2000; Van Acker, 2005). The fishing lot owner receives a full control over the fishing lot areas and classifies it into small lots. In most cases, the lot owner leases out some parts of the fishing grounds to the leaseholders by signing contracts on a yearly basis and leaseholder sub-leases out some parts of the fishing grounds to sub-leaseholders. These leasers, sub-leasers fence and pen lots, practicing a total harvest approach to fish production within their lots, using a variety of illegal and unsustainable fishing methods and practices in an attempt to catch all fish inside the lot (Vuthy *et al.*, 2000; see Figure 6.1).

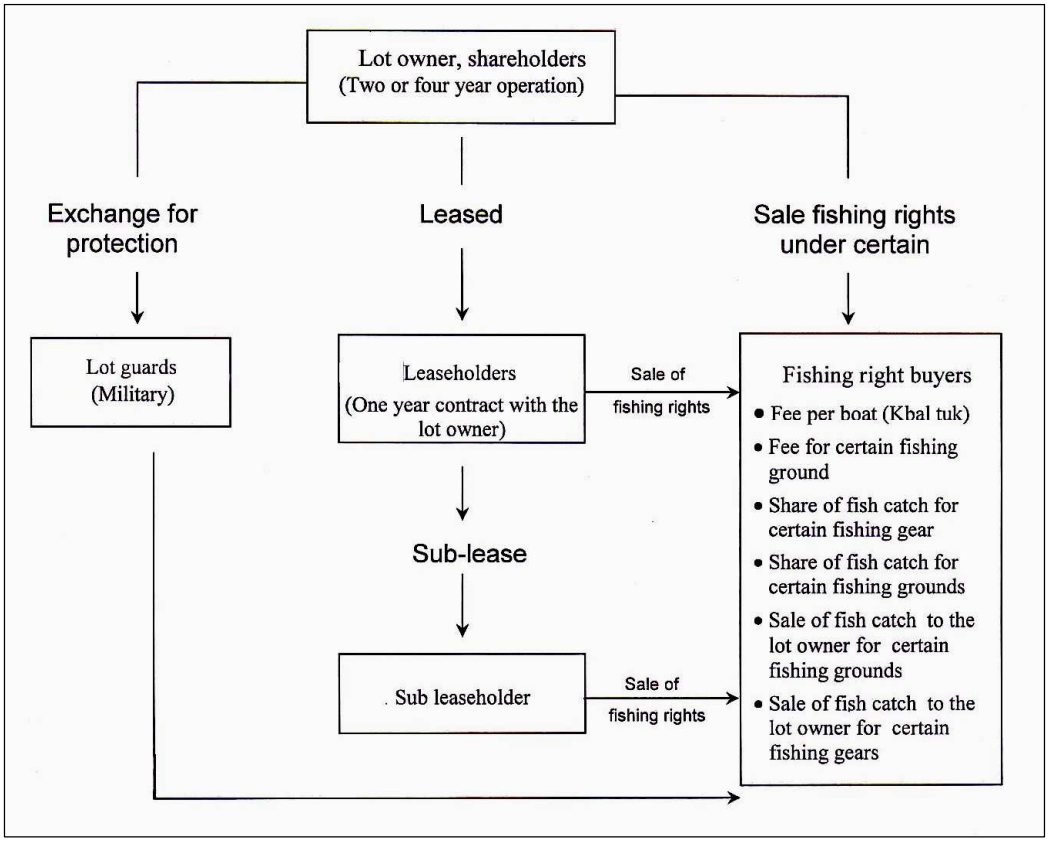


Figure 6. 1: General structure and arrangement of fishing lot (Adopted from Vuthy *et al.*, 2000).

The fishing lot owners lease out the sub-fishing lots to different leaseholders. For instance, the fishing lot no.2 in Battambang Province was classified into 8 sub-lots by the lot

owners, consisting of creeks and lakes such as *Prek Long Ong, Stung Chase, Prek Da, Prek Ang Krong, Prek Moss, Prek Spot, Prek Preah Dam Cheur, and Prek Norea*. He then leased out 8 sub-lots, but kept the sub-lot located in the Tonle Sap area for fishing himself. Specifially, he leased out Prek Norea sub-lots located inside the lot no.2 for US$9,000 to the leaseholder for fishing season of 1997-98 (Gum, 1998). Each leaseholder manages his own sub-lot the same way as the fishing lot owner. This means that each leaseholder sub-divides the sub-lot into sub-sub-lot, such as discrete lakes or creeks, and sub-leases them to sub-sub-leaseholders under various arrangements (Gum, 1998).

Subsequently, the lot owners and leaseholders sell fishing rights to individual fishermen or groups of fishermen with certain conditions after the end of main fishing operations. The main fishing right arrangements include a fee per boat, a fee for certain fishing grounds, a fee for certain fishing gears, sharing of fish catch for certain fishing grounds or certain fishing gears…etc (Vuthy *et al.*, 2000). For instance, in the fishing lot no.2, the fishing lot owner fishes the lake himself using seine net and then allows people to fish in areas he had fished already. These people gave him 40 percent of the catch and kept 60 percent. The leaseholder of the creeks in lot number 2 leased fishing rights to people in four phases; the first phase is in October and cost US$30 per boat for the month; the second phase in November cost US$24/boat/month; the third phase is in December and cost US$18; and the fourth phase is after the creek has been seined by the bamboo fence, a process referred to as '*kimnear'*. People are also allowed to fish this area after bamboo fence has finished already, giving the owner 40 percent of the catch, leaving 60 percent for the crew (Gum, 1998).

Another example is taken from the fishing lot no.6 in Kampong Thom in Peam Bang. This fishing lot has 3 co-shareholders, and they lease out some parts of the fishing grounds to four different leaseholders. As a strategy of the fishing operation, the lot owner allows 55 families to stay inside the fishing lot and operate with their own fishing equipment in assigned fishing areas. All the catch has to be delivered to the lot owner at a lower price than the

actually prevailing price in the area. In practice the informal fishing lot management is quite complicated (Vuthy *et al.,* 2000). The fishing lot no.19 in Takeo province in 1997 was divided by the fishing lot owner into 18 sub-lots and he leased out the sub-lots to 14 different leaseholders. Each leaseholder spent a lot of money to pay the lot owner for the control of the sub-lot (Swift, 1997; Degen and Thouk, 2000).

Moreover, the fishing lot areas tend to be more fragmented, and that the average area per fishing lot tends to be declined. Both movements are a way of allowing more operators into the commercial sector; different sites for one lot for example, tend to be sub-leased by the concessionaire to other operators. The possible reason for this is consistent with the argument presented in the text. On the one hand, as the commons become more crowded, the privatized enforcement costs of physical expansion imposed by the institutional model of exclusion of subsistence fisheries would tend to increase in an exponential fashion. To intensify operations (to sustain higher yields on a given surface), more capital needs to be added. As a consequence, fishing operations tend to become more capital-intensive. If all operators follow the same line, a new entrant will be forced to do the same to achieve a comparable yield.

6.6.3.2 The Controls of the Fishing Lots

Territoriality is related to asserting 'control' over resources and people (Vandergeest, 1996). Vandergeest gives an example in Thailand that the state territorialized forest resources for state control. Similarly, the fishing lot system in the Tonle Sap is also a 'strategy' employed to control resources in the lake through controlling fishing area, controlling people and controlling access to fisheries (See Figure 6.2). The French Protectorate Regime and the following regimes demarcated the fishing lot with boundaries, and set the rule for crossing the boundary (Degen *et al..,* 2000). The 'boundary rules' define which social actors have access (Ostrom *et al.,*1994).

The control of access to fishing lot is categorized into five types including the spatial control, temporal control, control of the fishing gears used, the control of people movement, and ideological control. The discussion of each of these controls is detailed in the following section.

a) Spatial Control

The *spatial control* refers to the control of areas within the boundary of the fishing lot. The *spatial control* starts at the time the fishing lot owners received official grant (research fishing lot) or won the public auctioning (auctioned lot). The fishing lot owner is the legal person, having a sole authority to control the fishing lot territory. However, the fishing lot territory is geographically large, with size varying from 20 km^2 to 350 km^2, including lake areas, river areas and inundated forest (Van Zalinge *et al.,* 2000; Degen and Thouk, 2000). Hence, the control of the fishing lot area is more complex (See Figure 6.2).

Spatial Control is not the control for land or water; but, it is a control to keep fish inside the fishing lot areas; and people could go across the fishing lot areas without problem if they do not catch fish or disturb fish. Thus, the control of areas or water bodies where fish live is spatially important, such as the control of deep water pool inside the fishing lot areas. To control fish in areas mentioned above, fishing lot owners fence and pen fishing lots using the different fishing equipments such as the amboo fence and mess sizenet to trap fish inside fishing lots (See Figure 6.2).

b) Temporal Control

The *temporal control* is the control of fishing activities both in the close and the open fishing seasons. The *temporal control* is classified into two types; 'legal temporal control' and the 'biological temporal control'. The 'legal temporal control' is a control of the fishing lot

areas by the lot owner through a legal process including auctioned process and officials awards. The 'legal temporal control' for the auctioned fishing lot is two-year period, while the research fishing lot is six-year period. During these periods, fishing lot owners have exclusive rights to control the fishing lot areas (See Figure 6.2).

However, the 'biological temporal control' is the control of fishing activities inside the fishing lot based on the biological function of fish including the time and season when fish breed, lay egg and grow up. Thus, the 'biological temporal control' is classified into the 'close and open fishing' seasons. The 'open fishing season' starts from October and ends at the end of May. Morever, the 'close fishing season' starts in June and ends in October (Law on Fisheries, 2006). During the close fishing season, fishing activities using fishing gears larger than the small-scale fishing is not allowed, as this is a time for fish to lay egg, breed and grow up.

c) Control of Fishing Gear

The *control of the fishing gears* is another type of control that fishing lot owners employ to limit neighboring fishing communities to fishing with small fishing gears in both close and open fishing seasons. As stated earlier, fishing lots are fished intensively in the open fishing season, but not in the close fishing season (Fisheries Law, 2006; Van Acker, 2005). According to Fisheries Law (2006), small-scale fishing is allowed through out the year, even inside the fishing lot areas during the close fishing season; but, fishing lot owners eventually do not allow small-scale fisher to fish inside the fishing lot areas during the 'close fishing season', because they believe that fishing in a 'close fishing season' would disturbs the biological function of fish in their lot area, and damage the fish habitats. In the control of fishing lot areas, fishing lot owners restrict the uses of fishing gears that could scare fish away from their lot areas (per.comm with fishers in Peam Bang, August 2007). The electrocute

fishing gear is totally prohibited in both open and close fishing season given their nature of destructive characteristics (See Figure 6.2).

d) Control of People Access to Fisheries

Fishing lot owners actually control people movement across fishing lot areas. They employ private guards to check people travelling across fishing lot areas to see whether there is fish caught inside the lot or illegal fishing gears. On the other hand, fishing lot owners keep the movement of people across fishing lot areas to a minimum possible due to the fact that this movement could scare away fish (Gum, 2000; Swift, 1997; Sithirith, 2000). Vuthy *et al.*, (2000) demonstrate that fishing lot owners even do not allow villagers to travel across fishing lot areas although their houses located within the fishing lots. He also mentioned that fishing lot guards ask villagers to pay if they travel across the fishing lot areas (See Figure 6.1).

For the river, fishing lot owners often block the river with bamboo gate, leaving only one third for the navigation. Navigation across the bamboo gate is not easy. The response to the control by local communities was the widespread of conflict between fishing community and the fishing lot owners (Sophat *et al.*, 2004; Sithirith, 2000; Van Acker, 2005).

6.6.4 Boundary of Fishing Lots in the Tonle Sap

The fishing lot territory is delimited with boundaries. Fishing conflicts between fishing community and fishing lots occur due to unclear boundaries of fishing lots (Vuthy *et al.*, 2000; Degen *et al.*, 2000; Van Acker, 2005). Moreover, in the Tonle Sap, 'boundary' of fishing lot can be understood in three different ways. First, 'boundary' is used to demarcate the fishing lot territory, to exclude people from fishing inside the fishing lot areas and to control people movement across the boundary. Second, however, the boundary of the fishing lot in the Tonle Sap is used for fishing, controlling the fish—this is extraordinary how

boundary be used for controlling fish in the open water body as fish migrates borderless. Third, the boundary is marked on fluctuated water levels varying from 1.5m above sea level (asl) in the dry season to 9m in the wet season. For understanding of boundaries of commercial fishing lots in the Tonle Sap, I categorize the 'boundary' of fishing lot into two main categories—the 'fixed boundary' and the 'floated boundary' and I discuss each of these in more details (See Figure 6.2).

6.6.4.1 The Floated Boundary of a Commercial Fishing Lot

Boundaries of fishing lots in the Tonle Sap are contested due to nature of rising and falling water systems. It is contested in two ways due to fluctuated water levels both in the dry and wet seasons in the lake; first, one side of the fishing lot, especially the side facing to the land area is an open ended boundary line, and thus, fishing lot owners claim '*tuk dal na, lo dal neung*' (where the rising water reached, the boundary of the fishing lot is out there) (See Figure 6.2). This has led to a rise of fishing conflicts throughout the lake between fishing lot owners and fishers (Van Acker, 2005; Sithirith, 2000; Gum, 2000).

Second, on the other side of the fishing lot, especially the side facing to the open water bodies in the Lake, the boundary is rising in the wet season and failing in the dry season—when water levels rise up, then the boundary line is up; when water levels fall down, then, the boundary line is down. As a consequence, fishing lot owners extend its boundaries or '*vang*' (buffering) into this area, conflicting with local communities (Sithirith, 2007; Gum, 1998). Extending fishing lot boundaries bring more benefits to fishing lot owners (Vuthy *et al.,* 2000; Degen *et al.,* 2000), but conflict with local communities (Van Acker, 2005; Gum, 2000; Sithirith, 2000).

6.6.4.2 The Fixed Boundary of the Fishing Lot

The boundary line of the fishing lot is clearly mapped on the paper. The map is used to delineate the boundaries of the fishing lots. As a result, the fishing lot owners fence around the lot areas with a bamboo fence. This is what I call a '*fixed boundary*'. According to Fishery Law (2006), fishing lot owners fish inside fishing lot areas only in the open fishing season (October to May), and end their fishing actvities in the close fishing season. As a result, during the close fishing season, the bamboo fence is removed, particularly from the end of May, returning fishing lot areas to 'open access' for a period of six months (May to October), but it is a 'control open access', in which all types of fishing activities, except small-scale fishing, are not allowed in these areas during the close fishing season. Thus, the fixed boundary of the fishing lot is only temporal, but it is renewed every six months under the rising and falling water levels between the wet and the dry seasons, making its more contested. Then, I categorize the fixed boundary in the Tonle Sap into two types—spatial boundary and temporal boundary (See Figure 6.2).

a) Temporal Boundary of the Fishing Lot

The boundary of fishing lot is contested between the dry and the wet fishing seasons, or the open and the close fishing seasons. In the open fishing season, the fishing lot owner fences around fishing lot areas. The fence functions in three ways; first, as a boundary of a fishing lot; second, as control of the movement of people across the fishing lot areas; and third, as trap of fish inside the fishing lots. In other word, I call the bamboo fence a 'physical boundary' of the fishing lot that can be seen clearly—half of the bamboo fence is above surface of water and another half goes underground (See Figure 6.2).

In the close fishing season, the fishing lot owner ends their fishing activities and by the legal framework, the 'bamboo fence' or the 'physical boundary' is removed from the

ground, returning the fishing lot areas to an open access. As a result, fish migrate all over the place to breed, spawn and grow in the flooded forest where there are abundant fish nutrients.

Thus, the removal of 'physical boundary' and then the reinstalment of the boundary give a notion of a 'temporal boundary'. The installment of physical boundary turns the fishing areas into the commercial fishing lot, managed by the private. However, the removal of a physical boundary of the fishing lot turns the fishing lot areas into the open access. The removal of 'physical boundary' at the end of the open fishing season, and then the reinstalment at start of the open fishing season under the falling and rising water levels system give rise to the fishing lot's boundary contestation.

b) Spatial Boundary of the Fishing Lot

The frequent removal and instalment of 'physical boundary' induce an unfixed location of the boundary of the fishing lot. This means that the location to mark the bamboo fence as a boundary of the fishing lot last year is not the same for this year as well as the subsequent year. I call this type of boundary a 'spatial boundary' of fishing lot, often inducing more conflicts with fishing communities (See Figure 6.2).

When the the bamboo fence is removed in the close fishing season, the boundary becomes an 'imagined boundary', and the level of imagination increases under the rising and falling water levels between the wet and dry seasons; and when the bamboo fence is installed, it is never installed in the same location. The removal and instalment of bamboo fence as a boundary makes the possibility for fishing lot owner to expand the boundary of the fishing lot. However, while it is imagined, it is also changing; on one hand, it is marked on rising and falling waters between the wet and dry seasons; and on the other hand, the boundary line, which is based on the bamboo fence, is frequently removed. Thus, the fishing lot boundary is contested and never exact on rising and falling water.

Thus, the boundary of the fishing lot is moving within a spatial area due to; first, the nature of rising and falling water levels; second, the frequent removals and installments ofbamboo fances; and the location, marking the boundary varies from years to year, contributing to conflicts over boundaries. In other word; the boundary of fishing lot moves and changes within the 'boundary space', in which the boundary is not a single line, but a collection of lines, forming a space. Thus, the boundary line changes within the 'boundary space'. Boundary space is a 'space', and within 'space', line is constructed. Thus, boundary in the dry season may be different from the wet season, but can be in a 'boundary space'.

6.6.4.3 Fishing Lot Tenure System

Fishing lot is a form of state privatizing fishing areas to private ownership. It is given to private ownership through bidding or non-bidding processes. The fishing lots are managed based on the system of the close and open fishing seasons, in which fishing lot owners only have exclusive rights over fishing lot territories in the open fishing season, effective from October to May[25]. Thus, fishing lot owners have an ownership over fishing lots temporally, and I call this a 'temporal tenure' over the fishing lots. The concept of the temporal tenure gives a sense of lacks of a long-term responsibility, resulting in over-exploitation of fisheries resources.

However, in the close fishing season, effective from May to October, fishing lot owners have no rights over fishing lot areas. All forms of fishing activties by fishing lot owners inside fishing lot areas are removed, and the whole lots are converted into an open access. Fishing activities of all scales in the open access areas are banned, except small-scale

[25] Fishing season is categorized into 2 specific seasons; open fishing season and closed fishing season. Open season is: from 1 October to 31 May in the area located north of the parallel "Quatre Bras"; from 1 November to 30 June in the area located south of the parallel "Quatre Bras". The open fishing season is applied for both medium and large scale fishery. Closed fishing season starts from 31 May to 1 October every year. In this period, fishing gears must be removed from fishing grounds. Medium and large scale fishing stops its operation,; small scale fishery can operate in both open and close fishing season.

fishing. I call this a 'temporal absence of tenure' between May and October. During this period, everyone can access and thus, there is a tendancy of competition from users, leading to possibility of maximizing the catch.

Moreover, as many fishing lot owners owning fishing lots longer than 10 years, the 'temporal tenure' develops into a 'semi-permanent tenure', in which fishing lot owners have exclusive rights over fishing lot territories both in the close and open fishing seasons. This is contrary to theoretical and legal rhetorics claiming that fishing lot owners do not have legal rights over the fishing lot territory during the close fishing season (Fisheries Law, 2006). This is not simply determined by a 'open or close fishing seasons' as stated in the fisheries laws, but by an ability of the fishing lot owner to pay to get the fishing lot territory under his/her control. Similarly and legally, small scale fishing could fish throughout the year and all over the place (Fisheries Law, 2006), but practically, villagers in Pov Veu, Daun Sdeung claim that fishing lot owners even do not allow small-scale fishers to fish in the territory of the fishing lots during the close fishing season (Field Notes, 2006-2007).

Table 6. 1: The fishing lot guards and weapons by selected province in the Tonle Sap

Province	No. of lots	No. of guards	Average no.of guard per lot	No.of weapon used by the lot owners	Average no.of weapon per fishing lot	No. of arm per guard
Battambang	9	82	9.1	64	7.1	0.8
Bantey Meanchey	4	34	8.5	21	5.2	0.6
Kampong Chhnang	6	>51	>8.5	128	21.3	2.5
Pursat	4	42	10.5	204	51	1.2
Source: Extract from fishing lot inventory conducted by the Management Component of the Cambodian Freshwater Capture Fisheries of the MRC Fisheries Section Program, 2000						

The fishing lot owners organize their own armies and privatize the enforcement of the Laws, leaving a little room for participation of villagers. Frequently, even in the close fishing season in the lot area itself, when commercial operations do not have a franchise in these areas, fishing lot operator maintained their armed guards in the lot area to protect fish (See

Table 6.1). For example in Kampong Thom Province, the fishing lot owners of lot no.6 closely cooperate with the military division based inside the fishing lot areas. The military protects the fishing lot areas whole year round in exchange for exclusive rights to fish trading in certain part of the fishing lot (Vuthy *et al.,* 2000; Degen *et al.,* 2000). In Kampong Chhnang in two fishing lots, two months before the start of the open fishing season (1999-2000), the lot owner intimidated and threatened villagers with destroying the irrigation dikes inside the fishing lot area (Degen *et al*., 2000).

6.7 The Conservation Territoriality

Large fishing area in the Tonle Sap is designated as a conservation area (See Chapter 4). This has happened since 1940s and continues till today. The conservation in the Tonle Sap is classified into two categories: the 'fish sanctuaries' and the 'biosphere reserves'. The 'fish sanctuary' is formed as a part of the commercial fishing lot areas and in support of the commercial fishing lots. However, in 1993, after the reunification of Cambodia, the increased environmental concern resulted in the formation of the Tonle Sap Biosphere Reserve (TSBR). It was initiated under the UNESCO Program of a Biosphere Man. The 'fish sanctuary' and the 'Biosphere Reserve' is a form of conservation territoriality in the Tonle Sap Lake (See Figure 6.2).

6.7.1 The Fish Sanctuary

The 'fish sanctuary' was established in 1940s under the French Protectorate Regime, and it continues to exist since then in the Tonle Sap Lake (ADB, FAO & DoF, 2003). It has been created with the objective of providing refuges for fish broodstock to escape intensive fishing inside the fishing lot and the public fishing areas during the dry season so as to improve replenishment of the fish stocks during the breeding season. The serious decline in some fish stocks and the threatened status of some fish species makes protection of

broodstock a high priority. Fish sanctuaries play a major role in achieving this objective. By 1998s, the fish sanctuary covered 24,680 ha in the Tonle Sap (ADB, FAO & DoF, 2003). Fish sanctuary is a territory that is specifically designed to protect spawning grounds (Articles 3 and 16, Fisheries Law, 1987).

Fish sanctuary is territorialized into 8 different fish sanctuaries, distributed all over the Lake including four in Pursat, 2 in Kampong Thom, one in Siem Reap and one in Battambang. The first largest fish sanctuary is a '*Kampong Phluk* fish sanctuary' located in Siem Reap Province, covering 6,400 ha; the second largest fish sanctuary is *Dei Roneath* located in Pursat province covering an estimated area of about 6,000 ha, and the third fish sanctuary is a *Kampong Prak* in Pursat province. The rest of the fish sanctuary is relatively small, covering an area ranging between 1,000 and 1,900 ha (See Table 6.2).

Fish sanctuary, either small or large, is delineated with boundaries the same as the commercial fishing lot, but it is not fenced with the bamboo fence, but with six concret pillars placing around the sanctuary in the open water body that can be seen both in the wet and the dry seasons. Given this, the 'boundaries' of fish sanctuaries functions in two ways; first, it allows all forms of navigation[26] across the fish sanctuaries since it has no bamboo fence placing around its like fishing lot; and second, however, it prohibits all forms of fishing activities inside the fish sanctuary. This is a physical boundary of fish sanctuaries and this 'boundary' is abstract given the change in water level between the dry and wet season in the Tonle Sap Lake.

'Fish sanctuary' is a state property and it is controlled by the state, but this means two things; on one hand, it means that the 'state property' is everybody property and on the other hand, state property is no body's property (Bromley, 1992; 1991; Dolsak and Ostrom, 2003).

[26] It is not clear if negative impacts on fish sanctuaries might arise from commercial navigation especially when the lake level is low.

This affects the management of fish sanctuaries. To control fish sanctuaries, Fisheries Administration (FiA), as a 'state agency', sets a 'physical control', including the 'spatial control' and 'temporal control'. To manage fish sanctuaries, FiA employs a 'spatial control' to enforce the management of 'fish sanctuaries', and they assign technical staffs to guard fish sanctuaries, most of them stationed in the lowest unit of FiA known as a '*sankat nesat'*. Furthermore, the location of some fish sanctuaries in the Tonle Sap Lake is also questionable, as some are in shallow waters. Fish sanctuaries should ideally be situated in the deepest parts of the lake (where larger broodstock could be expected to congregate during the dry season) or habitats which play critical roles in life cycles. However, staffs receive a low salary, and they suffer from lack of financial supports from a government. This affects the enforcement and management of fish sanctuaries (ADB, FAO and DoF, 2003). In addition, FiA controls fishing activities through a 'temporal control' in which some fishing activities are allowed in the open fishing season while others are allowed in the close fishing season. However, in fish sanctuaries, all fishing activities are prohibited in close and open fishing seasons inside the fish sanctuaries.

Table 6. 2: The fish sanctuary in the Tonle Sap Lake

Province	Name of fish sanctuary	Area (ha)
Battambang	Pak Kantel	1200
Pursat	Dei Roneath	6000
	Raing Til	1800
	Kampong Prack	4,500
	Chroy Sdei	1,950
Kampong Thom	Balot	1800
	Pistoun	1030
Siem Reap	Kampong Phluk	6,400
Total	8 fish sanctuaries	24680
Source: DoF, 2003		

6.7.2 The Biosphere Reserve Territoriality

Chapter 4 discusses the global significance of the Tonle Sap for biodiversity conservation. For the conservation purposes, Royal Decree designates the Tonle Sap Lake as a multiple-use protected area in 1993, and furthermore, the lake was declared as a Biosphere

Reserve Areas in 1997 under the Man and the Biosphere Program of the United Nations Educational, Scientific, and Cultural Organization (UNESCO). Following that the Tonle Sap Biosphere Reserve (TSBR) was established by Royal Degree in 2001 (RGC, 2001; Sokhem & Sunada, 2006).

The Degree gives to the TSBR three complementary functions on conservation, development and logistics:

a) a conservation function to contribute to the conservation of biological diversity, landscapes, and ecosystem, including genetic resources, plant, fishery and animal species, and to the restoration of the essential character of the environment and habitat of biodiversity;
b) a development function to foster sustainable development of ecology, environment, economy, society, and culture;
c) a logistic function to provide support for demonstration projects, environmental education and training, research and monitoring of environment related to the local, national and global issues of conservation and sustainable development" (Article 1, Royal Decree on the Establishment and Management of the Tonle Sap Biosphere Reserve, RGC, 2001).

To conserve the resources and biodiversity in the Tonle Sap, the Lake is territorialized into three main territorial zones—the transitional zone, the buffer zone and the core zone (See Map 6.2). This is what I call a 'conservation territoriality' of the Tonle Sap. This section discusses the detail of each territoriality and its functions and management system (See Figure 6.2).

6.7.2.1 The Transition Zone

The *transition zone* covers an area of 899,600 ha, which is limited between the outer boundary of the buffer zone and National Road N5 and National Road N6 (RGC, 2001). This is an area encircling the lake which includes most of the Great lake floodplain and some areas of upland wet season rice production known as a *sreleu* (Keskinen and Sithirith, 2010). The *transition zone* is an integrated economic zone, where there are more agricultural activities, more human settlement and different types of land uses (RGC, 2001). The *transition zone* is

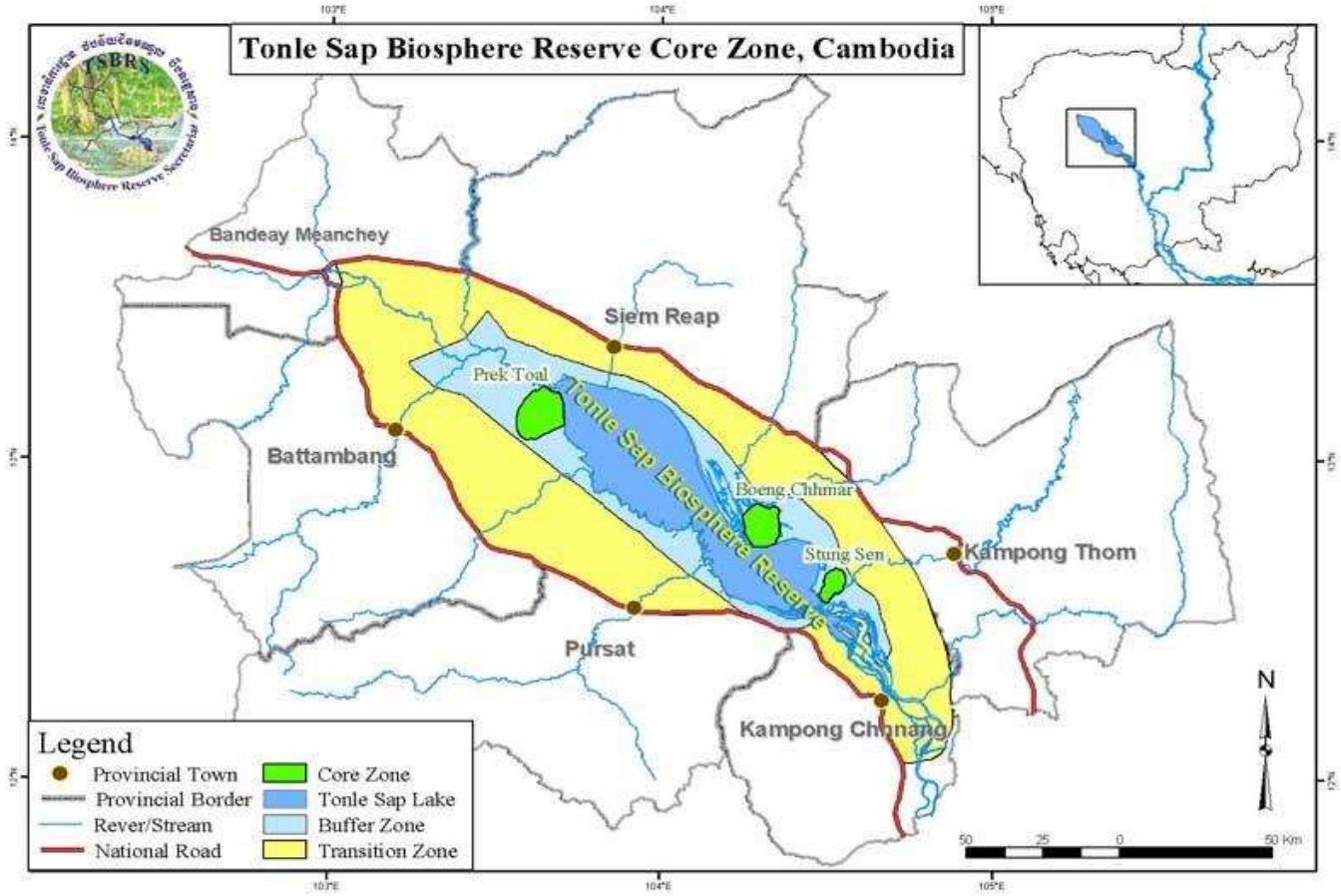
set to promote the management of resources and human activities in the transitional areas of the Tonle Sap in order to reduce the adverse effects on the buffer zone and the core zone of the Tonle Sap Lake.

The *transition zone* is marked by a boundary which could be visualized clearly on map, but poorly on the ground. There is no significant boundary demarcation of the "transion zone" on the ground (See Map 6.2). However, the *transition zone* falls largely in the area known as a public fishing area which is defined by FiA as an open access. Unlike the public fishing area, however, there is no specific control mechanism set for the *transition zone* by MoE; thus, making the *transition zone* an 'open access for conservation which sounds impractical (See Figure 6.2).

6.7.2.2 The Buffer Zone

The *buffer zone* covers the core area of the Tonle Sap Lake, extending outward upto the outer boundary of the 'transition zone' with an estimated coverage of 541,482 ha (See Table 6.3). The *buffer zone* is used for the research; the management of flooded forest, fishery, agriculture, housing settlement, land use, water resources, navigation and tourism; and preserving the environment and fish (RGC, 2001). Activities in this area are managed to be consistent to the protection and conservation of the core areas.

The same as the 'transition zone', the boundary of the *buffer zone* is clearly marked on map, but no demarcation occurred on the ground; thus, making the control of the *buffer zone* a problematic. There is no clear control mechanism set for the *buffer zone*. However, large area of the *buffer zone* falls within the commercial fishing lot areas, in which they are privatized for commercial exploitation of fisheries resources. Thus, the management of the *buffer zone* is largedly dominated by the private control and commercial exploitation; and so, questioning the role of *buffer zone* for conservation functions.



Map 6. 2: Map of The Biosphere Reserves Areas in the Tonle Sap Lake

6.7.2.3 The Core Zone

The *buffer zone* is territorialized into three territorial zones; namely *Prek Toal, Boeng Tonle Chhmar,* and *Stung Sen*, covering an estimated area of 42,257ha (See Table 6.3). They are called a *core zone* of the Tonle Sap. The designing of the *core zone* is to securely protect the sites for conserving biodiversity, monitoring minimally disturbed ecosystems, and undertaking nondestructive research and other low-impact uses such as education. The *core zone* is characterized by a preserved flooded forest, rich river systems, and biodiversity; nearly 100 water bird species are found there, a dozen of which are of global significance; and the areas are known for species such as crocodiles, turtles, macaques, capped langurs, otters, and water snakes (TSBR, no date). Thus, the core areas are defined likewise national park or wildlife sanctuary, which are devoted to long term protection and conservation of natural resources and ecosystem. Management activities that would cause degradation and destruction of biodiversity are not permitted (UNDP/GEF, 2004).

Table 6. 3: The Core Zones in the Tonle Sap Lake

Core Zone	Coverage area	Fising lot	No. village
Prek Toal	21,342	2 (Fishing Lot no.2 and some parts of fishing no.1 in Battambang Province)	8
Boeung Chmar	14,560)	3 (mainly fishing no.6, no.5 and partly fishing lot no.4	5
Stung Sen	6,355	3 (mainly fishing lot no.3, and Partly fishing lot no.1 and no.2	5
Total	42,267	7	18
Source: TSBR, 2007; Field Notes, 2007			

Prek Toal Core Zone in Battambang Province covers 21,342 ha and two fishing lots (fishing lot no. 1 and no.2) are located inside the Prek Toal Core Zone. Within the Core area, there are 8 villages located inside the Prek Toal Core Zone (See Table 6.3). These villages are fishing villages where most of the people depend primarily on natural resources (RGC, 2001; TSBR, 2007). Some 8 fishing lots fall within the buffer zone of the Prek Toal Core Zone, most of them located in Battambang Province (Gum, 1998; TSBR, 2007).

The second Core Zone is located in Peam Bang Commune in Kampong Thom Province, covering 14,560ha and three fishing lots are located within the 'Core Zone', namely fishing lot no.4, no.5 and no.6 and it is called a Boeung Chmar Core Zone (See Table 6.3). The Boeung Chhmar Core Zone is home to many fishermen living in five floating villages located within the 'Core Zone'. Boeung Chmar is a big lake located in the center of this 'Core Zone' (RCG, 2001; Sophat *et al.,* 2004; TSBR, 2007). As a Core Zone, Boeung Chmar is surrounded by buffer zone covering fishing lots and villages. This 'Core Zone' covers large area in Kampong Thom Province and small area in Siem Reap Province. In Siem Reap, one village known as Moat Khla and fishing lot no.7 in Siem Reap is located within the Boeung Chmar Core Zone. Three fishing lots—fishing lot no.6, no.5 and no.4—and 5 villages in Kampong Thom are located in the Boeung Chmar Core Zone (RGC, 2001; TSBR, 2007; Sophat *et al*., 2004).

