Livelihoods dilemma in Mekong Development:
A study of Upper Mekong Navigation Project

Will the development on the Mekong bring sustainable livelihoods for the poor?

by

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Front Page Photo: *Mekong river at Chiang Khong* by Andrew Walker

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Abstract

This thesis concerns development, environment and poverty in the Third World. It is a study of the development on one of the world's largest and most bio-diverse rivers, the Mekong. From the Tibetan Himalayas to the South China Sea, the Mekong has many names passing through six countries and connecting the world largest population with a long history.

A large part of the population in the Mekong Basin live in rural areas and are poor. Having rich natural resources, the Mekong provides them a source of food and livelihoods. To many locals the Mekong is not only their lifeline but also their cultural heritage. For many generations, the people in the Mekong communities have freely lived by and lived off the Mekong.

Ever since peace descended on the regions, many projects have been initiated and planned in the Mekong aiming to develop the countries and increase well-being of the people. The navigation development project is among the projects, with the target to alleviating poverty by spurring economic growth and increase trade in the region and with the world. The countries in the Mekong together form a number of development co-operations such as Mekong River Commission, Greater Mekong Sub-region, and "the Economic Quadrangle".

The development investigated in this thesis is the Upper Mekong Navigation Development, which is initiated by the GMS countries, under the support of the Asian Development Bank. The implementation is carried out by China, Burma, Thailand and Laos under the Lancang-Mekong navigation channel improvement project with close ties to the cooperation of the four countries' "Economic Quadrangle" cooperation. It is, in actual fact, a sub-programme of the GMS navigation development that has been organised to implement the navigation improvement on the upper part of the Mekong River. The complexity of the Mekong navigation development is also to be highlighted.

The hypothesis of the author is that the natural resource development has a consequence on the environment, and, often, the environmental consequences largely affect the poor. The question hence arises, how does the development influence the poor people's lives and livelihoods? What are changes, and how do such changes affect the poor? The thesis further examines if the Upper Mekong Navigation Development brings any benefit to and improvement of the living condition of the poor or if it will, at all, reduce poverty as claimed by the Mekong development co-operations?

The thesis focuses on the rural lives and livelihoods of the local people who live by the river with the study of the Thai riverside communities on the Northern stretch of the Mekong. In order to find answers, the author applies the sustainable rural livelihoods approach as analytical framework to discern what is important to people's life and livelihoods. The SL framework, hence, helps to identify how best to assert intervention in tackling the problem of poverty. Another theoretical framework applied to the thesis is political ecology, which provides an understanding on the ecological issue on a deeper level. The actor analysis in political ecology provided the insight to identify the actors and their power relations, while explicating the way in which power is derived and used by the actors. It helps to discern the background of actors, their interests and motives in the use of and management of natural resources.

Since it is such a large river, the scope of the study is limited to the project implementation between the Northern Thai-Lao stretch of the river focusing on the effected communities on the Thai side of the river for two main reasons: firstly because the conflict is voiced by only the local Thai communities living by it, and lastly the information on the Thai side of the river is abundant and more comprehensive than for any other location.

Key words

Sustainable Rural Livelihoods, Political Ecology, Mekong River, Mekong Basin, Mekong Countries, Poverty, Environment, Natural Resources, Ecology, Community, Northern Thailand, Navigation Development, Greater Mekong Sub-regions, Asian Development Bank programm

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Preface

This thesis is written and submitted in order to complete the requirements for a Master Degree in Development and International Relations at Aalborg University, Denmark. This thesis is done under the supervision of Assistant Professor, Ole Gunni Busck at Institute of Social Development and Planning, Aalborg University. This thesis has been written based on comprehensive research by others and various forms of literature, the sources of which are acknowledged.

The idea of this thesis was developed during the author's traineeship at the Thailand Environment Institute (TEI) where she had a chance to attend and assist the institute, working in co-operation with United Nation Environment Programme (UNEP), at the Training Workshop on Integrated Environmental Assessment for Greater Mekong Sub-region (GMS) countries, in Bangkok, September 2005. This introduced the author to the development co-operations and programmes in the Mekong Region, including the Mekong Navigation Development Project, which is the Thesis's case study. The story of "Maenam Khong: The river of life and culture"[1] by the Thai Baan (Villager) group at Chiang Khong has enlightened the author about the live and livelihoods of the villagers living by the river. Their stories, testimonies, and experiences have given the author great insight in and inspiration for the thesis.

During her study in the interdisciplinary programme in Development and International Relations, the author has been exposed to new perspectives through research projects and a vast amount of literature, the author has broadened her views on development and gained a tremendous insight and re-thought her view on development. Moreover, the traineeship semester has granted the author a more real life experience in the field of environment and development. This experience drives the author's desire to find out "how and if at all the Mekong development, which causes changes to the environment, brings any good to the under-privileged people, especially those who live by it".

The author's background study in Political Science is, to some extent, helpful to provide a basic understanding about the politics, cultural and behavioural characteristics of individuals and organisation or groups. Through out the research process on the thesis, the author has learnt a great deal about the complexity of the Mekong, the river, societies,

[1] The title of the story is translated by the author from the original title in Thai. The book is also available in an electronic form at http://www.searin.org

regional co-operations and development in the Basin. Without the knowledge and studies of the Mekong by individuals, communities as well as organisations, this thesis could not have been completed. However, the author wishes that she could have done some empirical work e.g. interviews and collection of recent data on how development currently impacts on the environment and the riverside communities studied in the thesis.

Acknowledgements

Having worked very hard for a long period of time, I finally finished this thesis. Thank God! I still survived through out the process and by God's grace I accomplished this study.

I would like to thank my advisor Ole Busck for his assistance, advice, and comments for all project from semester projects, over the internship project to now my thesis. Thanks also to Torsten Rødel Berg, Ph.D. student, who assisted me with advice and recommended some literature with theoretical ideas for this thesis. All the resourceful authors of all materials used in this thesis deserve to be acknowledged for their valuable work. Thanks to the library system in Denmark that facilitates me with the literature and materials for my thesis while working from home. Thanks also for all the support from the helpful librarians that help giving me advice including how to get a hold of material from an overseas library. Thanks to all the taxpayers in Denmark that provide me financial support through a student stipend (SU) through out my study.

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Abbreviations and Acronyms

ADB – Asian Development Bank

ASEAN – Association South-East Asian Nations

CARE – Christian Action Research and Education

CIA – Central Intelligence Agency

DFID – (United Kingdom) Department For International Development

EIA – Environmental Impact Assessment

ENGO – Environmental Non-Governmental Organisation

GDP – Gross Domestic Product

GMS – Greater Mekong Subregion

JEG-EIA – Joint Expert Group on Environmental Impact Assessment

JCCCN – Joint Committee on the Cooperation of Commercial Navigation

IDS – Institute for Development Studies (at the University of University of Sussex)

IMRC – Interim Mekong Commission

IRN – International Rivers (formerly International Rivers Network)

IUCN – International Union for Conservation of Nature

LMB – Lower Mekong Subbasin

LNDO – Lahu National Development Organisation

MC – Mekong Commission

MRC – Mekong River Commission

MW – Mega Watts

NAP – Navigation Programme

NGO – Non-Governmental Organisation

NIC – Newly Industrialised Country

OXFAM – Oxford Committee for Famine Relief

PAT – Port Authority of Thailand

RVC – Riverbank Vegetable Cropping

SEARIN – Southeast Asia Rivers Network

SEPA – State Environmental Protection Agency (of the Peoples Republic of China)

SIDA – Swedish International Development Cooperation Agency

SD – Sustainable Development

SL – Sustainable Livelihoods

TERRA – Towards Ecological Recovery and Regional Alliance

TWPE – Third World Political Ecology

UMNP – Upper Mekong Navigation Project

UN – United Nations

UNDP – United Nations Development Programme

UNECAFE – United Nations Economic Commission for Asia and the Far East

UNESCAP – United Nations Economic and Social Commission for Asia and the Pacific

WGE – Working Group on the Environment (of the Greater Mekong Subregion Cooperation)

WHO - World Health Organisation

WHO-SEARO – World Health Organisation, Regional Office for South-East Asia

Chapter 1
Introduction

1.1 Background and Problem Formulation

One fifth of all people on the planet live in abject poverty, most of who live in rural areas and are small farmers (World Bank 2002: v). It is on this background that countries in the world have agreed to put an end to global poverty. Major development efforts have been made with the result that large numbers of people have risen out of poverty; yet, poverty still persists throughout the globe (WRI 2005: vii, 5). Meanwhile, observations show many examples of how development has negatively impacted the weak in societies and the environment (Sachs 1999: 169; WRI 2005).

The growing concern over the environment, poverty and development prompted the global society to search for new ways of development and this brought about the idea of sustainable development (SD). Ever since the environmental concerns have been integrated into development (Chambers 1987: 1; Sachs 1999: 30-33; Jones and Carswell 2004: xix, xxi, 63; Greene 2005: 468-71). However, development is, in its usual sense, connected with economic growth, and economic growth does influence the environment and resource use (Sach 1999: 30; Reed 2002: 11; WRI 2005: vii). The attention on the resource use has challenged how and if environmental conservation can, at all, be maintained with development, as epitomised by the concept of SD.

It is widely agreed that the use of resources often brings about some degree of ecological change, which subsequently affects people and particularly the poor (Sachs 1999; Reed 2002; WRI 2005). Why the poor in particular? Goal 7 of the Millennium Development Goals (MDG) recognises the linkages between environmental sustainability and poverty reduction, while the Millennium Ecosystem Assessment (MEA) shows that environmental decline gives rise to greater poverty (WRI 2005: 26). It is crucial to understand how the environment, in the sense of natural resources, plays a role in determining the living standards of the poor.

Among natural resources, water is indispensable for human survival. Moreover, it is of limited availability. Because of the nature of water, Kofi Annan, the former UN secretary general, commented that in the future, competition for finite freshwater resources would trigger a violent conflict (Kofi Annan in Ravnborg 2004: 5). Rivers are one of the fresh

water systems, which are critical for both local and international communities. For millions of people, rivers are important sources of community livelihoods as well as cultural meaning. Rivers have commercial value both as natural resource goods and services for example water for consumption, river products, tourism and transportation (Conca 2006: 6). From the human perspective, water is *"a fluid life-necessity and a key ingredient in economic development"* (Ravnborg 2004: 5). Freshwater ecosystems are habitat for many forms of life such as plants, birds, and fish. Any changes in the conditions of a river may bring along ecological change and consequences. This has already been seen in many of the world's rivers that have been developed such as China's Yangtze River (Roberts 2001: 57; Conca 2006: 15, IRN 2008a).

Being the world's 12th-longest and 8th largest by volume, the Mekong River is also among the world's most diverse fresh water ecosystems (Osborne 2004: 1; MRC b). Over 60 million people live in the Mekong River Basin with a majority being farmers and fishers, and poor in terms of capital measures (MRC a). Having rich natural resources, the Mekong provides food and a source of income to the people living by it (IRN 2008b; MRC a,b; Roberts 2001).

After the Second World War, previously colonised nations in the Mekong region gained independence and underwent reconstruction. From once being an untamed river, the Mekong is now subjected to large-scale development (MRC 2002: 5). The Mekong countries have initiated this development effort through regional co-operations resulting in comprehensive plans for the basin development, including the river navigation development. The motivation for the development is to reduce poverty, improve quality of life, and sustain and defend livelihoods following the philosophy of SD (ADB 2004: 5-8). If the development brings changes to the ecological condition of the Mekong River, and the poor people also rely on it for their livelihoods, the question is what changes are there and how they affect the people and their livelihoods.

Since the development in the Mekong region claims to advocate SD aiming to alleviate poverty, protect the environment and livelihoods, it is relevant to ask: "How does the development in the Mekong River exemplified by the Mekong navigation development project influence the lives and livelihoods of the poor? Do the results of the development effort benefit and generate livelihoods that are sustainable?"

The emphasis here is on the poor who traditionally rely on the river for their livelihoods. Furthermore, the development in the Mekong claims to advocate community participation in the development process (ADB 2004: 6-7), and one may additionally ask,

how the claims of benefits from the project reflect the wishes and needs of the poor? This question highlights the amount of influence that local communities have on the decisions that affect them.

The aim of the thesis is to try to find out if the development of the Mekong River will improve the livelihoods of the rural poor and whether or not the development will generate adequate and sustainable rural livelihoods. The study serves as an example that provides insight for a critical assessment of the development philosophy that characterises the development of the Mekong.

1.2 Methodology

The methodology explains the procedure for carrying out the thesis. In the preceding section, narrating the background of and giving the rationale to the thesis, formed its research questions and presented its objectives.