The third Core Zone is located in Stung Sen in Phat Sanday commune, Kampong Thom Province. This Core Zone covers an area of 6,355ha. Five fishing villages and three fishing Lots—fishing lot no.1, no.2 and no.3 are located within the Core Zone. The Stung Sen is surrounded by a buffer zone which extends beyond the core area covering 7 villages. This buffer zone is not that large compared to the first and second Core Zones (See Table 6.3).

The same as the '*transition zone'* and '*buffer zone'*, the boundary of '*core zone'* is clearly marked on map, but not clearly demarcated on the ground, and thus, making the control problematic. The control and management of the "core zone" and the '*buffer zone*' become more problematics as about half of the '*buffer zone'* overlaps the fishing lot areas (TSBR, 2007). The 'Prek Toal core zone' overlaps fishing lot # 2 in Battambang Province; and the 'Boeng Chhmar core area' overlaps fishing lot # 6 and the 'Stung Sen core area' overalaps fishing lot # 3 in Kompong Thom Province (DoF, 2003). Apart from fishing, the TSBR is also home to 2,218 people (Seila, 2005).

The fishing lot no.2 in Battambang is owned by the same person for more than 10 years. He spends annually an estimate of US$45,000, and it is estimated that he would catch approximately more than 2,000 tons a year to make his profit and to continue his business and his control over this fishing lot as lucrative (Gum, 1998). This poses a major threat for conservation. Similarly, the Boeung Chmar Core Zone overlaps fishing lot no.6, no.5 and no.4 in Kampong Thom Province. The annual fishing fee of the 'fishing lot no.6' was varied between 200,000,000 Riel (US$50,000) and 220,000,000 Riel (US$55,000). The annual estimated fee from the fishing lot no.6, no.5 and no.4 was estimated at about US$103,750-US$114,500 (DoF, 2003). To make a profit, the fishing lot owners maximize the fishing and therefore, it affects the conservation efforts in Boeung Chmar.

The fishing lot is given to private lot owner for commercial exploitation by FiA and MAFF; and therefore, there is less sense of conservation with the fishing lot owner. However, the core zone is under two juridical systems; one by MAFF and another one by MoE. Thus, on the same area, there are at least two different legal frameworks use to enforce on the same space. There is a conflict between the fishing lot and the biosphere reserve plus the conflict of institutional interests. All affects the management of the fishing lots as well as the conservation of the biosphere reserve (RGC, 2001).

6.8 The Subsistence Territoriality in the Tonle Sap

Area outside the fishing lot, the fish sanctuary and the cultivate area is named as a 'public area'. The public area in the Tonle Sap is used by people for fishing; settlement; and navigation, estimating at about 874,781ha (See Table 6.4). The public area encompasses both water area and land areas, and water area is mostly used by people for fishing. The public fishing area has been increased as a result of fisheries reform in 2000 due to the release of 46

percent (236,592ha)[27] of commercial fishing areas in the Tonle Sap for community uses (DoF, 2001).

As indicated above, the release of the fishing lots in 2000 led to an expansion of public fishing area or the open access area. The increase in a public fishing area induces different forms of fishing conflicts. In addressing these conflicts, efforts have been made by Fisheries Administration to control public fishing areas and integrate this control into a state strategy. As a result, the state territorializes the public fishing areas into the 'subsistence territoriality' and community-based resources territoriality or 'ccommunity fisheries'. To understand this, I first discuss the 'subsistence territoriality' and then the 'community fisheries' (See Figure 6.2).

Table 6. 4: The categorization of the Tonle Sap by a functional area

Classification of the Tonle Sap	Area (ha)	
Area between Road 5 & 6	**1,776,000** (CNMC & NEDCO, 1998)	
Cultivated area		605,400 (CNMC & NEDCO, 1998)
Fish sanctuary		24,680 (DoF, 2003)
Fishing lot		271,139 (DoF, 2003)
Public fishing area		874,781 (Based on calculation)
Source: Field Notes, 2006		

6.8.1 The Subsistence Territoriality

The territoriality involves the classification of the area for different group of people, for instance the territorialization of forest area in Thailand. This is a form of control to include those into the classified area and exclude those from that area (Sack, 1986; Vandergeest, 1996, Vandergeest and Peluso, 1995). Similarly, large fishing area in the Tonle Sap is set aside for public fishing area. Public fishing area is a fishing area assigned for small-scale and medium-scale fishing, but not a commercial fishing. To access to public fishing areas, one of the key elements is that fishers must fish small-scale for subsistence, fishing for household

[27] In 2000, the RGC reformed the fisheries and released 56 percent of commercial fishing lot areas all over the countries and in the Tonle Sap Lake, about 46 percent of fishing lot areas were released for community uses.

consumption only, not for trade, using small-scale fishing gears (Fisheries Law, 2006; Fiat Law, 1987). Thus, I call this a 'subsistence territoriality,' which is a strategy to designate specific fishing area for subsistence fishing. To understand the 'subsistence territoriality' in the Tonle Sap, I first discuss the boundary of the public fishing areas and the control strategy over the public fishing area.

6.8.1.1 Boundary of Public Fishing Area

Generally, the public fishing area is an 'open access'. The 'open access' in the case of the Tonle Sap could be explained in two ways; first, fisherman could fish everywhere and second, it is a borderless. Fishers do not fish according to administrative boundaries of provices, for instance, fishers from Siem Reap Province could fish in Battambang or Kampong Thom Provinces or vice versa. This gives a sense that 'public fishing area' is an open access and aborderless (Van Zalinge *et al.,* 2000; Degen and Thouk, 2000).

Moreover, boundaries of public fishing area are existed in practice, but it is influenced by the boundaries of the fishing lots and the fish sanctuaries. The boundary is often enforced by fishing lot owners and Fisheries Administration and often fishing lot owners extend fishing lot boundaries into public fishing areas. Actully, fishing lot owners enforce the boundaries of the fishing lots while no one used the public fishing areas influence the boundaries of the open access areas, unless fishers are arrested by the fishing lot owners for the reason of invading the fishing lot areas. Thus, I call this type of boundary an 'abstract boundary' in which it could not be used to control the public fishing area or control the movement of fishermen across this boundary. It is an 'abstract boundary' because it is not clearly demarcated politically depending on the fishing lot owners on the one hand, and, on the other hand, on the natural fluctuation of water level between both the wet and the dry season. In fact, the boundary of the public fishing area is determined by the boundary of the

fishing lots, or the boundary of the fish sanctuaries and its boundary varies over time, place and space (Sithirith, 2007; Sithirith and Grundy-Warr, forthcoming; Van Acker, 2005).

The territory of the public fishing space is not fixed. It is contracting or expanding according to the change of water level in the Tonle Sap Lake. In the dry season, the public fishing area is getting smaller as volume of water recede the Lake, but in the wet season the public fishing area is expanding as more water entering the lake. The rising and falling water in the Tonle Sap gives a great uncertainty of the boundary and this is highly potential for fishing lots to expand its boundaries into the public fishing areas, making the boundary of the public fishing area highly contested.

The extension of fishing lot boundary induces fishing conflicts between fishing communities and fishing lots owners. These conflicts are wide spread and have happened for quite sometimes already. While fishing lot owners expand the lot boundaries and maximize fiseheries exploitation unsustainably, fishing communities do the same, competting to use resources in the public fishing areas; leading to fishing conflicts between fisherman and fisherman, between rich and poor fishermen, between small-scale and large-scale fishermen.

6.8.1.2 The Control of the Public Fishing Area

Public fishing area (open access) is opened up for all fishers to fish. Theoretically, two distinct types of an ‘open access’: first; it is totally unregulated, in which both fleet and the catch taken by the fleet are uncontrolled; and second, it is a regulated access, in which the output of the fisheries, for instance the catch and size of fish may be regulated, but not the inputs, e.g. the number of boats (Charles, 2001). Furthermore, the ‘open access’ in inland fisheries in Cambodia is regulated in three ways; first, it regulates the use of fishing gears for fishing in the public fishing areas into small-scale and medium-scale; second, it regulates fishing activities in the public fishing spaces into ‘open fishing season’ and ‘close fishing

season'; and third, small-scale fishing is fished for subsistence only—for household consumption only, not for trade.

All fishers could fish in public fishing areas year round, using small-scale gears. If those fish in the public fishing areas using larger fishing gear than the small-scale subject to approval or fishing licenses from Fisheries Administration (Fisheries Law, 2006). For small-scale fishing, access can be free and open, and without permission or license from Fisheries Administration. However, the medium-scale fishing is allowed to fish in the public fishing areas in the open fishing season from October to May (Fisheries Law, 2006).

6.8.2 Re-territorialization of the Public Fishing Area

The public fishing area covers approximately 874,781ha (See Table 6.4). As a public fishing area could be fished by either small-scale or medium-scale fishing, there is a competition going on in the public fishing area between the small-scale and medium-scale fishing. However, in the competition, the small-scale fisher upgrades their fishing gears and most of them fish with large fishing gears. It is matter of the fact that small-scale fishers do not care about the fishing-scale provided in the Fisheries Law, but are more concerned on how they could catch enough fish for their "survival". As a result, the medium-scale fisher fish using fishing gears larger than the medium-scale gears allowed by the Fisheries Law. As a consequence, this has led to maximizing fisheries resources in the public fishing area.

Facing such a difficult situation, the state re-territorializes the public fishing area into a community fishery as a mean of reducing anarchic fishing activities in the Tonle Sap. By 2005, an area of about 412,205 ha of public fishing areas within six provinces around the Tonle Sap had been territorialized into 175 'community lots' (See Table 6.5). Finally, the 'community lot' is technically called as a 'community fishery'. The process of classifying and

organizing the public fishing area into a community fishery is named after a 'community fishery territoriality'.

175 community fisheries around the lake are home to 61613 households living in 361 geographical villages in six provinces around the Tonle Sap, of which 38 percent of them are dependent on fishing as a primary occupation, and the rest are fishing as well as farming for the livelihoods (See Table 6.5).

Table 6. 5: The community fisheries around the Tonle Sap

Province	No. of village	No. of HH	No. HH Depending on fisheries	CF Area (ha)	No. Fish sanctuary	No. of Male CF members	No. of Female CF members
Kampog Chhnang	51	6470	0	42071	0	6523	6349
Siem Ream	129	21698	15052	90728	1232	11852	9622
Pursat	52	5808	619	85712	155	5950	4910
Kg. Thom	54	4631	5232	40994	201	4852	4154
BTB	62	20197	2402	144506	157	8964	5808
BMC	13	2809	67	8194	33	1358	1053
Total	361	61613	23372	412205	1778	39499	31896
Source: TSBR, 2007							

On the other hand, the allocation of the public fishing area into the 'community fishery' is a strategy to control the fishing in the public fishing area. To control this, it restricts the members of community fisheries to fish for subsistence using small-scale fishing gears. At the same time, each community fishery (CF) is demarcated with a boundary and map is drawn to differentiate one CF from the others. Member of one CF is tagged to exclude them from other CFs.

In Kampong Chhnang Province, there are 52 CFs and Battambang is ranked as a second with a total number of 38 CFs, followed by Kampong Thom, Pursat and Siem Reap. The CFs cover a large fishing area, representing the subsistence territoriality in the Tonle Sap. To control the community fisheries area, one way is to have membership. The community

fishery is established on the public fishing area and 71395 fishermen are a member of 175 community fisheries, of which man represents 55 percent of the total members of these community fisheries. The member of the CFs has to fish for subsistence only, using small-scale fishing gears, and those, who are not a member of CF, are not allowed to fish inside the CF area, unless they get permission from the CF committee. Among the CFs in the Tonle Sap, 172 CFs have a list of membership which is important for members to fish inside the CF areas (See Table 6.6).

Table 6. 6: Community fishery in the Tonle Sap by province

Province	No. of Community Fisheries	Membership List	By-law and Regulation	Area Agreement
Siem Ream	22	22	22	21
Kampong Thom	30	30	30	30
Kampong Chhnang	52	52	52	52
Pursat	27	26	25	25
Battambang	38	38	38	37
Bantey Meanchey	6	4	4	2
Total	175	172	171	167
Sources: TSEMP, 2007 and TSBR, 2007				

6.8.2.1 Boundary and Map of Community Fishery

To control the CFs, the CF area is demarcated with boundary cutting across the traditional relationship of different fishing communities by excluding some as ‘insider’ and excluding others as ‘outsider’. According to Clayton Hawkes (2006), about 100% of CFs in Siem Reap had boundaries and maps delineated by global positioning system (GPS) instruments and geographic information system (GIS) software. Kompong Thom's CFs was the next furthest along with mapping and boundary delineation. Seventy-eight percent of the CFs had boundaries, and 45% had maps. However, boundary delineation and mapping remained to be done for most of the CFs in Kompong Chhnang, Pursat, and Battambang (Hawke, 2006).

The boundary is a 'physical exclusion and inclusion' of insider and outsider. This even marks a clear division between the outsider and insiders and in this sense, between the *neak tonle* (river people) and *neakleu* (highlander). The outsider and insider or *neak tonle* and *neakleu* seems to have a suspicious relationship given the installation of a physical boundary of the CF. The issues of 'outsider' and 'insider' or *neakleu* and *neak tonle* creates a 'social exclusion which intensifies the tension between the insider and outsider or *neakleu* and *neak tonle*.

Boundary and map is a form 'physical exclusion' or 'physical control' of the CF area and the issues of outsider and insider is a form of 'social exclusion' or 'social control'. The 'physical control' and 'social control' is reinforced by a 'community law'. Finally, the 'community law' is approved by the FiA and those CF community laws inconsistent with the FiA guideline are hardly recognized by the FiA, and therefore, affecting the political position of the CFs. As a consequence, the CF is influenced by the FiA and to approve the 'community law', it gives a 'political power' to CF to reinforce the boundary, the map and the membership of the CF and therefore, the CF has a 'political control' over the CF areas with political supports from the FiA. Among all CFs, 171 CFs have a "community law" which is developed based on a guideline given by the Fisheries Administration (FiA) and it is drafted with an assistance provided by the FiA staff.

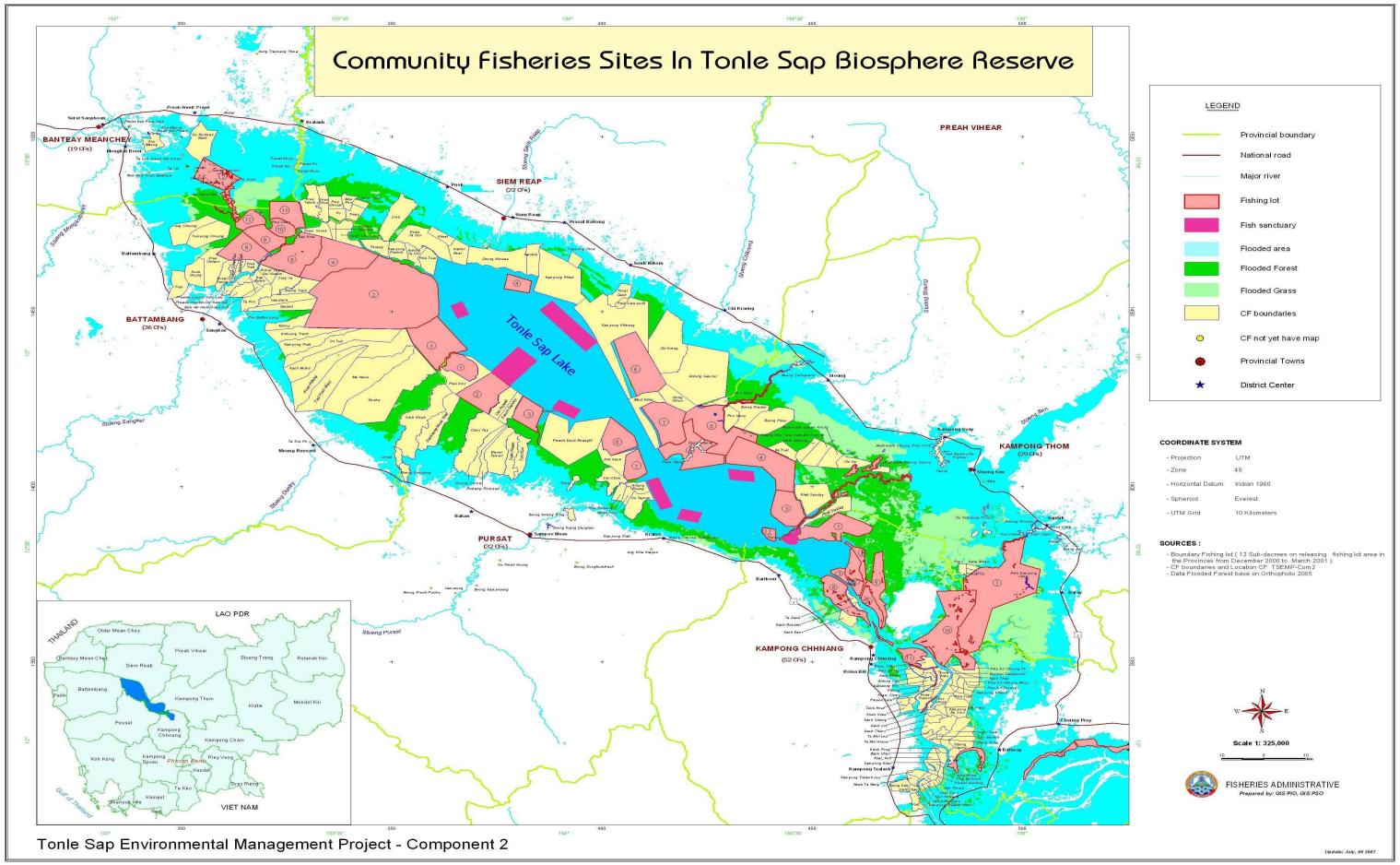
6.8.2.2 Fish Sanctuary as Control Strategy

The public fishing area of 412,205 ha is classified into 175 community fisheries in six provinces of the Tonle Sap. Within 412,205 ha of public fishing areas, 1778 'fishing sanctuaries' attaching to 175 CFs were developed. For instance, in Siem Reap, the Kampong Phluk community fisheries set aside 48 small fish sanctuaries with the community area of 11891 ha while the Lvea Community Fisheries and Preaek Sramaoch Community Fisheries

establish 100 and 123 small fish sanctuaries on the CF area of 1528 ha and 557 ha respectively. However, Thnal Dach CF is organized by 5 villages with 2339 households joining to manage the CF areas of 2152 ha. Within this area, 920 fishing areas were allocated as a small fish sanctuary (See Table 6.5; TSBR, 2007)[28].

Based on the data from FiA, among 175 CFs, only 82 CFs have a fish sanctuaries, and the fish sanctuary is classified into three categories—the fish sanctuary, the protected flooded forest and planting flooded forest. The fish sanctuary, either fish sanctuary, protected flooded forest or planting flooded forest, established inside the CF area is another strategy developed to control the access and fishing activities within the CF area. Not all fishing areas within a community fishery area is fished, but some small fishing territory is tagged as a 'protected territory', used as a strategy to control the fishing areas and limit the access of the fishers to these areas. To avoid the overlapped meaning, the fish sanctuary designated within the CF area for fish conservation is called a 'community fish sanctuary'. Fishing in the 'community fish sanctuary' is forbidden by the community law. The community fish sanctuary covers 700 ha, consisting of 84 community fish sanctuaries in 82 community fisheries in six provinces around the Tonle Sap. Similarly, some areas covering a flooded forest are classified as a 'protected flooded forest'. Totally, 20 plots covering 5,424 ha located within the Tonle Sap floodplain in six provinces have been classified as a 'protected flooded forests'. As it is protected, access to areas defined as a 'protected flooded forest' is determined by the community law. Some areas within the CF areas are classified as a 'planting flooded forest area' and this area is subject to re-plant the flooded forest. Some 14 identified plots within 82 CFs are classified as 'planting flooded forest area'.

[28] TSBR 2007 database records all community fisheries around the Tonle Sap.



Map 6. 3: Map of Community fisheries in the Tonle Sap Lake

Thus, the public fishing area is classified into community fisheries and each community fishery area is classified into different territories including community fishery, community fishery sanctuary, protected flooded forest and planting flooded forest. The classification of the community fishery into different territory provides that there is different territory providing different functions. The classification has led to different control and access and each people have different roles to different territories. The community fishery, the community fish sanctuary, the protected flooded forest and the planting flooded forest is a form and a strategy designed by the state to control the access and fishing in the "public fishing area".

Many CF members display good interest and enthusiasm for their CF and a belief that CF presents a potential for improving their livelihood and fish production. At the same time they display a strong sense of wanting to protect and conserve the natural resources of their CF. These attitudes suggest that properly organized and managed CF may have a good potential to a achieve sustainable fisheries and livelihoods. A widespread threat voiced by CF is incursions by outsiders into CF areas to carry out various destructive activities (poaching of fish, burning and clearing forest to plant crops and hunt wildlife such as crocodiles, snakes and water birds).

Table 6. 7: Community fisheries by province around the Tonle Sap Lake

Rovince	Fish sanctuary			Protected flooded forest		Planting flooded forest		Livelihoods activities	
	# of CFs	# of fish sanctuaries	Total area (ha)	# of CFs	Total area (ha)	# of CFs	Total area (ha)	# of CFs	# of HH
Siem Reap	11	12	76	5	2,807	2	445	7	167
Kampong Thom	16	23	82.95	6	598.16	1	8	10	107
Kampong Chhnang	10	10	124	0	0	3	2.61	5	76
Pursat	20	20	263.74	9	2018.61	4	1332.23	11	201
Battambang	21	14	120	0	0	4	27	3	33
Bantey Meanchey	4	5	33.8	0	0	0	0	0	0
Total	82	84	700.49	20	5,424	14	1814.84	36	584
Source: TSEMP, 2007									

The community fishery in the Tonle Sap Lake suffers from poor governance in the Lake and inadequate legal framework. Although the new community-oriented provisions provide an alternative to current fisheries management, the pre-existing territoriality of the Lake continues to influence the management of all fishing territories in the Lake. Current policy actually enables centralized management and favors restricted control.

The fishing lot areas presently released to Community Fisheries are less productive as it was cut from the cheapest fishing lot areas valuing less 30 million Riel. This affects the ways in which local communities organize community fisheries. However, many of the best fishing areas are still under the management of fishing lots (FACT & EJF, 2001). Therefore, the community fishery development is moving slowly. Another constrain is that the community fishery is politically given a limited rights and power to manage the community fishery, and the FiA seems to centralize the management of community fisheries, leaving a little roles, responsibility, right and power to CF to manage the community fishery. This includes the right to protect the area from illegal fishing (ie. direct enforcement) and the right to harvest fish on a large scale to raise funds for the community.

Most existing CFs have been established at the initiative of FiA, donors such as ADB and NGOs, rather than the initiative of fishing communities. There are no clear common guidelines to establish a Community Fishery. Consequently many different approaches are taken by the various provincial DOF offices and by the various NGOs. The CFs are new organizations, suffering from weak capacities. Many are not fully representational, and committees and members may not be fully aware of their rights and responsibilities. It is important to note that not everyone who lives and fishes in a CF area is a member of the Community Fishery.

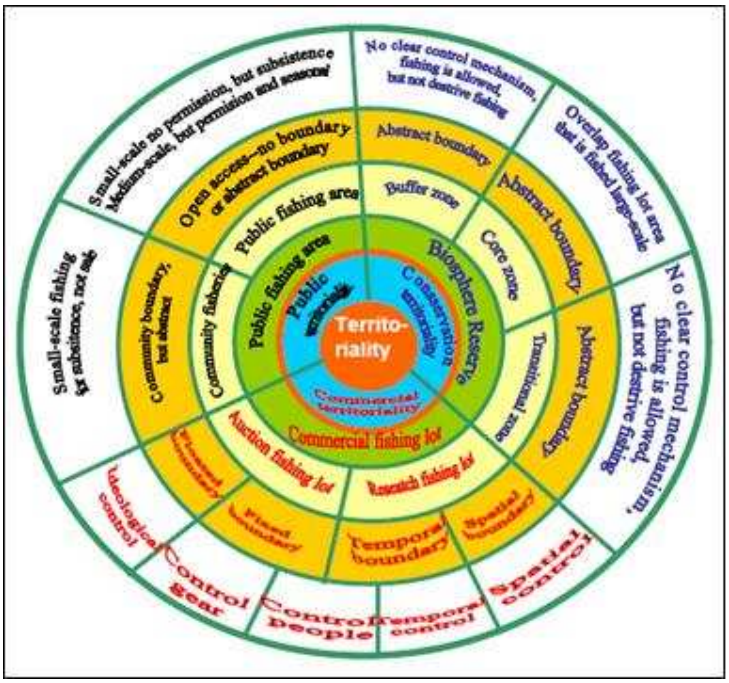


Figure 6. 2: Territoriality of freshwater lake

6.9. Conclusion

The territoriality in the Tonle Sap Lake is very complex as shown in Figure 6.2. It has happened since the French Protectorate Regime following the 1908. At present, the territoriality of the Tonle Sap is still at large applicable. The old form of territoriality, the increased fishing population in the lake, the increased development around the lake and the change in the environment of the lake contribute to resource degradation and fishing conflicts. The complex territoriality in the Tonle Sap induces the poor governance of fisheries and natural resources.

The Tonle Sap Lake is territorialized into commercial area, the public areas, and the conservation area. Each of these spaces is further territorialized into a smaller area, with a specific territory, boundary demarcation and control system. For instance, the commercial space is further territorialized into a smaller commercial space known as a commercial fishing

lot, while the conservation space is further classified into the transition zone, the buffer zone and core zone which is known as a 'Biosphere Reserve Area'. The public fishing space is also territorialized into the community fisheries and public fishing areas. These induce the overlapping territories which lead to conflicts in resource exploitation, institutional conflicts over the overlapping territories and resources over-exploitation.

The territoriality in the Tonle Sap is different from territoriality on land in which the boundary of the fishing lot, Biosphere Reserve and Community Fisheries is marked on water which is fluctuated significantly between the dry and wet season. The boundary that was used to control people movement across the boundary line is now used to control fish and fishing activities in the Tonle Sap. Thus, boundary constructed on the fluctuated water level is varied from fixed boundary to floated boundary, and from temporal boundary to spatial boundary. Given the boundary issues, the control over each territoriality is also an issue. The boundary is used to control the fish and fishing.

CHAPTER 7

Politics of Fishery Scales in the Tonle Sap

The Tonle Sap is rich in fisheries and the State manages fisheries through territorializing the fishing areas into the commercial fishing areas, the public fishing areas and the conservation areas, in which the commercial fishing area is fished with large-scale fishing, while the public fishing area is fished with small-scale and medium-scale fishing. In addition, large-scale and medium-scale fishing is allowed to fish in the open fishing season, effective from November to April while the small-scale fishing is allowed in both open and close fishing seasons.

These narratives denote the 'scales' in fishing in the Tonle Sap Lake, particularly the 'geographical scale' of fishing, the level of fishing using different fishing gears to fish or the 'fishing-scale' and the 'fishing season' or the 'temporal-scale.' These accounts suggest 'scales' an important concept for fisheries management; but, the understanding of 'scales' in Cambodian context is limited, and therefore, the uses of 'scales' in fisheries management becomes politics of fisheries management in the Tonle Sap and it has an implication on resources management. Thus, this study sets out to examine the 'politics of scale' of fisheries management.

The chapter begins with an introduction of the theoretical framework of the 'scale' and analyzing the 'scale' of the fisheries management in the Tonle Sap, and then I return to the empirical study of the 'scale' in the Tonle Sap Lake where I explore the politics of scales in fisheries management in the Lake. My main purpose in this chapter is to contribute to the understanding of the 'scale' from Cambodian context.

At the outset it is necessary to differentiate the theoretical arguments within political geography concerning the politics of scale and the specific way scales are often used within

fisheries management. I wish to draw our some of the linkages and differences in these distinct ideas about 'scale,' which has important theoretical and empirical-methodological dimensions (within the discipline of Geography in particular), and peculiar specific applications as a term used to describe different fishing operations and operatives in the Tonle Sap.

7.1 The Politics of Scale in Political Geography

'Scale' is an important concept in geography and environmental sciences. In geography, 'scale' has three important dimensions: geographical scale; the cartographic scale of mapping; and methodological scale of a geographical study (Howitt, 2003; Jonston *et al.*, 2000; Delaney and Leitner, 1997). In environment, environmentalist may study the environmental change of particular place or space over a period of time. They might find that the environmental change may occur at small-scale or large-scale; at local level, national level or regional level (Gibson *et al.*, 2000; Kummu, 2008). In fisheries, 'scale' is also used for fisheries management because fish migrates across the state boundary and therefore, fisheries can be managed at international level (Charles, 2001; McGoodwin, 1990; Bene *et al.*, 2007; Welcomme, 1979). Thus, 'scale' is conceptualized into three dimensions: temporal scale, spatial scale or geographical scale and organizational level (Wu and Li, 2006; Charles, 2001) and each of these is used to manage environment and fisheries resources.

The 'geographical scale' relates to sizes of the area, both geographically and administratively (Charles, 2001; Welcomme, 1979). 'Size' can become a 'level' when the size of the area varies across space—when the size of the area is small located within the country, it refers to local level, when the size of the area covering the country, it then refers to a country level, and when the size is larger than the coutrny, it refers to the international level. This is clearly illustrated in fisheries management, in which fishery exploiting is considered highly migratory that ranges over the water bodies of many countries. Within a specific

nation, the relevant fishers may operate under that nation's management framework (Charles, 2001; Welcomme, 1979). The 'geographical scale' of fisheries management in this case focuses on fisheries resources within the nation's border. However, fish migrates across the country boundary and therefore, the management of fisheries extends beyond the country's border, leading to creating international management mechanisms such as the 'Common Fisheries Policy' of EU in which fish stocks within EU are assessed and total allowance catch (TAC) set for the stock is subdivided among the relevant countries. Then, each country is able to manage its fishery systems which consist of that nation's allocated portion of the TAC. At the same time, each country allocates fishing areas to community to manage sedentary species than the migratory species, for a case in which fishers are restricted to relatively geographical boundaries in their local areas (Charles, 2001).

Environmental and fisheries resources vary greatly over time. The concept of 'scale' is used to study the environmental changes in the Mekong Region over a period of time and this is called a 'temporal scale'. The environmental changes in the Mekong occur within the multiple temporal scales (Kummu, 2008; Lebel, Garden and Imamura, 2005; Hirsch and Wyatt, 2004; Lovell *et al*., 2002). In fisheries management, fisheries resources vary greatly from month to month, season to season, and year to year, and thus, management decision may be best made on a comparable scale. The 'temporal scale' in fisheries management includes the month, season and year (Charles, 2001; Welcomme, 1979); and the fisheries management takes into account the month and season that fish breed, lay egg and grow, and thus, the fisheries management system limits fishing activities that could damage the fish stock; and the time that fish could be caught for marketing (Charles, 2001; McGoodwin, 1990; Bene *et al.,* 2007). The management decisions are made based on a time scale compatible with the market for fisheries products. If market agreements are made annually to sell certain amounts of product to exporters or wholesalers, but management decisions are made on a short time scale, one could envision a situation where a fishery is close at such a time as to leave harvest and processors unable to meet market commitments. This could lead both to large immediate

losses and loss of markets, owing to an inability to guarantee delivery. So differing time scales can have significant consequences for all players in fishery system (Charles, 2001; Welcomme, 1979).

Levels' are defined as units of assessment that are located at the same position on a scale (Gibson *et al*., 2000). Often 'levels' are ordered hierarchically but not necessarily (Turner *et al*., 1989; Wu and Li, 2006; Kummu, 2008). In geography, 'level' is used most in the cartography and methodology. The cartographic scale refers to the level of detail of abstraction at which map is constructed. In mapping, small-scale and large scale maps show different details. Small-scale map represents a map that shows a large area but at the expense of considerable details. Large-scale map represents a map that has a greater detail but over restricted terrain. The cartographic scale is important in determining what is included and excluded in a map and overall image a map convey. Moreover, methodological scale refers to the choice of scale for gathering information at particular scale such as research at local scale, provincial level or national level. The choice of the research scale depends on the research problem, the available information, the cost of data collection and data processing (Howitt, 2003; Jonston *et al.*, 2000; Delaney and Leitner, 1997).

In fisheries management, 'scale' is used to group fishing population into two categories—small-scale and the large-scale fishing, based on the size of fishing gears used for fishing, the capital investment in fishing, the mode of production, the fishing areas, the fishing effort and marketing (Charles, 2001; McGoodwin, 1990; Bene *et al.*, 2007; Welcomme, 1979). Interestingly, small-scale fishing refers to a group of fishing population that fish with a small-scale capital commitment; low productivity; low yield rates; and also usually implies small-scale power that is an inability to influence fish markets, little representation in the formulation and implementation of fisheries management policies, and inability to safeguard fisheries against the environmental degradation caused by external development. Large-scale fishing is a group of fishing population that is fished with

sophisticated fishing technologies, involving heavy investment outlays which make them inaccessible except to a new class of capitalists arising from outside the fisherman communities (McGoodwin, 1990; Alexander, 1995; Bene *et al.*, 2007; Welcomme, 1979).

Based on above, Marston (2000) suggests three basic principles of scale: first, scale is not an existing—it establishes and is established through a social interaction; second, the ways in which scale is constructed have tangible and material consequences, they are not just rhetorical practices, but are inscribed in both everyday life and macro-level social structure; and third, the constructing of scale is often contradictory and contested, it is recognized that the fixing of scale is in itself a political act practiced by both state and non-state actors. In this regard, the state routinely constructs scales, as it creates and structures local government institutions, as it formulates and implements policies and as it decides which issues is appropriately dealt with at which scale. But scales of political action are also constructed by non-state actors. To construct the 'scales', it involves the politics and this calls a 'politics of scale'.

Cox (1998) sees what described by other scholars in relation to the politics of scale as 'not a scale', but 'a social network' that connect people from local, national to global and through the social network that local people organize the resistance, opposition and campaign to claim their rights over space as the case of communities in the Se San River in Cambodia struggling across the scales to protect the Se San River within Vietnam and Cambodia from daming (Hirsch and Watt, 2004). According to Howitt (2003), through a social network people are mobilized together to oppose the social injustice often imposed by the higher level (Howitt, 2003). The "way in which local groups constitute their identity within a relatively local politics, and how they seek to counteract disempowerment by jumping scales to assert their specific concerns at wider more general scale" is desribed Howitt (2003) as 'politics of scale' (Howitt, 2003:138). Delaney and Leitner (1997) discuss the 'politics of scale' and they argue that politics of scale involved the politics of interests and of consciousness and their

connections. In the politics of scale, local people, campaigner, local authority could jump from local to global scale to seek solution to their problems (Judd, 1998). Cox (1998), Howitt (2003) and Jonston *et al.*, (2000) call this as a 'jumping scale' which is a way upward or downward in order to achieve the ended goals aimed by the social group. In the jumping scale the politics of scale involves the 'politics of representation' which the "local group actively shaping the discourse within which their struggles are constituted and discursively representing their political struggle across scale" (Howitt, 2003:141). However, often the power relations that imposed by the state's construction of scale through jurisdictional, administrative and regulatory structure limits the opportunity for resistance, jumping scale or upward or downward representation (Howitt, 2003; Judd, 1998).

7.2 The Scale of Fisheries Management in the Tonle Sap

The Tonle Sap is rich in fisheries resources. To manage fisheries resources in the Lake, the Tonle Sap Lake is territorialized into the commercial fishing area, the public fishing area and the conservation area. The auctioned commercial fishing area is effectively for 'large-scale' fishing. However, the public fishing area is set aside for public access and this is an 'open access'. Fishers are permitted into these zones with designated 'medium-scale' and 'small-scale' fishing gears. In practical terms, it is useful to stress that many fishers are continually trying to 'up scale' gears within the public fishing areas, sometimes utilizing technologies which contribute to over-fishing, and sometimes using equipment and methods that are technically illegal.

Fishing is managed and controlled via officially designated 'seasons'. The 'large-scale' and 'medium-scale' fishing may take place within the commercial fishing zones and public fishing areas respectively only in the 'open fishing season', effective from October to May. However, 'small-scale' subsistence fishing is permitted (at least on paper) everywhere in the lake during the closed fishing season, whereas, in the open fishing season, it is allowed

only within the public fishing area (Degen *et al.*, 2000; Van Acker, 2005; Sithirith and Mathur, 2007).

Table 7. 1: Fishing Scale of the Freshwater Capture Fisheries in the Tonle Sap

Geographical scale	Fishing Scales	Temporal scale	Place
Commercial fishing territory—fishing lots	Large-scale	Only in the open fishing season : - 1st October to 31 May for the fishing grounds located north of Phnom Penh - 1st November to 30 June for the fishing grounds located south of Phnom Penh	Inside the fishing lot area but outside the area that is set aside for open-access
Public fishing territory	Middle Scale	Only in the open fishing season : - 1st October to 31 May for the fishing grounds located north of Phnom Penh - 1st November to 30 June for the fishing grounds located south of Phnom Penh	Public fisheries domain (The area outside the fishing lots, fish sanctuaries, and the protected inundated forest zones)
Public fishing territory	Small-scale	Both in: Open fishing season - Close fishing season	Everywhere except inside the fishing lot during the open season, and inside the conservation area
Conservation territory	No fishing		Fish habitat
Source: Fiat Law, 1987; Fisheries Law, 2006			

As a result, I conceptualize the fisheries management in the Tonle Sap Lake into three main scales—the 'geographical scale', the 'fishing-scale', and 'temporal scale'. Table 7.1 provides the detailed characteristics of the 'scales' of fisheries management in the Tonle Sap and each of these will be discussed in more details in the following section.

7.2.1 The Geographical Scale of Fisheries Management in the Tonle Sap Lake

The Tonle Sap Lake is classified into 'commercial fishing area', 'public fishing area', and 'conservation area'. This classification is what I call a '*geographical scale*' in the Tonle Sap. Then, I refer to Chapter 4 that discusses the commercial fishing areas, the public fishing areas and the conservation area respectively. However, in this section, I will continue to

discuss each of these, focusing more on the 'geographical scale' of fisheries management in the Tonle Sap Lake.

It would be wrong to characterize the commercial fishing area purely as homogenous fishery space for capital intensive operations. In fact, these areas occupy space that is extremely both ecologically diverse and biologically productive due to the existence of five main 'habitats', including the 'streams', 'Great Lake' proper, the 'rivers', 'natural ponds', and 'inundated forests'. For instance, there are commercial fishing areas located along the Tonle Sap River and the lower Mekong River which are grouped under the 'Dai fishing lot', and these spaces are very distinct from the commercial fishing areas that are located around the Great Lake and the major flood plains of the Mekong and Bassac river system, which are grouped into the 'riverine' and 'lacustrine fishing lots' (ADB, FAO & DoF, 2003).

Furthermore, each fishing lot space produces its own political geography and occupies a unique area. An example is fishing lot no.2 in Battambang Province, which is the largest fishing lot in the Tonle Sap Lake, covering approximately 50,624 ha. In contrast, the smallest fishing lot is fishing lot no.7 located in Kampong Chhnang, covering a mere 213 ha. Among 270 lots existed from 1999 till now in all over the country, 135 fishing lots are named after the lake-stream fishing lots, 63 fishing lots are placed in the river and names a 'bag net fishing lots', and 20 fishing lots known as a 'sandbank fishing lot'. Beside the 270 fishing lots, which have been operating, another 13 fishing lots have been regulated as reservoir and research fishing lots (ADB, FAO & DoF, 2003).

In the Tonle Sap Lake, the commercial fishing lots are located in Pursat, Battambang, Siem Reap and Kampong Thom Provinces, categorizing as fence and pen fisheries, while the fishing lots in Kompong Chhnang as barrage fisheries situated in the Tonle Sap River and its tributaries. In addition, there are Dai fisheries lots in the lower Tonle Sap River in Kandal Province and Phnom Penh. By 2001, there were 38 fishing lots in the Tonle Sap. These lots

are potentially the most productive fishing grounds in terms of fish yield and fish habitat (ADB, FAO & DoF, 2003). The average size of lot is about 15-25 km long and 5-10 km wide (ADB, FAO & DoF, 2003; Van Zalinge *et al.*, 2000).

'Public fishing areas' are located outside the commercial fishing lot boundaries and conservation zones and they are mainly in the middle of the Tonle Sap Lake or the near-shore areas close by main rivers and roads connecting to the land-based rice paddy communities. The public fishing areas have three different spatial characteristics; first, they are accessed for year-round fishing; second, the spaces are also used by many village boats for navigation between settlements; and third, some floating villages occupy the public fishing areas.

As these public areas are available to everybody, it is an 'open access'. However, fishing in the 'public fishing areas' is supposed to benefit small scale and medium scale fishers, although in practice there are often encroachments, illegal fishing and conflicts between different stakeholders. Highly capitalized commercial operators are not supposed to access these public zones, and the public area boundaries are effectively decided by the limits of the commercial fishing lots and the conservation areas. In order words, the public zones have no specific zonal boundaries and also the physical boundaries vary between wet and dry seasons due to the fluctuations of water level in the lake. As argued elsewhere, the seasonality and annual flood pulse of the lake creates political geographic dilemmas and contribute to human-made boundary tensions.

The Tonle Sap Lake is considered as a conservation area. The **Conservation area** was enacted following the Royal Decree on Protected Areas issues in 1993, followed by a decision in October 1997 by UNESCO to designate some 70,837 ha into a Biosphere Reserve Areas, which were finally confirmed in 2001 by the Royal Degree. These areas are divided into sub-zones of 'core areas' surrounded by 'buffer zones' and beyond that 'transitional zones' (Bunhoeur and Lane, 2002; Campbell *et al.,* 2006). The 'Core Area' is further

classified into three ‘sub-core areas’ known as Prek Toal, Boeung Tonle Chmar and Stun Sen Core Areas.

The ‘transitional zone’, the ‘buffer zones’ and the ‘core zone’ characterizes the ‘geographical scales’ of the conservation areas in the Tonle Sap Lake. The ‘geographical scale’ of the conservation in the Tonle Sap Lake denotes the different level of control and management over different geographical areas. The ‘core area’ reflects the strong and intensive control and management of resources in the core areas, aiming at protecting it, prohibiting human invasion into the biodiversity areas and preserving the significant biodiversity species and its habitats. The ‘buffer zone’ functions as an area to buffer the ‘core area’ from human action, in which some human activities for subsistence livelihoods are allowed, while other activities other than these are prohibited. However, the ‘transitional zone’ is an area where there are more human settlement and diversified human activities taken place. Thus, the ‘zoning’ illustrates the ‘scale’ or the ‘level’ of human interaction within each zone. The ‘scale’ or the ‘level’ of human activities in each zone reflects the ‘scale’ or the ‘level’ of control and management in each zone for resource conservation.

The conservation areas are supposed “to preserve flooded forest, fish, wildlife, hydrological systems and natural beauty”, but in practice there are problems due to the allowance of fishing concessions in the ‘buffer zones’, and also due to the fact that there are other multiple uses in and around flooded forests (dry season rice, mung bean cropping, vegetable gardens, and so on) (Bunhoeur and Lane, 2002).

7.2.2 Fishing Scales and Fishery Management

As I have outlined earlier, ‘fishing-scale’ is used by the state (Fisheries Administration) and other official fisheries agencies) to control activities of different officially designated fishing groups according to regulations concerning specific fishing gears

permitted in particular zones and at different seasons. Table 7.2 illustrates the grouping of fishing gears in relation to these official 'scales' in Cambodia.

Table 7. 2: Fishing gears commonly used various scales of fisheries.

Fishing gear	Small-scale	Medium-scale fisheries	Large-scale fisheries
Harpoon/Spear	*		
Bamboo/rattan traps	*	*	
Cast net	*	*	
Scoop/lift net	*	*	
Dragnet	*	*	
Hook and line	*	*	
Bamboo fence entrap		*	*
Bamboo barrage trap			*
Beach seine net		*	
Purse seine net		*	
Set bag net (Dai)			*
Source: DoF, 2003			

These have effectively been adapted since the days of the French Protectorate Administration. The post-colonial state continued to use the colonially-inspired 'scale' categories to guide fishing activities based on the economic interests of the state by limiting household fishing to 'small-scale' and 'medium-scale' with commercial lots being used to generate revenues.

'Large-scale' fishing is commercial fishing in fishing lots. The most important gears used in commercial fishing are probably the 'barrage traps' (*Thnours*) and 'bag nets' used for both fish and freshwater prawns (Deap *et al.*, 2003; Gum, 2000). A barrage traps is a large structure fixed across a stream or small river in the precinct of a fishing lot. Beside the fishing gear used for large-scale fishing, seine nets, gillnets, cast nets, hooked lines and bamboo traps have also been used for medium-scale fisheries, and spears, cast nets (<5m), small gillnets, single hooked lines and bamboo traps have been used for family small-scale fisheries (Deap *et al.*, 2003; ADB, FAO & DoF, 2003). In the Tonle Sap, a great many commercial fishery

methods were developed by up-scaling indigenous technology gears, such as the 'arrow traps' seen in many parts of the lake.

Common gears used by 'medium-scale' fishers are bamboo traps, nets, fishing hooks and lines. These fishers have adapted bamboo fence traps (*lop*, *nor*, *rav*) of less than 500 m in length with stakes interspersed within no more than 0.5 m. Other common methods include big cylindrical drum traps, big vertical slit traps, small cylindrical drum oblong traps (*lop, sayoeun, tru*) of more than 0.8 m in height, more than 0.3 in diameter. The Fisheries Administration also permits the seine net, which must not exceed 400 meters in length in public fishing areas other than the Tonle Sap Lake; and 1000 meters in the Tonle Sap Lake (Article 15 of Fiat Law, 1987). It is prohibited to use any gill net or seine net of a mesh size less than 1.5 cm and; any fish barrage made up of sticks set less than 1.5 cm apart from each other (Article 17 of Fiat Law, 1987). Poor enforcement of mesh size regulations led the Minister responsible for fisheries to adopt Proclamation n° 259 of 12 August 2002 reasserting that it is strictly prohibited, within Cambodian inland waters, to fish by means of a seine net whose mesh size is less than 1.5 cm. It also prohibits the use of any type of mosquito nets for fishing purposes. From the above, it should be apparent that unless there are extremely efficient, non-corrupt, and well-resourced governance agencies, there exists plenty of scope for fishers to up-scale or adopt practices that do not comply with the 'scale' regulations.

'Small-scale fishing' refers to fishing for a subsistence and household use, but not for trade (Fisheries Law, 2006; Fiat Law, 1987; ADB, FAO & DoF, 2003). In practice, these fishers are restricted by limited capital availability, the use of mostly family labour, relatively low productivity, and thus they tend to catch fish to sell for living essentials, particularly rice (especially so for floating households with no land) and household materials. The vicious spirals of indebtedness, plus the risks inherent in livelihoods dependent upon aquatic resources, means that up-scaling is desired but very difficult for these fishers.

Small-scale gears include: individual harpoons, gears made out of bamboo and rattan such as a wide variety of species specific or fish size specific fishing traps and scoops, fishing nets, hooks and lines. There is also the three-arrow harpoon (*chbok*) and 3-prong spear (*sam*), which are commonly used. Similarly, rattan and bamboo scoop nets and traps can be used. Other indigenous traps include small cylindrical drum traps, small vertical slit traps or small cylindrical drum oblong traps (*lop*, *sayoeun*, *tru*) which are 'small-scale' only if they have less than 0.8 m in length and less than 0.3m in diameter without utilizing bamboo fences to connect the traps (another practice in the lake). Fishing nets include the cash nets, V-shaped dip nets (*thnang*), raft mounted lift nets (*chhnuoc*), and small drag nets and gillnets. As for the other traps there are official size restrictions relating to nets, for instance, the cash net is small-scale only if it is less than 5 m in length. Similarly, V-shaped dip nets (*thnang*) are considered small-scale if they have an opening less than 2 m in diameter. Raft mounted lift nets (*chhnuoc*) should have each side less than 2 m in length and small drag nets and gillnets should have less than 3 m in length. To reiterate, even the poorest fishers wish to up-grade, including making technological changes to their fishing activities, as there is great competition over the resource and food insecurity is an ever-present problem.

Clearly, the Tonle Sap is a fantastic living museum for specialists interested in indigenous technologies used for fishing in the Mekong Basin. The Tonle Sap probably has the greatest variety of different traps, nets, and fishing methods of any water-body anywhere in the world. However, what my descriptions here intend to reveal are the problematic fishery 'scale' designations that influence fisheries governance, and the actual complexity involved in utilizing such notions for a technologically diverse, socio-economically differentiated, politically and geographically complex fishery space.

7.2.3 Temporal Scale of Fisheries Management

Temporal scales are the 'closed' and 'open' fishing seasons, which influence political geographies of fishing. North of the 'Quatre Bras' including the Tonle Sap, the 'open fishing season' starts from 1st October to 31st May. However, the fishing areas located in the southern part of the 'Quatre Bras' could be fished in the open fishing season starting from 1 November to 30 June. The fishing area located in the northern part of the 'Quatre Bras' could be fished from 1st October (Fisheries Law, 2006). During the 'open fishing season' is applicable for medium-scale fishing and large-scale fishing is allowed in commercial lots.

During the closed fishing season (end-May to end-September) fishing lot territory is reserved for fish breeding and spawning. All fishing equipment and bamboo fences should be removed from the fishing lot areas at this time. In spite of the Fisheries Law prohibiting commercial fishing during this season there is evidence to indicate it continues in some areas. For instance, in Peam Bang, the fishermen indicate that the fishing lot owners keep a close watch over the fishing lot territory during the closed season. Sometimes they deploy traditional methods to lure more fish into the lot areas. Thus, it seems that some lot owners continue to behave as if they own their lots in the closed season (Field notes, July 2007, in Peam Bang).

It is clear from my research that the officially designated fishing scales are highly problematic and difficult to implement. Research has found that numerous fishers choose to 'cross scales' by up-grading and up-scaling fishing gears and practices, which has the *de facto* effect of intensifying fishing activity, as well as introducing some 'illegal' and damaging practices into many areas, such as the use of electro-fishing gear, mosquito net fishing, poison fishing, and so on (Sithirith and Grundy-Warr, forthcoming). Thus, there is often a gap between the official categorization of 'scale' and what is actually happening in the fisheries.

7.3 Politics of Scale in the Tonle Sap

'Scale' in the Tonle Sap is constructed and reconstructed. It was constructed by the Frech Protectorate Administration and was reconstructed by the post-colonial administration. The practices of 'scale' in the Tonle Sap implicate the ways in which resources are accessed and used in the Tonle Sap. At the same time, the application of fisheries scale for fisheries management in the Tonle Sap implicate on livelihoods of fishing communities living dependent on fisheries resources. As a consequence, local fishing communities construct their own fishing scales in response to official representation of fishing scale. These form the main base of the politics of fishing scale in the Tonle Sap. Thus, the following section discusses in details the politics of scale in the Tonle Sap and relate its to the governance of resouces in the Lake.

7.3.1 Politics of Commercial Fishing in the Tonle Sap

The scale as a social network (Marston, 2000) and the 'jumping-scale' (Howitt, 2003) is relevant in the Tonle Sap. Given this, the politics of scale of large-scale fishing in the Tonle Sap is not about fishing, but about the relationship constructed by the fishing lot owners across scales—down-scaling and up-scaling. The fishing lot is classified into two groups; auctioned fishing lots and research fishing lots. Management of respective fishing lots is slightly different, but the exploitation of fisheries resources within the lots is entirely similar (Watt and Hirsch, 2004; Lebel, Garden, and Imamura, 2005; Gum, 2000).

7.3.1.1 Politics, Patronage and Power in Commercial Fisheries

As Bryant and Parnwell (1996: 9) observed in relation to natural resource politics in Southeast Asia, resources often provide a "source of political patronage designed to award supporters and punish opponents in the broader struggle for political power." The issuing of

fishing lots in the Tonle Sap needs to be examined as an aspect of a much more generic political patronage system, within which having the 'right connections' is of the utmost importance. Cambodia's political economy has been described as a 'hybrid democracy' (Kheang, 2005) combining elements of coercive authoritarian politics, a relatively young democratic process, and deeply embedded patronage politics linking senior state officials with business tycoons. Within this 'hybrid' political economy control over environmental resources is strongly tied to 'networks of obligation' (Hughes, 2003: 127) of the patronage system that influences processes of resource control, access, production and exchange (Le Billon, 2000).

As described elsewhere, 'public bidding' for fishing lots is not an open process but is influenced by patron-client relations. This means that the allocation of fishing lot to the 'fishing lot owner' is very much depended on the relationship between the fishing lot owners and their 'patrons' who have authority to allocate fishing lots. Lot owners may be powerful patrons to others, but in this system they are also clients and their 'patrons' include those with influential government positions and interests in the fishing business. Support and protection from a 'patron' requires payments from clients, and there is little transparency in this system.

Three forms of power are embedded into the patronage system to exploit natural resources; first, 'power' to act includes 'power' to earn a living, protect one's rights and guide others including community and family members; second, power is associated with wealth and influence, which allows people to do what they like without fear of the law, buy rights and authority and oppress others; third, power is a 'connection' and 'influence' known as a *knong* or 'political back'. This refers to a person or network above an individual in the *kser* or 'string' of patronage relationships that link ordinary villagers with higher status individuals who can provide them with protection and connection to others in the network (CDRI, 2007a; Piseth, 2002).

Above all, this is a form of *pak pourk* or 'nepotism' in the patronage system that may happen in two forms; a) *'kser'* happens through 'relatives' or 'friends' working in the fishery business at the higher level government office, and b) *'khnong'* happens through a '*kser'* or 'string' in English, which means that the fishing lot owner has a '*pak pourk'* in one level of a government office, and that person in government office connects the 'client' to his friends or relatives in a second level of government office through a system of bribery. This so called '*kser'* may involve a hierarchy of connections. The stronger the *kser* then the more effective the *pak pourk* will be (CDRI, 2007a; Piseth, 2002). In return, the fishing lot owner uses their 'economic power' or financial resources to build '*khnong'* or political support for their business. As much party political power in Cambodia is based on developing and maintaining connections whilst restricting opportunities to rival parties (Kheang Un, 2005), then commercial fishing businesses also require these political ties.

Fishing lot owners with '*khnong'* (political backing) are able to ensure their business security over rivals (Piseth, 2002; CDRI, 2007a). *Khnong* is based on '*kser'* and economic power. In the other words, in the fishing lot business, '*khnong'* is a form of 'social power' based on complex social relations, often involving relatives, friends, bosses and political party allegiance. Economic strength without *khnong* is relatively useless. Thus, to have *khnong*, commercial operators also need to have a '*khser'* that connect them with higher level officials with decision-making influence. Some fishing lot owners with '*khnong* and *khser'* are able to restrict competition from rivals. Thus, we can not appreciate fishery politics in the Tonle Sap without understanding something about the power relationships involved (Degen and Thouk, 2000; Piseth, 2002).

Territoriality comes into play due to the importance of the fishery spaces under the commercial lots. 'Power relation' in 'large-scale fishing' is related to the size of the fishing lot which is then called as a 'territorial power', and the fishing lot owners actually build their relationship with powerful actors through their 'power' to maintain control over the fishing

lots, both research and auctioned lots. Large-scale fishing is based on patronage from powerful people in order to secure long term control over the lots. In fact, most commercial owners have control over their fishing lots for more than 10 years. Long duration control means they have advantages, such as ownership of means of production; extensive knowledge about the real productivity of the fishing lot; experience in lot management; and strong relations with fisheries officials. Each lot owner has their own security forces as well as good relations with police and military officials. Thus, newcomers face uneasy entry into the fishing lot business and often they could not compete politically, economically and socially with the current fishing lot owners (Degen and Thouk, 2000; Piseth, 2002; CDRI, 2007a; Field notes, 2007-9).

7.3.1.2 Fishing Lots and Sub-Lots

Sub-dividing and sub-letting are part of the commercial fishing lot system, as owners try to maximize productivity by partitioning their lots into the most productive zones, which they normally control themselves, and less-productive fishery zones, which are then open to leases by other fishers. For instance, in the open fishing season of 2006, Fishing Lot no.6 was sub-divided into three sub-lots—the Boeung Chhmar sub-lot, the Stung sub-lot located along the Stung River upto Boeung Chhmar, and the sounthern sub-lot covering a swamp area and part of the flooded forest. The owner of Lot no.6 only kept the Boeung Chhmar Sub-lot to fish for himself whilst sub-leasing other two sub-lots—the Stung sub-lot and the Southern sub-lot to sub-leasees (Vuthy *et al.,* 2000; Field Notes, 2007). Another case is Fishing Lot no.5 in Peam Bang which was divided into 3-4 sub-lots. The lot owner kept the most productive sub-lot for himself with the rest of the fishing zone being rented out (Field Notes, 2007).

Field-based interviews reveal that this system creates a very intensive fishery. First, the lot owners and the sub-leaseholders have a great incentive to fish out their zones until there are no more fish. Further sub-divisions of fishing grounds do occur as sub-leaseholders

then further partition their sub-lots to a third tier of leaseholders. Very often other fishers are sub-contracted to fish these lots, and so all parties have vested interests to exploit the fishery to the maximum. In this arrangement, the fisherman catches fish inside the sub-lot, but has to share their fish with the fishing lot owner or sub-leaseholder. The fishers could keep 60 percent of the catch for their own and provide 40 percent of the catch to the fishing lot owner or sub-leaseholder. Finally, the fishers have to sell their catch to the fishing lot owner, but at a cheaper price than would be sold on open market (Field Notes, 2007).

So the fishery has effectively built up the patronage system with patrons (lot owners and leaseholders, who are also clients) and fishermen clients. The 'patron' is actually allowing their 'clients' to fish inside their 'sub-lot areas' because they benefit from the catches without necessarily having to invest too heavily in new boats and gears, whilst their fishermen clients are paid by the patron in the form of sharing the fish catch. Fishers face most of the risks of uncertain harvests and declining catches within this system.

Fishing lot owners are contracted by the Fisheries Administration representing the Royal Government of Cambodia to manage the fishing lot areas for 2-6 years. However, the sub-leaseholder is sub-contracted by the fishing lot owners on a year-by-year basis, not 2-6 years, to manage a 'sub-lot areas'. Fishing lot sub-divisions and sub-leasehold conditions are effectively under the control of lot owners, not the Fisheries Administration. Therefore, the fishing lot owners are, in effect, the legal owners of the fishing lot areas (albeit under set time periods). The 'patron' protects the 'client' to ensure the fishing business accumulates wealth, and sub-leaseholders have a vested interest in ensuring productivity remains high.

7.3.2 Politics of Small-Scale Fishing

'Small-scale' fishing was defined by the French Protectorate regime 100 years ago, in which it was assumed that fishing community in the Tonle Sap is homogenous and thus

small-scale fishing was imbedded into the everyday practice for all fishing communities (Fisheries Law, 1987; Ratner, 2006; Marschke, 2005; Marschke and Berkes, 2005a). A very important dimension of my thesis is the actual homogeneity that exists within the so-called 'small-scale' of fishing in the Tonle Sap, particularly between distinct villages with different human-ecology relations to environmental resources found between the floating, stand-stilt, and farming-cum-fishing communities. Livelihood security is variable and these villages face fundamentally different problems depending on the broader ecological conditions determined by the annual flood pulse. In fact, the current 'scales' written into the Fisheries Law do not take into account the variable human-nature relations, different community types, and complex realities of trying to survive day to day, month to month and year to year on aquatic resources.

7.3.2.1 The Settlement Scale and Community Types in the Tonle Sap

A major contribution of this thesis to the study of the Tonle Sap is in its recognition and elaboration of the problems confronted by different types of settlements in the Tonle Sap. In reality, some of these places are not settlements in that they are not 'settled' but actually mobile as floating communities. Analysis at the 'scale' of settlements and communities is vital because it reveals the fact that there are basically very distinctive sets of relations with fishery and other environmental resources of the Lake and floodplain areas. There are also differences in degrees of dependence on the wild capture fishery. Finally, whilst many of the fishers in the floating, strand-stilt and farming-cum-fishing villages do practice what technically 'small-scale' is fishing, in fact, they employ very different methods of fishing depending on the season, and also in relation to particular environmental – ecological conditions (Field Notes, 2007).

a) Time Scales in Fishing

Kampong Phluk is a stand-stilt community with agricultural land and rice fields. Whilst land is available, people in the village own no cultivated lands (Commune Data, 2005; AFN, 2004; Marschke, 2005; Field Notes, 2007). However, Peam Bang is a floating commune, covering 15,755ha, most of them are under the water and thus, having no land for agriculture, and entire population are engaged in fishing as a primary occupation (Commune Development Plan, 2006; Field Notes, 2007). Large areas of Peam Bang fall within the fishing lot areas, covering 22,131 ha (DoF, 2001). The administrative areas and the fishing lots overlap the areas assigned as a 'Core Area' of Biosphere Reserve, covering 14,560 ha. These basic differences greatly affect the household incomes and livelihood strategies employed in the two communities.

Table 7. 3: Geographical Landscape of Studied Communities

Stand-stilt—*Kampong Phluk*[a)]		Floating Community—*Peam Bang*[b)]		Farming-cum-Fishing Community—*Kampong La*[c)]	
Geographical Landscape	Area (ha)	Geographical Landscape	Area (ha)	Geographical Land Scape	Area (ha)
Flooded forest	7328	Flooded forest	13392	F looded forest	590
Agricultural land	1409	Agricultural land	0	Agricultural land	217
Swamp	118	Fishing lot	22,131	Uncultivated land	27
Wetland	5378	Core area	14,560	Crop field/guarden	3
Housing areas	14	Housing areas	Floating village—n/a	Housing areas	37
Commune area	14247	Commune area	15755		
Source: a) Commune Data, 2005; b) Commune Development Plan, 2006; c) CFDS, 2002					

Given little or no farmland, most of households in both Kampong Phluk and Peam Bang are engaged in fishing as a 'primary occupation' (Marschke and Berkes, 2005b; Field Notes, 2007 and 2008). Based on a field study in Kampong Phluk and Peam Bang, it is estimated that about 90-95 percent of the households are engaged in fishing as primary occupation. Apart from fishing, about 32 percent of households in Kampong Phluk and about one percent in Peam Bang raise pigs. However, petty trading is also carried out by people in Kampong Phluk and Peam Bang. Fishing is vital to these communities, with almost all

households and practically all families, men and women, engaged in the activity in some form or another (See Table 7.4).

Table 7. 4: Livelihood activities by fishing communities in the Tonle Sap

Household Activities	Stand-stilt—*Kampong Phluk*[b)]		Floating Community—*Peam Bang*[a)]		Farming-cum-Fishing Community—*Kampong La*[c)]	
	No. Household	%	No. Household	%	No. Household	%
Fishing	412	94.28	123	90.44	84	44
Agriculture	0	0	3	2.21	143	76
Fish processing	148	33.87	n/a	n/a	n/a	-
Raising fish and pig	138	31.58	2	1.47	n/a	-
Growing vegetable	108	24.71	0	0		
Petty trading	53	12.13	3	2.21	25	13
Others	51	11.67	5	3.68		
Total	Total no. of household 437		136	100	189	100
Source: a) Field Notes, 2006; b) Commune data, 2005; c) Field Notes, 2007 & 2008						

However, Kampong La is a farming-cum-fishing community. About 76 percent of households are engaged in farming as a 'primary occupation' and they supplement their incomes by fishing. Fish has been used secondary to rice for household consumption and it is considered as a secondary occupation. About 35 percent of households in Kampong La are engaged in fishing as a 'part-time' occupation, and nine percent of the total households are engaged in 'full-time' fishing, as they are landless. Totally, about 44 percent of households, both with land and landless, are engaged in fishing (Field Notes, various times, 2007; See Table 7.4).

b) Fishing Gears Used by Floating and Stand-Stilt Fishing Communities

Based on my field study, fishing gears used by fishermen in Peam Bang and Kampong Phluk are categorized into seven main types, which are; fishing traps; gillnets; seine nets; scoop nets; prawn fishing gear such as '*sainyeoun'* (shrimp traps) and '*ta som'* (shrimp traps made of tree branches); torch and spear fishing at night; and seventh, is '*cham*

chhnas' ('waiting with a spear'). Of these only five types of fishing gears are used in farming-cum-fishing communities (see Table 7.5).

Indigenous use of fishing traps is well established in many parts of the Lower Mekong Basin, and numerous types of traps are found in the Tonle Sap. The fish trap is called in Khmer a '*lop'*. Among fishing households interviewed in Peam Bang and Kampong Phluk, there are many kinds of *lop* in use, although many fishers do not rely only on this method. *Lop* is a tube made of bamboo slats with an entry slot for fish to come in, but the shape of the entry point does not permit the fish to escape back. There are so many types of *lop*, and each *lop* is named after the particular local name given to the target fish; for instance, a *lop* used to catch a snakehead fish is named as a '*lop trey ros'* and *lop* used to catch eel is named as a '*lop antong'*. Many *lops* may be connected together by the use of bamboo fences in the water. The bamboo fence is placed in a fishing area in two lines like an 'arrow' or 'heart' shape connecting to the '*lop'* at the end of the arrow. Fishermen in this area call this type of practice a '*lop lok*'.

The second practice that is relatively common is the use of gillnets. Gillnets or 'moung' are used by a large number of fishermen in Peam Bang and Kampong Phluk, but the size of this gear varies significantly from household to household, and from fishing village to fishing village. There are so many types of 'gillnet', such as stationary gillnets, drift gillnets, hand dragged gillnets and encircling gillnets. In Peam Bang village, most of fishers use a 'stationary gillnet'. All gillnets are made of nylon thread.

Table 7. 5: The categorization of fishing gear

Fishing Practices	Floating village (*Peam Bang*)	Stand-stilt village (*Kampong Phluk*)	Farming-cum-fishing village (*Kampong La*)
Fishing trap	Barrage trap, arrow shaped bamboo fence trap, gourami trap—5% of villagers own this gear	Barrage trap, arrow shaped bamboo fence trap, gourami trap—5% of villagers own this gear	
Gillnet	62% own gillnet of 100-500m, 12% own between 500-1200m	• 40% owns gillnet of 500-1200m, • 20% own gillnet of 100-500m, and, • 12% use gillnet longer than 1200m.	Only one household out of 189 households
Seine net	3% of population use seine net of 700-1000m pulled by engine boat. Most of them a leaseholder.	n/a	n/a
Torch fishing	Yes	n/a	n/a
Shrimp trap	14% of households	49% of households	n/a
Cham Theas (waiting with spear fishing)	Yes	n/a	n/a
Fishing line/hook	Yes		
Source: Field Notes, 2006-9			

Third, fishing using fishing gear known as '*oun*' (seine nets) is used by a small number of fishing households. Only 3 percent of the fishers interviewed in Peam Bang fish with *oun*, most of them are sub-leaseholders who sub-lease the fishing lot areas, while none of fishermen in Kampong Phluk reports to use seine net (*oun*). In the Tonle Sap, between February and May, the practice of 'encircling seine nets' is used in the commercial areas, approximately at water-levels of 2-3m. The catching capacity is roughly one to two tons a day. To operate *oun*, an average, it requires 10-15 people to run at least three engine boats to pull these nets, which explains why many households are not engaged in the method (Field Notes, 2007; see Table 7.5).

Fourth, scoop net fishing is practiced by small number of fishing households. My study finds only a few fishing households in Peam Bang and Kampong Phluk currently using this indigenous method. Fifth, *saiyoeun* or 'shrimp traps' are used by fishermen in both Peam

Bang and Kampong Phluk. This typical fishing gear is mainly used for harvesting shrimp in the Tonle Sap, mostly used by small-scale fishers. About 11 percent of interviewed households in Peam Bang and 8 percent in Kampong Pgluk indicate that they use *saiyoeun* to harvest shrimp, mostly in the wet season. Among 136 interviewed households in Peam Bang, only 19 households own *saiyoeun*. These days there is very little spear fishing, or torch and spear fishing at night. In times when fish were more plentiful these indigenous practices were more common than they were today (Field Notes, various times, 2007).

c) Fishing Gears Used by Farming-cum-Fishing Community

Fishing for majority of the households in Kampong La is for household consumption rather than market sale. However, the landless fishing households in this community do fish for both consumption and sale, and the income from fish sales is used to purchase rice, vegetables and eggs. To get enough fish for both household consumption and sale, the fishing household possesses necessary fishing equipments, such as boat(s), fishing nets and fishing traps. About 73 percent of households in Kampong La own fishing gears and fishing boats. This in microcosm is representative of a much broader phenomenon, and that is that predominantly rice paddy villages around the Tonle Sap are also heavily involved in fishing.

Five fishing practices are carried out by farming-cum-fishing households in Kampong La. First, *mong ray* (fishing net) is used at the household level, deployed in the less shallow water to catch fish and most of the households own *mong* ray. It costs 25000-50000 Riel for 50m of fishing net. Some households take cash advances from fish traders in the village and make the payment by selling the fish to these traders at a lower price than the actual price in the market. The length of nets could tell us the degree of fishing village households are engaged in. In a selective interview of 45 households in Kampong La, most households own fishing net between 0-100m long, representing 28 percent of household interviewed. The

fishing net of 150-220m and 270-300m respectively is owned relatively by small number of households.

Second, *mong oun* (gillnets) are made of a hard nylon thread that is used for larger-scale fishing in the deeper waters of the Lake and only one family in Kampong La fish with such gillnets. This is largely because gillnets are only feasible in 'open water space', and they are not really suitable for inundated forest areas.

Third, the fishing line-hook is widely used for fishing by villagers in Kampong La. The fishing line is made of nylon threat and the hook is made of iron with hooks that snare fish. The fishing line and hooks is place-based fishing gear that is placed in a row in certain locations in fairly deep water. The number of fishing hooks varies greatly between households from 100 hooks to 3000 hooks. About 60 percent of interviewed households own fishing lines with 100-500 hooks and only six percent of interviewed households own fishing line with 1000-3000 hooks.

Fourth, bamboo fishing traps are a placed-based fishing gear that people place in specific locations in the evening and collect in the morning. These methods are very suitable for shallow waters, and are widely used in different parts of the inundated forest zones.

Fifth, another fishing practice carried out by fishermen from Kampong La is '*korn*', which are wooden pieces connected by ropes. Two people pull the *korn* at both ends to surprise the fish. When fish jump, other fishers move at the back of the *korn* to catch fish with a specially designed round trap known by local people as '*angrot*'. This is yet another example of the indigenous ingenuity of local fishers who have adapted techniques extremely well suited to particular environmental conditions and for specific species of fish.

d) Scale in Fish Catches

In the Tonle Sap there is much debate about fish stocks, and with so many ordinary people dependent on wild capture fisheries it is important to be able to estimate household productivity. Fish catches vary greatly from household to household, depending on the fishing gears each fishing household uses, the number of household members (and employees) engaged in fishing, and the time they spend in fishing. Approximately 40 percent of the fishing households in Peam Bang Commune catch about 5-10kg/day, while 28 percent could catch approximately 1-5kg/day. However, about 24 percent of the fishing households could catch 10-20kg/day.In *Kampong Phluk*, during the high fishing season, about 34 percent of the households catch 2-5kg of fish/day. About 26 percent of households have caught 5-10kg of fish a day and 20 percent for 20-50kg a day. In Kampong La village, about 60 percent of households interviewed report the fish catch during the peak fishing season to increase to an average of 5-10 kg/day. This is reported for the period between December and February (Field Notes, various dates, 2007).