This thesis is constructed on both theory and case study. The theory is used to provide a conceptual framework to understand and put into perspective the analytical approach and the case study. Through the analytical framework, the case will be studied in order to identify the nature of and relationship between various aspects of the research problems. In this section, the thesis reasons the choices of the theories and how they will be applied. Additionally, it goes into more depths with how a case, in general, may be used and how it is used in the thesis. As the point of departure, before presenting the theories, concepts of development, poverty, and quality of life are defined.

Defining concepts

As poverty, quality of life, and development ideas are contested in the development discourse, a chapter of the thesis is designed to explore a range of these ideas. The chapter presents an overview of how these ideas have been understood and have evolved. Prevailing conventional and alternative ideas by for example the World Bank, the United Nations, and Amartya Sen are employed. The chapter aims to help the readers to apprehend and reflect different ideas and meanings of development, poverty and quality of life. This will serve as a background understanding for putting the selected theories into context. With respect to the case study, this chapter will help understanding how different stakeholders may perceive development and poverty differently, and thus illustrate why their goals and actions sometimes diverge.

Following is a brief presentation of the selected theories applied to this thesis.

Thesis Theoretical Framework

As a theoretical framework, two theories relevant in relation to the case study are selected, namely political ecology and sustainable livelihoods. The first theory introduced is *political ecology*, which is used as a base to explain the background of environmental conflicts in the Mekong. It expands the understanding of environmental change encountered in the case study. The thesis describes analytical narratives of political ecology, as classified by Piers Blaikie, to review the field and to understand the background of human-environment interaction. The section of the thesis will first takes a look at the narrative of ecological modernisation (EM) from a political ecology perspective. Ecological modernisation is an approach, dealing with the process of ecological restructuring in the institutions of contemporary society, focusing on new technologies and regulations to solve environmental problems (Smink 2002; Smith 2005). Although ecological modernisation does not directly consider any links between environmental issues and politics, a post-structural political ecology finds, the construction of ecological modernisation narrative is, to a large degree, dependent on politics, particularly that of the western world. Furthermore, the idea of SD, which embraces EM, is the basis for the development policies and projects of many development agencies (Blaikie 1999: 136; Smink 2002; Escobar 1996). Thus, political ecology's perspective on SD gives an important basis to understand the background and rationale for the development project of the case study of this thesis.

The treatment of narratives belonging to radical realist critiques in political ecology provides a greater understanding of how the political and social contexts influence environmental change. To that end, the Third World political ecology by Bryant and Bailey is selected to provide a comprehensive framework to study the role and interests of actors in the case study. Finally, the post-structural narrative in political ecology will be explored as it provides a tool for critique of other analytical narratives related to political ecology. Post-structural political ecology highlights the importance of examining the environmental facts and the motives behind them. Thus, it is used to critically assess the facts and predictions of the impacts of the navigation development. Post-structural political ecology highlights inclusion of local people in the process of determining the desired ends and the acceptable means in a development process. This points towards the need to view ecological problems from the bottom up perspective.

Another theory applied in this thesis is the *sustainable livelihoods* (SL) approach. The SL framework will be used as an analytical tool for the thesis' case. The concept of SL is

based on the work by a number of dominant scholars in the field such as Chambers, Conway, Scoones, and Ellis and development institutions like the United Kingdom Department for International Development (DFID). The framework covers many aspects of people's quality of life and helps explore and understand the many aspects of livelihoods from a bottom up perspective especially in the rural context of the case study.

SL examines what sort of risk and vulnerability rural livelihoods people face and what strategies make their livelihoods more secure. It observes how access to resources, both tangible and intangible, influence people's ability to pursue livelihoods. Institutional conditions are identified in the SL analysis as either constraints or opportunities for people's livelihoods. On this basis, SL provides a framework for evaluating or assessing if livelihoods are sustainable and what facilitates livelihoods to be adequate and more sustainable so that poor people can get out and stay out of poverty and have a better quality of life.

Since the SL approach claims to focus on people centred in the development in solving issues of poverty and environment, the SL framework can serve as guideline and a tool for the thesis to assess if the Mekong navigation development will generate the desired outcomes, that is, environmental sustainability, poverty reduction and well-being of the people especially of those who are poor. Next the use of case study is rationalised and presented briefly.

Thesis case study

As a research approach, a case study is selected and serves as "an illustration or a paradigm" (Flyvberg 2006). In this thesis, the Navigation Channel Improvement Project in the Upper Mekong River serves as the case study. The historical events, data, information, reports and results are collected and investigated so as to gain a better understanding of the occurred instance, which might become important to look at more extensively in future research (Flyvberg 2006). According to Flyvberg (2006), case studies allow themselves to generate and test the hypotheses. Seen in this light, a case study of the Mekong navigation development can also serve to develop critical thinking to the development (Alvarez et al.1990). However, the construction of a case study risks being biased according to predefined objectives, and thus tend to verify theoretical propositions (Flyvbjerg 2006: 237).

The case traces the history of the project and use of the river and collects as much information about the effects of the project on the environment and the communities with focus on their livelihoods. This case is particularly interesting, as the development project

has faced opposition from the local communities on the Thai side of the river. This highlights the contemporary dilemma of the Mekong development, including competition and conflict in the utilisation of the Mekong resources between actors, and between traditional and modern sectors. To that end, a critical examination of the development in the Mekong and its impacts on people and the environment will be made. This includes investigation of actors, in terms of stakeholders[2], their interest and their motives. By identifying and recognising livelihoods of the poor people, the case study may serve as an example to generate further insight into the design and implementation of projects or policy programmes, which aim at poverty reduction.

Based on the theories and the analytical framework, the case study will be analysed in order to answer the research questions. This also leads to the critical examination of the development approach, dominating in the formulation process and practice of the project studied in the Mekong as well as other development planning that affects people's lives, especially the poor.

The method of attaining the materials

The sources of the material of this research study are largely secondary. Applicable academic literature on the theories is based on and limited to the work of dominant scholars and development agencies in the fields. While on the case study, related material is more variety for example testimonies by the communities published in journals; journals; research papers of individuals, development related institutes and community; printed and electronic reports, articles, news letters, magazine, and books etc. All sources are listed and acknowledged in the bibliography. As a guideline, the organisation of the thesis is aimed to introduce individual chapters and briefly describe the content in the chapter.

Organisation of the thesis

The thesis is structured into 7 chapters. The first chapter is the introduction and a description of the methodology. By presenting the background and rationale of the thesis, the introduction guides the readers on the path to the research problem and its objectives. Right after the introduction, in chapter 2, a variety of dominating conceptions of

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2 *"Stakeholders are all those who have interests in an intervention or are likely to be affected by it – positively or negatively. Stakeholders include people implementing the activities, external service providers, financial sponsors, and the wider public"* (Mikkelsen 2005: 349).

development, poverty and quality of life are presented with a brief review of the meanings, significance and nature of concepts.

Chapter 3 is devoted to theories. First, political ecology is presented to provide the background of environmental discourse and to clarify the reason behind why and how environment or nature enters on to the political stage. Additionally, political ecology questions if environmental deterioration or problems are actual issues *per se*. The theory proceeds to the sustainable livelihoods approach. The approach provides an analytical framework to discern aspects of livelihoods in a rural setting. The SL framework explores ways for the rural poor to gain access to and acquire resources. Likewise, it looks into risks and vulnerabilities as well as constraints and opportunities that confront the rural people. It scrutinises a more sustainable strategy for the rural poor to liberate themselves from poverty and be able to gain a better quality of life.

Chapter 4 is the case of Upper Mekong Navigation Project (UMNP). As a point of departure, section 4.1 gives an overview of the Mekong River, its geography and ecosystem with the focus on the Northern Thai-Laos stretch. Subsequently, the historical activities and the use of the Lower Mekong River by the people up till now are narrated. Continuing to the central part of the case study, section 4.2 focuses on the UMNP on the northern Thai-Laos border. The first part presents the historical background of the Mekong navigation development and the latter part brings the involved parties and their roles in the project into light. The last part of section 4.2 discusses the effects of the UMNP on the environment and the people in the riverside communities who are living by the river.

In chapter 5, the upper Mekong navigation development is analysed under the guidance of the theoretical framework. The impacts of the navigation project on the livelihoods of the rural poor is identified and analysed under the Sustainable Rural Livelihood framework with the aim to determine if the poor benefit in terms of gaining adequate sustainable livelihoods. Different political ecology discourses provide critical analysis and assessment of the development philosophy.

The overall thesis is summarised and concluded in chapter 6, which develops into further discussion in the final chapter. The bibliography gives references to the sources of the materials used in the thesis and to acknowledge the work of the authors. The appendices provide readers further information relevant but not essential to the thesis.

Scope and Limitation

The thesis is restricted to the navigation development in the upper part of the Mekong River. The thesis investigates the effects of the development project on the Thai-Laos border with emphasis on the Thai side. The livelihoods of people living along this stretch of the river are studied.

The thesis does not focus on the concept of sustainable development. However, countries in the lower Mekong Basin, among them Thailand and Laos, are parties to the United Nations Commission on Sustainable Development (UNCSD), and most development projects in the river basin, include elements of and discuss sustainable development. In this thesis, environmental sustainability will be addressed by the sustainability of the natural resources that rural livelihoods depend on.

As environmental issues form a broad topic, the thesis is limited to focus on the Mekong River ecosystem as a provision of natural resources that the rural poor along the river depend upon. Only the impacts of development especially ecological change in the river are studied. The effects of development on social services and infrastructure will be covered through their relations to the livelihoods. Any effects of the climate change will not be included.

The basin development covers many countries and thus a full analysis of the Mekong development involves several aspects of international relations. The fact that the development is centred on regional cooperation in the Greater Mekong Sub-region (GMS) and Mekong River Commission (MRC) raises a number of questions regarding the political aspect. There is the issue of overlap of both development plans actions, and membership of the two bodies. A further concern is the role of the upper riparian countries: Myanmar and principally China. Though these issues will be touched upon in the analysis and discussion, it is not the intention of the thesis to examine international relations in depth.

Chapter 2
Concepts and Definitions

The concepts of poverty and development are complex and have evolved over time. Consequently, the ways people have sought to develop and alleviate poverty vary over time, from place to place and between different actors. As expressed by Leftwich,

> "the way [that]'development' is defined and understood is crucial in shaping the strategic, objectives and goals of development policies and practices, and in judging their results." (Leftwich 2000: 16)

As a point of departure, various ideas of development, poverty, and quality of life will be explored, so to gain an insight about their meanings as well as characteristics. This will serve as a background understanding of the Mekong Development, while putting the selected theories into context. With respect to the case of upper Mekong navigation development project, this chapter will help understanding how different stakeholders may perceive development, poverty, and quality of life differently, and thus illustrate why their goals and actions sometimes diverge.

2.1 Ideas of Development

Early on, development was viewed as the progressive unfolding of the human history over time. This understanding was mainly rooted in the context of the European experience of the improvement in material conditions, scientific knowledge, including human freedom, quality and autonomy. During the colonial time, development was about exploring the new world and its natural resources for colonial exploitation. For their own benefits, the colonials initiated to develop their colonies and managed the colonies' natural resources (Leftwich 2000: 18-20).

Later on, development was identified with modernisation, which embodied a total vision of development - a condition and a progress. As a condition it refers to an end-state of being a modern, advanced, industrial, rich or developed society and reaching high mass consumption. As process it refers to a constant and regular progressive change in the society without a specific end point (Leftwich 2000: 24-25, 33). Modernisation implies a total change in structure of the society and transformation in economic, social, political and

ideological areas. This way, society develops from simple or traditional to complex or modern. Moreover, society transforms from rural to urban with the economy changing its base from agricultural to industrial or so-called industrialisation. Structural changes could be measured by the urbanisation level, the share contributed to the gross domestic product (GDP) by sectors i.e. agriculture, industry, and services, or the size of labour forces in different sectors. Modernisation regards industrialisation and economic growth as being a path for all countries (Leftwich 2000: 30,33; Jones and Carswell 2004: xviii). Economic growth encouraged to achieve, what Adam Smith called, the wealth of nations i.e. civilised and thriving nations where more people could enjoy a greater share of the necessaries and conveniences of life (Leftwich 2000: 27). *"It is a process whereby modern societies exercise greater control over their natural and social environment through the [...] scientific knowledge"* (Huntington 1971 in Leftwich 2000: 33). The modern society is characterised by increasing levels of material prosperity, individualism, equality and opportunity and a democratic political system. The prevailing definition of modernisation is *"the process of change towards the type of social, economic and political systems that have developed in Western Europe and North America [...]"* (Einsenstadt 1966 in Leftwich 2000: 35). Modernisation, hence, could be viewed as Westernisation and Americanisation (O'Brien 1972 in Leftwich 2000: 33, 35).