Given the high percentage of small fishes in the average catch, the catch is classified into the following main categories—'*trey nu*' (bait fish), '*trey mong*' (gillnet fish) or '*trey chamros*' (mixed fish), '*trey thom*' (large fish) and '*trey be*' (cultured fish). Firstly, '*trey nu*' is a low quality fish, people use it for feeding cage culture fishes, making animal feed and fertilizers, and not usually for human consumption. *Trey nu* consist more of '*trey riel*' (cyprinid fishes) but its size is small. The price of *trey riel* varies, but it was 200-300 Riels in the last 5-10 years, but it increases to 800-1000 Riel during periods of increased demand. For example, in late 2007 and early 2008, it increased to 1200 Riel/kg or 1500 Riel/kg. Large quantities of *trey nu* is harvested everyday by fishing households using small mesh size net to feed the raised fishes and farmed crocodiles, and left overs from their use is discharged into the water as 'trash.'

Second, '*trey mong'* is the second category of fish that is caught by gillnets composing of different fish species in the catch, which are called '*trey chamros*' (mixed fishes), most of them a small fishes such as (in Khmer) *'trey kampeang', 'trey kragn', 'trey riel', 'trey Kanchos'*. When people sell *'trey mong'*, they do not classify them by species or commercial values due to small quantity and each species does not make enough weight to gain a real value, but the usual practice is to sell the whole catch to middlemen. Given the diversity in catch, the price per kilogram does not specifically follow any price of particular species. The price of '*trey mong'* per kilogram was about 500-600 Riel in the last 5-10 years ago. At the time of writing (late 2009), the price of fish is increased from 1000 Riel to 1500 Riel per kilogram of the catch.

However, the rich fishing households using a long gillnet, arrow-shaped bamboo fence trap and *bor* tend to classify their fish catch by species as their catch is often a large quantity. The price of fish by category is dependent on the fish itself and it seems that they got a high price than the poor and the poorest fishing household. Similarly, the fish traders buy '*trey mong'* from fishing households and they classify them into commercial values. By doing this, the fish trader even make more profits from buying '*trey mong'*.

Third, *'Trey thom'* (large fish) consists of '*trey deap*', '*trey phtouk*', '*trey andeng', 'trey pra', 'trey chhdor', 'trey ros'*, most of which have a high commercial value. '*Trey thom'* is caught by those fishermen using large-scale fishing gears such as 'seine net' *(oun)*, and fish trap with arrow bamboo fence known as '*lop lok'*. The fishermen subleasing the fishing lot areas catch more *trey thom* (large fish) as they use a large-scale fishing gears. The fishing lot owners tend to catch more large fish from their fishing lot areas. Small fisherman could catch a large fish only if they use a 'big fishing gear'[29]. *Trey thom* is mostly fished by a 'big

[29] The "big fishing gear" refers to those fishing gears upgraded from the small-scale fishing gears aiming at increasing their catch while the "large-scale fishing gear" refers to those fishing gears used for commercial fishing.

fishermen', the fishing sub-leaseholders and the fishing lot owners as they fish in larger fishing spaces. However, the small fisherman catch less *trey thom* as they fish in the 'public fishing area', using small-fishing gears, where there are many fishermen fishing in the same areas. Interestingly, it may be that *Trey thom* tend to move towards the fishing lot areas as in the public fishing areas there are more fishers, the noise of the engine boats is common, and the floating human settlements frighten away the bigger fishes.

Fourth, *trey be* means raised fishes. Each fishing household raises fish in a cage known as a '*be*', and therefore, people have names such fish as *trey be*. *Trey be* is sold when it weights about one kilogram which is equivalent to one year. *Trey be* is usually a large fish, comprising of snakehead or *try pra*. The price of *trey be* has averaged 2,000-3,000 Riel in the last 10 years, but it can increase to 4,500-7,000 depending on market conditions and availability of large wild capture fishes, which have been on decline over the past ten years (Field Notes, 2007). The prices given here are actual village prices, but the urban market price may easily be twice this price. In this case, *trey be* refers to a good quality commercial fish, and many people in the Tonle Sap wish to increase their *trey be* capacity (Field Notes, 2007).

7.3.2.2 Fishing Household Scales

Fishing households may broadly be classified into four main scales—the rich, the medium, the poor and the poorest. These households are characterized by house size and conditions within fishing communities, the ownership of fishing gear by different households, the source of incomes, labour and capital availability. The poorest villages constitute, according to my own research, approximately 35-40 percent of households, whilst the poor and the medium households constitute about 30 percent respectively. Kampong La has the highest percentage of the very poor, accounting for as much as 77 percent of households (See Table 7.6).

Table 7. 6: The scale in household fishing by different fishing community

	Kampong La[a)]		*Peam Bang*[b)]		*Kampong Phluk*[a)]		Total	
Rich	0	0	8	7.02	31	7.09	39	5.41
Medium	6	3.53	34	29.82	177	40.50	217	30.10
Poor	33	19.41	48	42.11	132	30.21	213	29.54
Very poor	131	77.06	24	21.05	97	22.20	252	34.95
Total	170	100	114	100.00	437	100.00	721	100.00
Source: a) Commune Data of Kampong La Village, 2005; b) Field Notes, 2007 & 2008								

A 'rich household' uses large-scale fishing gears, usually the long bamboo fence traps that require a 'large space' in the fishing grounds, especially in the open lake. To maintain a 'large space' within the public fishing areas, which are highly competitive fisheries, requires local political connections and financial resources. Similarly, the 'medium household' acts in a similar way as the richer households. They often compete with other fishers for 'fishing space'. As noted above, if fishers have access to patrons, to money-lenders, and are able to up-scale, then they are often also able to negotiate for more fishing space and then employ other local fishers are labourers. The poor and the poorest households gain access to less productive parts of the public fishing grounds, as well as streams, rivers, creeks and ponds. Their fishing gears do not really permit fishing over large areas of open waters. However, as we have seen, they have devised many methods of fishing suitable for particular ecological conditions and water-levels. Many of these people are relatively poor in terms of capital and technology, but they may also be vulnerable because they rely heavily on fishing for livelihoods, and many may not own or have much access to land (See Tab 7.7).

Table 7. 7: Ownership of fishing gear by community types and household status

	Rich	Medium	Poor	Poorest
Stand-stilt community				
Characteristics and Ownership of boats				
Big motor boats	Two or three big motor boats	One big motor boat	No big motor boat	No big motor boat
Small motor boats	Two or three small motor boats	One small motor boat	One small motor boat	No small motor boat
Paddling boats	Two or three paddle boats	One or two paddling boats	One paddling boat	One paddling boat (some borrow boat from neighboring people)
Fishing equipment	Use big scale fishing gears as commercial activities	Use fishing gears that could catch more fish	Use small scale fishing gears	Use small fishing gears for subsistent
Floating Community				
Characteristics and Ownership of boats				
Big engine boat	Two or three big engine boats (power: 25-150 cc)	Two or three engine boats (power: 6-24 cc)	No big engine boat	No big engine boat
Small engine boat	One or two engine boats	One or two small engine boats	Some have motorized boats (power: 8-15 cc)	One small engine boats (minority)
Paddling boats	One or two paddle boats	One or two paddle boats	One paddle boats	One small paddle boat (some don't have)
Fishing equipment	Fish with fishing gears such as bamboo fence trap, long gill net drag by engine boat	Fish with fishing gears such as gill net about 200 to 300 metre	Cast nets, hooking lines	Borrow fishing gears from middlemen
Farming-cum-fishing Community				
Characteristics and Ownership of boats				
Big engine boat	No big engine boat	No big engine boat	No big engine boat	No big engine boat
Small engine boat	No small engine boat	No small engine boat	No small engine boat	No small engine boat
Paddling boats	One paddling boat	One paddling boat	No paddling boat	No paddling boat
Fishing equipment	Fishing with gillnet, fishing net, fishing trap (more in number)	Fishing with fishing net, fishing trap	Fishing with fishing net and trap	Provide labor and work as laborer
Source: Field Notes, 2007 and 2008				

An example of how capital, technology, fishing techniques and methods differ between households is a comparison between *bor* and *saiyouen* fishing practices in Kampong Phluk. In this stand-stilt settlement during the dry season from January to February, all fishing

households fish in the 'open lake'. The main fishing gears used is known in local language as a *bor* which is similar to the 'arrow-shaped bamboo fence trap'—a long fish weir connected to heart or arrow-shaped capture chambers with big lop traps attached to them (Deap *et al.*, 2003). Each *bor* is about 200 to 500 m long in the shallow water about 1.2m in the lake. However, in the wet season from August to September, the *bor* (50-200m) is placed in the flooded forest as shown in the map further inside the land areas. At the time of this research, it was recorded that 120 *bors* operate in the 'primary space of dependence' of Kampong Phluk by 60 households, and 13 bors are operated by outsiders. This fishing space is socially constructed through the continuous use of this space over many consecutive years, and through local power relations involving *bor* owners and other stakeholders. Given this use, no body else could dare to take over this fishing space. The rich and the medium fishing households have a firm position in the *bor* system and the poor and poorest fishers with different fishing technologies are in a weaker position to negotiate fishing space.

Mostly, poorer fishing households of Kampong Phluk fish with *saiyoeun kampeh* (shrimp traps) to catch the freshwater shrimp known as '*kampech'*. This is a placed based gear that is fixed to one or two poles which are firmly pushed into the under-soil of the lake in order to anchor the trap in the current, mainly in the period from July to January. One fisher may utilize 30 to 80 shrimp traps at a time. Frequently the traps are connected by a long line for easy collection. Another shrimp trap used for fishing by the poor and the poorest household is '*kansom kampeh'* (brush bundle for shrimp) made of small branches. The bundle is attached by means of a nylon rope to a floating wooden stick indicating the location of the bundle. It is operated in the open water of the Tonle Sap Lake from June to February. Thus, we can often estimate the 'scale' of fishing activity according to fishing grounds, technology employed, methods and type of fish caught (Field Notes, 2007).

In floating villages such as Kampong Loung or Peam Bang, the 'rich' fishing household acts as a fishing lot leaseholder; or merchandiser; or timber, bamboo, fish trader; or

some are money lenders. In the fishing business, the 'rich' households in a floating village hire labour and they generate a lot of capital from fishing. The 'rich' households have huge capital assets that can be used for fishing. Apart from fishing, the 'rich' households also raise fish and crocodiles in order to supplement their income from fishing. Given their business, they could borrow money from moneylenders or Banks and they work closely with the urban fish traders in order to get their fish to market. The 'medium' households derive their living from fishing and petty trading. In fishing, they use more boats and bigger capacity fishing gears than the small-scale fishers. Unlike the commercial fishers, most 'medium' households fish themselves, only few hire a labour for fishing. Apart from fishing, they also raise fish and pig to supplement their incomes (Field Notes, 2007).

As for the 'poor' and the 'poorest' households, they tend to fish for subsistence purposes and small trade using lower productivity gears. Some households sell labour to rich households in order to get income to support families and some undertake independent small-scale fishing. The 'poor' and the 'poorest' households borrow money from fish traders or moneylenders for fishing equipment and materials, but agree to sell their fish catches back at a cheaper price to middlemen or moneylenders and thus they become heavily indebted in the process, and cumulatively so over a period of a few years. Often fishing could not generate enough income and therefore, income from fishing is used to pay the debts and for foodstuffs, and thus, they often face a food shortages. In return, they have to borrow more money for maintaining existing gear or buying new fishing gear so that they can keep fishing.

Thus, given the difference between fishing households, they often use different fishing gears to fish for their different needs. As fish catches for fishing households is declining, there is a strong tendency for fishers to up-scale their activities and gears if they can borrow enough money. Every fisher is involved in 'survival' and therefore, at the fishing grounds, everyone is trying to catch enough to pay off debts, to catch enough to earn some profits, and technically, nobody is in the purely subsistence bracket of the official designation

of ‘small scale’. However, richer fishers may actually prefer to call themselves ‘small scale’ operators, even though they enjoy big advantages over other fishers in terms of patronage, fishing space and capital availability.

7.3.2.3 The Survival Scale for Fishing Communities in the Tonle Sap

People living in floating and stand-stilt communities in the Tonle Sap are very much concerned about how to sustain their living and survive in the situation of a decline in fisheries. Given fishers’concerns about their survival in fishing, they do whatever they can to fish as much as they can to ensure their ‘daily survival’. As indicated above, ‘small-scale’ fishing is not surivival, but fishers in floating and stand-stilt communities need to fish at least for a ‘minimum need’ as decribed by James Scott (1976) or in my own term a ‘survival’. Thus, small-scale fishing is not small, but a survival and in achieving this, as shown in James Scott (1976), small-scale fishers practice a ‘safety-first principle’. This means that small-scale fisher up-grades and up-scales fishing activity, and they are not concerned with the official notion of ‘small-scale fishing’.

As shown in the previous section in this Chapter, most fishing households in the Tonle Sap practice fishing scale regardless of the official ‘scales’ and as a consequence, it is hard to determine what ‘fishing scale’ they are fishing with and actual practices do not fit criteria defined in the Fisheries Law, but are in official terms, technically ‘illegal’ (in terms of gears and other criteria). From the fishermen’s side, ‘illegal fishing’ is viewed as technically ‘illegal’ but locally ‘licit’ as it is for ‘surivival’ only, and they see the practice as something they pay to do (pers.comm., Sangkat fishery official, Sept. 11, 2007), and then and I call this the ‘survival scale’. ‘Illegal fishing’ is an official language, but ‘survival-scale’ relates to local practice and is common in Kampong Phluk as well as in Peam Bang (Field Notes, 2007).

Table 7. 8: Scale of Fisheries Management in the Tonle Sap

Politics of Scale of Fisheries Management	Scale in Fishing communities	Scale in Fishing Households	Scale in Relationship of Individuals
Geographical Scale	- The fishing lots, public fishing area and conservation area. - Fishing community—the Floating, the Stand-stilt and Farming-Fishing Communities—is allowed to fish only in the public fishing area.	There is a competition among fishing households—the Rich, the Medium, the Poor and the Poorest—to fish in the public fishing areas.	-Some fishers build relationship with fishing lot owners and fish inside the fishing lot. - Some fishers bribe the officials and they fish in public fishing areas using large-scale fishing gears.
Fishing Scale	-Small-scale, medium-scale and large-scale fishing. - Fishers fish in small-scale in public fishing areas for subsistence only, not for trade. However, small-sale fishing means differently to different fishing communities—floating, stand-stilt and farming-cum-fishing communities.	The Rich and the Medium fishing households fish using larger fishing gears, catching more fish, but poor enforcement on them, while the poor and the poorest is subject to strictly control and enforcement.	Fishers fish and sell fish to fish traders. Fishers borrow money from fish traders to upgrade their fishing scales, but agree to sell their fish catch to fish trader cheaper than market price.
Temporal Fishing Scale	There is an open and close fishing seasons. Fishing communities fish throughout the year with small-scale, but fishers do not limit themselves to small-scale, but to the degree that they can survive.	The Rich and Medium fished using larger fishing gears could fish in both open and close fishing season.	Fishers fish larger than the small-scale in both open and close fishing season. In doing this, fisher bribes the officials and officials protect fishers. Officials accept this due to their low salary.

It is widely known, and all people (officials and communities) know that it is destructive to the fisheries and livelihoods of people in the longer term, but they can not get rid of it because it affects their immediate livelihoods. Fishing scale has been played by both fishers and officials in charge to sustain their immediate living, and thus, putting the resources under pressure. Hence, the 'official scale' is not practical, but very destructive in fishing business, inducing a very complex system of politics of scale in fisheries management in the Tonle Sap as shown in Table 7.8.

7.4 CONCLUSION

In this chapter I have discussed many different ways in which ‘scale’ can be employed, not in the same theoretical ways as employed in ‘politics of scale’ discussions in academic geography, but in practical everyday ‘politics’ as it affects fishers using different methods and operating in different communities. I have argued that Fisheries Administration categories of fishing ‘scale’ are complex and are actually impractical for fisheries governance. However, applications of different scales help us to appreciate the differing ‘power webs’ of the deeply embedded patronage politics of Cambodia, which does have spatial and local variations on a theme, as illustrated by the examples from the different settlement types and fishery cases given in this chapter.

CHAPTER 8

Political Economy of Fishing in the Tonle Sap: Commercialized Spaces, Patron-Client Relations, and the Moy System

8.1 Resource Economy Transformed

> "When I was young, I saw fish abundances in the Tonle Sap Lake. I paddled by boat, fish jumped in and if I took a long ride, I could get almost enough fish for my meal. At present, we use a small mesh size net to fish; we still catch less fish." Om Chhim, fisher in Kampong Phluk, 65 years old.

Om Chhim's lament is nothing unusual. It reflects three vital issues confronting the fishers of the Tonle Sap. First, the decline in fish abundance, which as Om Chhim remembers, was once taken for granted in the Tonle Sap. Second, is the fact that many fishers are resorting to methods that will only exacerbate the fish stock declines, such as the use of fine mesh nets. Third, Om Chhim is caught in a cycle of over-fishing, which relates strongly to a transformation in the political economy of fishing within Cambodia as a whole. As explained in earlier chapters, territorialization has been strongly associated with commercialization of fisheries, and in turn, aspects of the traditional economic relations based on fishing for subsistence, bartering fish for rice, even the nature of patron-client relations, have all been subsumed to the rationality of fishing to make money. Om Chhim's lament is just one story narrating the resources change in the Tonle Sap, affecting the livelihoods of fishers, but it should be viewed in the broader political economic context of changes affecting Cambodia's place in the regional and global economies, and in relation to a rapid "opening up" of the primary resource sectors of forests and fisheries, particularly since the early 1990s (Le Billon, 2000).

Following James Scott's (1976) discussion of the economics of subsistence in rural society, the notion of the "moral economy of the peasant" could also have been applied to fishing villages of the Tonle Sap. In the "moral economy", Scott (19976) argues that the

peasant family is a unit of consumption and production, in which it produces and consumes to meet a subsistence minimum and they struggle for the subsistence minimum in the context of shortage of land, capital and outside employment opportunities. Under such a system, shared activities, divisions of labour, and economic relations were mostly geared towards the maintenance of community life. Under such a "moral economy" it can be argues that 'community' identity helped promote consensual decision-making, and helped prevent individualistic forces that dominate atomized capitalist societies. Patrons would be expected to share their surpluses to some degree with other members of the community, such as at religious festivals or important calendar events in rural society. In Cambodia, at least until the long periods of civil strife and the emergence of the Khmer Rouge, the commercialization of fisheries in the Tonle Sap was far from being ubiquitous, and community and inter-communal socio-economic relations were less dominated by markets than they have been since Cambodia's 'transitional' political economic phase, beginning in the early 1990s. In this chapter, I wish to emphasize certain changes in social and community relations that have occurred with the transformation of Cambodia's political economy, and the relatively rapid commodification of many aspects of life.

For Scott (1976), under the "moral universe" of pre-modern rural society, the legitimacy of patron-client relations was based on the notion that elites must not invade the subsistence reserve of poor people. Such an idea has been critically analyzed by other writers, such as Samuel Popkin (1979) who argued that the 'moral economy' of peasant societies is too idealized, and that many peasants developed competitive strategies for coping with the subsistence crisis, sometimes cooperating with more powerful groups, sometimes utilizing private, family investments to improve their position and long-term security. Thus, socio-economic differentiation and economic conflicts have always been a part of rural society. In addition, the patron-client relationship is changeable, renegotiable and malleable in accordance with considerations of power and strategic interactions among individual. The dyadic nature of the relationship is not inherent, but is a matter of the ability of the lord or

patron to individualize relations and prevent collective bargaining. This, in return, means that resources of the patron will be invested, not only to improve the security and subsistence of the clients, but to keep relations dyadic and prevent the client's acquisition of any skills that might lead to different balance of power (Popkin, 1979). This explores how the intensification of market relations has both been influenced by macro changes in the political economy and by micro shifts in the nature of patron-client relations within rural society, with particular reference to rural fishing communities of the Tonle Sap.

8.2 Cambodia's "Hybrid" Democracy, "Transitional" Political Economy and Patron-Client Relations

As noted above, patron-client relations are never static, and they are subject to many changes over time (see Eisenstadt and Roniger, 1984). What is interesting in Cambodia's case is that the old patron-client relations were virtually wiped out in the 1970s, firstly by violent civil conflict exacerbated by US bombing in the countryside, and then by the rise of the Khmer Rouge, who in their efforts to completely alter the fabric of society and turn Cambodia into a rural-based communist country they eliminated many former elites, and broke up former community-based structures. Thus, it is rather peculiar that we can still talk about patron-client relationships in Cambodia.

As mentioned in chapter 1, this thesis is mostly concerned with the effects of political geography on power relations and the governance of natural resources in the Tonle Sap. Whilst power is spatial in many ways (Allan, 2003b), it is not necessarily territorial (Sack, 1986; Alatout, 2006). Indeed, understanding the resurrection of patron-client relations in rural society is critical to explaining why power is diverse, relational and takes both spatial and non-territorial forms (Eisenstadt and Roniger, 1984). As discussed in chapter 7, the politics of fishing scales requires knowledge of patron-client relationships. Furthermore, we should note that these relations are relatively strong in situations when the central state apparatus is poor

at servicing or supporting rural communities. Patrons can often help to fill gaps in providing services to 'local' clients in the relative absence of a fully functioning state-based system of service provision. In fact, in Cambodia, the patron-client system can be viewed as a sort of 'shadow' institutional arrangement that to some extent relies on broader political patronage networks with senior officials and government ministers, and to some extent is relatively independent of the state.

Caroline Hughes (2003) argues that the patron-client relationships in Cambodia were revived during the so-called 'transitional' political economic period during and following the UN Transitional Authority phase of the 1990s. According to Hughes, it was during this period that central control into rural areas was extended through the co-opting of local patrons, as well as military and political elites with strong connections in the provinces and districts. Hughes (2003) discusses the differences between 'traditional' patron-client relations, of the type studied by Scott (1976) and the 'modified' forms of patron-client relationships that emerged again at the end of the socialist era (under Vietnam's influence in the 1980s) and during Cambodia's political economic transitional phase. Traditionally, the patrons extracted resources and labour from clients by virtue of their landholdings, or control over space and natural resources, and other privileges. However, the patrons provided a degree of stability for rural communities. As Hughes (2003: 61) notes, "the patrons helped to guarantee the social and spiritual fabric of village life. This was achieved through the building of temples, the sponsorship of religious festivals and the provision of contributions to funerals and weddings." Thus, the patron-client relationship helped to preserve "the stability of rural hierarchies, operated to ameliorate the consequences of unequal distributions of land ownership among members of a community, entangled in a common set of social relations and cemented by adherence to the same ritual calendar." The extent to which this holds true is debatable; however, it is undeniable that in Cambodia such patron-client relations were very significant in rural life until the 1970s.

Hughes (2003: 62) has argued that the "patron-client relationships of the 'transitional' era until the present time are effectively based on resurrected and new socio-economic and political elites becoming patrons, many of whom have political allegiances to the dominant political party (the Cambodian Peoples Party or CCP), or else with other military and bureaucratic elites who have influence within government circles, and that such a system has greatly increased the scope for rent-seeking, resource exploitation, and extending 'political' agendas in the countryside." According to Hughes' analysis, the 'modified' patron-client relationships are part of some new legitimizing myth for describing state-society relations' in an era of expanding market penetration, external neo-liberal influences on the types of 'development' being implemented by a relatively authoritarian central state under the heavy influence of the dominant political party. It is legitimizing because it harkens back to and utilizes the memory (however distant) of some essentially 'Khmer' form of "moral economy" to borrow Scott's terminology. In other words, whilst the 'new' patron-client relationships are based on increasing commercialization and resource extraction that tend to favour certain political and economic elites at macro levels of the political economy, the 'localized' nature of these relations still resembles the 'traditional' structures and to a certain extent mimics the former power relations at commune and village levels. However, these 'modified' patron-client relationships have also extended the scope for immense socio-economic differentiation to occur as environmental resources become increasingly territorialized, privatized, partitioned, and are locally competitive within larger national and regional market structures. In practice, as Hughes (2003: 62) observes, "the relative 'rewards' for clients are little, if at all, from any patronage or protection in return." Part of the problem is that today's patrons may be less reliant on particular localities for their socio-economic "power domain", and less obligated to uphold rural traditions than was the case in the times prior to the huge socio-political upheavals of the 1970s. Thus, patron-client relationships today may serve communities less than they did in previous times, and this may be because they tend to serve certain personalized sets of relations and personal agendas, as opposed to "societal goals" or "the rule of rights" (Le Billon, 2000: 796).

This is not to argue that patron-client relations are the same everywhere in Cambodia, because in reality such "power webs" (my term) of socio-economic and political relationships are uneven and variable across space. Indeed, there are definitely cases of the system working relatively fairly in some instances and with mutual benefits for patrons and clients. However, patronage politics is strong in the rural society partly due to the weakness of the government system in supporting myriad local communities, and partly due to the way in which the Cambodian state has encouraged the resurrected patron-client system so long as it yields political support for the ruling party. Kheang Un (2005) has argued that the intertwining of state-support in exchange for offering opportunities for rent-seeking and resource wealth accumulation has been a feature of Cambodia's "hybrid regime" caught between outright authoritarianism and a full-fledged democracy (see also, Lewitsky and Way, 2002). Patronage politics allows for material inducements in exchange for political allegiance, and according to Kheang (2005: 213) the commune system and district authorities help provide a basis for "a national chain of patron-client networks that ensured the accumulation and extension of power throughout the country." Thus, there is a political culture that has developed around the 'modified' patron-client system and it's associated "networks of obligation and flows of resources between officials and key participants" (Hughes, 2003: 127).

As the Cambodian economy opened up to external forces, international donors, foreign direct investments (particularly in the relatively abundant natural resource sectors), and became interlinked in the fast developing regional resource economy in the 1990s (Le Billon, 2000; Hughes, 2003, Springer, 2009a), there were new localized opportunities for multiple patrons. However, Hughes (2003: 64) suggests that this was not a "reassertion of 'traditional' values, but a process that was linked to the nature of state politics and of the transitional political economy at a time of tremendous change." As Simon Springer (2009b: 18) has explained: "indigenous elites endorse neoliberalization as an opportunity to rapidly line their own pockets through shadow state mechanisms that enable informal control over the privatization process." In the fishery sector, like the forestry sector (see Le Billon, 2000;

Springer, 2009a; Global Witness, 2009), there are plenty of opportunities for benefitting from "neo-liberal" reforms that "open up" rural areas to larger markets, coupled with the commercialization of space, increasingly state surveillance of different forms of "public space", rent-seeking, and so on. Undoubtedly, the opening up of Cambodia's economy since the early 1990s has been done with extraordinarily rapid, state-sponsored, but poorly regulated resource exploitation in all sectors. Even so, Hughes (2003: 64) suggests that this "modern system of control and expropriation has been received with ambivalence even by those who have no choice but to participate in it and gain from it in their everyday working lives." Cambodia has witnessed excessive resource extraction and associated forms of 'violence' (such as dispossession from land) during the relatively geopolitically peaceful period of market reforms (Le Billon, 2000; Springer, 2009a).

In the case of patron-client relations in the Tonle Sap, we can see that there exists a disproportionate degree of influence, political and economic power with a relatively small fishery elite, including senior politicians, fishing lot 'owners', wealthy and well capitalized fishers, certain trades, and officials with connections within relevant state agencies. The expansion of commercial fish production has undoubtedly enabled a reinforcement of the "power webs" of complex patron-client relationships in the Cambodian freshwater fisheries sector. Conversely, as noted in earlier chapters, many smaller-scale fishers are trapped in cycles of debt and relational dependency, with vulnerable livelihood security, and prospects of diminishing returns if fish stocks are over-exploited in the future.

The rest of this chapter shall focus on the transformation of the traditional rice-fish economy of the Tonle Sap into a highly competitive 'dual economy' of farmers and fishers. I will then examine the rice – fish economy of Kampong La and the fish – rice economy of Kampong Phluk. Throughout this discussion I wish to stress some of the critical distinctions between mostly 'land-based' socio-economic relations versus mostly 'water-based' socio-economic relations on the Tonle Sap. Finally, I shall focus on the issue of fish buying and

selling in relation to two floating communities – Kampong Loung and Peam Bang. This leads to a more detailed discussion of patron-client relations involved in what is called the '*moy* system' of trading fish in the Tonle Sap.

8.3 Rice–Fish Economy of Fishing Community in the Tonle Sap

8.3.1 Traditional Forms of Patron-Client Relations in the Rice–Fish Economy

Rice and fish are central to Cambodian society and culture (Ahmed *et al.,* 1998). Rice is produced by farmers called '*neakleu*' and fish are caught by fishers who are called '*neak tonle*'. '*Neakleu*' and '*neak tonle*' consume both rice and fish. Rice provides the carbohydrate fuel for metabolic energy, and fish provides the specific fatty oils that are mandatory constituent for organ development and function (Hand, 2002; Bonheur and Lane, 2001; Field Notes, 2007 and 2008).

Rice accounts for at least 68 percent of all Cambodian caloric intakes. This represents an annual per capita consumption estimated at 151-200 kg per person or about 600-700g a day/person (Jean Delvert, 1961 quoted in Bonheur and Lane, 2001). At the same time, Cambodia is a fish-eating country—people catch fish, process fish and consume fish. Fish is consumed with rice, and it is consumed fresh or processed; and rice and fish is a popular food for majority of Cambodians (Ahmed *et al.*, 1998; Bonheur and Lane, 2001; Field Notes, 2007 & 2008).

Whilst farmers do fish, rice is the main part of the farming economy (Ahmed *et al.*, 1998), which was traditionally connected to the fishing communities through the barter trade (Sithirith *et al*., 2005). Thus, the 'rice-fish economy' is a bartering economy of *neakleu* (farming people) and *neak tonle* (river people). The 'bartering economy' depicts the 'social relations' developed through this system. *Neakleu* and *neak tonle* traditionally benefitted from

this mutual system as it is complimentary bartering of rice for fish and *vice versa*. *Neak tonle* catch fish for consumption but need paddy rice to supplement their diets and the surplus resulting from fish catches is thus exchanged with paddy rice. For both *neakleu* and *neak tonle* the rice and fish are the backbones of household economies (Ahmed *et al.,* 1998; Field Notes, 2007 & 2008).

The 'bartering economy' between farming (*neakleu*) and fishing communities (*neak tonle*) was based on two local systems namely '*dor'* (exchange) and '*bondak'* (pay rice in installments). *Dor* means a fisher gives fish and farmer exchanges rice at the same time. However, *bondak* means the farmer takes fish now and gives rice during the next harvest season, which means there is a time lag (*pers.comm.* with Sounthy, September 2006). Thus, the actual quantities bartered in the *dor* were not the same as under the *bandak* approach. People used their 'local' knowledge and scale measures to work out appropriate quantities of rice for fish in the *dor* and *bondak* business. For instance, a *dor* (exchange), could be one kilogram of fermented fish (sour fermented fish called *prohok*) equal to approximately equal one *tao* of rice paddy (one *tao* is 12-15kg of paddy rice), but for *bondak*, one kilogram of sour fermented fish was equal 1.5 *tao*. In the *dor* business, three '*chongkak*' of smoked fish (one *chongkak* has five fish) is equal one '*kralor'* of rice paddy (0.5 *tao*), and 2-3 pieces of a dry fish was one *kralor* of rice paddy (Field Notes, 2007). This practice was commonly carried out before the 1970s, which was a period of tremendous change due to civil conflict and then the collectivization and dispossessions of the Khmer Rouge era (*pers.comm.* with group of villagers in *Kampong La*, February, 2007; Field Notes, 2007).

The 'bartering' of rice and fish between *neakleu* and *neak tonle* is similar to what described by James Scott (1976) as "equal exchange" in the moral economy of peasant society. More specifically, it means that "a gift or service received creates, for the recipients, a reciprocal obligation to return a gift or service of at least comparable value at some future date. The notion of 'equal exchange' was a general moral principle of peasant society" (Scott,

1976: 167). 'Reciprocity' is seen as a basic moral principle underlying social action in the peasant society. In the Philippines, the patterns of personal alliances has been interpreted largely by reference to reciprocity or the notion of that service received, solicited or not, demands a return, with feeling of shame and obligation providing the motivation force. Reciprocity underlies the typical pattern of labor exchanges during the transplanting or harvesting...This same principle often structure the exchange of food resources...(Scott, 1976). This is similar to what happening in the Tonle Sap in relation to the exchange of rice and fish between *neakleu* and *neak tonle*. James Scott (1976) argues that: "In peasant societies not yet permeated by class cleavage, these relationships commonly take the form of patron-client bonds" (Scott, 1976: 168-169), and he further argues that: "If the growth in permanent disparities in power opens the way to what we might call patronage" and it opens the way for exploitations (Scott, 1976:170). Thus, I would argue that rice-fish economy in the Tonle Sap is a form of traditional patron-client system. In this system, the reciprocating parties are of more or less equal standing, the exchange tends to be balance and stable (Scott, 1976). The reason is that the *neakleu* is motivated to help *neak tonle* since he himself needs the same assistance from *neak tonle* (Field Notes, 2007).

Fish and rice is key food element in the tradition-client system. Fresh fish is generally available from December to March. In this period, many rural Cambodians complete their rice harvest, and after finishing the rice harvest, rural Cambodians, especially farmers from different parts of Cambodia went to the 'Tonle' (River) to barter their rice for fish (Ahmed *et al.,* 1998; Degen *et al.,* 2000; Thouk and Sina, 1997; Field Notes, 2007). During the peak fishing season (December to February), farmers move to places where fish production is high for making *prohok* to bring to the original villages. *Prohok* is a foodstuff that is incredibly linked to the food culture of Cambodia. Such migration of Khmer farmers for searching *prohok* was originated probably since the Angkor time, though Chou Ta Kuan did not mention about this special food at all. However, Baradat (1941) described amazing facts about how Khmer farmers traditionally travelled from home villages in the direction of the

Tonle Sap Lake searching for sources of *prohok* (Jean Delvert, 1961 quoted in Bonheur and Lane, 2001). In 1926, there was 280 Oxcarts of Khmer communities living in Thailand travelled across the political boundary to the Tonle Sap to make *prohok* for their food, and before 1907 when Battambang was still annexed to Thailand, Mr. Baradat counted 4000 to 10,000 Khmer oxcarts from Siam (Thai of Khmer origin) moving from Battambang and Surin provinces to the Tonle Sap for *prohok.* Such movements to source *prohok* were significantly reduced after 1936 when crossing borders became more stringent. But such a transborder Khmer food culture is still centred on *prohok* today. Thousands tons of *prohok*, usually made from fresh wild capture fish from the Tonle Sap Lake, is exported to Thailand every year to supply to the Khmer ethnic minority (Bonheur and Lane, 2001; Bruce and Yim, 2004).

Fish is not so abundant for the whole year round (May to October), fish production reaches high peak in the dry season which last for about 4 months and decreases sharply during the wet season. Besides, fish production is not proportionally distributed throughout the Lower Mekong; the highest production is derived from the Tonle Sap Lake while the lower output occurs in upland areas far remote from the Tonle Sap (Bonheur and Lane, 2001). Moreover, most Khmer farmers are busy during the wet season and have no time to go fishing. So to maintain food requirement for a year cycle, Khmer communities have to work out how to preserve fish for long use. *Prohok* is an example of Khmer culture in fish processing which is treated as a great delicacy during the farming season (Bonheur and Lane, 2001; Degen and Thouk, 2000; Ahmed *et al.*, 1998; Field Notes, 2007). *Prohok* is kept stored as a household food for many months. The way Khmer people preserve fish for long time use is a long held cultural phenomenon. *Prohok* can be used for one year or more, and almost every Cambodian enjoys consuming it.

Kampong La is a 'farming-cum-fishing' village where most of villagers are considered as '*neakleu'*. The barter exchange of rice and fish used to be done in Kampong La. Farmers from nearby villages, such as from Chek Chau, Porkod came down with rice to

exchange for fish at Kampong La with the fishers from the floating community of Anlong Raing. In the old days, Kampong La was a fish landing site and people exchanged fish and rice in front of Wat Thkol, a local temple. The river in front of the temple was deep, approximately 3-4m in the dry season and the width was 25m. The river was navigable in both dry and wet seasons, but nowadays, the river below Kampong La down to the lake has changed and the landing area is not so good (*pers.comm.*with group of villagers in Kapong La, February, 2007).

The fishers, after exchanging fish with rice, could not bring rice paddy back to their homes. Thus they built a rice storage facility within Kampong La. The rice was kept at the house of a person they regularly dealt with in Kampong La. Those people who did not pay the full amount of rice were said to be 'in debt' for one season and the fishers came back to collect the unpaid rice paddy in the following season. The deal between *neakleu* and *neak tonle* was simple. This deal was based on mutual trust. It was a local system of 'equal exchange' based on reciprocity, give and take at the same time, with no commission charges, no intermediary agents, no cash involved and no institutional interference. The 'equal exchange' served as the basis for the structure of friendship and cooperation between the farming and fishing communities (*pers.comm.* with group of villagers in Kampong La, February, 2007; Field Notes, 2007).

People living in Kampong Phluk are counted as a '*neak tonle*'. *Neak tonle* barter their fish for rice with *neakleu* from nearby villages of Rolous and Kandek in Prasat Bakong District, and people in Meanchey and Samrong communes of Prasat Bakong and Danrun and Kchas communes in Sotr Nikum District of Siem Reap Province. In line with this, *neakleu* from Meanchey and Samrong, Danrun and Kchase come down to Kampong Phluk and grow mungbeans in the area close to the Tonle Sap Lake in Kampong Phluk. About 321 ha of areas in Kampong Phluk was cultivated mungbean for a long time by people from Meanchey and Samrong communes of Prasat Bakong and Danrun and Kchas communes of Sotr Nikum

District during the dry season *neak tonle* in Kampong Phluk exchange fish with other agricultural produces such as mungbean. The social relations of *neak tonle* and *neakleu* is deeply rooted in the rice-fish economy, allowing for different forms of exchanges – fresh fish, dried and fermented fish for rice, and also other agricultural products needed by the fishing communities. This relationship allows *neak tonle* and *neakleu* to complement one another, and each becomes specialized within and between their respective communities. *Neak tonle* and *neakleu* live together as part of one mutual system, each respects the function of the others. A form of dependency and reciprocity was established between *neakleu* and *neak tonle* to share their resources for their livelihoods (See Figure 8.1).

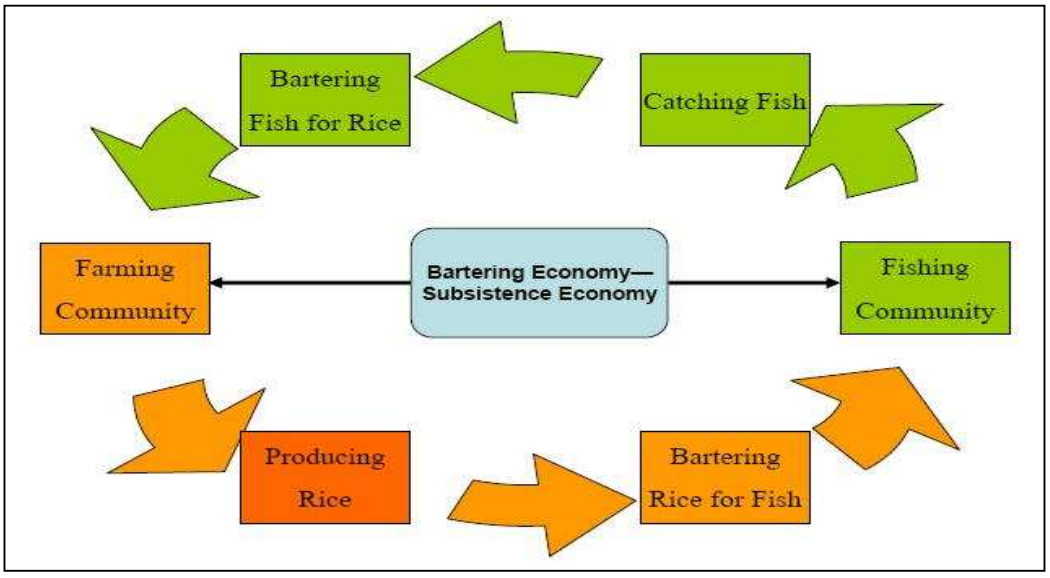


Figure 8. 1: The Reciprocal Fish – Rice Economy of the Tonle Sap

8.3.2 Territorialization of the Tonle Sap and the *neakleu – neak tonle* relations

Territitorialization (discussed at length in previous chapters) has affected resource uses of and the relationships between '*neakleu*' and '*neak tonle*', and has had many impacts on the economies of fishing villages. The floodplain area of the Tonle Sap between Highway no.5 and no.6 covers 1,776,000ha (CNMC & NEDCO, 1998). Within this area are

commercial fishing areas covering approximately 271,139 ha (DoF, 2003) (after the fisheries reform in 2000), classified into 38 commercial fishing lots located in six provinces around the Tonle Sap Lake; the fish sanctuaries covering 24,680ha classified into 8 fish sanctuaries (DoF, 2003); cultivated areas covering some 605,400ha (CNMC & NEDCO, 1998); and the public fishing areas covering around 874,781ha (See Chapter 6).

The public fishing area is further territorialized. After 2000, the Fisheries Administration has effectively territorialized the public fishing area into zones for community fisherines. An estimated 412,205 ha of the public fishing area, covering six provinces around the Tonle Sap was territorialized and organized into 175 'community fisheries' around the Tonle Sap Lake, being home to an estimated 61,613 households living in 361 villages around the Tonle Sap (See Table 8.1).

Table 8. 1: The community fisheries around the Tonle Sap

Province	No. of Community Fisheries	CF Area (ha)	No. of village	No. of Household	No.HH Depending on fisheries
Siem Ream	22	90728	129	21698	15052
Kampong Thom	30	40994	54	4631	5232
Kampong Chhnang	52	42071	51	6470	0
Pursat	27	85712	52	5808	619
Battambang	38	144506	62	20197	2402
Bantey Meanchey	6	8194	13	2809	67
Total	175	412205	361	61613	23372
Source: Tonle Sap Environment Management Project (TSEMP) and Tonle Sap Biosphere Reserves (TSBR), 2007					

The territorialization of the Tonle Sap has led to delimitation of new boundaries of fishing lots areas, fish sanctuaries, public fishing areas and new CFs. Each community fishery (CF) is delimited with a boundary and map is drawn to differentiate one CF from the others. These new boundaries both exclude and include the *neak tonle* and *neakleu* depending on the nature of local demographics, village locations, and geography. Community fisheries (CFs) exclude *neakleu* from fishing in parts of the Tonle Sap. As such, territorialization is a source of new tensions between the *neakleu* and *neak tonle*. I argue that the territorialized nature of

the Tonle Sap, plus other economic changes in to traditional relationships between *neakleu* and *neak tonle*, has greatly affected the functioning of the "rice-fish economy". In the following section, I will discuss the changes in the economy of *neakleu* - *neak tonle* relations in a greater detail.

8.4 Market Economy of Fishing Community in the Tonle Sap

The territorialization of fisheries in the Tonle Sap increases the commercialization and privatization of fisheries, leading to maximizing fisheries exploitation. Also, the territorialization induces control over resources, and different power is emerged through control (Sack, 1986). As Scott (1976) states: "Once substantial power differences are introduced, this 'invisible hand' disappears and exploitation may enter" (Scott, 1976:170). These have affected the resource uses of *neakleu* and *neak tonle*, and transformed a reciprocal and complimentary relationship into one characterized by market exchanges, profit motives and increased competition. Territorialization enabled the tax system to be introduced into the management of zones, with those fishers able to enjoy access into a particular territory being subject to taxes or fees. Thus, *neakleu* and *neak tonle* were gradually forced into adopting a monetary economy as the State imposed on them different duties, taxes, and access rights payable by cash. Markets were organized based on 'buying' and 'selling' where fishers and farmers could sell their produces. In buying and selling, farmers and fishers need to have cash; otherwise they are excluded from the market system. Therefore, they must try to sell fish, rice, or other agricultural produces to middlemen to get cash in order for them to enter into the market economy.

Fish and rice have to be sold at designated market places, no longer at 'kampong' landing sites as in the old days, and often small farmers with 2-3 baskets of paddy rice and small fishers with a few kilograms of fish find themselves in difficulty to enter into the

market and it is costly to travel from village to market centres, sometimes over 10-20 km away, which may have to be traversed by boat and along dirt roads. As a result, the middlemen traders come into play, acting as an arm of the market, extending the market from the district or provincial centres to farmers and fishers. Local trader - buyers take fish from fishers and then sell it to farmers and other groups of middlemen, and in turn the middlemen buy rice from farmers and then sell it fishers (Field Notes, 2007; see Figure 8.2).

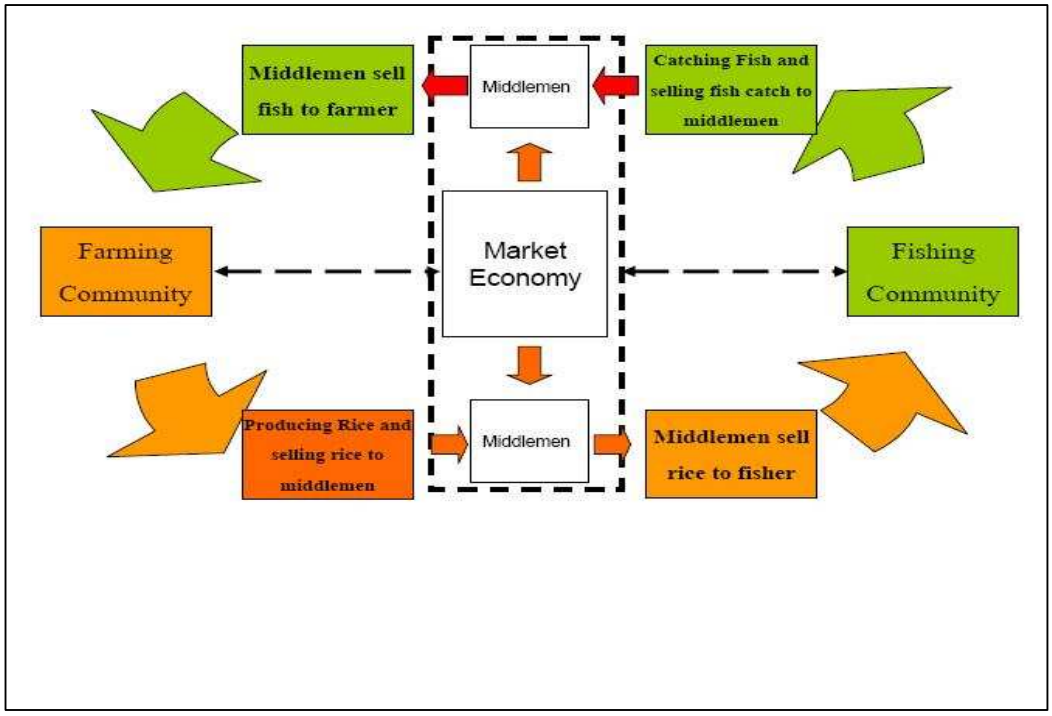


Figure 8. 2: Market Relations in the Tonle Sap

Thus, the formerly direct bartering between the *neak tonle* and *neakleu* is broken. For instance, Kampong La and Anlong Raing is politically one village, but the two sites are geographically located 12 km away from each other, and socially Kampong La is a farming-cum-fishing village located on margin area of the Tonle Sap, while Anlong Raing is a typical floating village located on water. In Kampong La, there are 2-3 middlemen functioning in the village to buy rice from villagers and supply items needed by farmers including fish, salt,

soap, fertilizers, and basic household items. Farmers can repay for goods after harvest time or they can buy and hand over cash at the same time. In Anlong Raing, there are three fish traders in the village that buy fish daily from fishers and bring the catches to Kampong Loung (district market) every 2-3 days, and there they sell fish to farmers and other buyers (Field Notes, 2007).

Given the interplay of market economy in the buying and selling fish and rice, the prices of rice and fish are not determined by farmers or fishers, but by middlemen and market demand. Farmers and fishers are free from price setting and they are price takers. As price takers, they have less say and those who can only sell a few kilograms of rice and fish have very limited bargaining power and they are constantly anxious about losing or spoiling their small fish catches or rice harvests. In this sense, the former bartering exchange economy of rice for fish is no longer functioning. Furthermore, middlemen intervene between the *neak tonle* and *neakleu* who are in competition over scarce resources between themselves. In the process, the farming communities have reduced dependency on fishing communities, and *vice* versa. However, the commercial nature of relations has persuaded many farmers to transform themselves into fishing businesses to supplement household incomes and avoid middlemen prices. At the same time, fishers encroach to capture land and clear them for agriculture to avoid having to pay higher prices for rice and other agricultural goods. However, for some floating communities such land captures are highly restricted.

Thus, a kind of 'dual economy' (Figure 8.3) has developed in and around the Tonle Sap, which involves less direct relations between farmers and fishers in the rice-fish economy. Each community turns to depend on markets to provide them resources needed to secure their livelihoods. As a consequence, the economy of farming communities combines both rice and fish or rice-fish economy, but it is different from the rice-fish economy in the former times when *neakleu* and *neak tonle* lived dependent on each other, whilst the new rice-fish market economy separates *neakleu* from *neak tonle* (Field Notes, 2007).

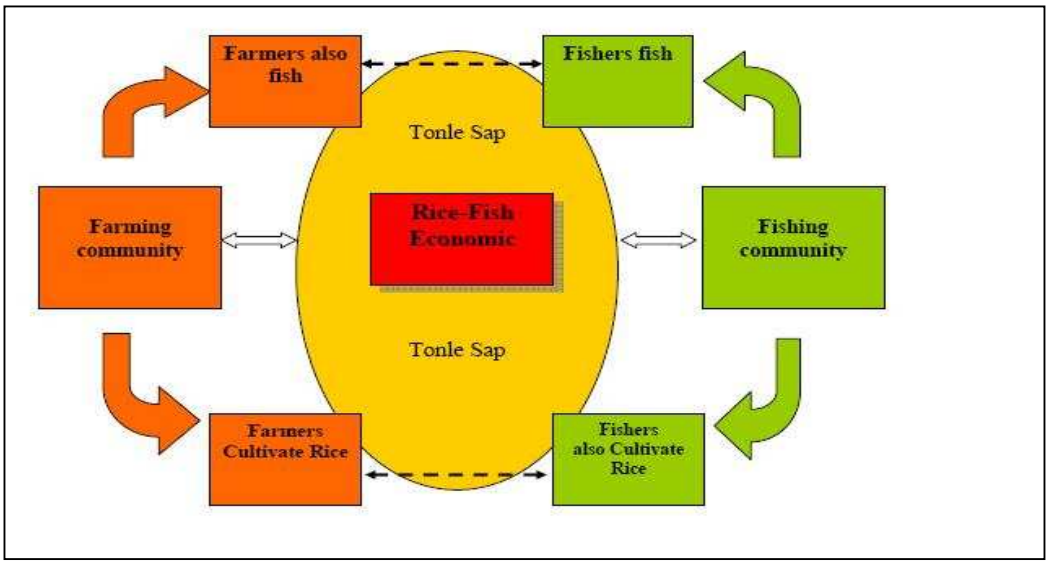


Figure 8. 3: Dual economy of fishing communities in the Tonle Sap

The extension of markets has actually tended to make relations between the *neakleu* and *neak tonle* more strained and troublesome because of intensified localized competition over available land-based and water-based environmental resources. *Neakleu* have sought to undertake commercial fishing. Fisheries are of high commercial value, and by doing both farming and fishing, they are no longer 'dependent on the supply of fish' from the fishing community. Competition between communities is sometimes in the form of increasing fishing boats, up-scaled gears, fishing longer time, and claiming the same fishing grounds traditionally utilized by the Anlong Raing fishing community.

Kampong La is farming village; and majority of household in *Kampong La* relies on farming as their main economic activities. However, *Kampong La* was dependent on Anlong Raing to provide them fish and they exchanged their rice with fish from Anlong Raing. However, the exchange of rice and fish between Kampong La and Anlong Raing is broken down. As population increased and the increase in landless population, fishing is significantly increased in Kampong La. Among total households in Kampong La, about 35 percent of households in Kampong La are engaged in both farming and fishing. For these households,

fishing is the secondary occupation. However, 9 percent of the households in Kampong La rely on fishing as a main occupation, given their lack of cultivated land. Totally, throughout the village, 44 percent of household, both with land and landless, are engaged in fishing (Field Notes, 2007 and 2008). Villagers in Anlong Raing, apart from fishing, claim the land for rice farming. This happens in recent year.

Similarly, the same happens to Kampong Phluk. Kampong Phluk is home to 513 fishing households (Commune data, 2006). About 94 percent of the population is engaged in fishing as a primary occupation. Given the decline in fish catch, fishing households in Kampong Phluk envisions the need to shift from fishing to farming, but they face difficulty in realizing this. However, fishers in Kampong Phluk notice there are dry season rice and bean growing areas, covering 1083 ha, but most of these areas are cultivated by 100-130 families coming from Rolous and Kandek, Meanchey and Samrong, Danrun and Kchas communes of Sotr Nikum District.; and these communities also come down to fish in the lake as well (*pers.comm.* with commune council, August, 2007).

Given these, Kampong Phluk has conflicts with farming communities such as Rolous and Kandek as Kampong Phluk forms their fishing areas into a community fishery and restricts the access of people from outside to fishing and farming in the newly defined community fisheries. As a consequence, the farming communities become offensive to fishing communities and their relationship ends up in highly competition. Thus, farming community is no longer dependent on fishing community like Kampong Phluk to supply them fish, instead they encroach the community fishery. Nowadays, farming communities near the lake become both farming and fishing communities, but Kampong Phluk remains a solely fishing community.

Seeing this, the Kampong Phluk households make an effort to retain the flooded land in the Kampong Phluk jurisdiction, but cultivated by people from Rolous and Kandek, as an

area of community fishery controlled by Kampong Phluk in the name of conservation of flooded forest. In 2006-7, villagers in Kampong Phluk envision rice farming as an alternative livelihood given the decline in local fish catches. In 2007, about 500 families from Kampong Phluk put a formal request to the Provincial Administration to turn 1,690 ha of flooded forest areas into dry season rice production (*pers.comm.* with Commune Councils of Kampong Phluk, August, 2007). The reasons of doing this include the decline in fish catch, encroachment of highlanders into the flooded forest areas, taking land for agriculture, and other forms of land speculation in the vicinity of the community. However, this was opposed by local administration and some community members.

8.5 Contemporary Forms of Patron-Client System in Fishing Community in the Tonle Sap

Small-scale fishing in the Tonle Sap is defined as not small, not free fishing and not survival (per.comm.with Fishers in Kampong Loung, July 2007). To fish for survival, fishers must build a relationship with officials around them. This is called a 'contemporary form' of patron-client system in fishing in the Tonle Sap. In this form, small fishers would do whatever they can to ensure that their 'subsistence security' or at least the 'minimum need' in daily fishing is met as described by James Scott (1976) a 'safety-first principle' of fishing villages in the Tonle Sap. The reason of doing this is because of unequal distribution of resources, particularly those with protection fish more freely while those did not have protection fish limitedly. According to James Scott (1976): "For inequalities in society means, above all, unequal control over the scarce resources of community, and it is this difference alone that provides one party with bargaining or coercive strength to impose an equal exchange, an exchange that violate a widely shared sense of fair value" (Scott, 1976:170). Because of these, fishers shift their relationship toward officials as a mean of seeking protection in fishing. Inequality continues to rise in fishing communities and that inequality as socio-political as well as economic dimensions. Wealth and power intersect; people with power and

influence use it to build wealth and gain opportunities, while economic resources are used to buy power and influence. Poor households are locked out of the patronage networks and connection that would allow them to gain opportunities and lack the resources to buy in the patronage system (CDRI, 2007a; Field Notes, 2007 & 2008).

Moreover, government officials are corrupted. According to CDRI (2007a), corruption occurs at all levels including in fishing communities and are endemic and structural. High officials and powerful people private interests instigate corruption out of greed and desire to maximize their profits, while lower officials such fisheries officials, police, military police and commune administrators are pushed into corrupted practices by low salaries and rising cost of living. Corruption is part of the string that connects individuals of lower and higher status: corruption costs are imposed by those with higher status on those below in part so they can pay those above them. By doing this they could stay in a good position with protection (CDRI, 2007a). Thus, officials at fishing village take the bribe from fishers as part of sharing their poverty.

Fishers pay officials, particularly fisheries officials for fishing for protection in fishing business. As a result, fisher up-grades and up-scales fishing activity and they may try to bribe the local officials to enable fishing in good fishing grounds. Thus, Tonle Sap fishers are not concerned with the official notion of 'small-scale fishing' because it is their survival that is a primary focus.

My study of different fishing villages indicates that fishing operations by many fishing households in Kampong La, Kampong Phluk, Peam Bang and Kampong Loung is not either a 'small-scale fisheries' or 'medium-scale fisheries'. My research indicates that most fishing households in the stand-stilt and floating villages practice fishing regardless of the official 'scales' and as a consequence, it is hard to determine what 'fishing scale' people in Kampong Phluk, in Peam Bang and Kampong Loung do nowadays as actual practices do not

fit criteria defined in the Fisheries Law, but are in official terms, technically 'illegal' (in terms of gears and other criteria).

> "We know that it is illegal fishing, but we have no other choices or alternative as we catch less fish for everyday life. At the same time, there are fishermen from other places coming to fish as well in our areas. These people are fishing illegally and no one stops them, as they pay the officials for fishing here. Therefore, we do illegal fishing also. If we don't do it, they do" (Group discussion with fishermen in *Peam Bang*, 10 September, 2006).

> "We live in fear of officials accusing us of doing illegal fishing. Therefore, we have to pay everyday to Sangkat (lowest fisheries officials), OP (police) and Tiger 5 (military police) about 150,000-300,000 Riels and some time 500,000 Riels per fishing season. It is difficult for us because sometimes we pay Sangkat, but OP demand different payments and so do the Tiger 5. If we do not pay up, they destroy our fishing gears or arrest us" (Group discussion with fishermen in Kamping Phluk, Sept. 11, 2007).

This account illustrates a corrupt aspect of the kinds of payments and patronage that affects fishing at the level of individual communities and households. Each fishing household has to deal with different agencies, such as '*sangkat nesat*' (lowest branch of official fisheries administration), OP (economic police for the Tonle Sap) and Tiger 5 (the Tonle Sap Military Police). People living in floating and stand-stilt communities are very much concerned about how to sustain their living and survive in the situation of a decline in fisheries. Given fishers' concerns about their survival in fishing, they do whatever they can to fish as much as they can to ensure their 'daily survival' and I call this the 'survival scale' (Field Notes, 2007).

To practice this fishing, they collude with officials in order to fish for subsistence and sale. Low paid officials find it hard to make a decent living on their low salaries, and thus, bribes from fishers enables them to top up their meager incomes. To claim this pay from fishers, officials must demonstrate their ability in ensuring that fishers could fish in a productive fishing area using a fishing gear larger than the officially designated 'small-scale' gear, so that they may increase their catch.

Lower level officials are supported and protected by higher level ones in a sort of 'power webs' of connections. To secure their survival, fishers must attach themselves to this

'power web'; but being attached to this 'power web' means being subject to petty corruption, exploitation and indebtedness. Furthermore, 'survival scale' fishing often means using *bor* fishing, fine fishing mesh size nets, enlarging technologies, poaching, seine nets, and other practices, which if only loosely regulated mean that the fishery is subject to over-exploitation from all fishers, and not just those operating at a commercial scale in the fishing lots.

In a meeting with a Commune Chief of Kampong Phluk, he indicated to me that he knew about illegal fishing *bors* in the commune area, but if he stopped people from using this method, "people in Kampong Phluk will have no food" (pers.comm. with Mr. Neung Ny, Commune Chief, Kampong Phluk, 10 Sept., 2007). Therefore, he did not take any action to stop it unless there is an alterative provided. Similarly, in a discussion with a Chief of the *Sangkat Nesat* (local fishery office) in Kampong Phluk indicates that "we know '*bor'* is 'illegal fishing', but we close our eyes and fishermen do it quietly. If we crackdown on them, they would face food shortages" (pers.comm. with Tan Hong, Kampong Phluk, Sept. 11, 2007).

From the fishermen's side, 'illegal fishing' like *bor* and other gears is viewed as technically 'illegal' but locally 'licit' as it is for 'surivival' only, and they see the practice as something they pay to do (pers.comm., Sangkat fishery official, Sept. 11, 2007). If they do not pay, then they are pushed out as 'illegal fishers', often with arrests or gear confiscated. So, they decide to pay local officials rather than stick to so-called 'legal fishing' (small-scale fishing) which is not enough to feed their families (pers.comm. with Mr. Loung Pha, fisherman from Kouk Kdol, Mr. Ouk Bunna fisherman from Thnaot Kampot, *Kampong Phluk*, Sept. 11, 2007).

This story is common in many areas of the Tonle Sap. 'Illegal fishing' is an official language, but 'survival-scale' relates to local practice and is common in Kampong Phluk as well as in Peam Bang. It is widely known, and all people (officials and communities) know

that it is destructive to the fisheries and livelihoods of people in the longer term, but they can not get rid of it because it affects their immediate livelihoods (the living of fishing households and officials) and instead, they maintain it as a way of 'sharing poverty' among fishermen and government officials. Some fishing households pay the OP or Tiger 5 to 'protect' them from fisheries officials, so that fisheries officials do not confiscate gears, make arrests or expel them. In any case, fishery officials do not have enough resources from the state to prevent illegal fishing on their own. Thus, the 'power web' of patron-client relations is complex, with many ordinary people attached to the 'power web' primarily out of necessity, and it is important to understand the local dynamics to appreciate why and how people are caught in short-term practices that are in the long-run likely to damage fishery sustainability.

8.6 Moy as a Patron-Client System of Fishing Community in the Tonle Sap

As indicated above, a critical distinction lies between 'land-based', 'land- and water-based' and 'water-based' communities. Understanding the complexity of local geographies around the Tonle Sap enables us to develop a more nuanced picture of the political geographies of resource access, utilization and control. Since floating communities are permanently living on water, fishing is practically their only form of livelihood, and they are without formal attachments and entitlements to land. Thus, fishers fish to maintain what James Scott (1976) termed a 'minimum subsistence,' which is challenging in an environment characterized by growing competition and speculation over resources, and when many fishers complain of declining yields per unit of effort.

In the struggle for a 'minimum subsistence', fishers in water-based, and land-and water-based communities exchange their fish for rice with land-based communities known as an 'equal exchange'. As indicated above, the 'equal exchange' is substituted by free market economy in which middleman is at the forefront of 'minimum subsistence' of fishers. The struggle for a 'minimum subsistence in the free market economy requires fisher to fish and

sell fish to middlemen. Two things happens in fishing and selling fish; first, to undertake fishing, fishers borrow money from moneylenders as fishing does not provide enough food for many fishing households; and second, to sell fish, fishers have to sell it to those who lend them money. The moneylender acts as both moneylender and fish trader. Thus, fishers borrow money from the moneylender and sell fish to moneylenders or fish traders lower than the 'real' market price (Field Notes, 2007). I refer the whole system of fishing and fish trading to as a 'moy system' (See Figure 8.4).

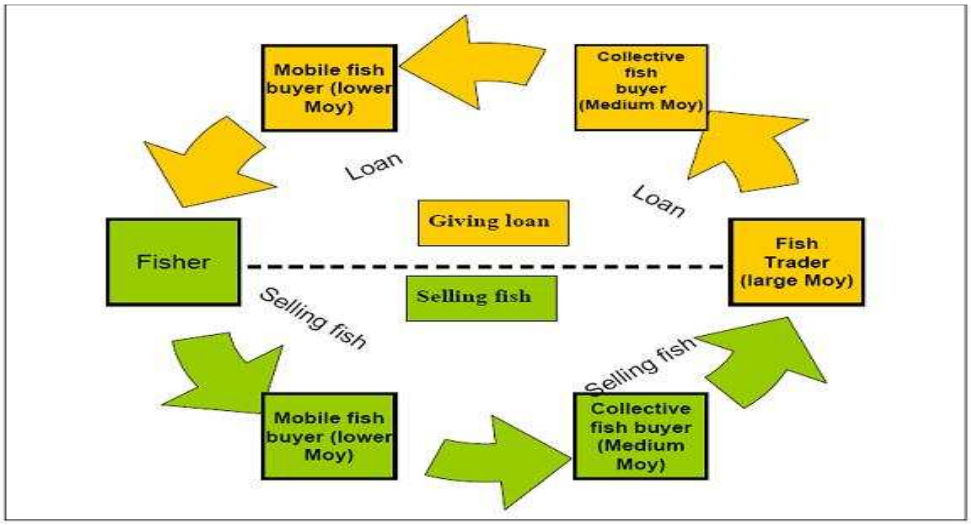


Figure 8. 4: The Moy system of fish trading in the Tonle Sap

To understand the 'moy system' in fishing villages in the Tonle Sap, I examine fishing businesses of two floating communities—Kampong Loung and Peam Bang– to see how they deal with fishing and fish trading in a situation of fisheries decline.

8.6.1 Fishing and Fish Selling in the Tonle Sap

Fishers in the Tonle Sap catch fish and sell fish. To understand this, I chose to examine fishing and fish selling in Peam Bang how fisher conduct their fishing and fish selling. Fishing is the main occupation of people in Peam Bang. About 90 percent of population in Peam Bang is engaged in fishing as a primary occupation. Fishing is the main

source of household incomes for the majority of villagers (Field Notes, 2007). Access to fishing grounds is a key factor affecting household fish production and incomes.

As indicated above, most of the fishing grounds are under the fishing lots owning by few people while majority of villagers in Peam Bang could only access to a small fishing areas. Fishermen in Peam Bang report that fishing lot areas surround their villages and thus, the actual fishing areas for local fishers are small in size, but fished by many fishers. Hence, they face difficulty in fishing for their livelihoods. In this case, some fishermen do whatever they can to strengthen their relationship with the fishing lot owners or the commune councils, and they become 'patron' to small-fishers. Those fishers, who could not identify a suitable patron in fishing, continue fishing in their small fishing areas, but those who effectively become a 'client' to their 'patron' are more able to maximize their fish catch, although they are literally caught in a 'power web' of relations. About 3 percent of households interviewed engage in the sub-leasing of fishing lot areas, whilst about 24 percent of households in Peam Bang report engaging in fishing inside the commercial fishing lots areas. The rest fishes in other designated fishing areas as shown in Table 8.2.

Table 8. 2: Fishing areas for fishermen by season

Type of fishing area	No. of interviewed household (N=136)	Percentage
All fishing area	27	19.85
Around the village	29	21.32
Inside the fishing lot	33	24.26
Inside the flooded forest	18	13.24
Inside the Tonle Sap Lake	35	25.74
Public fishing area	16	11.76
Sub-leasing the fishing lot	4	2.94
Stream/river	30	22.06
Source: Field Notes, 2007		

Fishers fish everyday. In Peam Bang, the household fish catch varies between 5 and 50kg a day and small quantity of the catch is consumed daily and large quantity is sold to fish traders. Based on the survey, fishing households with catches of 1-5kg per day consume 0.3-

2kg a day whilst those fishing households with catches of 10-20kg/day consume around 1-3kg/day. These figures suggest that although they catch a lot of fish, they tend to keep most of the catch for sale and they consume relatively small amounts of the catch.

Most of the catch is sold to middlemen-traders. To obtain a 'good price', it is usual that the best quality of the catch is sold and the lowest quality of the catch is kept for household consumption. Based on interviews, fishing households with an estimated catch of about 1-5kg/day consume the fish catch proportionately more than the other fishers, accounting for around 30-40 percent of their catches and they sell the rest. However, the fishing households with a daily catch of 5-10kg/day, accounting for about 40 percent of the fishing households in Peam Bang, sell between 80-90 percent of the catches.

Fish catch data relates closely to household socio-economic status in communities such as Peam Bang. The rich and the better-off fishing households equipped with larger fishing gears catch more fish a day estimated at 20-50kg/day (rich) and 10-20kg/day (better-off) respectively, but they tend to consume less as they have other foods to supplement their fish catches. However, the poorest fishing household catches 1-5kg/day, some or even all of which are consumed daily (See Table 8.3). The poor and the poorest households consume fish catches more than the rich and better-off households as they have no other food sources for their households. This also relates to the vicious poverty cycle which keeps many of these people in debt.

Table 8. 3: Daily fish catch of fishing household level in different fishing village in Peam Bang

	Consumption		Fish Sale	
Fish catch (kg)	Fish consumption	%	Fish sale (kg)	%
1_5	0.3-2	30-40	0.7-3	60-70
5_10	0.5-2	10-20	4.5_8	80-90
10_20	1_3	10-15	9-17	85-90
20-50	0.5-1.2	2-3	19.5-49.8	97
Source: Field Notes, 2007				

Two main types of 'middlemen' may be identified in the fishing villages of Peam Bang — the 'village middleman' or fish collector and the 'external middleman' or 'mobile fish buyers' from outside the village. The mobile fish buyer moves around the fishing villages to buy fish from local fish collectors. Based on field surveys with 136 fishing households in Peam Bang commune, about 57 percent of the fishers indicate that they sell fish catches to a 'village middleman,' who supplies fishers with cash advances and fishing equipment, but make an agreement that the fishers must sell all their fish catches to them. Moreover, about 32 percent of the fishing households indicate that they sell their fish catches to a 'mobile fish buyers' from outside their area (See Table 8.4). The fishing households that catch between 20-50kg/day sell their fish to the middlemen outside the village. Thus, the village trader-buyers-moneylenders are most directly involved in tying the small-scale fishers into a system of lending-buying-selling. Whereas, the richer and larger-scale local fishers deal directly with 'mobile fish buyers,' who are often also engaged in buying fish from the 'village middlemen.' I refer the whole system of fishing and fish selling by fishers, and the 'goods' and 'services' provided by fish buyers as a 'moy system' in the Tonle Sap.

Table 8. 4: The fish sale by fishers in Peam Bang

Fish catch sale to middleman	No. of households interviewed	Percentage
Selling to Village Middlemen	70	57.38
Selling to External Middlemen	39	31.97
Not selling	13	10.66
Total	122	100
Source: Field Notes, 2007		

'Mobile fish buyer' and 'village middlemen' provide 'goods' such as cash and 'services' to buy fish from fishers. Fishers in Tonle Sap need this 'goods' and 'services' in order for them to do fishing for their livelihoods. According to James Scott (1976), in the moral principles of peasant society, "a gift or service received creates, for the recipient, a obligation to return a gift or service of at least comparable value at some future date" (Scott, 1976:167). In return, fishers in Tonle Sap sell the fish catch to village middlemen or mobile fish buyer as their moral obligation. According James Scott (1976), I describe the relationship

between middlemen and fishers as a form of patron-client system in the Tonle Sap. However, in this system, those who are in the position to provide 'goods' and 'services' to those need its impose terms and conditions that possess monopoly in nature (Scott, 1976; Popkin, 1979).