Shortly after World War II, development accentuated the role of the state in strategies for economic growth and structural modernisation for the expansion of market and capitalist economy. By means of the state, resources and technology were mobilised for promoting economic growth, social and political progress. Only, through means of the state's power, a large-scale manufacture industry, commercial marine, and foreign trade projects could be achieved (However, during the 1980s development ideas shifted in favour of reducing the state's role and instead pursued economic liberalisation (Leftwich 2000: 22-23; Thomas 2005: 651).

Development as economic growth was questioned, for it appeared to sustain and deepen inequalities in societies. Additionally, there was a call for the revision of the meaning and measurement of development (Leftwich 2000: 45). The dissatisfaction in economic liberalism and its distribution of benefits gave rise to an alternative view of development (Thomas 2005: 655, 658). Social development was placed on the development agenda, while the wider aspects of development came into focus. Accordingly, development came to be defined and redefined in the second half of the 20th century. Social development and social justice gained the attention and, later on, were integrated in the ideas and

strategies of development. Social development directs to improve the areas of, for example, health care, education, income distribution, socio-economic and gender equality, and rural welfare (Leftwich 2000: 41-44).

The modest attempts to combine growth with social development and social justice gave rise to the notion of basic human needs. The concept suggests that development is to meet primary needs of communities and individuals (Green 1978: 7 in Leftwich 2000: 46). It embraces both material and non-material needs. Basic human needs encompass five main areas i.e. family consumption (e.g. food, clothing, and housing); basic services (e.g. education, sanitation, healthcare, and transport); participation in decision-making; basic human rights; and sufficient income for basic needs (Leftwich 2000: 45-47).

Freedom and expansion of choice in development were also addressed by for example the United Nations Development Programme (UNDP)'s Human Development Reports (HDR). In the reports, the UNDP acknowledged and showed its concern on the transformation of growth into human development. Human development is featured by a long and healthy life, education, including access to resources that provide decent standard of living that would allow possible choice for the ill, ignorant and poor (UNDP 1990 in Leftwich 2000: 52, 53). The level of human development could be measured by Human Development Index (HDI), the UNDP constructed (Leftwich 2000: 53).

From the late 20th century on, the world has been preoccupied with the idea of SD, which arose from the concerns about environmental problems, while not threatening economic growth (Leftwich 2000: 56, 58). SD is *" a […] conceptual compromise for establishing and maintaining a balance and symbiosis between environmental protection and development"* (Bernie 1993: 388 in Leftwich 2000: 57). The principles are to promote economic growth that reflect sustainability, equity, social justice and security while protecting the resource base, sustaining population level, adapting technology that embraces the environment, and integrating environmental issues in policy-making and international cooperation (WCED 1987: 364-6 in Leftwich 2000: 57).

The concerns on a persisting global poverty, led the world development targeting to reducing global poverty at the turn of the 21st century (Mikkelsen 2005: 217, 220). The diverse dimensions and complex of poverty have brought into light the need for a new way of development thinking for poverty elimination. Sustainable livelihoods idea was developed and became recognised as an approach to poverty reduction in environment and development (Ashley and Carney 1999: 4; Jones and Carswell 2004: xxi, 185), on which this thesis focuses. The SL approach will be explained in the next chapter.

Criticism of prevailing conceptions and strategies of development suggested a more radical change and reshaping of the ideas and practice of development. The enthusiasm for more radical conceptions of development call for a broader integrated conception and strategy of development, which recognised the social development and social justice for all as both conditions and outcome of effective development. The proposals entail, for example, the redistribution of wealth, popular participation in political decision-making as both means and end of development, and protection of human and natural environment (Leftwich 2000: 41-44). The critical radical views of development, for instance radical political ecology and those viewing development as domination, will be presented and elaborated in the next chapter.

2.2 Conceptions of Poverty and Quality of life

Despite decades of development, poverty remains widespread in the Third World, while inequality increases. Since the end of the 20th century, there is a consensus that poverty is among the most serious global problems that weakens human well being and capability (Sachs 1999; Leftwich 2000: 55; Mikkelsen 2005: 217). According to the UN High Commissioner for Human Rights (UNHCHR), inspired by Amartya Sen, the level of well being of a person depends on how well he/she can do or be the things he/she has a reason to value. Well-being can be physical and psychological, and may include being free from hunger or participating in the life of a community. Capability refers to the freedom or opportunities of a person to achieve well being (UNHCHR 2004: 6). People's overall well being, referred to as quality of life, is difficult to measure, since, besides material well-being, it includes intangible components for the quality of the environment, national security, personal safety, and political and economic freedoms (Soubbotina 2004: 143).

According to Sachs, it was not until after WWII that poverty became a global issue. Initially, poverty was identified through the discovery that the per capita income in many countries around the world that was much lower than in the US (Sachs 1999: 8). This statistical approach to poverty measurement is found in the influential reports of the World Bank where countries are categorised according to the income level. Poverty was, hence, defined in the economic terms and judged by per capita income (Thomas 2005: 648, 649, 650).

In the conventional view, "*poverty refers to a situation where people do not have money to buy adequate food or satisfy other basic needs and often classified as un-or underemployed"* (Chambers and Conway 1991: 2; Thomas 2005: 647) or in other words,

poverty is *"defined as the inability of people to meet their material needs through cash transactions"* (Thomas 2005: 649; Di Gregorio et al. 2004: 5). The community, which provides itself outside the market system of cash transaction and wage labour e.g. hunter-gathering tribal groups, hence, is regarded as poor (Thomas 2005: 647). Economic growth is ascribed to be necessary for fighting poverty believing that economic growth, on the whole, would automatically bring benefits for the poorer (Sachs 1999: 9; Thomas 2005: 649, 655; World Bank 2002: vi). Since 1945, this monetary-based conception of poverty has been more or less universalised among governments and international organisations. And, as a consequence of globalisation of the Western culture and the expansion of the market, this mainstream understanding of poverty has spread (Thomas 2005: 647-8).

On the other hand, such conventional views of poverty have been criticised for using merely monetary measurement, which reduces poverty to something that can easily be measured. However, these measures do not necessarily reflect the true situation in the Third World or human well being. In an alternative view of development, poverty extends beyond material measurement. It also puts emphasis on spiritual values, community ties, and availability of common resources (Chambers and Conway 1991: 2-3; Sachs 1999: 9; Di Gregorio et al. 2004: 5; Thomas 2005: 655, 657, 648). Alternatively, poverty is viewed as

> "[…] the inability to provide for material needs for one self and one's family by subsistence or cash transactions and by the absence of an environment conducive to human well-being broadly conceive in spiritual and community terms" (Thomas 2005: 649).

The alternative conception of poverty also encompasses issues like empowerment, participation, meaningful self-determination, self-reliance, equity, and sustainability including protection of and access to common resources (Thomas 2005: 648 pp).

The Nobel Prize economist, Amartya Sen, argued that development and freedom are interconnected. He sees poverty as capability deprivation not just a lack of income. In his sense, capability leads to freedom to choose "the kind of lives [that ones] value and have reason to value" (Sen 1999:18). Development, then, requires the removal of barriers to freedom e.g. poverty, economic and social deprivation, as well as repression or neglect by authorities (Sen 1999: 37). This aspect of poverty viewed as capability is adopted and modified by, for example, the UN agencies as well as the World Bank (UNHCHR 2004: 6).

The UNDP and UNHCHR perceive poverty as a deprivation not only of economic or material resources but also of human dignity, agency, opportunity, and choices (Thomas

2005: 648). Like Sen, they focus on a process that expands people's choices and capabilities (UNDP 1990). In the International Bill of Rights, poverty is defined as

> "a human condition characterized by the sustained or chronic deprivation of the resources, capabilities, choices, security and power necessary for the enjoyment of an adequate standard of living and other civil, cultural, economic, political and social rights" (CESCR 2001).

Involving human rights in the definition of poverty helps to prevent poverty alleviating interventions that pursue growth at the expense of poor people's rights.

"Poverty is experienced at the local level, in a specific context, in a specific place, in a specific interaction" (Narayan et al. 2000: 230 in UNHCHR 2004: 3, 6). This highlights the central role of people to define the aim of development. It is important to acknowledge that poor people have first hand knowledge of the causes of their poverty and any intervention in poverty alleviation must take this knowledge into account. Thus, it is imperative to ask the poor (Mikkelsen 2005: 230; Chambers 1987: 9).

Poverty is embedded in a socio-economic structure. It is relative to a socially defined threshold meaning that a person considered being poor in one society might not be poor in others, and it is not a fixed condition, but it can change over time. Poverty could be distinguished according to its degree i.e. moderate poor (defied as those poor who may have a chance to escape poverty) and very or desperately poor (defined as those who do not have a fair chance to escape poverty) (Chambers 1987:13; Di Gregorio et al. 2004: 6). Even though poverty is relative to a standard of a given society, it has common elements that are both a consequence and a cause of poverty such as

> "[…] inability to secure basic needs (shelter, food, health), lack of income (or assets that can provide income), social exclusion (from social networks or more formal organisations), political exclusion (inability to participate in political process), lack of opportunities to improve their conditions, and vulnerability (e.g. natural disasters, socio-political instability, market/price risks)" (Di Gregorio et al. 2004: 6).

In this sense, poverty could be seen as being interlinked with vulnerability, exclusion, health, education, & access to assets (Chambers in Farrington et al 1999). The above follows the common acknowledgement that the basis of a life free from poverty needs a secure livelihood that is adequate and decent, and able to sustain households and individuals when they face stresses and shocks of life (Chamber 1987: 9; Ashley and Carney 1999: 4; Cahn 2002: 1).

Another aspect of poverty is the environmental context. The World Commission on Environment and Development (WCED) suggests that there are the linkages between poverty and environment, asserting that "poverty is a major cause and effect of […] environmental problems". It underlined that poverty forced the poor to overuse environmental resources for survival because in most Third World countries, the poor depend on the environment for their security and subsistence (WCED 1987 in Jones and Carswell 2004: 63).

There are several arguments against this view of poverty and environment linkages, reasoning that these linkages cannot be conceptualise as simple cause and effect relationships. While, some others argue that it is not poverty that is causing the environmental problems, but wealth (Jones and Carswell 2004: 63; Sachs 1999). The cause and consequences of environmental problems and their links to development and poverty will be discussed in the following chapter.

Chapter 3
Theories

As the thesis is about the development of natural resource exemplified by the case of the UMNP, which bring about impacts on both human and natural environment. This incites a conflict between the parties with interests in the environment. As political ecology deals with environmental change and human interactions seen from political economic point of view, it is chosen as the first theory. The second theory, the sustainable livelihoods approach, provides the analytical framework to examine the impacts of the development on humans and the natural resource base for their livelihoods. The SL framework portrays the many aspects of livelihoods from a bottom up perspective in the rural context of the case study.

3.1 Political Ecology

Political ecology gives the background understanding of ecological issues including the way human activities affect the state of the environment and vice versa. It explains how the ecological aspect of the development project relates to its political economic background, context, and consequences. A review of the political ecology will largely follow the structure presented by Blaikie in his comprehensive review of the field (Blaikie 1999).

3.1.1 General Scope of Political Ecology

Environmental change caused by human activities is not a new thing (Diamond 2005), and the rising concern about human impacts on the biophysical environment in the mid 20th century, brought about the acknowledgement of the political content in ecology setting off the field of political ecology. Continuing global environmental problems as well as more recently the notion of global warming means that political ecology is increasingly relevant and justified (Forsyth 2003: 1,4; Bryant and Bailey 1997: 1).

In a broad definition the field of political ecology attempts to uncover *"[...] the social and political conditions surrounding the causes, experiences and management of environmental problems"* (Forsyth 2003: 2). In a review of the field, Blaikie specifies more narrowly two main topics of political ecology research. One concerns the interaction between environmental change and socio-economic conditions. The interaction goes

through the use of resources, which on the one hand is shaped by socio-economic conditions and politics, and on the other hand is shaped by and also influences the environment. The other central characteristic is the observation of how power relations influences the evolution of the state of nature (Blaikie 1999: 132-133). A central concern is the social (in)justice in environmental conflicts and resource struggles (Forsyth 2003: 7). Efforts to explain these topics in political ecology are centred around three main *"analytical narratives"* described by Blaikie (1999) that are the topics of the next section.

3.1.2 Analytical Narratives

a) Ecological modernisation as **a narrative informing political ecology**

In his review of political ecology, Piers Blaikie has mapped political ecology with EM as one of the major analytical narratives having informed the field. One might ask what EM has to do with political ecology since it does only to a small extent treat political and social contexts of environmental issues. However, the EM narrative dominates in the public sphere and international organisations that prescribe the policies about and interventions in nature. From a political ecology perspective EM is behind political forces in environmental management (Blaikie 1999: 135-138).

The modernisation imperative in the 3rd world dates back to colonial times where modern, efficient and rational management of the environment by the colonial masters was intended to replace traditional local ways that were broadly considered to be careless and inefficient (Blaikie 1999: 139). Contemporary EM has retained its focus on technical solution to environmental problems (Bryant and Bailey 1997: 28).

The underlying assumption of EM is that human intervention in environmental problems can help overcome the problem (Blaikie 1999: 136). Thus, it is understood that environmental issues are real and can be presented as scientific facts that serve to guide political decisions (Forsyth 2003: 14). However, scientific evidence must be open for debate so as to negotiate the form of human intervention to be employed. Much attention is put on solving problems through technological or cognitive innovations leading to e.g. more efficient resource use (Blaikie 1999: 136). This evidently gives technology a central role but also free market forces are highlighted as giving a competitive incentive for innovation (Robbins 2004: 8).

In line with the modernisation narrative, the concept of sustainable development has evolved as an idea for development to be shaped so as to sustain the environment (Blaikie 1999: 136). However, the means for meeting development goal such as poverty alleviation

is still economic development, thus making SD a concept that reconciles economic growth with environmental protection. Poverty is seen as a cause and an effect of environmental problems, thus when eliminating poverty, the environmental problems will disappear (Escobar 1996: 215-16).

The central critique of EM is its emphasis on technocratic solutions with no treatment of the social and political contexts (Bryant and Bailey 1997: 10-11). Ecological problems are viewed as having universal causes and consequences (Escobar 1996: 215). Hence, it neglects socio-political aspects such as power relations and inequity, which may either serve as restraints or catalysts in solutions to ecological problems (Blaikie 1999: 138). The modernisation focus of sustainable development means that the environment is seen as raw material for economic growth (Escobar 1996: 219). Sustainable development as a narrative becomes a way to maintain growth without expending the environment, by making only small corrections to the existing market system (Escobar 1996: 215).

b) Radical political ecology

Early approaches in political ecology, known as neo-Malthusian, were concerned with the fast growing number of people in the world who would have to depend on a finite stock of resources. Neo-Malthusianism's radical political prescription was that a global hegemon was needed to enforce measures to limit population growth. This claim was criticised as crude and not understand a true cause of environmental change as a political process (Bryant and Bailey 1997: 10-11).

Studies during the 1970s associated with political ecology from various academic backgrounds, for example anthropology, radical geography of Marxist and neo-Marxist influences, were critical of the then prevailing theories such as neo-Malthusian explanations of poverty and environmental degradation, and physio-graphic explanations of disasters (Blaikie 1999: 139). Radical development geography draws attention to the need for political economy to understand environmental change, pointing towards political ecology (Bryant and Bailey 1997: 12).

In order to assist place-based analysis, political ecologists employed non place-based radical theory mainly neo-Marxism. In it, local social oppression and environmental degradation is linked to political economy of production with particular focus on class relations and global capitalist production (Bryant and Bailey 1997: 12-13).

The example of a structural framework explanation based on neo-Marxism is the work of Blaikie in 1985 focusing on soil erosion issue (Bryant and Bailey 1997: 13). The focus

on structure within neo-Marxist political ecology has been criticised for being too deterministic, hence under estimating the possibility of grassroots resistance and neglecting the influence of local politics and power relations in mediating resource access and conflicts (Bryant and Bailey 1997: 13). Moreover, the structural methodology tends to be too complex (Blaikie 1999: 140).

For the above reasons, in the late 1980s, political ecologists have widened their theoretical foundations intending to explain power relations and how these mediate interactions between humans and the environment (Bryant and Bailey 1997: 13). By using political sociology thought such as neo-Weberianism and social movements theory, political ecologists try to explain outcomes of environmental conflict or change as a result of interactions of various actors under unequal power relations, and to scrutinise motives and interests of actors, while drawing attention to the potential power of grassroots actors (Bryant and Bailey 1997: 14).

c) Post-structural political ecology

Post-structural political ecology presupposes that even though nature exists in some real form, any perceptions and representations that humans have about nature are social and political constructions (Blaikie 1999: 141; Escobar 1996: 210). Forsyth observes, *"[...] different political actions and scientific methodologies have led to environmental explanations and solutions that are thoroughly embedded in social and political practices"* (Forsyth 2003: 1-2). Hence, post-structural political ecology examines how views are constructed and why some views prevail (Blaikie 1999: 141). To this end, it seeks to identify the actors in the discourse and critically investigates their backgrounds, interests, and political agendas (Blaikie 1999: 141; Forsyth 2003: 266). Scientific knowledge presented in the discourse is shaped by the methodology used and assumptions made for the study (Forsyth 2003: 12). An important analytical tool is the deconstruction of discourses about environmental issues with the aim to find presuppositions, gaps, and contradictions (Jones and Carswell 2004: 205). By discerning the power of those participating in the discourse, it is possible to explain the predominance of certain views of the environment (Blaikie 1999: 141; Jones and Carswell 2004: 205). Hence, post-structural political ecology questions prevalent environmental knowledge and the way it is constructed (Blaikie 1999: 141).

From a post-structural point of view, non-constructionist approaches to political ecology fall short because environmental representations that do not account for the socio-

political construction of facts are less able to understand and solve environmental problems. Moreover, policies based on these approaches tend to have an inequitable impact, especially through threats to poor people's livelihoods (Forsyth 2003: 2).

The EM uses arguments and solutions that stem from the North perspective. Its technical emphasis may be well suited in the First World setting, but largely ineffective in the socio-political setting of the Third World (Blaikie 1999: 138). As far as SD is taken as an expanded scope of modernisation, it too rationalises from the First World perspective (Escobar 1996: 214). Escobar points out that focusing on sustainability of development implies an assumption of scarcity of resources, which in turn rationalises the North rooted managerial approach to nature (Escobar 1996: 216). Hence, in SD, nature is capitalised and treated as a resource/commodity and it is this environmental capital, which is a base for economic growth i.e. capitalist market expansion that is to be sustained (Escobar 1996: 211, 213, 215). The general observation from the deconstruction of discourses is, as expressed by Forsyth, that

> "[...] many explanations of environmental degradation within political ecology have been constructed without the participation of affected peoples, and without acknowledging how explanations may reflect social framings" (Forsyth 2003: 10).

Thus, policies based on such truths often do not benefit local affected people, calling for less political interference in the environment (Blaikie 1999: 142). Another recommendation is the decentralisation of decision making so that, based on local accounts of the environment, people can develop interventions that better suit their social context and benefit them more (Blaikie 1999: 142; Forsyth 2003: 22). Local communities must be seen as stewards of nature (Escobar 1996: 220). As a prerequisite there must be political and social pluralism to allow people to voice their account of the environment and grassroots must be allowed and encouraged to experiment with environmental approaches (Escobar 1996: 225).

Post-structural political ecology is also subjected to criticism in that it provides a good tool for critique of other narratives but offers only few solutions in replacement (Blaikie 1999: 142). Bryant and Bailey go as far as calling it an "overreaction" against earlier work in political ecology (Bryant and Bailey 1997:14). To avoid complete relativity in the sense that no common environmental representation exist Blaikie suggests adopting a "weak social constructionism" in which environmental truths are socially constructed but some common truth can be negotiated between actors" (Blaikie 1999: 144). A similar position is held by Forsyth who recommends a "critical realism" that tries to understand reality of

society and the environment, while acknowledging that any model will be based on a partial and socially framed knowledge of the underlying reality (Forsyth 2003: 15).

The review of the political ecology has provided the foundation to move to a particular insight that captures the important aspects of the Mekong river development case. On this ground Third World political ecology by Bryant and Bailey is selected to form the framework for analysing the development process and the subsequent impacts on different actors.

3.1.3 Third World Political Ecology

In the 1980s, Third World political ecology emerged as a new research field within political ecology highlighting environmental problems in the Third World and as a response to apolitical nature of most research on third world environmental problems in the 1970s (Bryant and Bailey 1997: 1, 5). The work of Bryant and Bailey, Third World Political Ecology is considered to be advance and provides *"a new and more comprehensive framework"* within the field (Blaikie 1999: 140). It is radical in perspective and centred on the political element to try to understand environmental problems in the Third World. It suggests that the focus should be moved from explaining the environmental change itself onto the effects on human activities. It reiterates what Blaikie and Brookfield has expressed that environmental change is constructed and has no meaning for actors until they see it as a problem or an opportunity. Bryant and Bailey try to give the picture of how the environment is politicised based on the role that various actors play in shaping the environment in order to aid those who are fighting for social justice and environmental conservation (Bryant and Bailey 1997: 2-3, 29, 31, 195).

Linking political economy with Third World environmental problems:

Bryant and Bailey argue that environmental crisis in the Third World cover a range of specific environmental problems that reveal themselves in term of changes in land, water or air quality, these changes can be seen individually or all together to have unequal effects on people. Political ecologists concur that environmental problems in the Third World are symptoms of political and economic forces connected with the world capitalism (Bryant and Bailey 1997: 3, 193). Bryant and Bailey point out that the colonial culture still has an influence and effect on human-environmental interactions in the Third World. This can be seen from the ways the Third World countries were integrated in the European-dominated international economic order in which their roles are to provide valuable natural resources

and to export cash crop, which requires monoculture agriculture causing environmental problems. The colonial heritage in the Third World caused not only environmental deterioration and economic dependency on natural resource exploitation, but also shaped state management styles and authority justifying its control over human-environment interactions (Bryant and Bailey 1997: 7-8). They underline how the Third World states' intervention in economic activity may encourage environmental harmful activities. They point out that the intervention goes along side with capitalist expansion or the ruler's interest (Bryant and Bailey 1997: 3-4). As observe by Harvey, all *"ecological projects (and arguments) are simultaneously political economic projects (and arguments) and vice versa"*, and that their arguments are never impartial (Bryant and Bailey 1997: 5). In light of this, political ecologists suggest that radical change is needed to achieve an outcome in solving environmental problems in the Third World. Simple "technical policy solution" are insufficient because the Third World's environmental problems are interconnected with political, economic and social conditions. They severely criticise the usefulness and the values of the concept of SD as well as related EM (Bryant and Bailey 1997: 3-5,28).

Bryant and Bailey note that apparent success stories of economic development such as the Newly Industrialised Countries (NICs) have not yet resulted in a significant reduction in poverty, mainly because the economic wealth is inequitably distributed. This is important as poverty is intimately linked with environmental change. Thus, Third World political ecology is to explore the links between poverty and wealth, environmental decline and the political process. Bryant and Bailey find that the poverty in the Third World means that environmental conflicts are most commonly livelihood based (Bryant and Bailey 1997: 8, 27).

An actor based framework for a politicised environment:

Bryant and Bailey propose an actor-oriented approach. They argue that the approach gives a useful method to elucidate the role of place and non-place based actors in political-ecological conflict in the Third World so as to understand these actors' opportunities for action in political and economic structures (Bryant and Bailey 1997: 2). They have classified actors on political ecology to states, grassroots, businesses multi-lateral institutions, and environmental non-governmental organisations (ENGOs). They underline that the interests of actors are crucial and complicated because of the way they interact with each other and with the environment in the Third World. The impacts of environmental

change on actors are analysed in term of marginality, vulnerability and risk (Blaikie 1999: 141, 188).

Core assumptions of Third World political ecology:

The Third World political ecology employs three core assumptions. The first one is that costs and benefits of environmental change are not equally distributed among actors. Secondly, the unequal impact of the environmental change increases or reduces existing social and economic inequalities for instance the environmental change may change the ability of actors to earn a livelihood. Finally, the uneven distribution of impact can change the power relations between actors affecting their command of and access to resources (Bryant and Bailey 1997: 28-29).

Bryant and Bailey identify three time dimensions of causes of ecological change: *everyday* human activities e.g. deforestation and land degradation; *episodic* events (often referred to as natural disasters) e.g. flooding and drought; and *systemic* processes deriving from industrial activities e.g. pollution (Bryant and Bailey 1997: 29-30). The Third World political ecology deals only with the everyday and episodic dimensions. The common feature of these two dimensions is the impacts on actors are highly unequal with the poor as the main losers. The interconnectedness of the everyday and episodic dimensions is to be noted. It may be viewed as physical connections where an everyday activity eventually causes a natural disaster e.g. deforestation causing flooding. It may also be viewed as social connections e.g. marginalisation (owning marginal land) is the cause for people to pursue activities (overusing land) that lead to an episodic change (land degradation), which at the end marginalises them even further (Blaikie and Brookfield 1987 in Bryant and Bailey 1997: 31-32). Because poor people often are more vulnerable to episodic changes, these increase socio-economic inequality and power differences between the poor and the other stronger actors (Bryant and Bailey 1997:32-33).