8.6.2 The Moy System of Fish Trading in the Tonle Sap

The 'moy system' requires careful explanation as it relates to so many relations across fishery scales, between different actors within and beyond villages, and is another aspect of patron-client relations, discussed earlier in this chapter. Figure 8.4 reveals the fundamental connections in the Tonle Sap 'moy system'. 'Moy' in Khmer basically means to have a regular client. Thus, in the fisheries trade, a large fish merchant involved in exporting fish overseas will have regular fish trader – merchants they buy fish from. These merchants (exporters and suppliers, who are big moy) are usually based in Phnom Penh or large towns, and they have their own networks of collective buyers (middle-scale moy) operating at provincial and district levels with numerous fishing villages. The collective fish buyers are called '*thovke'*, who operate as both merchants and also patrons, for they supply loans to smaller suppliers (lower-level moy) or their 'little fingures' (*kaundai*) in the villages. The '*kaundai'* are mobile fish buyers operating between villages, who in turn, have their own village representatives in each village, called in Khmer '*kaun kagnchreng'*, literally 'smaller basket'. Thus, to understand the 'moy system' requires knowledge of the three main categories—the middleman or the mobile fish buyers, the collective fish buyers and fish merchants who operate at large market and export levels. The 'moy' are regular clients within a network, and thus, for this system to operate requires degrees of dependency and reciprocity between larger moy-patrons and other moy-clients (Field Notes, 2007).

Fishers catch fish and with the help of *kaun kagnchreng* they eventually sell to the *kaundai*. In turn, the *kaundai* mobile fish buyers who sell to the *thovke* or 'collective fish buyers'. Several collective buyers then will sell to the large fish merchants who export fish to

Phnom Penh or overseas, such as to Thailand, Vietnam, and Singapore (pers.comm. with house S53, Thangchen, Agust, 2007).

One large merchant will usually network with 5-6 collective fish buyers and merchants also provide financial support to these buyers in return for agreements to sell their fish supply to the merchant. However, a collective fish buyer does not only supply fish to merchants, but they also buy fish from a network of *kaundai*, their extensions operating at local level as mobile buyers with links in various fishing villages. One *thovke* work with 5-6 'mobile fish buyers', and the 'collective fish buyer' often provides 'loans' to the *kaundai* provided they agree to be 'moy' (reliable sellers of their fish to the collective buyers). The mobility of the *kaundai* means that they operate in different fishing districts and communities, which in turn means they require their 'moy' connections in those localities. To ensure this, the mobile fish buyers often supply fishers with food, gear, and fuel loans. Thus, they are also patrons in the system, and many fishers are in some form of client relation with these lower-level fish traders. Middlemen traders derive profits from their sale of fish to the collective buyers. This is clearly demonstrated in Kampong Loung and Peam Bang, in which fish traders from Kampong Loung network with fishers in Peam Bang to organize them into the moy system (Field Notes, 2007 and 2008). Thus, there is a spatial pattern to the moy system, with land-and-water based villages becoming the bases of both collective and mobile fish buyers whereas the floating communities are mostly the source of fish.

Table 8. 5: Fish trader by fishing communities

Type of fish trader	No. of fish trader
Collective fish buyer (CF) in *Kampong Loung*	14
Mobile fish buyer (MFB)	
Raing Til	5
Peam Bang	5
Moat Khla	1
Kampong Loung	11
Sub-total	22
Total	36
Source: Field Notes, 2007	

For instance, in Kampong Loung, there are approximately 14 *thovke* (collective fish buyers) and 11 *kaundai* (mobile fish buyers) stationed in the town to buy fish from fishing villages in the Tonle Sap and export to different places. Some other mobile fish buyers come from three main fishing communities—Raing Til in Pursat Province, Peam Bang in Kampong Thom Province, and Moat Khla in Siem Reap Province—but they all mostly operate through Kampong Loung (Field Notes, 2007).

In Kampong Loung, each of the 14 collective buyers network with 5-6 mobile fish buyers. Each *kaundai* network has approximately 40-50 fishers from 4-5 fishing villages in the Tonle Sap Lake (See Table 8.5). In each fishing village, *kaundai* organizes a network of fishers to sell fish catch through their village representatives. Their village representatives or *kaun kagnchreng* collect fish from fishers in the village and transfer them to *kaundai* on a daily basis, but they charge extra fees on top of the fish price per kilogram. For instance, 'House 53' is a 'store' of a collective fish buyer. He has operated this business since 1996 and in doing this business he receives a "license" from Fisheries Administration. He has 5-6 mobile buyers. As a collective fish buyer, he provides financial resources as a loan to the *kaundai*, and also fishing equipment such as frozen containers. The 'moy' arrangement means that the *kaundai* are obligated to sell fish back to him at agreeable prices. He transports fish to Poypet—a Cambodia-Thai border town, and from there, most of the fish are taken to Thailand. Apart from given loans to mobile fish buyers, he also provides loans to the fishing lot owner no.7 and no.2 in Pursat Province, and the fishing lot owners sell fish to him (pers. comm.. with Mr. Sor Sovan, owner of House 53 in March 2007). This is very significant locally because fishing lot owners have considerable commercial size catches compared to many of the village fishers in public areas.

Mr. Thangcheng is a mobile fish buyer based in Raing Til, and he operates his fish buying activities in Phum Prek village in Raing Til commune, Pursat Province. In Phum Prek

Village, he has 50 fishers as his 'moy' (clients), selling fish to him on a daily basis. In maintaining his 'moy' to sell fish to him, he provides loans to individual fishers. Over time, the fishers become indebted to him to as much as about 60-70 million Riel (or US$15,000-17,000). The indebted fishers have to sell fish to him, and if they are found out to be selling fish to other fish buyers, then the fishers are liable to repay their debts. Thus, the moy system is a 'power web' of client-patron connections. If a fisher is removed from the moy system, he is not easily accepted by other fish buyers to be a 'moy' (client). This can be a very serious issue undermining the fisher ability to sell their catches on a regular basis. Therefore, fishers are careful in their relations with *kaundai* and *thovke* (buyers and merchant-patrons) (Pers.comm. with Mr. Socheat, March 2007).

Phoung Hing is another *kaundai* operating in Charos village in Raing Til commune. Similar to Mr. Thangcheng, Phoung Hing organizes 35-40 fishers in Charos as moy (clients) to sell fish to him. He also provides financial support to fishers in Charos in exchange for fish. Fishers in Charos are indebted to the amount of 100 million Riel (in mid-2007) since he started his fish trade in 1999. He actually buys fish from his 'moy' cheaper than in other villages as he is the only mobile fish buyer in Charos and this village is remote from other villages (pers comm. with Mr. Phoung Phin, Charos village, May 2007).

Sophon (Sadesh) is another mobile buyer in Raing Til commune and he has his moy to sell their fish to him in Phum Prek, Raing Til and Koh Kev villages. The total 'moy' of Sophon is estimated at more than 200 fishers. Given his large number of moy, Sophon is taking money from the local *thovke* or collective fish buyer and distributes to fishers as his moy in order for him to main his personal 'moy system' (pers.comm. with Mr. Sophon in Raing Til, May 2007) (See Table 8.6).

Table 8. 6: The mobile fish buyer and their target fishing village

Mobile Fish buyer	Fishing village
Hang Sovann	Buy fish from Pechkrey in *Peam Bang*, Moat Khla and Stung Chrov In Siem Reap Province
Yoeun	Buy fish from Balot village, *Peam Bang* Commune
Heng	Buy fish from *Peam Bang*, Pov Voeu, Duansdeung--House in *Peam Bang*
Hai	Buy fish from Pechkrey in *Peam Bang* commune—House in Peckrey
Khla	Buy fish from *Peam Bang* commune,
Khla Sor	Buy fish from Raing Til, Kok Kaek, Phat sandong
Khla meas	Buy fish from fishing lot in Boeung Chmar in *Peam Bang*
Theoung	Buy fish from AnlongRaing, Koh Kaek--buy a trey Andeng
Chom	Buy fish Chroy Sdey, Thkol in Krakor District, Pursat Province and *Peam Bang* commune.
Source: Field Notes, 2007	

About seven *kaundai* from Kampong Loung operate in Peam Bang. Among the mobile buyers in Peam Bang, five of them live in Kampong Loung, but make frequent travel on a daily basis to Peam Bang, and two of them live in Peam Bang, but take fish to sell to *thovke* in Kampong Loung. One mobile fish buyer occupies one fishing village, at least, and usually buys from three or more fishing villages. To buy fish, the fish traders need to organize fishers into a 'moy system'. It can be seen that the resulting networks between *thovke*, *kaundai*, *kaun kagnchreng*, and numerous fishers in different villages is more like a 'power web' of patrons and clients caught together by supply-demand, hierarchical 'moy' relations, with various obligations and reciprocal ties (Field Notes, 2007).

8.6.3 Money lending as Vital Part in the "Moy System"

From the detailed discussion of the intricacies of the moy system, we begin to appreciate that these sets of social relations become even more intensified during a period of increasing commercialization, growing urban and regional demand for fish, growing competition amongst fishers on the Lake and in the Mekong region as a whole. There is more and more pressure on fishers not only to take out loans but to increase the size of loans. However, the loan-borrowing system extends higher up the chain than the small-scale fishers. Collective buyers frequently take out loans from the big merchants and then distribute these

loans to *kaundai* or 'middlemen' operating in districts. In turn, the middlemen give loans to fishers who agree to sell all their catch to the *kaundai* at prices that are to be set below the market price. After the middlemen receive their fish they then sell (as agreed) to the *thovke* or collective buyers. It is clear from my own field observations and from conversations with numerous fishermen that many of the small-scale operators in the Tonle Sap simply could not fish without taking out loans. Thus, the loans are part of a complex system of monetary and resource obligations in the 'moy of power web' of merchants – collective buyers – smaller fish traders and the fishers of myriad communities around the Tonle Sap. This is a vital aspect of socio-economic patron-client relations that is common throughout the whole Lake area (Field Notes, 2007).

There are several aspects of the money lending system that are important to appreciate. As in many other rural areas, access to "formal" credit through banks and credit agencies is lacking in many parts of the Tonle Sap. Villages are largely remote from the formal banking sector that now thrives in Phnom Penh and other urban centres. Thus, money-lending is mostly "informal" and based on mutual recognition, on trust and personal ties. Two other aspects of money-lending are critical in this context. The first is that the money-lenders (*Neak Chongkar Prak* in Khmer) are actually not money-lenders first and foremost, but they are the same fish traders as discussed in the moy system. Indeed, money-lending is fundamentally an aspect of that system. Fish are the collateral in the sense that traders do not require money back payments, but rather payments in the form of fish catches. These fish are sold at lower than market price and some portion of the catch is also repayment for the money loan (Field Notes, 2007).

There are essentially three different forms of informal money-lending that apply in the village context. Based on fieldwork, I would like to highlight three forms of lending, which I characterize as "fishing loans", "food loans" and "hunger loans". Obviously, repayments of loans are entirely tied to the fish catches of the individual fishers who have

taken on loans. Indebtedness may often increase cumulatively over the course of fishing seasons, particularly in the context of declining individual catches and growing competition over available resources. Practically all small-scale fishers take out "fishing loans" at one time or another, for this enables them to buy essential equipment (boats, nets, gears, make repairs, purchase fuel). A few fishers may also prefer to take out "food" or "rice" loans, rather than money or as part of the loan arrangement. The Tonle Sap communities do not all have easy access to paddy and some floating communities rely totally on their ability to buy, barter fish, or trade with rice-farmers (see above) in order to get enough supplies for their families. Thus, "food loans" may be simply a convenient way for fishers to access supplies. Finally, in times of crisis some families are dragged into deep poverty and they may not be able to feed their families. Fish traders may arrange "hunger loans" or "survival loans" to tide over these families in return for fish catches. Fishers do not have a pawn anything and can get access to some credit. The fact is that these sorts of loans often mean fish traders obtain a broad base of ready suppliers are below market prices, and for many fishers, debts may never be fully repaid due to the ups and downs of fishing life (Field Notes, 2007).

During my research in 2007, some 120 village households were interviewed, of whom 63 percent express that they have taken a loan from a 'moy' (trader or *kaundai*) (see Table 8.7). The villagers reported that they sell their catches to the 'moy' at below market prices, and that the fish price is adjusted by the 'moy' and not the clients. Some fishers were indebted for between 3 – 5 million Riel for a long period of time. Cumulative indebtedness is a common problem. It is hard to break the cycle of indebtedness because without money the fishers find it hard to keep fishing, pay for other foodstuffs, buy essential items for their families, send children to school, and buy necessary medicines when they are sick. Stopping taking loans is often more immediately risky for fishers and their households than taking out further loans. The incentive for traders to continue making loans available, even though they probably realize that quick and full repayments are unlikely, is that they have a network of fishers supplying them every fishing season.

Table 8. 7: The percentage of fishers taking loan for fishing by categories in Peam Bang

Type of Household Interview	Frequency	Percent	Valid Percent	Cumulative Percent
Fishers taking loan	76	63.3	63.3	63.3
Fishers do not taking loan	41	34.2	34.2	97.5
Too poor to take a loan	1	0.8	0.8	98.3
Fishers and loan giver	2	1.7	1.7	100
Total	120	100	100	
Source: Field Notes, 2007				

As can be seen from Table 8.7, about 34 percent of the fishing households in Peam Bang do not take loans from the middlemen traders as they have enough resources and they could manage by themselves. But indebtedness affects the majority of fishers. Among the interviewed households, one household head expressed that he is 'too poor' to take a loan and therefore, no one could dare to give him a loan. Two household owners said that they did not take loans but operated as small-scale money-lenders. Thus, my fieldwork strongly indicates the pervasiveness of the moy system and its special patron-client relations, as well as associated issues of indebtedness amongst ordinary fishers of the Tonle Sap.

8.6 Conclusion

This chapter has examined the changes in patron-client relations, rice-fish economy and "power webs" of the "moy system" in the Tonle Sap. Increasingly, the commercialization of fisheries, agriculture and resource sectors generates fundamental transformations in socio-economic relations of many communities in the lake area. Indeed, the traditional rice-fish barter system and relations are now mostly broken, with all sorts of 'moy' relations involving middlemen traders and money-lenders between the predominantly farm-based and fish-based communities of the system. Purely monetary transactions have replaced the bartering of rice for fish and *vice versa*. As cumulative indebtedness is a problem of the poor, but without alternative sources of credit, money-lending at different levels has become an integral part of the moy system. which The rice-fishing economy has been substituted by a market economy,

but one which still relies on complex “power webs” of relations spreading from big merchants in Cambodia’s capital to every district and community of the lake area. Understanding the dynamics of the Tonle Sap requires more than an understanding of the territorial and political spaces, it necessitates a focus on vertical social relations that make up the moy system.

One of the consequences of the intensified nature of market relations in the Tonle Sap has been the growing competition for resources between and within communities, particularly between fishers in the floating and stand-stilt villages and farmers of the land-based villages. The traditional “moral universe” of peasant societies studied by Scott (1976) is now less subsistence-oriented and sharing, and is much more internally and externally competitive, with growing disparities based on abilities to avoid debt, access to capital, and cumulative indebtedness. Within this system there are important roles for middlemen traders and money-lenders who are integral to both patron-client and moy system relations.

Thus, the Tonle Sap is not only territorially and politically contested as a lake-space (previous chapters), socio-political-economic relations are simultaneously mediated and influenced by a complex verticality of patron-client and moy relationships. Consideration of the political geographic, political economic and cultural dimensions of the Lake are essential if we are to understand how to introduce governance measures that include socio-economic and environmental justice principles as well as resource security and sustainability ones in future policy making. I shall return to these issues in the concluding part of the thesis.

CHAPTER 9

Conclusion: Space, Resources and People

This thesis takes a political geographical perspective, using spatial-political analysis, territoriality, and politics of scale, in addition to examining some non-territorial dimensions of social-power relations. To understand the problems of different villages, the thesis examines the common types of fishing communities found in the Tonle Sap, and studies how the spaces of these communities are incorporated into state-imposed processes of territoriality and space differentiation. This chapter is organized according to the following topics: (1) the current crisis in fisheries governance, (2) key findings; (3) competing representations of space; (4) contested boundaries and everyday territorialities; (5) scales of fishing; (6) non-territorial and territorial 'Power Webs'; (7) stressing 'localized' forms of management; and (8) policy implications for improving resource governance.

9.1 Current Crisis in Fisheries Governance

The study identifies that resources management in the Tonle Sap involves different spatial imaginaries of resource governing institutions, competing representations of space, overlapping and clashing territorializations of natural resources, inappropriate official uses of fishery scales, and the deeply entrenched social relations that relate to the 'moy system'. The space in the Tonle Sap is transformed by different agents and actors (re)constructing territories, leading to overlapping claims and often leading to conflicts at various 'local' levels. Territorialization of the Lake has been integral to the commercialization and privatization of fishing resources, often at the expense of 'small-scale' fishers. Commercial fishing lots have tended towards over-exploitation of resources and increase fishing conflicts between 'small' and 'large scale' fishers whilst at the same time increasing state control and management of these resources. As this research has shown the officially designated 'scales' (large, middle and small) for fishing activity have failed in their objectives to protect fisheries

and habitats for fishes, and failed to ensure adequate income and food for people whose livelihoods are largely dependent on the fisheries of the Tonle Sap. As observed by this researcher, fishers actually are engaged in creating their own 'survival scales' for fishing, often resorting to local level corruption to 'buy' access into richer fishing areas, or paying the price to fish within commercial zones, as well as up-scaling fishing gears, poaching, and using illegal gears. The result is that there is over-fishing and always a potential for conflict.

The noncompliance of fishers to the current fisheries law and management is not due to fishers being disobedient. Local fishers of the Tonle Sap are engaged in their own struggles for survival and they can not, at present, rely on the legal framework and existing institutional arrangements to help them. It is the author's view that the entire fisheries management system has failed to address the needs of and current survival struggles of the majority of poor fishers in the Tonle Sap. Fishery law implementation is weak but has tended to add to conflicts between different stakeholders within the fishery at numerous localized scales. Furthermore, there is a pervasive 'hidden' corrupt system that benefits the elites, certain officials, and privileged stakeholders but does not protect the biodiversity, fishes, fishers (who live in the villages of the Tonle Sap, as opposed to absentee big operators), or the sustainability of the Lake for future generations of Cambodians.

This thesis has tried to highlight the ***political geographies of resource governance*** in the Lake. Hitherto, the spatial nature of freshwater resource politics, and links between space and power have largely been ignored by both academics and practitioners. The main purpose of this thesis is to plug this gap.

9.2 Summary of key findings

The study has found the following key findings:

- **Key Finding 1:** "Space" in the Tonle Sap is constructed and reconstructed by global, regional and national actors. Thus, there are competing geographical imaginaries and representations of space, sometimes producing real overlapping territories, conflicts of interest, and complicated resource management.

- **Key finding 2:** Territoriality in the Tonle Sap is complex; on the one hand, it is a state strategy to control and promote the commercialization (and partial privatization) of fishery resources in the Tonle Sap, as well as to generate state revenues; and on the other hand, local level territorialities relates to a 'way of life' in which fishing communities adapt and organize themselves in response to ecological functions, as well as to state and privatized control over access to vital resources within their 'lived space'. The stakeholders compete over natural resources to maximize their profits on the one hand, or to survive on the other.

- **Key finding 3:** 'Scale' has been used for fisheries management in the Tonle Sap. It is a form of control over the fishing population through: (a) Classifying fishing population into 'small-scale', 'medium-scale' and 'large-scale' fishers; (b) Classifying fishing areas into commercial fishing area, public fishing areas and conservation areas, and assigning fishing populations to specific fishing areas; (c) Assigning fishing gears to specific fishing groups operating within designated fishing areas; and (d) Assigning specific timeframes (seasonally based) for specific fishing groups to fish in designated fishing areas.

- **Key finding 4:** The spatial organization of the Tonle Sap, including the territorialization of the Lake resources and 'scales' used in fisheries management serve the State interests, big organizations and private commercial users, but exclude myriad communities. Communities around the Lake have struggled against this exclusion. Hitherto this has led to three main forms of localized actions and arrangements in the Lake: (1) 'To fish to survive' fishers adopt numerous strategies including up-scaling of equipment, using destructive fishing gears, poaching, encroaching into areas designated for other uses, paying off local officials to turn a blind eye, and other means; (2) Fishers build up patron-client relationships with fishing lot owners as a matter of necessity and basic survival as fishing has become hotly competitive and community areas are zone-locked by other uses; and (3) Fishers are tapped in the "power web of the fish traders" or the "moy system" of the Tonle Sap.

The following sections will elaborate on specific findings.

9.3 Competing Representations of Space

The Tonle Sap is rich in fisheries, biodiversity and natural resources, which is an important one for thousands of fishing communities. The Lake is their 'lived space' although it can be conceptualized as containing multiple localized 'spaces of dependence' (Cox, 1998). As I have illustrated, different types of village community may have dissimilar 'spaces of dependence' due to certain attributes, such as access to water, to land, to the flooded forests, which vary from place to place. The Tonle Sap as a political space is further divided up into designated or 'specialized areas' and into areas that are prohibited to one group or another (Lefebvre, 1991: 319-320). In particular, the state territorializes the fishing areas into the commercial fishing space, the conservation zones and the public fishing space. Each of these territorial designations contains other sub-divisions. Over and above these territorializations there are differing geographical imaginaries of the Lake space producing distinctive representations of space, constructed beyond the state boundary by state and non-state actors. Each space is constructed based on: (1) power, politics and policy on one hand, and politico-economy, science or technology and resources on the other hand; and (2) the commercialization, privatization and the capital accumulation on one hand; and the specialization, rationalization and significant issues on the other hand.

As discussed in Chapter 4, the Tonle Sap is conceptualized as a '**global space**' based on three key global trends; first, identification of biodiversity protection 'hot-spots' and the choice of the Tonle Sap as one such area in need of 'global' action; second, Cambodia signing the 1992 Rio Declaration on Environment and Development and the September 2000 Millennium Declaration; and third, the role of international aid, donors, and international; agencies, such as cthe United Nation Development Program (UNDP), UNESCO, ADB and others.

Initially, Cambodia's state was reluctant to promote the Tonle Sap as a 'conservation space' due to the fact that the Lake is a major source of economic value and national revenues. However, over time the state realized that there is much value in being seen to be active in conservation, for it brings valuable investments through aid and donor organizations, and helps to promote the country in various global forums. At the same time, the promotion of the Tonle Sap as a key space for biodiversity protection and Biosphere Reserves means that there exist tensions between the political economy aspects of policy, fisheries goals, localized community needs and the overall aims of scientific conservation. The creation of Biosphere Reserves and smaller conservation zones are not necessarily serving the goals of either fishery or biodiversity management, in part this is due to the relative lack of ground-up participatory engagement and relatively weak governance institutions. As this thesis illustrates, the Reserves and smaller conservation zones merely add to the territorial complexity of the Lake, and since they operate in a context rife with corruption, poaching, and illegal encroachments, the conservation efforts are undermined.

At grander scales, the Tonle Sap is conceptualized as a '**regional space**' of the Mekong based upon three key ideas. First, the Tonle Sap is variously considered by many water specialists, fishery managers, and scientific experts as the 'bladder' (containing and releasing water), 'liver' (cleaning and managing water) or 'heart' (pulsing and maintaining life) of the Mekong Basin. This researcher views the whole Mekong Basin as what I call "a *natural* 'geo-body'" (as distinct from *national* geo-bodies, see Winichakul, 1994) in which the Mekong River and other tributaries act as blood vessels and the water its 'blood'. Thus, the Tonle Sap has bigger scale 'geo-ecological functions' relating to hydrology and the 'flood pulse' of the Mekong. If the 'heart' stops, the system dies (Poulsen, cited in Jussi Nikkula, 2005). The notion of the Tonle Sap as an integral and vital element within a region-scale "*natural* geo-body" has enormous implications for the way we analyze the implications of mega-projects up and down the Basin, particularly contentious hydropower schemes proposed for the lower mainstream, for it is imperative to consider trans-border ecosystem functions

and ecosystem services, which have natural, social and economic values (Lansing, Lansing and Erazo, 1998).

As discussed in Chapter 4, the Tonle Sap is institutionally connected to other parts of the Lower Mekong through the Mekong 1995 Agreement in which the four lower Mekong countries are signatories, part of which is the need to maintain the flow in the mainstream to acceptable minimum monthly natural flows during each month of the dry season and to enable acceptable the natural reverse flow of the Tonle Sap to take place during the wet season (MRC Agreement, 1995). Other important organizations, such as the Asian Development Bank (ADB) have also been influential in regionalizing the Tonle Sap within the 'Greater Mekong Sub-Region' geographical and policy-related imaginary. Any examination of Mekong Basin resource governance, integrated water resources management, and trans-border legal frameworks are of direct relevance to the Tonle Sap (Hirsch, 2006; 2010).

As this thesis illustrates, the Tonle Sap conjures up many different spatial imaginaries and scales. Within the national scale, there are distinct ways we may examine the spatial organization and politics of the Lake.

As a **'technical or sectoral space**': Here state planners and policy-makers have tended to develop such ideas since the French Protectorate period, creating an 'abstract' functional and commercial view of space. These representations have prioritized the value of the private fishing operators over other fishers and been used to justify managing the fishery space as *revenue-generating lots* (commercial fishery space, Tana and Todd, 2002), or in relation to the 'global imaginaries' as Biosphere Reserves (conservation space, Bunhoeur and Lane, 2001). Even 'community areas' are imagined as functionally specific and homogenized zones through the 2001 Fishery Reforms that seek to extend community resource management areas by some 540,000 ha (Ratner, 2006). These 'representations of space'

(Lefebvre, 1991) are mostly based upon an 'abstract space' created by key agents, elites, and institutions. Such hegemonic representations are primarily focused on commercial fisheries and conservation, although alternative geographies can emerge through the development of 'terrains of resistance' (Routledge, 1996) or 'spaces of engagement' through collective action and social networks (Cox, 1998). It is within the creative everyday realm of 'lived space' that coordinated community-based actions are needed and where there is great potential to challenge dominant paradigms and representations of Lake-space. However, it is likely that collective responses will only emerge as internal and external stresses on livelihoods and everyday 'spaces of dependence' intensify over time.

As a '**scientific space'**: These representations are created by the scientific studies of ichthyologists, fishery managers, ecologists, hydrologists, modeling experts, wetlands specialists, and other groups. For instance, ecologists and biologists see no definite *borders* for flora and fauna between different ecological systems (Campbell *et al.*, 2006; Torrell *et al.*, 2004). In spite of the inherent contradictions that rigid administrative boundaries can create, the value of having sanctuaries and protection zones has been promoted by several scientific researchers and concerned environmental organizations, such as the WWF, World Fish Center, UNESCO, and IUCN . Numerous scientific studies of fish migrations in the lower Mekong, commissioned by the MRC and World Fish Center, have revealed the many bio-ecological linkages that connect the Tonle Sap intimately with other parts of the Basin. Thus, specific scientific research reinforces the notion of regional connectivity and challenges the nation-centric thinking of many decision-makers. In addition, some scientific studies have helped raise awareness of ecological and livelihood security threats that relate to hydropower development that disrupt wild capture fisheries (Friend, 2007).

As a '**non-government space':** There exist a broad range of NGOs and international donor organizations lobbying for communities to be given enhanced rights, roles and responsibilities in the Tonle Sap area (including groups such as the Fisheries Action Coalition

Team (FACT); Oxfam's Mekong projects; and the Asian Forestry Network (AFN) and others. All forms of 'community-based property resource management' necessarily implicate space and involve tenure, property, access to resources issues, as well as territorial claims, identities, representation and practices (Ostrom, 1990; Peluso, 2005a & 2005b; Vandergeest and Peluso, 1995). As Nancy Lee Peluso (2005a:8) argues, the defense of commons is of necessity increasingly a territorial politics in today's world. Territorial strategies are integral to many battles over and for communal spaces, although not all organizations perceive 'commons' or 'common spaces' the same way and there are often different perspectives even between organizations with shared common interests.

As a Commercial Fishing Space: In the Tonle Sap, the fishing lot is commercially auctioned for 'private control'. Those winning the auctions or receiving the offer for the exclusive control of the fishing lot then become the lot owner, although the controlling agents should really be regarded as 'concessionaires' or 'lessees', not as 'owners' (Tana and Todd, 2002). This thesis has focused on how this particular national representation of the Tonle Sap fisheries has generated numerous political geographic problems at local levels.

As a Public Fishing Space: The public fishing space is located outside the fishing lot and conservation areas (Thouk and Sina, 1997; Tana and Todd, 2002). However, this is not really a 'public space' whereby different collective and community-based groups can negotiate alternative forms of common property ownership relatively free from top-level interference (Blomley, Delaney and Ford, 2001). Rather, it is perceived to be a space of control in which people *must fish using small-scale fishing gears and fish for subsistence only*. This relates two competing ideas; on one hand, it constitutes the 'public space' as the site of control; for instance, the state confines the small fishers to fish only in 'public fishing areas' and for subsistence only, not for sale. Authoritarian state practices are used to maintain order and stability, which involve territorial exclusions and inclusions. On the other hand, there is an alternative perspective of 'public space' as sites where the relatively silent majority

can make demands; a space in which identity may be alternatively (re)constructed, reified, and contested; and a space where the relatively weak (in terms of socio-economic and political power) and the poor may create their own 'spaces of engagement' (Cox, 1998; Springer, 2009a; Lefebvre, 1991).

In the freshwater lake, the fact is that the state regulates much of the access to resources. Thus, the Tonle Sap 'public space' in fishing is conceptualized first, as a state property; second, as regulated access areas; and third, as an 'open space' (Thomson and Somony, 2003; Thouk and Sina, 1997; Tana and Todd, 2002). The public /state properties are inalienable. Consequently, no water body or land belonging to the inland or marine fishery domain can be disposed of by the State. Furthermore, these areas cannot be privately owned by any legal private person or entity (Thomson & Somony, 2003; Thouk & Sina, 1997; Tana & Todd, 2002).

The Conservation Space: Effectively, this idea was established in 1997 by the Royal Government of Cambodia, supported by UNESCO, declaring the Tonle Sap as a 'Biosphere Reserve'. After a Royal Decree on Protected Areas in 1993, followed by a decision in October 1997 by UNESCO to designate some 70,837 ha in three areas, which were finally confirmed in 2001 (Prek Toal, Boeung Tonle Chmar and Stun Sen) as Biosphere Reserve Areas. These areas are also divided into sub-zones of 'core areas' surrounded by 'buffer zones' and beyond that 'transitional zones' (Bunhoeur and Lane, 2002; Campbell *et al.*, 2006). Several state agencies are involved in management. The Fisheries Administration under the Ministry of Agriculture, Forestry and Fisheries (MAFF) and the supposedly inter-ministerial Tonle Sap Biosphere Reserve Secretariat which includes representatives from the Ministry of Environment (MoE), MAFF, and Ministry of Water Resources and Meteorology (Campbell *et al.*, 2006). However, the latter does not seem to prevent confusion over functional uses, conflicts between stakeholders, and poor coordination over planning priorities.

9.4 Contested Boundaries and Everyday Territorialities

As this thesis illustrates, the Tonle Sap Lake is territorialized into commercial, conservation and the public fishing spaces. The commercial fishing space is further classified into many small commercial fishing areas known as a 'commercial fishing lot', the conservation space is further classified into the 'transition zone', the 'buffer zone' and the 'core zone', and the public fishing space is classified into the open access area and the community fisheries areas. In the freshwater lake this is similar to Vandergeest and Peluso's (1995) perspective of *the state's key role* in determining territoriality within all kinds of land designated as 'forest' in Thailand for direct control and exploitation of resources for state revenues. The demarcation of boundaries and mapping of the forest areas in Thailand is similar to the case of fishery resources management in Cambodia in which the state, with the purpose of generating national revenue, demarcates the good fishing grounds and allocates them into commercial fishing lots, the conservation areas and public fishing areas. Many fisheries whose lives are dependent on this resource long before the coming into existence of state law are almost outright excluded.

The commercial fishing lot and conservation area boundaries of the freshwater lake serve similar functions to boundaries on terrestrial and maritime spaces (Newman, 2003; Grundy-Warr and Schofield, 2010). Boundaries are drawn delimiting the commercial fishing areas, conservation areas and the public fishing areas, cutting across the indigenous fishing grounds and 'lived space', ignoring the social, cultural and historical context of the Tonle Sap. Another critical distinction to 'freshwater territoriality' is that, in the Tonle Sap, boundaries are marked on the fluctuating water levels, varying between 1.5m and 9m above sea levels, between the dry season and the wet season (Kummu *et al.*, 2008).

One unique form of territorialization is what this researcher calls 'floating boundaries.' The ***'floating boundary'*** is a 'boundary line' of the fishing lot which is marked

on the fluctuating water levels between wet and dry seasons. This boundary 'floats' in two ways; first, one side of the fishing lot, the side facing towards land is an open-ended boundary line and the fishing lot owner claims that 'where there is water, that is the boundary of the fishing lot' (Van Acker, 2005; Sithirith, 2000). This literally opens the way to extended seasonal claims, oftentimes without justification, and usually to the detriment of resource access by fishers from nearby communities. Second, the side of the lot's boundary facing the Lake is affected by the fluctuating water level. When the water level is high, then the boundary line is high and deep. Extending fishing lot boundaries clearly benefits the lot owners (Vuthy *et al.,* 2000), causing occasional conflict with local communities.

In the open fishing season, fishing lot owners literally erect fences around the fishing lot areas, with bamboo fences to demarcate boundary lines. These 'bamboo boundaries' are found all over the Tonle Sap and are distinguishable from Google Earth images of the Lake. These physical boundaries extend to the Lake bottom, and so, they not only control people's access but also fish movements (Degen and Thouk, 2000; Van Zalinge *et al.,* 2000). However, in the closed fishing season, the fishing lot owners are supposed to remove the bamboo fences (Degen *et al.,* 2000; Van Zalinge *et al.,* 2000; Vuthy *et al.,* 2000). However, the reinstalling of the fishing lot bamboo fences may be in slightly different positions depending on the water-levels, and this gives rise to the contestation of the fishing lot boundaries. Water-levels do fluctuate from year to year as well as seasonally, which means that physical boundaries are rarely positioned in the same places as they were previously. The fishing lot owners also deliberately extend the boundaries of their fishing lots through the removal and re-installing process. Almost every single boundary produces localized contestations of one sort or another, and these are precisely the reasons why political geographic approaches are highly relevant to understanding resource governance and resource spaces. Clearly, there is a need for much tighter controls over the placement and positions of boundaries in the Lake, as well as peaceful conflict management mechanisms to fairly arbitrate boundary disputes and prevent future conflicts. Better management of formal

boundaries is necessary, just as there is a need for better appreciation of the varied forms of human territoriality that exist within the lived spaces of the Lake.

Indigenous forms of territoriality are rarely discussed in policy-circles or by academics. This researcher views territoriality as both a political strategy related to defending livelihoods and resource access (Sack, 1986), and as something that may be considered in relation to indigenous forms of ecological knowledge (Berkes, 1999), particularly in relation to people's knowledge and adjustments to the annual flood pulse. For instance, many floating villages in the Tonle Sap float and move between locations, while some only float, and remain more or less stationary. Actually even fixed villages move vertically from the lowest area position of about 1.5 m above sea level (asl) in the dry season to the highest area position of about 9.50 m asl in the wet season in the lake (Kummu *et al.*, 2008). Thus, there are two types of floating territoriality; mobile and vertical territorialities. Mobile territoriality is illustrated by the floating village of Kampong Loung, in which it floats and moves upward from the lowest area position of about 1.5m asl to the highest area position of about 9.50 m asl in the lake over a distance of 5-6km within a period of six months in the wet season; and then, it floats and moves downward from the highest areas position to the lowest area position in the lake over the same distance in the dry season. Vertical territoriality implies seasonal up and down movement, but not changes in location. Indeed, many floating villages, such as Peam Bang, are literally zone-locked by formal territorial boundaries of nearby fishing lots, conservation zones, and landed settlements with some lake access.