Environmental problems and conflicts are additionally grouped in three spatial scales namely local, regional and global. The behaviour and relevance of different actors varies on the different scales. The local and regional scales where the poor grass-root actors bear most of the cost of ecological changes, while stronger actors claim most of the benefits. Efforts to solve problems are headed by the state on all scales, and together with multilateral organisations and business actors the state tends to employ technology oriented solutions that neglect the political aspect of the problems. It is worth noting how these solutions may be influenced by the circumstance that state, multilateral organisations and businesses

usually have an economic involvement in the activities that cause the environmental problem. By giving a voice to grassroots, ENGO's play a democratising role on the local scale. While the ENGOs do not cause any change themselves it is important to keep in mind that they benefit from the existence of an environmental problems (Bryant and Bailey 1997: 34, 36-38).

Bryant and Bailey argue that power relations are engraved in the environment and environmental ideas, even though they are unequal, power is a two-way process. The inherent organisational characteristics of various actors engaged in Third World environmental change and conflict determine their power and their means to act and interact with other actors. State actor can exemplify this. As state obtains its power from its role and has "a monopoly on the means of coercion" within a defined territory, hence challenged by other actors. Nonetheless, state plays solely a legal-political role through which it gains benefits from the sources of political power. While grassroots actors have different way to gain their power, thus have different options to act and interact (Bryant and Bailey 1997: 189, 191).

Actor, power and relations

On all scales actors will use the power they are endowed with to try to influence the outcome of an environmental conflict. Conflict may exist between actors or within each category of actors. There are a number of ways that actors can utilise their power to control environmental change. Firstly, powerful actors can control the access to natural resources and if weaker actors loose access to resources, they do not receive any profits of the environmental change and bear most of the costs. Secondly, actors can apply their power to place activities that result in environmental change in locations of weaker actors. A third way to employ power is in the prioritisation of projects and funds to solve environmental problems. Hence, solution and approaches can be designed to subsidise the interests of powerful actors while not benefiting the weak and, in some cases, not the environment. The Third World political ecology by Bryant and Bailey also encompasses the vital role of discourse, as "conflict over environmental resources is typically a struggle over ideas as to what constitutes appropriate environmental use and management". Thus, by using their power, actors can mould environmental facts and norms with the objective that their own interests can be legitimised as being for the common good (Bryant and Bailey 1997: 39-42, 189, 192).

Power relations can be seen in the environment as pattern of control and resistance. Through economic activities, powerful actors shape the use of environmental resources. On the other hand, weaker actors can use power for resistance e.g. sabotage activities of powerful actors or illegitimate use of resources. Based on their distinguishing characteristics, actors may form partnerships or alliances to promote their interests. For instance as states and businesses that pursue to expand economic activities, may complement each other on the use of environment resources. On the contrary, grassroots and ENGOs will ally if they both seek to defend control over community environmental management to promote social justice and/or environmental conservation (Bryant and Bailey 1997: 43-44, 190).

Third World political ecology as stepping-stone towards participation and sustainable livelihoods approach:

Bryant and Bailey comment that most political ecologists are more apt to "describe problems" than to "prescribe solutions", nevertheless, they provide the clear understanding of "the nature and dynamics of [the] crisis" to those who want to solve the environmental crisis in the Third World. Political ecologists still have to develop an alternative to the conventional concept of SD, possibly because they themselves are overpowered by and integrated in the liberal-capitalist dominated worldview (Pepper: 1993 in Bryant and Bailey 1997: 4, 195).

However, in the view of Bryant and Bailey, a common proposal by Third World political ecology is that traditional powerful actors such as states, business and multilateral institutions play a supportive role in organising the interactions of local level actors and communities at different levels, to embrace participation in decision-making by grassroots, who are inspired by social justice and environmental conservation i.e. sustainable livelihoods (SL) (Bryant and Bailey 1997: 4-5).

The third world political ecology gives the understanding of the actors' interests, motives that influence the way they use their power to influence environmental conflicts in the Third World and the way that this leads to and is a consequence of the social injustice of environmental problems in the Third World. To achieve a more detailed qualitative measure of the actual gains and losses in face of changes in the environment the SL framework invoked. The environmental impacts on people are evaluated in terms of their livelihood outcomes that depend on a range of livelihoods. Seen in this light, it is imperative to explore the SL idea, which is elaborated in the following section.

3.2 Sustainable Livelihoods

3.2.1 Background of Sustainable Livelihoods

Initially, the idea of livelihood security was developed by the Brundtland Commission's Advisory Panel on Food, Agriculture, Forestry and Environment as an integrating concept dealing with the issues of population, resource, environment, and development, while corresponding with the need and priorities of the poor (Chambers 1987: 9-10). Sustainable livelihoods (SL) thinking has been further developed and become recognised as an approach to poverty reduction in environment and development (Ashley and Carney 1999: 4; Jones and Carswell 2004: xxi, 185; Scoones 1998: 3)

A more elaborate framework for the sustainable livelihoods approach (SLA) is that of Chambers and Conway, which, later, was adopted and further developed by the Institute of Development Studies, University of Sussex (IDS). The approach has been implemented in the work against poverty by various institutions in the development field e.g. Department for International Development (DFID) of the United Kingdom, Christian Action Research and Education (CARE), Oxford Committee for Famine Relief (OXFAM) and UNDP (Jones and Carswell 2004: 185). In the following section, before setting sails towards the core concept and framework of SL, sustainable livelihoods will be defined.

3.2.2 Definitions of Sustainable Livelihoods

Simply, livelihood is "a means to a living" (Ellis 2000: 7). The SL definition by Chambers and Conway (1992) that is widely used and adapted by researchers, among them the IDS says that

> "A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base." (Scoones 1998: 4)

Thus, the essential characteristic of livelihoods is its links between 'assets' and 'choices' that people have to pursue alternative income generating activities needed for survival (Ellis 2000: 7). Sustainability is both an end and a means. As an end (goal), sustainable management of resources is a value in itself. As a means (tool), sustainable management of resources protects livelihoods for future generations (Chambers and Conway 1991: 4-5).

3.2.3 Sustainable Livelihoods Conceptual Approach

SL is a development thinking concerning poverty reduction, rural development, and natural resource management (Scoones 1998: 3; Ashley and Carney 1999: 4-6). SL thinking underlines people centred approach to development and what important to the poor, not merely in terms of economic measures (Farrington et al. in Jones and Carswell 2004: 185-86). SL scholars, Chambers and Conway argue that conventional idea to development, which is linked to production thinking (i.e. producing food), employment thinking (i.e. having jobs or creating new workplaces) and poverty-line thinking (i.e. measuring incomes or consumption), do not suite or depict the rural realities and misperceive the real problem because most of rural life is complex and diverse (Chambers and Conway 1991: 2-3). Besides, income is not the only aspect of the lives of the poor, but they also have other concerns including the desire for basic needs, physical and social well being. Chambers upholds that only if the poor are first priority, the objectives for environment and development will be achieved. Hence, SL approach subscribes to the need and priorities of the poor for secure and adequate livelihoods (Chambers 1987: 9). SL approach takes people's capabilities as its point of departure hence underlining their strengths rather than their limitations (Carswell and Jones 2004: 185). The core principles of SL approach bases on capability, equity, and sustainability. These three interconnected concepts are used both normatively and descriptively i.e. as both a goal and standard for evaluation and measurement. Each concept is both an end and a means for development (Chambers and Conway 1991: 3-4).

SL prescribes development intervention to shift a livelihood to be sustainable and thereby damage environment less that again will benefit development and thus livelihoods and so on in a positive cycle (Chambers 1987: 16). SL approach is holistic in the sense that it identifies influences on livelihoods across sectors and actors. It highlights diverse livelihood strategies and searches to attain multiple livelihood outcomes. SL approach allows the identification of opportunities and constraints related to livelihoods no matter where these take place. The approach emphasises on working at multi-levels (Farrington et al. 1999: 4). Thus, it highlights the effects of macro-level policy and institutions on livelihood choices and outcomes of the poor. Seen in this light, SL approach emphasises the need for insight at the local, micro-level to influence the macro-level (Ashley and Carney 1999: 46).

3.2.4 Sustainable Livelihoods Analytical Framework

The SL framework does not mean to portray reality but it is an analytical tool to understand livelihoods and influences on poverty, while identifying points where interventions can best be made (Carswell and Jones 2004: 185) with the aim to increase the efficiency of development measures (Ashley and Carney 1999: 47). The framework provides a method and structure to analyse rural livelihoods by distinguishing core elements of livelihoods and their linkages, and to identify opportunities as well as constraints for people's pursuit of livelihoods. This can provide indicators for policy formulation to overcome such constraints and aid the use of assets more fruitfully (Ellis 2000: 45,47). It is also necessary to note that assets and constraints change dynamically and so do the livelihood strategies. Hence, SL analysis ought to follow the dynamics to be useful (Farrington et al. 1999: 3-4). The key question needed to be asked when using SL:

> "Given a particular context (of policy setting, politics, history, agro-ecology and socio-economic conditions), what combination of livelihood resources (different types of capital) result in the ability to follow what combination of livelihood strategies (agricultural intensification/extensification, livelihood diversification and migration) with what outcomes? Of particular interest in this framework are the institutional processes (embedded in a matrix of formal and informal institutions and organisations) which mediate the ability to carry out such strategies and achieve (or not) such outcomes" (Scoones 1998: 3).

The examples of sustainable livelihoods framework are the established framework by DFID and that by Ellis. Based upon these, a framework is constructed and applied in the analysis of this thesis.

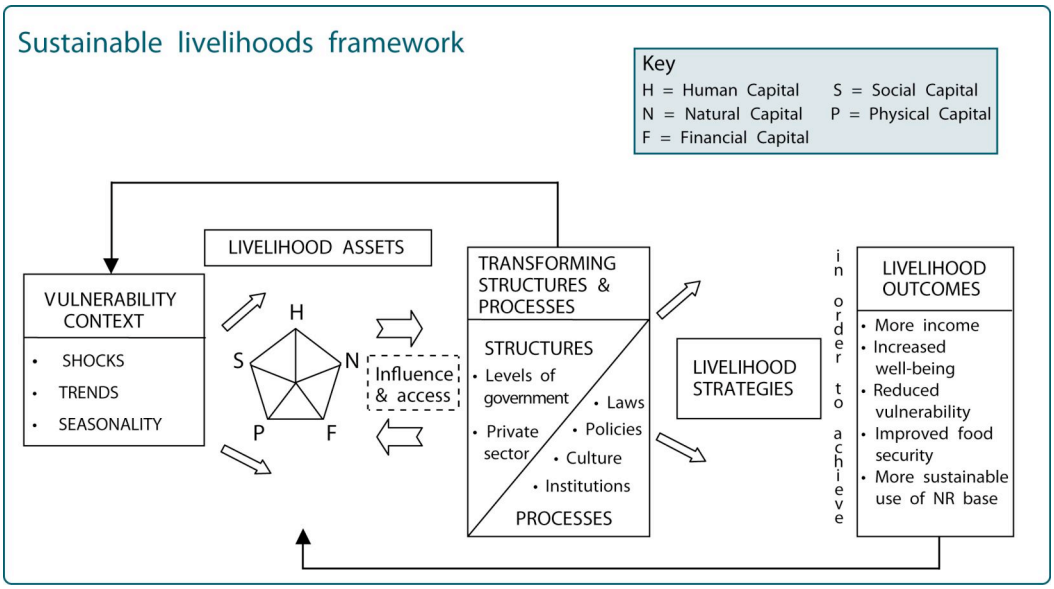

Figure 1: DFID SL Framework

Source: DFID (1999) Sustainable Livelihoods Guidance Sheets

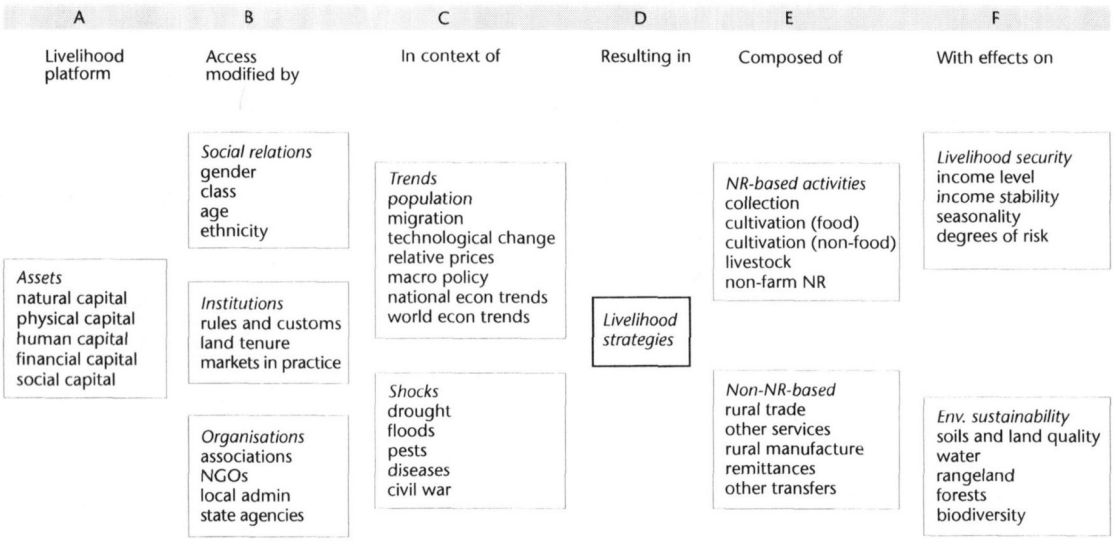

Figure 2: A framework for micro policy analysis of rural livelihoods

Source: Ellis 2000

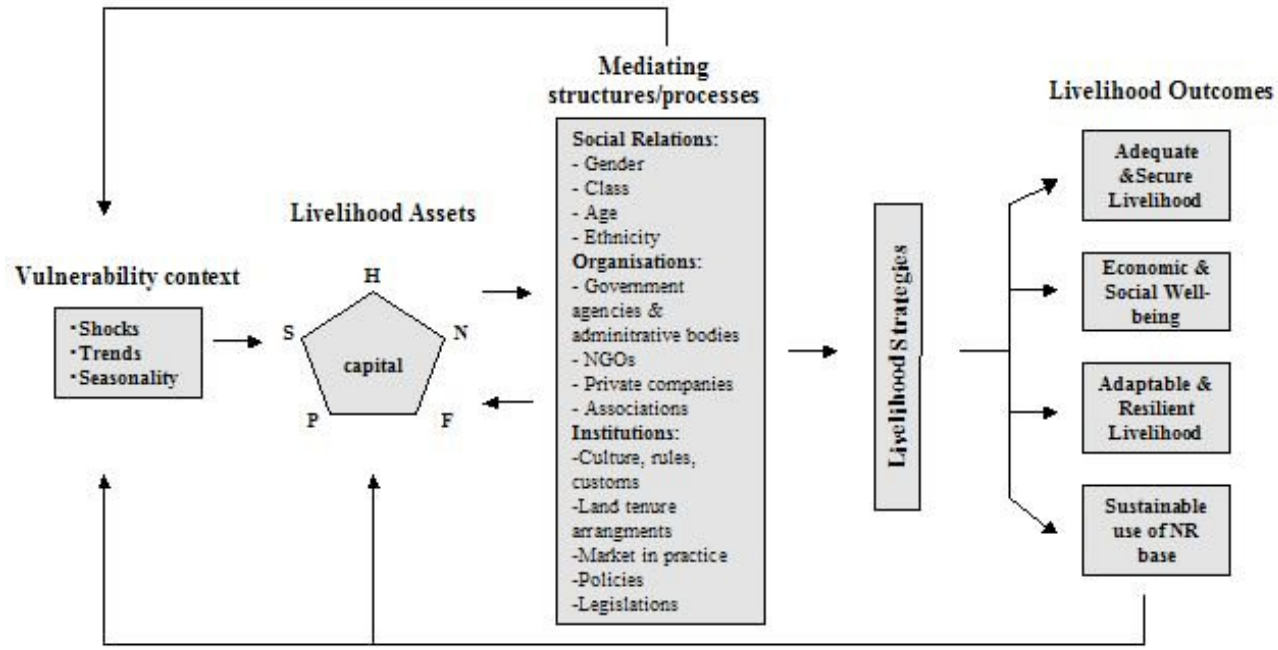

Figure 3: Sustainable Rural Livelihoods Framework

Source: adapted from DFID (1999) and Ellis (2000), 'A framework for micro policy analysis of rural livelihoods'.

Livelihood analysis starts with the resources or assets that people have access to and can combine into activities that form livelihood strategies. The diverse and complex

contexts i.e. vulnerability context and structures and processes condition and influence 'access to' and 'use of' assets by people and thus shape their choice of livelihoods. Vulnerability context influences the status of people's asset as well as the options for people's livelihoods by the ways that people choose to adapt to or cope with their environment. In addition, vulnerability context can be transformed directly or indirectly by structures and processes. The relationship between structures and processes and assets is two-way. Transforming structure and processes can influence and determine access to assets and vice versa. Opportunities for and constraints on choices of livelihood activities depend on all of the preceding factors resulting in a range of livelihood outcomes, which in turn have an impact on assets and vulnerability context.

In agreement with these lines of thought, the structure of SL analysis is divided into firstly, livelihood assets (resources), secondly, context and conditions which are composed of vulnerability context (i.e. trends, shocks and seasonality) along with structures and processes (i.e. social relations, institutions, and organisations), thirdly, livelihood strategies and lastly livelihood outcomes.

I. Livelihood assets

Many research dealing with poverty reduction, sustainability and rural livelihoods agree that poverty reduction policy ought to be about improving the asset status of the poor, or elevating the efficient and effective use of their existing assets. Seeing that the asset status of the poor gives "a fundamental understanding" of the choices open to them, their survival strategies and their vulnerability, the approach searches "to identify what the poor have rather than what they do not have and to strengthen people's own inventive solutions rather than substituting for, blocking or undermining them" (Moser 1998:1 in Ellis 2000: 28).

People pursue livelihood outcomes i.e. health, income, reduced vulnerability, empowerment through using assets (by some referred to as resources) to pursue livelihood activities that will result in the desired outcomes (Farrington et al. 1999: 3). Assets, as Ellis illustrates, are building blocks, which enable individuals or households to achieve their production, participate in labour markets and establish mutual exchange with their social networks. Assets or resources can be seen as stocks of capital, which can be used directly, or indirectly to create the means of survival (Ellis 2000: 31).

Categories of livelihood assets: Notwithstanding many scholars differently classifying assets, the classifications share some common elements.[3] In this thesis, the classification of assets follows that of Ellis (though in his work, implicitly, Ellis has adapted the work of D. Carney and Scoones and agrees with that used by the DFID. There are five categories of assets, namely natural capital, physical capital, financial capital and substitutes, human capital, and social capital (Ellis 2000: 31-32).

Natural capital means the natural resource base sometimes referred to as environmental resources or environment e.g. land, water, and biological resources that are used by human as means to gain a living. Natural resources are classified into renewable and non-renewable. Renewable resources are ones that replenish themselves over time e.g. water, fish, and trees, while non-renewable resources are exhausted according to the rate of human extraction (Ellis 2000: 8,32).

Physical capital means physical assets that are created by economic production processes e.g. building, machines, tools, roads, irrigation canals and land improvements (terraces). Physical or man-made capital is, in economic terms, a producer good purchased as a means to create a flow of outputs (an investment) so as to attain a flow of returns (income) in the future. In some occasions, this type of capital can replace or exchange with natural capital. Infrastructure assets e.g. roads, power lines, and water supplies not only in themselves benefit and provide services to people, but also facilitate and enable them to gain access to other services for example roads reduce the spatial cost of transaction in resources and outputs, at the same time roads help enlarge people opportunities to have jobs in other places (Ellis 2000: 8,32-33).

Financial capital and substitutes mean stocks of money e.g. cash, credit (loans), savings, and a store of wealth (e.g. livestock, food stocks, gold, and jewellery) that the household has access to. They are not necessary directly productive form of capital (i.e. increasing future productive capacity) since they can be converted into other forms of capital or into consumption. Undoubtedly, the access status to financial capital of an individual or household can improve and diversify the livelihood options. Hence, financial capital and substitutes are critical ingredients of assets of an individual or household (Ellis 2000: 8, 34).

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[3] see Swift 1989, Maxwell and Smith 1992, Reardon and Vosti 1995, D. Carney 1998 and Scoones 1998

Human capital means the labour available to the household: the education level, skills and health status of individuals and populations. The labour is, indeed, the prime asset owned by the poor. Labour is an important resource to a household, especially, when labour is unavailable or scarce in the market. In this case, large household spreads the risk to livelihood security while increasing choices of the livelihood strategies. Better education, training, skills, knowledge, and health can enhance human capital, capabilities, and allow individuals to command higher incomes as well as to increase labour productivity (Ellis 2000: 8, 33-34).

Social capital is "the social resources (networks, social claims, social relations, affiliations, associations) that individuals and households draw upon through various levels of social groups to which they belong when pursuing different livelihood strategies that need coordinated actions (Scoones 1998: 8; Ellis 2000: 36). Social capital may be understood as "reciprocity within communities and between households based on trust deriving from social ties" (Moser 1998 in Ellis 2000: 36). Social capital comprises membership of both formal groups and informal networks, which may be either vertical e.g. authority: patrons; chiefs; and politicians or horizontal e.g. family, friends and voluntary organisations (DFID 1999: 2.3.2; Friedmann 1992: 68-69). The rural households and individuals regard social capital as an asset that offers different possible means of support when favours are asked or reclaimed. Social capital is perceived as an investment, which can be in the forms of time or resources, with an aim to secure "potential future returns" e.g. in case of crisis due to stress or shocks. It is observed that in developing countries, rural households put a lot of weight on networks where they establish complex informal systems of rights and obligations in order to enhance their livelihood security (Ellis 2000: 9, 36). Based on relationship of trust and reciprocity, the social networks and organisations provide people the channel for cooperation and thereby empower people as a group to undertake collective action (DFID 1999: 2.3.2; Friedmann 1992: 67). The downside of social capital is it spawns "insiders and outsiders" in the process that bring about social exclusion of certain individuals or groups in rural societies (Ellis 2000: 36-37).

Chambers and Conway's distinction between tangible and intangible assets correspond these five categories of assets, where natural, physical and financial capital correspond tangible assets, and human and social capital are equivalent to intangible assets. All of these five categories are helpful analytical elements of assets that support livelihood strategies of individuals and households (Ellis 2000: 9).

The importance of assets: By combining the assets they are endowed with, people can engage in activities that generate livelihoods (Chambers and Conway 1991: 7-8). Assets can, to some extent, substitute one another (Farrington et al. 1999: 3). The more assets people hold means the more choices for livelihood strategy people have. Asset, thus, is a foundation that determines people's options of livelihood strategy as well as their well being. Seen in this light, people need a collection of assets to be able to escape poverty and progress towards more productive livelihood strategies (Di Gregorio et al. 2004: 12-14).

Assets can be in the forms of personally held assets and communal assets e.g. public goods and services. In general, poor people hold few personal assets and usually depend on contractual arrangements that give them access to assets of others e.g. credit, which normally is available at high cost. Often poor people lack or have difficulty in or even are excluded from public goods and services for instance community forests or pastures, schools, and health care. Commonly, poor people count on natural resources or capitals, e.g. fishing ground and pasture, in order to gain a living. Typically, natural resources, which poor people have access to, are marginal and of low quality. These factors constrain the productive potential of the poor. Hence, the condition of and the right to access the natural resources become crucial (Di Gregorio et al. 2004: 13).

The different types of assets or capital influence one another. Tangible assets affect intangible assets in number of ways. Tangible assets that provide more fruitful livelihood strategies can release people time, which gives them opportunities to build up other assets and allows them to participate in and be part of social networks as well as to gather information and acquire knowledge, which is often spread through the networks. By being members of social networks, people can gain power by participating in collective action, enabling them to involve in politics and influence other's actions, especially of the powerful and influential e.g. state and private entrepreneurs (Di Gregorio et al. 2004: 34-38). Therefore, assets affect both decisions and bargaining position of the people (Di Gregorio et al. 2004: 12-13). When commencing an analysis of rural livelihood assets, Scoones proposes a set of questions that about household asset portfolio:

- Sequencing: Which type of capital is necessary or essential to have initially to gain access to other types of capital
- Substitution: Which capital types can substitute one another and which capitals are needed in combination to pursue a livelihood strategy
- Clustering: Does access to one type of capital usually allow access to other types or do particular groups tend to enjoy a certain cluster of capital
- Access: As a consequence of institutional arrangements, organisational issues, power relations and politics do some people have more or less access to different capital

- Trade-offs: Does the differential access by different groups to capital have negative or positive influence on the pursuit for sustainable livelihood
- Trends: Are there trends in the availability (depletion or accumulation) or access to different types of capital (Scoones 1998: 8).

The access to assets and livelihood opportunities as well as their convertibility into outcomes are determined not only by assets held, but also by vulnerability conditions and events (shocks, trends and seasonal variations), as well as structures (organisations) and processes (institutions) (Farrington et al. 1999: 3). In the subsequent section, the vulnerability context and its influence on the livelihood options, activities, and assets of the people will be examined.