Another unique spatiality of the Tonle Sap relates to the 'pulsing territoriality' of stand-stilt communities. For instance, Kampong Phluk is influenced by the 'pulsing ecosystem' of the Tonle Sap, as it is located six months on land and six months within water (AFN, 2004); and the community organize their livelihoods system in response to seasonal transformations in the environment and in response to the state-imposed territorial system. Under the influence of the 'pulsing ecosystem,' each stand-stilt community such as Kampong

Phluk has both terrestrial and aquatic phases (Kummu *et al.*, 2008). First, in the terrestrial phase about six months of the year, people in stand-stilt communities adapt their living strategy according to land system and they engage in fishing and farming as a primary occupation—this is a 'terrestrial territoriality,' with access to parcels of land and forest. Second, in the aquatic phase about six months of the year, people adapt their living based on a water system and they use boats as a mean of their living, and I call this 'aquatic territoriality.'

Farming-fishing territoriality relates to livelihoods of people in these communities whereby primary occupations are farming and secondary ones are fishing. Thus, they organize their livelihood system based on organizing the land areas into *Sreleu* and *Srekrom*, and the fishing into high season and off-fishing season.

All these indigenous territorialities are social-ecological adaptations to seasonal changes in water-level, as well as the way in which the political waterscape of the Tonle Sap has changed over time. Historically, the indigenous forms also relate to the Lake as a 'common pool resource.' But as stressed in this thesis, human territoriality in the last century is most affected by state territoriality and commercial fisheries. Boundaries are delimited, and often demarcated (with nets, bamboo fences, other structures, and look-out towers in the Lake) to exclude and limit the access of local communities to fishing areas they used to fish long before the emergence of the state territoriality. In other words, the story of the Lake is similar in this regard to the numerous enclosures, dislocations and dispossessions occurring in forest zones of Southeast Asia (Vandergeest, 1996; Laungaramsri, 2002; Lohmann, 1999).

There is a need for informed understanding of how human territoriality relates to questions of resource access, utilization and control. There is also a need for a deeper appreciation of the human ecologies that relate to spatiality in the Tonle Sap, and why and how people try to adjust territorial behaviour in relation to ecological and political

transformations of Lake-space. Finally, it seems that improved resource governance will require better knowledge of territoriality in relation to people's and community notions of 'spaces of dependence', that is the areas where they fish, access to other important aquatic resources, non-timber forest products, and other means of livelihood. This researcher believes that policy-makers are often too remote from village life and have little appreciation of the connections between resource management and the spatial practices of literally hundreds of thousands of people who utilize the Tonle Sap every day. The gap between everyday life and policy making is a big one in the Cambodian context, but as this study indicates, it is necessary to bridge such gaps if policies are to develop into sustainable resource management based on the majority of people who utilize resources for their living.

9.5 Scales of Fishing

Scale is used for fisheries management in the Tonle Sap, but it is strictly a categorization of fishing activity, not the same as geographical scale or the politics of scale discussions used by geographers (Howitt, 2003). More critical applications of 'scale', defined as a size, time, level, and relational actions (Charles, 2001) in fisheries management theory and by Neumann (2009) in theorizing scale. However, 'scale' is somewhat rigidly applied in the Tonle Sap for fisheries management, in which the fishing population is grouped into 'small-scale', 'medium-scale' and 'large-scale' fishing. This has spatial fishery access implications for the small-scale and medium-scale fishing is allowed within the public fishing areas whilst the large-scale fishing is allowed only in the commercial fishing areas. A 'temporal-scale' applies to commercial fishing areas in the open fishing season, whilst the public fishing area may be utilized by small-scale fishers in both the open and closed fishing seasons, but medium-scale fishing is permitted in the public fishing area only in the open season.

This thesis highlights the problems created by official designations of fishery scales, particularly in generating conflicts and over-fishing. First, 'small-scale' is based on a general assumption that fishermen are homogenous, without taking into account the wide differentiation that actually exists within and between floating communities, stand-stilt communities and farming-cum-fishing communities. In fact, this study identifies diversified fishing communities and multiple different practices of so-called small-scale fishing.

Second, the 'scale' of actual fishing practices in the Tonle Sap involves complex social and political relations and 'power webs' of interaction between fishers of different status, money-lenders, and fish traders and so on. For instance, large-Scale fishing refers to commercial fishing operators who are big private investors in the Tonle Sap. The key owners gain commercial access of prime fishery areas through a public bidding system every 2-4 years, but actually most fishing lot owners are able to run their fishing lots for more than 10 years, and to do so requires maintaining special relations with higher officials as well as relations with small-scale fishers who look up to them as patrons (Vuthy *et al*., 2000). Whilst many fishers claim to be small-scale fishers, few of them fish using small-scale fishing gear, and most have up-scaled their technology beyond that of subsistence fishing gear. Such practices are common throughout the Tonle Sap because of the intense competition over fishery space, and in order to up-scale or have access to better fishing areas, they often have to build relationships with officials (fisheries department, police, armed forces) and fishing lot owners. This is an aspect of the 'power webs' discussed below.

Third, the researcher has observed that 'up-scaling' is a typical livelihood strategy and to understand its dynamics is to better appreciate what is happening within fisheries, including the issue of over-fishing. The researcher believes that it is better to say that fishers develop their own 'survival scales', which have little to do with the archaic categories of the Fisheries Department. Declining fish yields or less return per unit of effort have enormous implications for the 'everyday life' of fishers and their families, and therefore, they are often

anxious about how to catch enough fish to eat, to sell, and to repay debts. To catch enough for today, individual fishers worry little about official fishery designations of what they should (in theory) be doing (small-scale fishing for subsistence), rather they focus on how to improve fishing gears or how to get access to good fishing areas where they may catch more fish, which necessitates protection from powerful people. At present, the researcher can testify that no single fisher in the Tonle Sap practices small-scale fishing as it is defined officially. Thus, there is a tendency towards a 'tragedy' (Hardin, 1968), but not a 'tragedy of the commons', for as this thesis has also argued, there is practically no commons as such. Every space is territorialized in one way or another and even public fishing areas are not under the control of ordinary fishers. Commercialization, territories, boundaries, and non-territorial 'power webs' literally mean that ordinary, smaller fishing operators have little choice but to try to 'up-scale' their operations and bribe or pay their way into prime fishing zones. This is not a 'tragedy of the commons' but a tragedy of poor governance.

9.6 Non-Territorial and Territorial "Power Webs"

As noted above, individual fishers have to articulate everyday social relations with other fishers, with 'moy' fish traders, and with other influential figures or fishing lot owners, or combinations of all of these. Whilst developing these kinds of social relations may help, to some extent, improve access to fishery resources, they tend to have a cumulative downward effect in the sense that many fishers become literally entrapped in various power webs of patronage, obligation and indebtedness. This research has found that only a talented or lucky few fishers actually benefit in the longer term, whilst the majority of fishers remain disadvantaged. This system is so deeply embedded that it could only be challenged effectively by collective action and collaboration amongst fishers and their communities to campaign for a better existence, particularly through changes to the moy system as it is currently configured.

The fishing lot system, which was considered as a tool to combat illegal fishing, has in fact fuelled illegal fishing, including that done by fishing lot owners as well as petty poaching, encroachments, and localized conflicts between the lot owners and small-and medium-scale fishers. The enclosure of the fishing lot and the lot system creates conflict and violence. The conflicts have occurred as both parties compete for their respective interests, ranging from profits from lots to basic survival needs for poorer fishers. Facing such exclusions, fishers have to adopt different strategies which are found to be consistent with those examined by Scott (1985, 1998), wherein 'resistance' can be seen in different forms, such as, encroachment by the local people onto state properties, poaching in exclusive zones, 'illegal' forms of fishing which are exercised as openly expressed forms of resentment of particular rules, regulations, and restrictions.

Hitherto, strategies of resistance are constrained by the presence of a strong patronage system in the fisheries, which means that the 'officials', lot owners and larger-scale fishers are rarely punished for violations, but the 'victims' of encroachment (when for instance borders of lots are extended into public fishing zones) may end up being officially blamed for damaging the fisheries. In order to cope with various forms of exclusion, people primarily use 'individual' tactics to look for alternative ways for survival in order to avoid outright conflict, similar to those described by Popkin (1979). Fishers may choose a strategy to cooperate with a variety of officials, traders and or lot owners. I conceptualize these strategies of fishers in the Tonle Sap into three main 'power webs': (1) fishers trapped in the 'power webs' of officials'; (2) fishers 'in the power webs of fishing lot owners'; and (3) fishers 'in the power webs of fish traders' or 'moy system'. These are overlapping power webs in practice, and it is quite common for individual fishers to be trapped in all three 'power webs' simultaneously.

This situation is exacerbated by the existing Fisheries Law which permits a fisher to fish for subsistence only, but not to trade from fish caught with 'small-scale' fishing gear. As discussed earlier, such gears do not guarantee survival in the Tonle Sap Lake fisheries of

today. Thus, to make a living, fishers end up using 'illegal' larger gear as a mean of ensuring their survival. To do this, they pay corrupted officials for allowing this in practice. Without the payments they would most likely face arrest or fines for transgressing the Fisheries Law. Acceptance of bribes has become a common way of supplementing meager government salaries for many officials. Indeed, there is little secrecy about such behavior, which is translated into locally licit forms of protection. In this way, many fishers and officials are caught in these 'power webs' of bribery and protection (see Figure 9.1)

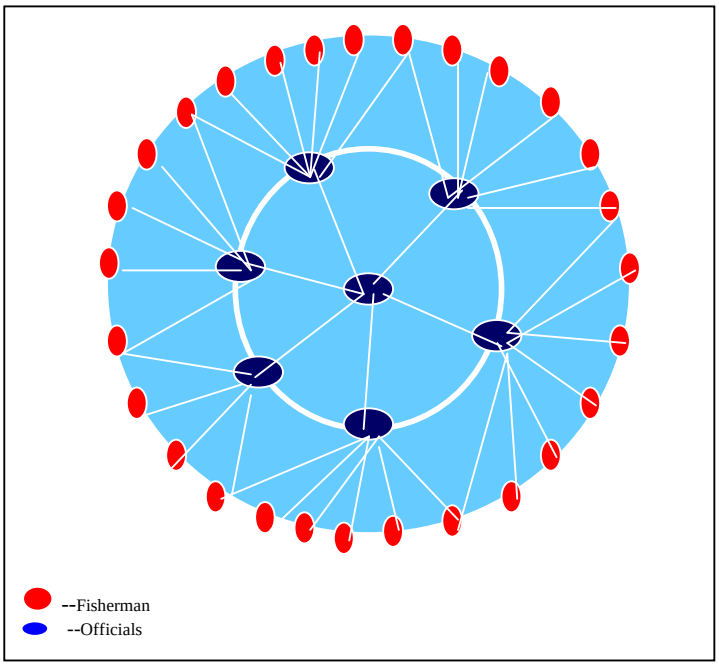


Figure 9. 1: Fishers Trapped in the 'power web' of corrupted officials

Second, the commercial fishing space is territorialized into many fishing lots and the fishing lot is auctioned and effectively given to private control. There are 38 fishing lots in the Tonle Sap, each of which is sub-divided into sub-lots and lease them out to leaseholders (Vuthy *et al.*, 2000; ADB, FOA & DoF, 2003). The leaseholder sub-divides the sub-lots into the sub-sub-lots and leases them out to the sub-leaseholds (Degen *et al.*, 2000; Thouk and Sina, 1997; Vuthy *et al.*, 2000). This is the 'power web of fishing lot system'. The leaseholder

and sub-leaseholder fish until they realize that no fish left inside the sub-lot and sub-sub-lot areas respectively, and then, they sub-contract to other fishers who pay for entry inside the sub-lot or sub-sub-lot areas (Vuthy *et al.*, 2000; Gum, 1998; Swift, 1997). To enter the fishing lots, the sub-lots and the sub-sub-lot areas fishers must agree to two conditions; first, they must share their 'fish catch' with the owners, usually 40 percent of the catch will go to the owners of the fishing lost, the sub-lots and the sub-sub-lots and 60 percent will go to the fishers themselves. Second, they must agree to sell the remaining fish catches to the owners of the fishing lots, the sub-lots and the sub-sub-lots (Gum, 1998; Vuthy *et al.*, 2000; Van Acker, 2005)(See Figure 9.2).

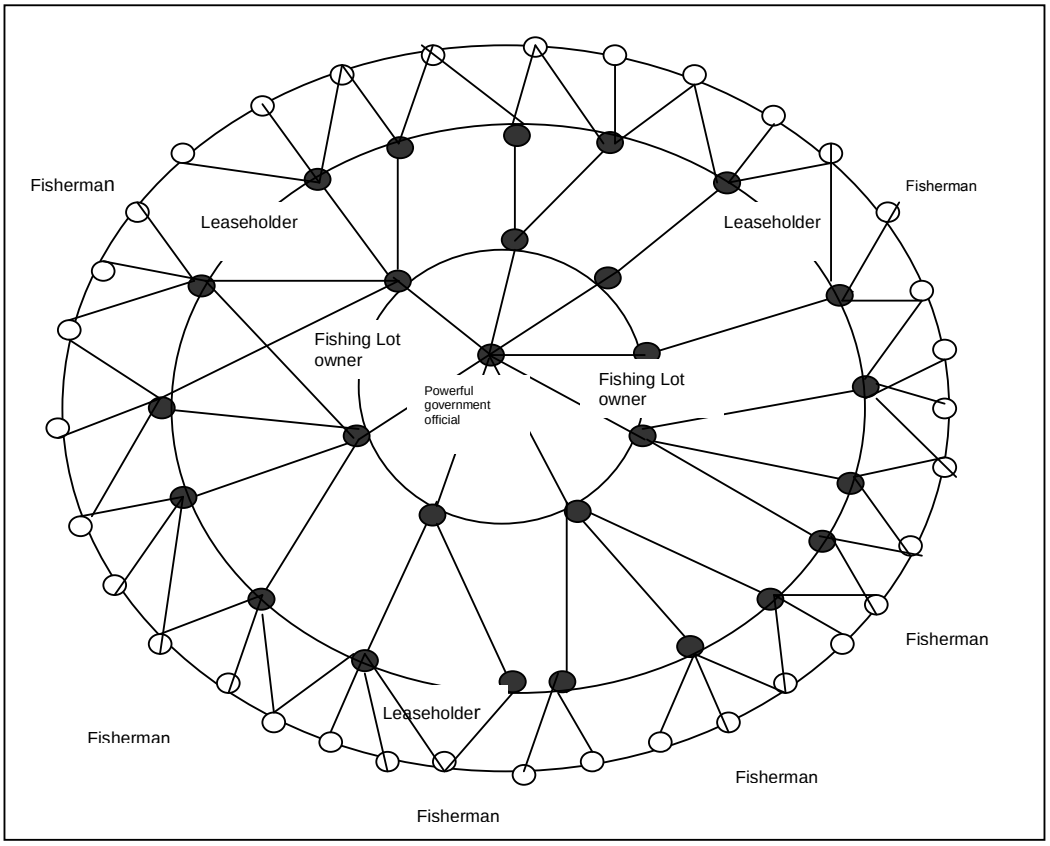


Figure 9. 2: Fishers in the 'power web' in the fishing lot system

The fishers, leaseholders, and sub-leaseholders fish in the fishing lot area using commercial fishing gear. They must do this to ensure that the income generated from fishing in the sub-lots and the sub-sub-lots exceeds the investment they made in renting areas.

Second, they need to secure 'protection' from the fishing lot owners when they fish in these areas. Third, with that protection from fishing lot owners, the fishers are allowed to use fishing gears that ensure the highest catches, but proportions of their catches are 'payments' in kind for fishing in commercial zones.

Fishing lot owners effectively have 'ownership' over the fishing lots due to their relationship with higher level government officials and their ability to make 'under table deals'. This involves both social capital, in terms of the social connections of fishing lot owners with high level government officials, and financial capital to pay the officials for the 'protection' they extend over the fishing lot business. Hence, the fishing lot owners pay large sums of money in order to gain a long term control over the fishing lots. Furthermore, the fishing lot owners find it most practical to divide the fishing lots into 'sub-lots' and lease these out to leaseholders as a means of generating more income. Thus a combination of non-territorial power relations feed into the territorial system of the Lake. This also implies that the fishing lot owners need the 'leaseholders' in order to make their business successful. In the same way, the leaseholder needs to have their 'sub-leaseholders'. These form the basic characteristics of what I have termed the 'power web' of the fishing lot system.

Two reasons tie fishers to this 'power webs'. First, they gain access to good fishing areas enabling them to 'up-scale' activities. Second, by adding many ordinary fishers to this 'power web', the fishing lot owners, the leaseholders and the sub-leaseholders are able to raise more revenues by making more demands for '(re)payment'.

The Tonle Sap has four locations that act as key fish trading centers, including Ek Phnom in Battambang Province along the Stung Sangke River, Chong Kneas in Siem Reap, Kampong Loung in Pursat Province and Chnoc Tru in Kampong Chhnang Province. This trading system has its own 'power webs' of patrons and clients.

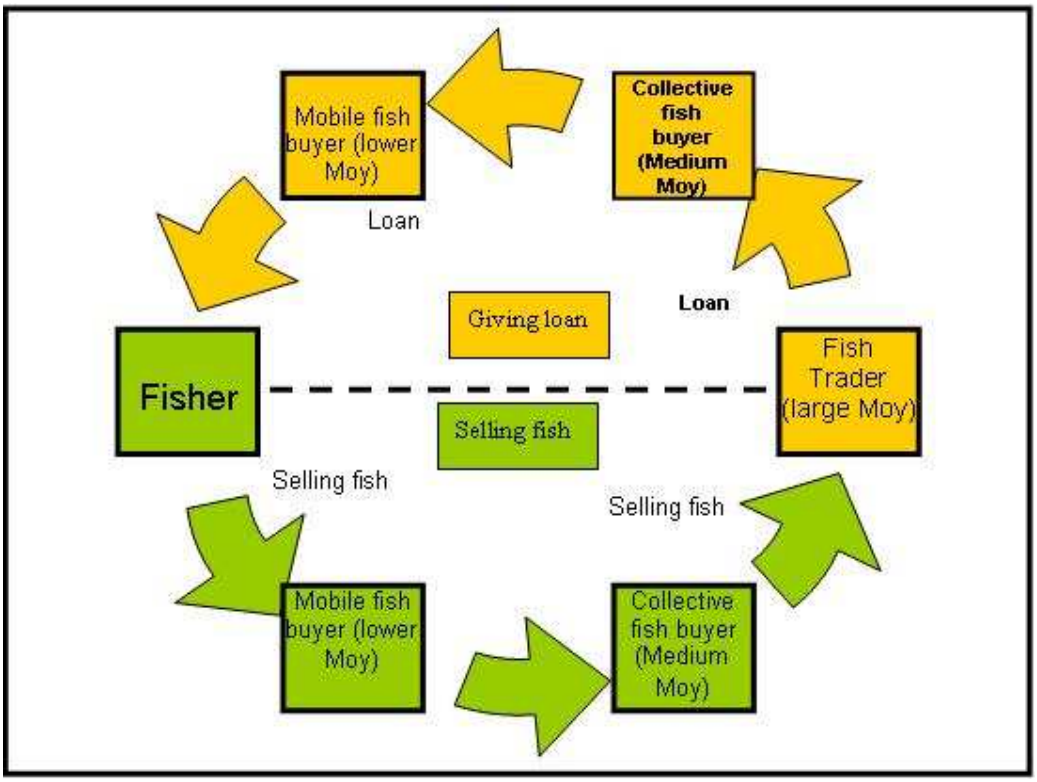


Figure 9. 3: The 'moy' system in the Tonle Sap

To sell their catches, fishers must form relations to particular fish buyers and become part of the '*moy* system', which is a fish trading system based on organizing buyers into *collective* and the *mobile* buyers. The 'fish trader' extends the '*moy* system' beyond the 'collective and mobile fish buyer' to all fishing villages in the Tonle Sap. It means that 'fish traders' become the '*moy*' or 'trading partner' to the 'collective fish buyer', the 'collective fish buyer' is a '*moy*' to the 'mobile fish buyer', the 'mobile fish buyer' is a '*moy*' to the 'fisherman', and *vice versa*. As discussed in Chapter 8, the system also includes fish trading and money-lending and borrowing relations between different categories of fish traders (see Figure 9.3).

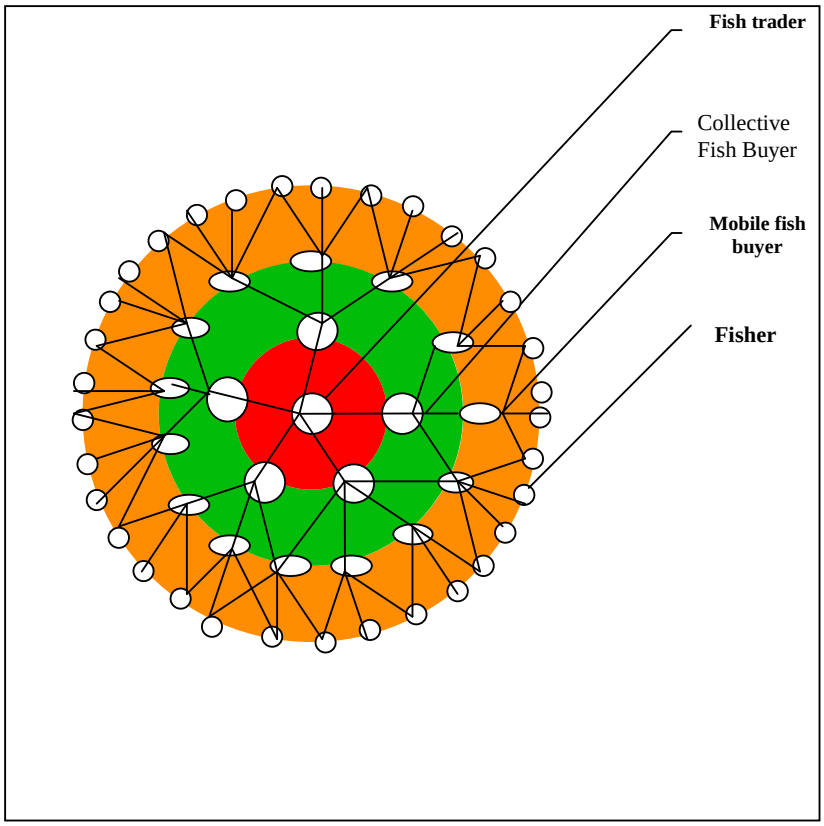


Figure 9. 4: Fishers trapped in the 'power webs' of fish traders in the Tonle Sap

A 'fish trader' usually works with 2-3 collective fish buyers as a *moy*, then collective fish buyers work with 5-6 mobile fish buyers. One mobile fish buyer buys fish from 4-5 fishing villages in the Tonle Sap and each mobile fish buyer buys from 50-60 fishers. The fish trader buys fish and trade fish to oversea, to Phnom Penh and to other urban areas. These form a 'power web of fish trading' in the Tonle Sap and fishers are attached to the 'power web of fish trading' for fishing and fish trading. Fishers must forge links with the 'mobile fish buyers' and fishermen take on 'loans' from these 'mobile fish buyers' but agree to sell fish catches back to them. The loans are used to buy food, fishing gear, fuel and other necessities. This loans are given without interest, but fishermen must sell fish catches to the 'mobile fish buyers' at cheaper than the market price, and the price of the fish catches is set by the 'collective fish buyers', not by a fishermen. The loan given by the 'fish buyers' becomes part of the trap tying fishers within the 'power web of fishing trading' (See figure 9.4).

Thus, in the Tonle Sap, there exists a disproportionate degree of influence, and political and economic power with a relatively small fishery elite, including senior politicians, fishing lot 'owners', local government, police/navy, wealthy and well capitalized fishers, fisher traders, and officials with connections within relevant state agencies. The expansion of commercial fish production has undoubtedly expanded the complex 'power web' of patron-client relations in the freshwater fisheries sector. As a result, many smaller-scale fishers are trapped in cycles of debt and relational dependency, with vulnerable livelihood security, and prospects of diminishing returns if fish stocks are over-exploited in the future (See Figure 9.5).

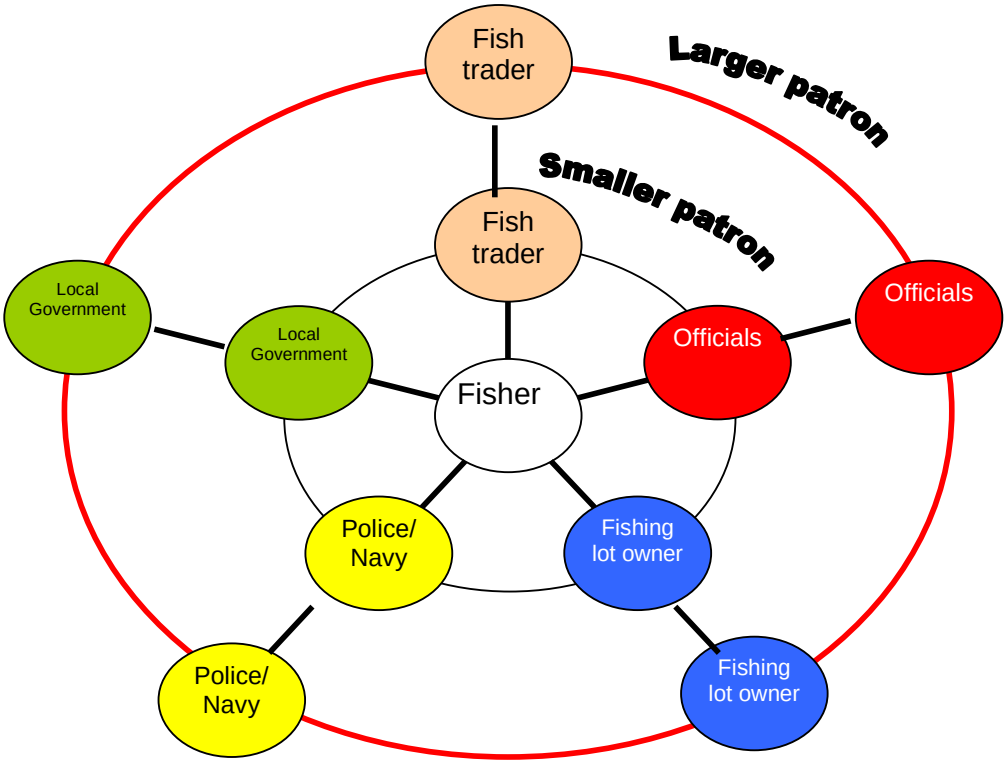


Figure 9. 5: Fishers trapped in the Complex 'Power Webs' of Patrons in Fisheries

The 'power webs' described here are different from the traditional patron-client relations in which the patrons extracted resources and labor from clients by virtue of their landholdings, or control over space and natural resources, and in return, the patrons provided

a degree of stability for rural communities, helping to guarantee the social and spiritual fabric of village life, and sometime acting to ameliorate the consequences of unequal distributions of land ownership among members of a community. However, the new forms of patron-client system or the 'power web' relations today serve communities less than they did in previous times, and this may be because they tend to serve certain personalized sets of relations and personal agendas, as opposed to broader societal objectives. Furthermore, the 'power web' relations or the new forms of patron-client system can be viewed as a sort of 'shadow' institutional arrangement that to an extent relies on broader political patronage networks with senior officials and government ministers, whilst managing to remain relatively independent of the state. The 'power webs' allow for material inducements in exchange for political allegiance, and it is still strong in the rural fishing communities partly due to the weakness of the government system in supporting myriad local communities, and partly due to the way in which the Cambodian state has encouraged the resurrection of patron-client relations so long as it yields political support for the ruling party and does not challenge state authority.

9.7 Stressing 'Localized' Forms of Management

In a recent article, Carl Middleton and Prom Tola (2008) argue that there has been much scholarly, scientific and practitioner interest in various issues relating to the Tonle Sap, such as hydrodynamics, biodiversity, fisheries management institutions, and Integrated Water Resources Management (Milner *et al.,* 2005; Kummu *et al.,* 2006). However, very little attention has been given to more localized forms of water management. As I have suggested, to understand what is happening at various micro scales in the Tonle Sap must include examination of territoriality, the issue of legitimizing claims, local-level patron-client relations, the "moy system", and conflicts over resource spaces. In addition, indigenous ecological knowledge (Berkes, 1999) requires ethnographic and socio-ecological understanding, which is often lacking in policy papers and institutional reports about the fisheries and resources of the Lake. Thus, I argue that micro-scale research is essential to the

business of improving community-based resources management, and at the same time, to linking the 'local' with 'trans-local' and basin-wide policy agendas. This also calls for various kinds of "knowledge partnerships" (Middleton and Prom Tola, 2008; Zanetell and Knuth, 2002) helping to combine vested specialist and indigenous knowledge in the creation of "spaces of engagement" (Cox, 1998).

It is also important not to be unrealistic or to reify 'local', 'indigenous' and 'community' (Agrawal, 1996) for they are also 'political' and socially constructed, and within every place and every community there are socio-economic and power inequities and disparities. However, as Poulsen *et al.*, (2003) have put it: "Fishers usually constitute *de facto* managers … and unless they are enlisted to take an active part in management, including implementation, prospects for success are poor." In other words, 'community-based' management institutions should be given more time, resources and competency within the Tonle Sap. These bodies are appropriate ones to help formulate the structure and rules for both local-level resource governance, and to be involved collectively within bigger structures of Tonle Sap Basin governance. Within that broader governance, policy-making agencies, scientists, relevant non-governmental organizations, and community leaders should be engaged cooperatively whilst seriously addressing urgent multiple localized and place-based problems. This is unlikely to happen unless there are powerful networked spaces of engagement and movements that prioritize the defense of spaces of dependence. Furthermore, I agree with Middleton and Prom Tola (2008: 157) that the development of basin-wide organization with strong local institutions, provided adequate resources from the state and non-state bodies, should be part of an "organic process with less predictable outcomes originating from the bottom upwards." That would indeed be quite a radical departure from much that has been discussed in this thesis in relation to the current context and realities.

9.8 Policy Implications

9.8.1 Implication of Spatial Arrangements

Space in the Tonle Sap is perceived differently by different actors and scales. One of the challenges is that global and regional actors have tended to emphasize the conservation of the Tonle Sap's unique ecosystem, whilst national actors are quite focusing more on the commercial exploitation of its fisheries and other resources (Bonheur and Lane 2002; Sithirith and Grundy-Warr, forthcoming). There are a great many overlaps between differing objectives and with many overlapping spaces (conservation, commercial, public) generating tensions between stakeholders and institutions, especially in areas where fishing and agricultural activities overlap with conservational areas (Keskenen and Sithirith, 2010; Sithirith, 2007).

The overlaps between the Biosphere Reserve space and commercial fishing lots produce conflicts of interests among state agencies in both the floodplain and the Lake proper (Bonheur and Lane 2002; Sithirith and Grundy-Warr, forthcoming). Although the Tonle Sap Biosphere Reserve is basically applicable throughout the lake-floodplain area, in practice the Ministry of Environment has full authority only over the so-called conservational Core Areas[30]. The Core Areas are partially overlapping with fishing lots that are under control of the Fisheries Administration. Thus, the two most dominant spaces in the Tonle Sap –fisheries space and conservation space– are both spatially and institutionally contested. This controversy over control of certain areas and spaces explains partly the current confusion and poor governance of the Tonle Sap (Keskinen and Sithirith, 2010).

In this context, the recent establishment of the Tonle Sap Basin Authority (TSBA) adds further complexity to the existing multi-dimensional characteristics of Lake Governance.

[30] The Royal Decree divided the TSBR into three zones, namely the Core Areas, a Buffer Zone and a flexible Transition Zone (Royal Government of Cambodia 2001)

These raise questions as to whether such a system can in any reasonable way be managed comprehensively, at least by a single institution known as TSBA. At the same time, the establishment of the TSBA tends to promote the centralization of the management of the Tonle Sap that in return could possibly intensify resource exploitation (Keskenen and Sithirith, 2010; Sithirith, 2007). As discussed below, there are simultaneously efforts to decentralize resources governance through community based management. The danger is that such processes will be subject to attempts to centrally control the nature and scope of community based management, or to perceive decentralization primarily in terms of co-opting community leaders within a system of tighter state control.

Overcoming some of the problems of overlapping responsibilities and boundaries requires re-examination of the spatial arrangements by looking into the problems of overlapping functional space and to study the real implications that have resulted from the dominant overlapping official representations of space that have influenced institutional arrangements. At the same time, this study calls for a reform of spatial arrangements in the Tonle Sap in which there is a much clearer distinction between conservation zones and commercial fishing areas. Furthermore, the study calls for decentralized spatial arrangements in which local community institutions are nurtured and granted specific responsibilities for resource management. However, given the large number of overlapping and conflicting interests, there is also a need for independent conflict resolution mechanisms to handle these issues in a fair and unbiased manner. Finally, the acknowledgement of community fishery organizations alone is insufficient without strong capacity building measures and funding to enable decentralized resource governance structures to emerge.

9.8.2 Fisheries Law

The management of fisheries resources in Cambodia is guided by a Fisheries Law promulgated in 1987 and revised in 2006. According to the Fisheries Law, the commercial fishing lot is auctioned or granted for private control. The Law is good for fisheries management and it works to promote development, uses and conservation and if the Fishery Law is fully implemented, fisheries resources are well protected. However, two aspects affect fisheries management in Cambodia. On the one hand, according to the Fisheries Law, it is stated that the auctioned fishing lot is auctioned every 2 years while the research fishing lot is re-granted every four years. In practice it is observed that the same fishing lot owner often controls the same fishing lot for more than 10 years, for instance, the fishing lot no.6 in Kampong Thom and the fishing lot no.2 in Battambang Provinces. This suggests that the Fisheries Law implementation is weak on issues relating to fishing lots, and allows specific persons-of-influence to have ownership over the fishing lots for long periods. As a consequence, the fishing lot owners have developed over time into a powerful fishing 'class' and the Fisheries Law has become something that looks nice in print but is mostly ineffective in practice.

Three aspects of fisheries governance require urgent attention — fisheries policy, resources, and the livelihoods of fishers. It seems that the Fishery Law is developed on the assumption of a relative abundance of fisheries resources, but in fact scientific studies and evidence from fishers themselves reveals that Tonle Sap fisheries resources are under pressure. At the same time, fishers cannot make their living if they fish according to the categories and rules contained in the Fisheries Law, particularly the unrealistic notion that 'small-scale fishers' fish for subsistence only, not for sale or trade. As this thesis has strongly argued, there is a need to re-examine the fishery scales issue and to revise the current Fishery Law.

9.8.3 Social-ecological Relations and Livelihood Security

This thesis has highlighted some important distinctions between and practices of floating, stand-stilt and farming-fishing communities. There has been too strong a tendency for policy-makers to view all villages in and around the Tonle Sap as if they have the same relation to the Lake and its natural resources. This thesis indicates otherwise.