II. Context/Condition

Livelihood activities and strategies are not chosen randomly but in response to a specific context as an interconnected web of conditions and settings. Context, hence, provides the essential background to understand livelihoods and the effects it has on these. Following Scoones, Ellis, Carney, and DFID context refers to two groups of influences. The first are external factors, the so-called *vulnerability context* i.e. shocks, trends and seasonality. Context also refers to factors that influence the access to and use of assets of the people in pursuit of viable livelihoods (Ellis 2000: 37) such as political and socio-economic *structures and processes* of which livelihoods are integral components. In both cases the context can generate constraints as well as opportunities for livelihoods (DFID 1999: 2.2, 2.4). Some context components are not static but change over time or can be changed by people's actions e.g. policy, while other components, particularly those belonging to the vulnerability context, are more difficult to change e.g. climatic conditions, which people can only adapt and guard themselves against (DFID 1999: 2.2, 2.4.1, 2.4.2; Di Gregorio et al. 2004: 17, 31). The following two sections will outline the properties of the two types of livelihood context.

IIA. Vulnerability Context: The security and welfare of individuals and households are determined not only by assets and income, but also by their degree of vulnerability (Di Gregorio et al. 2004: 17). The vulnerability context frames the external environment in which people live. The vulnerability context is about the situation that individuals or households find themselves in when faced with conditions that they have limited influence on or no control of. (DFID 1999: 2.2). Hence, vulnerability covers the aspect of conditions

in the external environment that people live in their affect on people's lives and the aspect of the capacity of people to deal with these conditions (Chambers and Conway 1991: 10). Fundamentally, conditioning factors of vulnerability whether natural or man-made consist of shocks, trends, and seasonality or seasonal shifts (DFID 1999: 2.2; Di Gregorio et al.: 18-20):

Shocks	**Trends**	**Seasonality of**
• Natural shocks: natural disasters e.g. drought, floods, pests and diseases • Economic shocks: market crashes, high inflation, and high fluctuation of primary market products • Socio-political shocks including conflict: infrequent election cycles, very low personal and property security and civil war	• Resource trends: deteriorating resources • Population trends: growth and density • National/international economic trends: market prices • Political including governance trends: relative policies • Technological trends: technological change	• Prices • Production • Health • Employment opportunities

Shocks are events, which occur infrequent, sudden, unpredictable and appalling. Shocks can affect assets directly such as the destruction caused by natural disasters (e.g. floods) and indirectly such as pushing people to desert their home and assets (e.g. land) impulsively in order to cope with their situations. *Trends* are usually continual and incremental, and thus more predictable, yet not necessary benign. They have an effect on the profits from livelihood strategies, especially, of poor people who have fewer livelihood options. *Seasonal shifts* in prices, employment opportunities and food availability are a constant cause of difficulty for poor people (DFID 1999: 2.2; Chambers and Conway 1991: 10-11).

These factors engender different degrees of vulnerability in terms of risks and uncertainty. They bring striking effects on individuals/households, their livelihood assets and activities. Especially, the very poor who have limited ability and initial resources to prepare against and overcome such risks and uncertainty (Di Gregorio et al. 2004: 19-20; DFID 1999: 2.2). When faced with seasonal shifts or shocks, the poor are often forced to choose safer but less profitable livelihoods, which keeps them trapped in poverty (Di Gregorio et al. 2004: 19). As livelihoods and survival of individuals and households are vulnerable to such risks and uncertainty, the ability of people to take action to confront,

recover from, avoid or withstand these are essential (Chambers and Conway 1991: 10-11). Livelihood strategies in response to vulnerability will be discussed further in section III.

IIB. Transforming Structures and Processes: Traditionally rural livelihood investigations tend to focus on the relationship between measurable variables, while neglecting institutional constraints or catalysts. To achieve sustainable livelihoods, it is essential to discern critical mediating factors that shape livelihoods of the people (Scoones 1998: 11-12) so called mediating or transforming structures and processes, which largely are endogenous social factors, which households are part and parcel of (Ellis 2000: 39). Poverty and the opportunities to flee from it depend on not only livelihood assets and vulnerability context but also transforming structures and processes that determine the access to assets including options and opportunities for livelihood activities and strategies of the people (Farrington et al. 1999: 3). In the framework of SL, DFID has distinguished transforming structures and processes that shape livelihoods of individuals and households into organisations, institutions, policies and legislation (DFID 1999: 2.4).

What are structures: Structures as identified by DFID are *organisations*, both public and private (DFID 1999: 2.4.1). According to North, "organisations are groups of individuals bound by some common purpose to achieve objectives" (North 1990 in Ellis 2000: 38) for instance government agencies (e.g. Ministry of Agriculture and government veterinary service) and administrative bodies (e.g. local government), non-governmental organisations including private companies and associations (Ellis 2000: 38). Hence, organisations are distinguished from institutions as they are bounded by social systems and classified as "the players in the game", while institutions are termed as "the rules of the game" (North 1990 in Scoones 1998: 12).

Structures exist and operate at different levels. They are important because they render processes to function. The structures to be noted here are governmental organisations as they operate in cascading levels with various degrees of autonomy and a range of authority depending on the level of decentralisation. Furthermore, they set and implement policy and legislation, deliver services and perform other functions that affect people's livelihoods e.g. by improving efficiency of public sector management, facilitating and extending access to markets of the rural poor. Private organisations are also to be mentioned as they operate from local to international levels that can have an influence on the rural livelihoods. Therefore, SL analysis is to identify the roles and responsibilities of structures at different

levels that are critical to the rural livelihoods along with their relations in combination with processes that generate impacts on the poor (DFID 1999: 2.4.1).

What are processes: Processes determine how structures as well as individuals function and interact. As processes can transform livelihoods, this also makes them important mediating factors among others for livelihoods (Ellis 2000: 39). Processes can come in many forms and operate at various levels. Processes are often overlapping and contesting, thus, making them complex and critical (DFID 1999: 2.4.2). Processes are often implemented or realised through structures, hence, the interaction of both structures and processes is crucial to all aspects of livelihoods and the SL analysis (Scoones 1998: 12). Transforming processes that are important to livelihoods applied in SL framework are *institutions, policies and legislations* (DFID 1999: 2.4.2).

Institutions can be formal and informal operating at various levels. Institutions, termed by North as "the rules of the game", are part of social negotiation process. They are continuously being shaped and reshaped over time and are subject to multiple interpretations by different actors. As defined by Giddens, institutions are "regularised practices (or patterns of behaviour) structured by rules and norms of society, which have persistent and widespread use" (Giddens 1979 in Scoones 1998: 12).

According to North, "institutions are the formal rules, conventions and informal codes of behaviours that comprise constraints on human interactions" e.g. laws, land tenure arrangements (property rights) and the markets in practice (North 1990 p.3 in Ellis 2000: 38). *"Institutions are embedded in and developed out of the culture of communities and larger societies"* (DFID 1999: 2.4.2). Power relations and their hierarchies are often recognised and embraced in culture whereby status of the people are bestowed and behaviours and opportunities of them are restricted (DFID 1999: 2.4.2). Power relations are entrenched within institutional forms generating controversy over institutional practices (Scoones 1998: 12).

Power relations identified by DFID or social relations the term used by Ellis, denote the social positions of individuals and households in society, for example gender, caste, class[4], age, ethnicity and religion (Ellis 2000: 38). These relations are social constructs, which define the roles and relationship between them, and usually are unequal with respect

[4] Class is difficult to generalise across different cultural contexts. However, according to Marxist social analysis, class is distinguished into the owner of capital: capitalist class and the owner of labour: working class. In the rural settings, social class represents differences in land ownership, personal wealth or education achievement (Ellis 2000: 38).

to power, decision-making, control over events, freedom of action, ownership of resources and so forth (Ellis 2000: 139). Seen in this light, "institutions are the social cement which links stakeholders to access to capital of different kinds to the means of exercising power and so define the gateways through which they pass on the route to positive or negative [livelihood] adaptation" (Davies 1997: 24 in Scoones 1998: 12)

Therefore an insight into institutions helps to identify constraints and opportunities for sustainable livelihoods as well as social processes and relations and power relations that affect sustainable livelihoods (Scoones 1998: 12). Seen from the angle of North, policies and legislation are part of institutions. Policies advise the development of new legislation and provide a framework for actions of implementing agencies as well as public sector. An analysis of policies and legislation, one need to know "what is written", "what are intended effects", "how they are practiced", "how they are influenced e.g. at the local level", and "what are their effects on livelihoods" (DFID 1999: 2.4.2). How structures and processes affect livelihoods: Transforming structures and processes have an impact not only on people's access to various assets, choices of livelihood strategies and outcomes derived from the strategies, but also on their influence on decision making bodies. They can, also, directly improve livelihood outcomes e.g. through the provision of social services or by reducing norms and policies that cause social marginalisation (DFID 1999: 2.4).

An example is the allocation of property rights and the possibilities to change these rights, which in turn influence people's access to assets and their choices of livelihood (Di Gregorio et al. 2004: 24). Property rights regard as "the capacity to call upon the collective to stand behind one's claim to a benefit stream" i.e. one must be able to claim a right and then have institutions to back the claim (Bromley 1991 in Di Gregorio et al. 2004: 6).

Transforming structure and processes have an effects on vulnerability context e.g. trends directly and indirectly. They can provide aid to mitigate the impact caused by external shocks by providing relief (and establishing the relevant agencies), or facilitating access to markets to reduce the effects of seasonality (DFID 1999: 2.4). Formal and informal property rights institutions can provide access to common or state-controlled resources hence reducing vulnerability by providing alternative livelihoods in case of shocks. On the other hand, informal property rights can create uncertainty and conflict over access to resources (Di Gregorio et al. 2004: 21).

There is neither guarantee that laws and customs are efficient or fair in terms of access rules or resource allocation e.g. land ownership, nor that the organisations (e.g. village councils and local courts) that interpret them will be fair and consistent to all. In general

people's access to resources depends on social factors including power relations that are linked to their social capital. For example people who possess weak social network (low social capital) are also less able to organise effectively to negotiation access to assets resulting in them having only weak roles in management of common property resources (Ellis 2000: 39). This highlight the role of social capital that empowers people to take collective action to secure and resolve conflicts over e.g. their common resources and to bargain within social and political structures about allocation and management property rights. Furthermore, collective action enables people to demand governing bodies for the provision of information on their surroundings and policies along with assistance so that the exposure to risks and uncertainty may be reduced (Di Gregorio et al. 2004: 22-23).

III. Livelihood Strategies and Activities

To create livelihood, people combine assets endowments in away that is shaped not only by structures and processes and vulnerability context, but also by preferences and ideas of individuals or households (Scoones 1998: 9; Di Gregorio et al. 2004: 11). The aim of the livelihood strategy is to provide households with the means for survival. People often combine a number of activities to construct livelihood strategies (Ellis 2000: 40).

The rural livelihood activities can be categorised into two groups according to their dependence on the natural resource (NR) base i.e. NR/non-NR based activities. Natural resource based activities could be farming e.g. cropping, livestock raising, and non-farming e.g. gathering, fishing, and hunting. Non-NR based activities comprise rural trade in farm outputs, inputs and consumer goods, rural manufacture, services e.g. maintenance or repair, (urban and international) remittances, and other transfers e.g. pensions (Ellis 2000: 40-41).

Scoones has classified livelihood strategies into three groups: agricultural intensification (increase farm produce) or extensification (increase farm size); livelihood diversification; and migration. Agricultural intensification or extensification point towards reliance on farm activities by increasing farm produce or increase farm size respectively. Diversification as a strategy aims at varying livelihoods to include on-farm, off-farm, and non-farm activities (Scoones 1998: 9; Ellis 2000: 41; DFID 1999: 2.5). Especially, for landless or near-landless people it can be beneficial to engage in non-farm activities. Diversification does, however, not necessitate non-farm activities, as various farm techniques such as mixing or sequencing crops themselves constitute diversification strategies (Ellis 2000: 104,111).

Migration of a member of the household, as part of diversification strategy or as a strategy by itself, provides temporary (e.g. seasonal) or permanent livelihoods elsewhere. The migrant can gain a livelihood for himself/herself and send remittances to the household (Scoones 1998: 9; Ellis 2000: 41; DFID 1999: 2.5). The problem of migration is that it removes labour force from the agriculture especially the young, educated, male section. Besides doing much of the hard work these are also the most strong and activist members of the village communities. In addition, the migrants to cities may not actually send any remittances to the household due to cost of living in urban centres (Ellis 2000: 105-106).