The study found out that the floating practices (and mobility) of floating villages are unrecognized by state laws, and also poorly understood by state agents. Given this official ignorance, the floating villages are poorly incorporated into existing legal and management frameworks. Furthermore, some floating villages are not necessarily officially registered by as legitimate villages or may only receive partial recognition as such. And very few people in these floating villages own any land at all, and property ownership on water is less well defined than on land. This means that floating villages fall between gaps in legal recognition and property rights. In this case, many of these villages are vulnerable to being designated as "illegal", particularly perhaps if they have conflicts with fishing lot owners. The situation is difficult for those villages located inside fishing lots. At the same time, floating villages do not receive adequate social services such as health care, education, and welfare services from the Government unlike many of the fixed farming-fishing settlements on land.

Similarly, stand-stilt communities experience similar difficulties to the floating villages in terms of land ownership around their villages, although they are better off for they do seasonally have access to land. Most of the land areas around their villages are controlled by the state as conservation areas for flooded forest. Another issue that sets these villages apart is the life style of living six months on land and six months on water, particularly during the rainy season whereby each house becomes an 'individual island' (AFN, 2004). Thus, access to the stand-stilt villages is often difficult and therefore, social services and other development programs are less prominent in these villages. It is necessary for there to be

greater recognition of the unique fishing cultures that are critical dimension of the lived space of the Tonle Sap. The floating and stand-stilt villages add character and vitality to the Lake, but the needs of these people and their unique relation to the flood pulse and water-levels are little appreciated at planning and policy-formation levels of resource governance. Thus, the rights to community zones, social services and resource access have not been well-protected or encouraged. Greater legal recognition and understanding of unique social-ecological relations and livelihood security needs should help to garner more supportive programs, NGO assistance, and fairer treatment in future.

9.8.4 Community Organizing and Sustaining Resource Stewardship

This thesis has illustrated that many ordinary fishers are trapped in at least three "power webs" – there are the "power webs" of corrupted officials (see Figure 9.1), the "power webs" of fishing lot owners (webs of elites) (see Figure 9.2) and the "power webs" of "moy" (traders) (see Figure 9.4). As a consequence, fishers are sucked and exploited by the 'power webs' of patrons, but in return, they exploit resources not simply to make their living but to pay numerous power webs of patrons, creating a vicious cycle tending towards over-exploitation and natural resource degradation.

If these "power webs" continue to dominate the lives of fishers in the Lake, then it is likely the natural resources will be over-exploited by all fishers. Pumping in millions of dollars into projects in the Tonle Sap by Government or multilateral donors (such as the ADB) will not necessarily help improve the situation of poor fishers and poor resources governance unless the 'power webs' are simultaneously challenged. Rather, increased investment may further strengthen existing structures and relational power of the patrons, whilst the majority of fishers remain impoverished.

One of the most important challenges in the early part of the 21st century regarding Tonle Sap governance is to develop strong, resilient and capable community-based management, with properly funded and supported institutions at local level. Following the Fishery Reforms of 2000, the Government of Cambodia and the Asian Development Bank (ADB) signed agreements which have transformed aspects of Tonle Sap governance, and at least allowed a certain degree of decentralization to take place. In 2003, there was the establishment of the Tonle Sap Basin Management Organization (TSBMO) (ADB, 2005b) that aims 'to sustainably develop the Tonle Sap Basin's economy and infrastructure' partly through ideas of integrated water resources management (IWRM) (Milner *et al.,* 2005) involving coordination from national to provincial and district levels (Middleton and Tola, 2008). Additionally, the ADB supported a loan agreement worth around US $19 million to support the organization of Community Fishery Organizations (CFOs) as part of the Tonle Sap Environmental Management Project (TSEMP) with the expressed aim of establishing 'over 175' CFOs around the Tonle Sap Biosphere Reserve (TSBR, 2007). As noted in Chapter 6, community based resource management (CBRM) has become something of a mantra for policy-makers seeking to decentralize natural resource management (Vandergeest and Peluso, 2010). This researcher believes that a greater emphasis on community-level institutions and organization is vital to improved governance, although there are some critical issues that need to be addressed for CFOs to play a more effective part in resources management.

Examples of relatively successful CFOs can be found. For instance, where there is good financial support from competent agencies, such as OXFAM or the small grant schemes of the UNDP, with capacity-building inputs from existing community-based groups and/or local non-governmental organizations, then CFOs can develop (Bonheur, 2007). All CFOs and other forms of CBRM require meeting relevant by-law agreements, with formal mapping delimitation of CFO boundaries for conservation areas to be approved initially at provincial, then at national level by the Ministry of Agriculture, Forestry and Fisheries (MAFF). CFO

Area Agreements with accurate maps at 1:50,000 scale with coordinates of boundaries, plus details of CFO organizational structure, members, objectives, and management plans must be submitted to MAFF for official registration and approval (Bonheur, 2007). Thus, some of the intractable localized political geography problems that affect relations between different stakeholders, be they particular villages and fishing lots, or between floating villages and fixed settlements, or community zones and designated fishery conservation areas, remain impediments to the establishment of CFOs in some parts of the Tonle Sap. Not all community fishery areas will receive official government blessing, and not all community groups have the capacity to prepare the necessary documentation required by the Sub-Decree on the Management of Community Fishery Organizations adopted in June 2005. Thus, better understanding of the politics of space and the connections between fishery zoning and livelihood politics is required. Furthermore, the rising and falling of lake waters with the annual flood pulse, and social-ecological adaptations (which are fundamental adjustments within everyday livelihood strategies), mean that fixed all-year-round boundaries are not always sufficient markers of complex spaces of resource dependence for local people.

The bigger scale impediments to grounded (Lake-level) community resource management are the concentric 'power webs' discussed in some detail earlier. This researcher argues that in order to lessen the stranglehold of the 'power web' of patrons have on ordinary fishers, their families and fellow villagers, it is necessary to develop community-level savings groups (as distinct from micro-credit institutions), self-help groups (based on community personnel and volunteers with NGO support), and advocacy groups (that means local people advocating particular strategies or policy measures), helped by local non-governmental organizations, including women's organizations, environmental bodies, and agencies such as the Fisheries Action Coalition Team (FACT).

Getting community groups involved in localized savings schemes or 'community banks' will potentially help to reduce some of the chronic dependency on the webs of the

'moy', fish traders and moneylenders. But this can only be built up over a few years with help from competent non-governmental bodies with government agency and Fisheries Department support. Fishers are already indebted to varying degrees, and without additional external supports from small grants (such as those provided by UNDP) and other sources, they are unlikely to be able to commit themselves to developing community fisheries and local conservation schemes. Additionally, some CFOs are being encouraged to auction fishery areas and to earn some income from allowing non-member fishers to fish within community zones, which may in the long run provide ways of lessening the 'power webs' of the fishing lot owners.

External support requires "knowledge partnerships" (Zonetell and Knuth, 2002) at various scales and levels, including improved relations between relevant state officials and community representatives (Middleton and Tola, 2008: 157). Whilst there are some CFO successes, there are still many parts of the Tonle Sap where community management is more on paper than it is in actual practice, with high levels of mistrust between local people and government officials and numerous unresolved conflicts of the kind discussed in parts of this thesis. As Neou Bonheur, Project Director of the TSEMP states: "It may take some years before CFOs can stand on their own feet" (Bonheur, 2007: 4). However, this researcher would also agree that CBRM, with cultivation of local institutions, capacities, and resources, and with better NGO-CBO coordination, does offer prospects of improving resource stewardship, fisheries protection and more sustainable livelihoods.

For the CFOs and other CBRM mechanisms to have any real teeth in environmental resource governance there is also a need for collective (inter-and intra-CFO and CBO) action. This is the kind of politics is discussed by political geographer Kevin Cox (1998) as a means to create appropriate "spaces of engagement" through collaboration, regular meetings, networking with relevant organizations, and the development of associational power. This is precisely the type of work I am both intellectually and socially committed to. Hitherto, such

inter- community fishery organization and inter-CBO connections within the Tonle Sap are barely discernible, but it is clear to this researcher that more cohesive socio-political associations, lobbying and actions will be required to challenge the worse aspects of poor governance at macro-levels and the embedded power relations associated with patron-client networks, indebtedness and over-reliance on the existing socio-economic "power webs." Having worked within an NGO working with fishing communities in the Tonle Sap, I am aware of the immense effort and dedication this will require over the next few years, particularly from concerned NGOs working alongside various community institutions around the Lake. This is a juncture between an academic thesis that has allowed me to study the politics and political geographies of the Tonle Sap and important advocacy work that lies ahead.

9.9 Future Research Suggestions

My thesis stems from a deep personal engagement within the 'politics' of the Tonle Sap as a director of a small but active NGO concerned about the future of the majority of people who live there, the future of the environment and the long-term sustainability of the fisheries. I have focused as a 'scholar' undertaking a PhD on a political geographical perspective, in part in prior recognition of the Tonle Sap having a very complex political landscape. It is my intention and desire to continue to undertake such research because there are urgent needs for the political geographic and other 'political' realities to be incorporated into policy agendas which includes social justice for the 'place-based' interests of people who are dependent on a rich ecosystem and freshwater resources for their livelihoods.

However, there are many other areas of research to consider given increased resource degradation. These include the implications of regional and global spaces on the resources and people in the Tonle Sap. The issue of climate change is vitally important and it is necessary to understand huge numbers of local-level social-ecological adaptations in order to

devise better forms of resource governance at higher levels. The Tonle Sap is one of the most important 'barometers' for measuring and analyzing such transformations to the physical and human landscape, as well as the political of policy in times of great economic and environmental change. These multi-scale challenges are already affecting the viability of the Lake as a vital source of social and natural capital for ordinary people for years to come.

Perhaps even more immediate and no less challenging are the politics of competing land-uses and resource-uses in the Mekong Basin as a whole, particularly water for irrigation, flood control, and hydropower. There is an immediate danger of a new cascade of dams being constructed along the mainstream of the Lower Mekong River, which would potentially bring many changes to the hydrological, ecological and cyclical patterns that are so vital to the reverse flow, fish migrations, and annual flood pulse. This thesis has focused intensively on trying to understand the politics of space within a freshwater lake, but an equally urgent task is that of 'connecting' the intra-Basin politics to the broader challenges confronting the Mekong region as a whole. As probably the only Cambodian activist-scholar who reads *Political Geography* I hope to play a full part in both further research and policy-related activism for many years to come.

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Appendix

Appendix One: Questionnaire for Interviewing the Officials

I. Personnel Data
1. Name:_____
2. Sex:_____
3. Age:_____
4. Education: _____
5. Position: _____
6. Work station: Province:_____District:_____
7. How long have you been in this position?_____

II. Territoriality of the Tonle Sap

1. Why the Tonle Sap is territorialized into commercial fishing lot, public fishing areas, and conservation area?
2. When it was territorialized and by whom?
3. How each zone is managed?
    a) Fishing lot area:_____
    b) Public fishing areas:_____
    c) Community fishery area:_____
    d) Conservation area:_____

III. Fishing Lot
1. How long fishing lot owners have controlled that fishing lots?
2. How could he become the owners of those fishing lots?
    a) Through public bidding:_____
    b) Through a government offer:
3. Why he could control that fishing lot that long?
    a) He wins the bidding all times: _____
    b) He pay the officials:_____
    c) He got political from high government level:_____
    d) He is powerful: _____
4. Whom he employs for the fishing lot:
    a) Villagers from neigh*bor*ing villages:_____
    b) People from outside the village:_____
5. Does he sell fishing rights to a leasee and sub-leasee of he fish himself?
6. How many shareholders? Who are they?
7. Any politician or government officials is part of the share?
Yes: _____
No:_____
8. How he manages his fishing lot?
    a) Fence around the fishing lot areas and fished by himself:_____
    b) Sell divided areas to sub-leasee:_____
    c) He fish first and sell afterward:_____

IV. Boundary of commercial fishing lot
1. Is boundary of commercial fishing lot fixed or changed over time?
2. How fishing lot boundary is enforced under the changing water level in the Lake?
    a) Through map:_____
    b) Through using GPS:_____

c) Through consensus between commercial fishing lot and community:_____
d) Through placing boundary mark:_____
e) Through regular intensive patrol:_____
f) Trough extending the boundary pole:_____

3. Does often fishing lot owner enlarge the fishing lot boundary? Yes:_____; No:_____
4. If yes, how they do that?
a) With supports from high ranking government officials:_____
b) Bribing the local officers to ignore its but remove it when officials check and control:_____
c) Use armed group to enforce the extended boundary with support from local officials:_____
d) Making up the map:_____
5. Is boundary on map and boundary on changing water level realistic?
a) Boundary is unrealistic between map and on ground:_____
b) Boundary is up and down due to changing water level:_____
c) Boundary is up to mouth of powerful officials: _____
d) Boundary is up to the commercial fishing lot:_____
6. How fishing lot boundary is enforced when the commercial fishing lot extends the boundary?
a) Often enforced by the fisheries officials when people complain:_____
b) Often not enforced by the fisheries officials despite people complain: _____
c) No enforced at all, although people complain:_____

V. Fishing Season
1. When the fishing lot owner starts fishing season and stop fishing?
Open fishing season:_____
Close fishing seasons:_____
2. Does the fishing lot owner own the fishing lot areas both in open and closed fishing season?
3. What did the fishing lot owner do in the close fishing season? In practice, does the fishing lot fish in the close fishing season?
4. Can the small fishermen fish in the fishing lot areas?
a) Open fishing season:_____
b) Closed fishing season:_____
5. Has fishing season and closed fishing season been effectively enforced? Who enforces it?

VI. Fishing gear
1. What fishing gears do fishing lot owner use to fish in the fishing lot?
2. Does the fishing lot owners fence around the fishing lot areas by bamboo fence?
Yes:_____; No:_____
3. Does the fishing lot owner need to get approval from fisheries officials over the use of the fishing gears for his fishing lot area?
Yes:_____; No:_____
4. How does the DoF ensure that fishing lot owners do not use the destructive fishing gear to fish in their fishing lot areas?
a) Regular monitor:_____
b) Periodical monitor:_____
c) Annual monitor:_____
d) Monitor based on a complain:_____
5. Where these fishing gears come from? Who provide them with these gears?

6. How fishing gears used by the fishing lot owners evolved over time:
    a) Increase both the size and quantity to catch more fish:_____
    b) Remain as it was:_____
7. Why the fishing lot owners increase the size and number of fishing gears?
8. Does the fishing lot owner increase the fishing gears to catch a selected fish species?

VII. Fishing lot exploitation

1. How do you rate the fishing exploitation by the fishing lot owner?
    a) Over-exploitation: _____
    b) Optimal exploitation:_____
2. Does the fishing lot owner increase catch or reduce?
    a) Increase catch:_____
    b) Maintain the same level of catch:_____
    c) Reduce the catch:_____
3. Where does the fish catch from the fishing lot go?
    a) Local market:_____
    b) International export:_____
    c) Both local and international market:_____

VIII. Fishing lot management

1. Does the fishing lot management is the only tool for fisheries management in the Tonle Sap? Yes:_____; No:_____
2. If yes, Why_____
3. If no, why_____
4. Do you think the fishing lot management is appropriate for Tonle Sap?
5. Do you fishing lot should be existed in the future in the Tonle Sap? Why
6. Does the fishing lot protect the resources and environment?
7. Does fishing lot protect the people?
8. Does the fishing lot owner respect the roles of local authority? How local authority plays a role in fishing lot management?
9. How local authorities resolve the conflict between the fishing lot owner and community?
10. What local authority does when community report about illegal fishing activities by fishing lot owner?
11. Can local authority stop illegal fishing lot in the fishing lot area?

Appendix 2: Questionnaire for Interviewing Villager

Village:.....; Commune: .....;
District:.....; Province:.....

I. Household data

1. Name: .....; 2. Sex: male/female:.....;
3.Age:.....; 4. Education:
.....

a) Elementary:
b) Primary :
c) Secondary:
d) High school:
e) Others:

5.Employment:.....

.....

a) MAIN EMPLOYMENT: What is your main job?.....
b) SECONDARY EMPLOYMENT: What are your secondary jobs?.....
c) TERTIARY EMPLOYMENT: What are your other jobs?.....
d) THERTIARY EMPLOYMENT: What are your other jobs?.....

Employment codes

1	Fish on own without motor	11	Fishing net/fish trap repair	21	Housekeeping
2	Fish on own with motor	12	Crocodile rearing	22	Home gardening
3	Fish with a small group without motor	13	Pig rearing	23	Carpentry
4	Fish on a small group with motor	14	Petty trading and shop keeping (non-fish)	24	
5	Fishing labourer	15	Farming	25	
6	Fish processing	16	Daily Labour	26	
7	Smoking fish	17	Forest products (say what)	27	
8	Fish trading/selling	18	Chicken/duck rearing	28	
9	Fish (cage) culture	19	Motor and boat driving	29	
10	Fishing net/gear making	20	Government service	30	

Notes and Observations of the Household:

II. Population and migration

1. How long have you been living in this village?_____
2. How old this village is? _____
3. How long this village has been existed?_____
4. How many family living in this village (now and past 5 years)?
5. How many people in this village are newly settled? _____
6. How long they have settled?
    a) They settle there periodically for fishing:_____
    b) They settle there for more than 2-3 fishing season?_____
    c) They go and come back:_____

7. Why they settle there?
    a) They settle there for fishing as they migrate from upland:_____
    b) They settle there for fishing as they have relative in this village:_____
    c) They settle there because they used to fish there for many generation:_____
    d) They settle there because of marriage:_____
    e) They settle there because they have farmland in their own village:_____
    f) Working as a fisherman of other people:_____

8. Are they legally settled there? Who recognize them?
9. Are they a member of the village yet?
10. What problem they make for you and your village?
    a) Did illegal fishing:_____
    b) Bribe officials:_____
    c) Introducing destructive fishing gears:_____

11. Do people in this village migrate out? _____What type of out-migration they did?
    a) Seasonal migration:_____
    b) La*bor* migration:_____
    c) Migration for fishing activity:_____
12. How long they migrate?
    a) Temporal migration:_____
    b) Short time migration:_____
    c) Long time migration:_____

13. Where they migrate to?
    a) Migrate to find work in Thailand:_____
    b) Migrate to seek work in Phnom Penh:_____
    c) Migrate to seek work in Provincial Town and district center:_____

14. What benefits and non-benefit they bring for the village?
    a) Bringing in money for family:_____
    b) Bringing in new lifestyle:_____
    c) Bringing in new ideas of fishing and other type of work: _____
    d) Bringing in a drug and prostitution:_____
    e) Bringing in a disease:_____

III. Fishing Activity

1. Where do you fish?
   a) Community fishing area:_____
   b) Public fishing ground:_____
   c) Fishing in conservation area:_____
2. How far it is from you house? 2km_____; 5km:_____
3. How long have you been fishing there?_____

A) Community fishery

1. How community fishery is established?
2. Who set up this community fishery?
3.When it was established?
4. Who have participated in this community fishery establishment?
5. What is the size of community fishery area?
6. Is this community fishery was part of the public fishing area or commercial fishing lot? Has community fishery area been demarcated? Is it boundary clear?
7. Are you a member of community fishery? yes:_____; No:_____
8. Are all villagers a member of this community fishery? Yes:_____; No:_____
9. What role you do you play in CF?
Committee or member:_____
10. Are you fishing in community fishery area?
11. What contribution do you make as a member of CF?
12. What benefits do you get from CF?

13. How community enforces the community fishery area?
14. Is there fisherman from outside your community areas fished in you community fishery area?
15. Can community enforce illegal fishing activity in its community areas by themselves? Can they arrest the illegal fishers? yes:_____; No:_____
   a) If yes, why it is?-_____
   b) If no, why not? _____

16. If you could not enforce the community fishery area, what could you do to protect the community areas from illegal fishing?
   a) Reporting to fishery officials to and seek for help:_____
   b) Arresting the illegal poachers and fine them by themselves:_____
   c) Arresting and sending them to fisheries officials:_____

16. What problems do you face as a community fishery in enforcing the community areas?
   a) Fishery officials are far distance from community:_____
   b) Some cases, fishery officials come but not enforce, but get bribe:_____
   c) When officials arrive, poachers run away:_____
   d) Poacher revenges the community members who report the case:_____
   e) Poachers are equipped with high-tech fishing gears: _____

f) Poacher is powerful and supported by high government officials:_____

17. Is community fishery member equally accessed to the community fishery area? Is there a powerful person in the community influencing the community fishery?
Has community been able to protect the community fishery areas from illegal fishing?
Is the community is the effective agent to protect the fisheries resources?

B) Public Fishing areas

1. Why do you fish in public fishing?
   a) My community has not organized the community fishery yet:_____
   b) Restricted to small scale fishing gear only if fishing in community fishery:_____
   c) Not a member of Community fishery:_____
   d) No money to pay the community fishery:_____
   e) Controlled by a few people:_____
2. Are there many or few fishermen fishing there?
   a) Few only:_____
   b) Many fishermen:_____

3. Do you get a permission to fish there? What fishing scale are you?
   a) Medium scale_____
   b) small scale:_____

4. If medium scale, why you choose to fish with medium scale:_____,
5. With medium scale, when do you start to fish and when do you stop?_____

6. If you fish with small scale, why you choose to fish with small scale:
   a) Lack of money to buy larger gear:_____
   b) Have no money to pay the officials:_____
   c) To avoid conflict with medium scale fishermen:_____
   d) Too complicate to fish with medium scale:_____
   e) Too restrictive to fish with medium scale: _____

7. Are you fishing in one specific location all the times, or you move around to fish?
   a) Moving around:_____
   b) Fish in a fixed location:_____

8. In case you move around to fish; why you move around to fish?
   a) Due to less fish:_____
   b) Fishing area is too large I can fish any where I want:_____
   c) No boundary to hold me to one place:_____
   d) I try to avoid competing with others:_____
   e) Many community fishery is established and less fishing ground for me, everywhere I fish, there is always community fishery areas:_____

9. If you are fishing in a fixed location, why it is?
   a) I buy the fishing areas:_____
   b) Not enough la*bor* to move:_____
   c) Not enough fishing area to move to:_____
   d) Everywhere the fishing ground is occupied by people:_____

10. How do fishermen share the public fishing areas?

a) By consensus:_____
b) By grouping medium scale in one area and small scale in another:_____
c) By power they have:_____
d) By competition:_____

12. Who fish there with you? a) Fishermen from the same village?_____; b) fishermen from neigh*bor*ing village?_____; c) fisherman from other places_____

13. Do you fish as a group or as an individual? How many days you are staying per fishing trip?

14. What problem do you face?
a) Conflict between small scale and medium scale fishermen:_____
b) Medium scale fishes and damage the fishing of small scale fishermen:_____
c) Small scale fishermen upgrade their fishing gears to deal with medium scale:_____

C) Fishing in conservation and fishing lot areas

1. Have you ever been fishing in conservation or fishing lot areas? yes:_____; No:____.

2. If yes, why?
a) Unclear boundary: I don't know that is the conservation or fishing lot areas:_____
b) Fishing lot owners allow me to fish inside the fishing lot and share the fish:_____
c) I pay the officials who protect the conservation areas:_____
d) I encroach the conservation and fishing lot areas as there is rich in fish:_____

IV. Fishing gear:

1What type of fishing gear do you use?
a) Fishing net: How many meter?_____
b) Gillnet: How many meter?_____
c) Fishing line: How many_____
d) Fishing trap: How many_____

2. How do you classify your fishing gear? Subsistence:_____; medium scale: _____; Commercial scale:_____

3. Do you make your own fishing gears or you buy it?
a) Make it
b) rent it; if you rent it, how much it is? whom do you rent from? how long you rent it? How do you pay the rent? Cash: _____; Kinds:_____; Pay in fish:_____
c) Buy it

If you buy it, where did you buy?--within a village; from outside the village; people come to sell it occasionally? How much it is? How did you pay it?--pay full price; pay an

installment; take the credit from money lender to pay the bill; agree to sell fish to the money lender when got fish.

5. Have you been increasing your fishing gears compared to 5-10 years ago?
Yes:_____; No:_____
6. If yes; what make you change it?
7. Do you need to get approval from DoF for this increased gear and did they approve it? 8. If they do not approve it--what do you do?
9. Since you have increased your fishing gears, your catch is increased also? yes:__; No:__
10. How is each fishing gear used? How many months each is used? What type of fishing ground each is used?

a) Fishing net:_____
b) Gillnet: _____
c) Fishing line: _____
d) Fishing trap: _

V. Fish Catch

1. How many kg of fish you could fish a day? Present catch:_____; 5-10 years ago catch:_____
2. What type of fish species you catch everyday? 5-10 years ago:_____; at present:_____
3. What is composition of the fish catch? 5-10 years ago:_____; At present:_____
4. Who go to fish in your family? Husband/wife and child:5-10 years ago:_____; At present:_____

5. How many days you fish a week, a month, and a year at present:_____; at 5-10 years ago?
6. Is there a peak fishing season, how many kg of fish you could catch a day during the peak fishing season at present and 5-10 years ago? If yes, how long the peak fishing season is?
7. When is a low fishing season, how many kg of fish you fish to day and 5-10 years ago during the low fishing season?
8. When there is no fishing activities and what do people do and how they support their food?

9. How many kg of fish you could catch a day during peak fishing season and low fishing season? How was 5-10 years ago?
10. how many people in your family involve in catching that fish? Does your wife and children involve in fishing?
11. What fishing gears do you use to catch that fish? how long do you fish a day now? How long do you fish a day in 5-10 years ago?
12. How many kg of fish catch/day was in 5-10 years ago? Does fish catch increase or decline?
13. If decline, what causes fish catch decline?
a) due to poor governance?
b) due to illegal fishing?
c) due to increased fishing population?

14. Have your catching efforts been increased nowadays compared to last 5-10 years? What make your catching effort increased?
15. How do you use the catch? How much you eat and how much you sell? What is the quality of fish you eat compared with fish you sell? How many kg of catch you have processed for your food?

VI. Fish trade/Fish Sale

1. How do you trade your fish?
   a) Exchange fish with rice:_____;
   b) sell to fish trader:_____;
   c) sell to money lender:_____

2. Do you process fish first and sell it later or you sell fresh fish? Why?
   a) No fish processing facility:_____
   b) Lack of fish processing technology:_____
   c) Cost more to process than to sell it freshly:_____
   d) Do not have experiences in processing:_____

3. How much the price of fish/kg in 5-10 years ago and at present?
Where you sell your fish?
   a) At the market:_____;
   b) In the village:_____

4. Who buy your fish? fish trader:_____; money lender: _____

5. How the price of fish is determined?
   a) Negotiable between fisherman and buyer:_____;
   b) The price of fish is there in the market:_____
   c) The price of fish is influenced by the fish trader:_____;
   d) The Prince of fish is determined by the money lender as a precondition:_____

6. If you sell fish to money lender or fish trader, why is that? Why don't sell it directly to market?
   a) Due to taking advance from money lender:_____;
   b) Lack of transportation to market:_____;
   c) the cost for transportation to the market is high:_____; agreement with money lender or fish trader:_____;
   d) Lack of frozen equipment:_____

7. How stable the price of fish is compared 5 years ago?
   a) The price of fish sell to money lender:_____
   b) The price of the same fish sell to fish trader:_____
   c) The price of the same fish sell in the public market:_____
   d) The price of the same fish sell in the village

8. How do you spend your income from fishing?
   a) Buying rice and food:_$_____
   b) Buying fishing gears:$_____
   c) Buying fishing fuel: $_____
   d) Social activity:$_____
   e) Health care:$_____
   f) Child education:$_____

VII. Payment for Fishing

1. Do you pay to fish?
2. Whom do you pay?
3. Is it official paid? yes or no;
4. If not official paid, who is he?
5. Do you pay per access, daily, monthly or weekly?

6. Do you pay in cash or kind? How much did you pay?
7. Did you pay to community to fish in community fisheries areas? How much service do you receive from paying him?
8. Why did you pay?
    a) Due to doing illegal fishing:_____
    b) Due to fishing in different fishing areas not assigned for him:_____
    c) Due to corrupted officials:_____
    d) due to fishing in closed fishing season:_____
    e) Due to low fish catch and not enough food if fishing with legal fishing gears:_____
    f) Official based in the field has low salary:_____
    g) The officials request to you to pay:_____
9. How long have you been paying for fishing in this area?_____
10. Will the return exceed the payment? Yes:_____; No:_____

Appendix 3: Focus Group Discussion

Date:	
Time:	
Place:	
Village Name:	
Commune:	
District:	
Province:	
Group type:	
No. of participants:	

Reminders:

1. Greet and welcome participants and thank them for coming.
2. Let them sit or arrange them in a way enough for everybody to take part and interact, so maybe a semi-circle. Be seated at eye level.
3. Introduce the team and explain the purpose of the gathering.
4. Get to know the participants. Let them briefly say who they are, what do they do, etc.
5. Explain the FGD exercise. Emphasize that what you want to find out and discuss with them are issues as a community (or village) and not individually.
6. Ask if they have questions before formally starting the discussion.
7. To end the gathering, do not forget to summarize the outcomes or results of the discussion, tell them what's next and most of all thank them for their valuable contribution and time.

Guide Questions:

Questions	Possible Tools
Ask villagers to describe the situation of their villages in relation to fishery and its evolution overtime.	Brainstorming by just listing them down,
Where are the fishing grounds for them? Where is the fishing areas for community fisheries? Where is the fishing lot areas	Mapping these areas and analyze the fishing areas belong to community in this areas
What are the pressing problems or issues related to fishing areas, access to fisheries? • Boundary of the fishing lot, and community areas • Territory of the fishing lot and community areas--total areas • Any conflict over these areas	Brainstorming by just listing them down, then score them
How have these problems changed over time?	Historical analysis
What are the causes or reasons behind these problems?	Problem tree
What are the effects of these problems especially to your livelihood? (health, time, income, expenses etc)	Discussion, diagram
How do people address or cope with these problems?	Discussion
What do you think are alternative solutions to these problems? Why do these not happen?	Discussion, ranking and scoring
What would be required to make these solutions happen?	Discussion
Who are the important and influential persons, groups or organizations who could help or contribute in addressing the problems or carrying out programs for improvement of the village?	Venn/Chapatti diagram

Appendix 4: Fishing Lot Numbers and Area

Table D-1: Changes in area of fishing lots in Tonle Sap

Province	Fishing lot area in 1919 (ha)[a)]	Fishing lot area in 1940[b)] (ha)	Fishing lot area from 1998 to 2000(ha)[c)]	Fishing area in 2001 (ha)[c)]
Kampong Chhnang	67,667	63,037	62,256	45,084
Kampong Thom	248,272	192,571	127,126	69353
Siem Reap			83941	22725
Pursat	105		55,120	24,848
Bantey Meanchey	182,352	189,362	332,756	6,411
Battambang			146,532	102,718
Total Tonle Sap Lake	603,880 (42.09%)	444,970 (46.7%)	507,731 (53.23%)	271,139 (64.21%)
Total Cambodia	1,434,710	952,039	953,740	422,216

Source: a) Degen et al., 2000, citing 1919 Maps from National Archives
b) Degen et al., 2000, citing Cheyvy and Le Poulain 1940
c) Sub-decrees DoF, January 2001.

Table D-2: The total no. of fishing lots by years

Year	Total no. of lots	Lake Stream Lots	Bagnet Lots	Bagnet Lots for white lady carp	Bagnet Lot for Prawn	Bagnet Lot for Seed of Pangasious sp.	River Sand Bank Lots	Fish Sanctuary
1980-88	307	143	96	-	13	-	55	11
1989-90	302	141	76	7	13	31	34	13
1991-92	301	141	76	8	13	31	32	15
1993-94	298	141	74	8	13	31	31	15
1995-96	279	141	63	8	13	31	23	15
1997	277	141	63	8	13	31	23	15
1999	270	153	63	8	13	31	20	13
2000-2002	164	82	60	8	13	0	1	13
Source: Degen And Thouk, 2000; Fia, 2003								

Appendix 5: Fishing Occupation

Table E-1: Primary Occupation of villages in Zone 2, Zone 3 and Zone 4

Primary Occupation	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		All zones	
	No	%	No	%	No	%	No	%	No	%	No	%
Fishing	182	60.90	3	3.60	18	3.80	44	6.40	4	6.30	251	15.50
Fish Selling	4	1.30			3	0.60	6	0.90	1	1.60	14	0.90
Fish Culture	2	0.70			1	0.20					3	0.20
Fish Processing	5	1.70							1	1.60	6	0.40
Fishing Net / Gear / Trap Making	1	0.30									1	0.10
Fishing related Activities (1-5)	194	64.90	3	3.60	22	4.60	50	7.30	6	9.50	275	17.10
Bamboo and Cane Works							2	0.30 %			2	0.10 %
Farming	51	17.10	73	86.90	415	86.50	529	76.40	20	31.70	1088	67.20
Daily La*bor*	7	2.30	4	4.80	6	1.30	19	2.70	11	17.50	47	2.90
Housekeeping	2	0.70			1	0.20	3	0.40			6	0.40
Petty Trading / Shopkeeping	15	5.00	1	1.20	11	2.30	28	4.00	12	19.00	67	4.10
Business	9	3.00			1	0.20	3	0.40	6	9.50	19	1.20
Govt Service	4	1.30	3	3.60	11	2.30	49	7.10	4	6.30	71	4.40
Motor Taxi / Boat Driving	6	2.00			5	1.00	1	0.10	3	4.80	15	0.90
Other1	11	3.70			7	1.50	6	0.90			24	1.50
Total	**299**	**100**	**84**	**100**	**479**	**99.9**	**690**	**99.6**	**62**	**98.3**	**1614**	**99.80**
Source: Household survey 1998 (MRC/DoF)												

Table E-2: The secondary occupation of villages in Zone 2, Zone 3 and Zone 4

Secondary Occupation	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		All zones	
	No	%	No	%	No	%	No	%	No	%	No	%
Fishing	25	8.40	30	35.70	110	22.90	158	22.80	1	1.60	324	20.00
Fish Selling	31	10.40	1	1.20	9	1.90	12	1.70			53	3.30
Fish Culture	54	18.10					3	0.40	2	3.20	59	3.60
Fish Processing	20	6.70	1	1.20	1	0.20	3	0.40			25	1.50
Fishing Net / Gear / Trap Making							1	0.10			1	0.10
Fishing related Activities (1-5)	130	43.60	32	38.10	120	25.00	177	25.40	3	4.80	462	28.50
Bamboo and Cane Works	4	1.30	1	1.20	3	0.60	12	1.70			20	1.20
Farming	7	2.30	3	3.60	30	6.30	48	6.90	6	9.50	94	5.80
Daily La*bor*	31	10.40	14	16.70	65	13.50	97	14.00	3	4.80	210	13.00
Housekeeping	40	13.40	5	6.00	96	20.00	50	7.20	2	3.20	193	11.90
Petty Trading / Shopkeeping	23	7.70	7	8.30	46	9.60	95	13.70	4	6.30	175	10.80
Business	3	1.00			7	1.50	6	0.90	3	4.80	19	1.20
Govt Service	5	1.70	3	3.60	11	2.30	29	4.20	2	3.20	50	3.10
Motor Taxi / Boat Driving			1	1.20	6	1.30	13	1.90	3	4.80	23	1.40
Other1	25	8.40	6	7.10	21	4.40	48	6.90	3	4.80	103	6.40
No Response	29	9.70	12	14.30	75	15.60	111	16.00	34	54.00	261	16.10
Total	**297**	**99.5**	**84**	**100**	**480**	**100**	**686**	**98.80**	**63**	**100,**	**1610**	**99.40**
Source: Household survey 1998 (MRC/DoF)												

Appendix 6: Picture of Fishing Villages

Picture 1: Floating Houses in Kampong Loung

Picture 2: Kampong Phluk, a Stand-stilt village in the dry season

Picture 3: Kampong Phluk view from behind in the dry season

Picture 4: Kampong Phluk in the wet season

Picture 5: Geographical landscape of Kampong La

Picture 6: Commercial Fishing Lots in the Tonle Sap surrounding by bamboo fence

Picture 7: Fencing the fishing lot in Peam Bang with Bamboo Fence