Each strategy requires some assets, which differ from situation to situation for example agricultural intensification may need access to natural capital (e.g. land, water), economic capital (e.g. credit, technology) or social network (labour sharing), while extensification need land as a key asset (Scoones 1998: 9). Substitutability is a prime consideration when thinking about livelihood diversification as a strategy to reduce vulnerability (Chambers and Conway 1991: 21).

Strategies may positively influence each other for example one person's diversification may affect the whole household by providing more income or agricultural intensification may provide a livelihood for someone else (trading) (Scoones 1998: 9). On the other hand, there are negative linkages where livelihood may compete and destroy other livelihoods, when too many compete for too few opportunities. Besides, in a case of extensification where a household appropriates common land and cuts access to food for others (Chambers and Conway 1991: 21). The dynamics of livelihood strategies are particularly important to note when assessing their sustainability. Hence, livelihood strategies are to be analysed over long timescales where different livelihood pathways due to seasonal cycles, human lifespan, and geographical and biological changes become clear (Scoones 1998: 10).

Since risks and uncertainty can happen either frequently or infrequently, as part of their living, it requires individuals or households to manage and adapt their livelihoods to such risks and uncertainty. There are two options that individuals or households could take i.e. either to reduce exposure to risk (risk management) by preventing and preparing for the effects; or to recover, repair, and rebuild from the effects (risk-coping) (Di Gregorio et al. 2004: 17). Risk management strategies include stocking up food and other assets as buffers, protecting assets from damage or loss, or enhancing the resilience of the livelihood resource base. Another option for risk management is to diversify or seek new sources of livelihoods by changing the composition of livelihood activities to spread risk and avoiding inter-

dependences and chain reactions. As risk coping strategies people can simply reduce consumption, use of their stocks or selling off asset, or choose to relocate assets or migrate (Scoones 1998: 10; Ellis 2000: 42). To achieve sustainable livelihoods (i.e. livelihood security) people need to mix these strategies so as to reduce their exposure to risk and increase their ability to recover from it (i.e. reducing vulnerability). This demands that people are capable to perceive, predict, adapt to, and exploit changes in physical or socio-economic environment (Chambers and Conway 1991: 11-12).

IV. Livelihood Outcomes

"Livelihood outcomes are the achievements or outputs of livelihood strategies" (DFID 1999: 2.6). The outputs of livelihood activities can be food, cash or other goods that satisfy a range of human needs. Some of these outputs will be consumed immediately, while others will be stored for consumption or be invested in other assets when there is a surplus (Chambers and Conway 1991: 8). Within the SL framework, the outcomes of livelihoods, which also act as measures, are identified as follow.

- First, adequate and secure level of household income or net returns from the livelihood activities.
- Second, social and economic well-being
- Third, low vulnerability from resilience and adaptability of livelihood to cope with and recover from stress and shocks.
- Lastly, environmental sustainability from a sustainable use of the natural resource base.

The first two elements of livelihood outcomes are related to ability of livelihoods to uphold people's lives, whereas the last two elements concern sustainability (Scoones 1998: 5-7; Ellis 2000: 40; DFID 1999: 2.6; Chambers and Conway 1991: 10-11).

Adequate and decent livelihoods can improve capabilities, provide opportunities as well as expand choices of people. Stability of livelihoods means that people have secure access to their asset base. Well-being comes from meeting one's material needs with respect to conventional measures and having capability to do things that one values, have self-esteem and be happy. These, in turn, will empower people and improve their living quality (Chambers and Conway 1991: 8, DFID 1999: 2.6, Ellis 2000: 38).

Reducing livelihood vulnerability refers to the ability of an individual or a household maintain an adequate and decent livelihood, and to cope with, recover from, and adapt to stress and shocks (Chambers and Conway 1991: 10). This dimension also takes the future generations and their livelihoods into account. This inter-generational sustainability concerns maintaining or enhancing capabilities for future generations in the forms of either

inheritance of assets (tools, land, skills) or education to pursue other livelihoods (Chambers and Conway 1991: 12).

Environment sustainability refers to whether livelihood activities will maintain, enhance, degrade or deplete natural resource base e.g. deforestation desertification, declining water tables and salinisation. In addition, if the activities have a positive or negative impact on livelihoods of others on the long term e.g. pollution and environmental degradation. The main concern for the poor in the South is the sustainability of the local environment (Chambers and Conway 1991: 9, 19).

How well livelihood outcomes are met should be a criterion for project design and assessment. The question is how to assess the SL outcomes as a whole and in a way that is useful. The outcomes are generally not commensurable e.g. "it is hard to weigh up the relative value of increased well-being opposed to increases income" (DFID 1999: 2.6). One method is to count the number of environmentally and socially sustainable livelihoods adequate for living that a programme generates. Along with this, one must also account for any negative effects on benefits and sustainability of other livelihoods. Hence, SL shifts focus from biological and physical criteria to livelihood criteria, which are linked to political economy - who gains and who looses (Chambers 1987: 22; Chambers and Conway 1991: 18-19).

However, it is still a challenge to measure various aspects of the outcomes. For example, it is not easy to gauge the effects of one livelihood on the intangible assets that support another livelihood, as in the appropriation of resources by rich that causes a loss of claim and access by the poor. Likewise, it is hard to measure capabilities and intergenerational social sustainability, as humans are tempted to focus on short-term advantages. To ensure that projects and outcomes are in tune with needs and desires of the rural poor, it should be they themselves who participate and play a major role in assessments. In doing so, they will be empowered and gain confidence to reach "the sustainable livelihoods they want and need" (Chambers and Conway 1991: 13, 19-21).

3.2.5 Critique

Despite sustainable livelihoods approach provides a useful analytical tool to scrutinise and help to understand the rural poor and livelihoods as it is inspired by and composed of perspectives from different disciplines, it has limitations and is subjected to criticism. SL analysis is criticised for its complexity that make it hard and time consuming to apply (Carswell and Jones: 186; Farrington et al. 1999: 11). When analysing institutions, both

formal and informal factors at all different levels are taken into consideration. This broadness is also a huge challenge (Scoones 1998: 12). Although it is non-sectoral, in practice there is a need to work with partners in single sector (Farrington et al. 1999: 11). Besides, the result of livelihood analysis and programme has a tendency to reflect the actual world that is divided into sectors e.g. sectoral department or ministry. Though the SL framework incorporates the influence of power issues, its attention is not central on these issues – especially when it is possible to identify effects of power relations, but SL analysis does not provide any solution to this problem. For this reason, SL analysis needs a stronger integration of politics and political economy analysis (Carswell and Jones: 186).

As the focus of SL is the sustainability of the livelihood, seen as a combination of assets and activities that generate a range of outcomes, there is no requirement that any individual component should be sustained. For example, the importance of environment sustainability is unclear. The SL framework is equally applicable to poor and non-poor people and some see the lack of direct focus on poverty alleviation as a weakness. Besides, SL does not cover aspects of poverty, which relate to broader fundamental changes to e.g. global consumption patterns and markets of the rich (Ashley and Carney 1999: 33-34, 36).

In sum the sustainable livelihoods framework provides a way to discern the process determining people's livelihood outcomes and the manner by which these are impacted by development interventions. Together with the third world political ecology this forms a firm basis for the examination and subsequent analysis of the case.

Figure 4: Map of the Greater Mekong Subregion - case study area highlighted in orange.
Source United Nations

Chapter 4
Case study: Upper Mekong Navigation Project

For generations the Mekong River has been an integral part of the lives of the people who live along it. It has provided the food, materials and social frame for their lives. In some way or the other, the lives of the locals are about to change. Behind the change are a number of development initiatives that make up a larger plan for the management of the river. The narrower scope of this case study is on the UMNP and its affects on riverside communities on the river stretch that makes up the border between Laos and the Northern Thai province of Chiang Rai. The chapter is divided into two parts with the *first* part portrays the river's physical and ecological features, then the role that the river plays in local people's lives, and a brief history of the development. The *second* part lays out the case of the Upper Mekong Navigation Improvement Project. Initially, as a background understanding, the broader context of navigation development in the Mekong is given, leading to account of the implementation of the UMNP. Then the actors in the navigation project are described and a detailed description of the effects of the navigation project on the environment, livelihoods and life quality is given.

4.1 The Mekong River

4.1.1 Mekong River Geography Overview

One of the mighty rivers of the world, the Mekong is home to great diversity of species of plants and animals as well as a source of life and livelihoods for many millions people living along it (SEARIN 2003: 45; Hirsch et al. 2006: 13). Having an origin in the Tibetan Himalayas, the Mekong River flows toward the south passing though China, where it is named Lancang Jiang, then Burma, Laos, and Thailand, meeting the golden triangle and marking its entry to the Lower Mekong Basin (LMB). From this point the Mekong River meanders south and east through the highlands of Laos before it continues and forms a 900 km long border between Laos and Thailand. Further on it runs through Cambodia where it is joined by Tonle Sap, and finally flows into the South China Sea through the Mekong Delta in Vietnam (Öjendal and Torell 1997: 18, 20).

The Mekong River is fed by water from snow melting in Tibetan Himalayas and two monsoons in its lowland tributaries. Notable tributary river systems are Laos' Nam Ngum, Nam Theun and Sekong, Thailand's Mun and Chi, Cambodia's Tonle Sap, and Vietnam's Se San (Öjendal and Torell 1997: 18, 20-21; Osborne 2004: 1-2; Hirsch et al. 2006:13-14). The Mekong water level varies drastically through out the year due to the monsoons. In September, the water flow discharged into the sea is 25-30 times that in April. When the Mekong River increases during the monsoon seasons the water flows into Tonle Sap making it five times larger in the dry season, but as the water recedes, the flow reverses. This flood-pulse defines the ecology of the region. The water level fluctuations in the Mekong influence agriculture, irrigation, navigation and hydropower dams (Öjendal and Torell 1997: 28-29; Hirsch et al. 2006: 14).

On the section of the Mekong flowing along the Northern Thai-Lao borders, from Chiang Saen to Chiang khong, which is covered by the navigation project case study, the river has unique characteristics because of various natural formations such as rapids, reefs, sandbars, beaches, whirlpools, small swamps, and pools, which make up a complex riverine eco-system. Rapids and reefs create significant productive riverine habitats in the form of spawning grounds for fish and aquatic plants such as the Mekong waterweed locally called *Kai* (SEARIN 2003: 34; SEARIN 2006: 35-36). As part of an ongoing process, strong currents steadily change the river features and flow due to bank erosion (Lazarus et al. 2006: 34).

On the stretch on the Burmese-Lao border down to near the Golden Triangle the river flows fast and turbulently in a hilly terrain with numerous massive rapids, reefs and outcrops in the river. The width of the river varies from 50 to 150 metres and forest cover dominates the surrounding landscape. From a little before the Golden Triangle the river enters a flatter landscape and widens to up to 500 metres. The river flows gently and the banks are either steep due to erosion or in the form of beaches of sand or pebbles. On this section on the Thai-Lao border the Thai side is the most densely populated and there is a large degree of urbanisation especially around Chiang Saen with stretches of embankments along the river. Otherwise, the land along the river on the Thai side is mostly used for agriculture while on the Lao side there remains more forest cover. Further down, the river passes an area comprising and extensive system of rapids, reefs, shoals, pools, whirlpools, sandbars, and low lying islands (islets). These are the Khon Pi Luang rapids, which are wider and less massive than those further upstream (Meynel 2003: 10, 12). After a short stretch of calm spread out flow past the town of Chiang Khong, finally, the river enters Laos

where it is surrounded by hills and mountains causing it to narrow in and become more turbulent (Dubeau 2004: 11).

4.1.2 Mekong River Ecosystem

Not only is Mekong among the world's largest rivers but also most diverse freshwater ecosystems providing rich river systems resources to the people living in the basin (Öjendal and Torell 1997; MRC b). The complex and diverse mixture of terrestrial and wetland habitats with distinctly different wet and dry seasons function as an eco-zone harbouring a high biodiversity that makes the Mekong Basin source of natural wealth (Meynel 2003: 12; MRC b). This section will mainly describe aspects of this diverse eco-system that turn out to be important to people's livelihoods.

Seasonal fluctuations between rainy season and two dry seasons, i.e. winter and summer, govern the eco-system in the Mekong River. Of the more than 1,200 fish species identified in the Mekong, many have adapted their life cycles to the seasonal flow of the river with the river basin forming and connecting various habitats e.g. feeding- and spawning grounds for fish both local and migratory (MRC b), and then downstream to develop and grow in the Lower Basin. During the rainy season riverine plants and weeds are submerged becoming food source for fish. When the water subsides in the dry season, some plants can grow on the rocks in pools and rapids, such as Mekong waterweed, two important kinds of which are those that the local Thais call *'Kai'* and *'Tao'*. During the dry season when the water is low and clear and the sunlight can get through, providing *Kai* and *Tao* good conditions to grow on shallow riverbanks and rapids. *Kai* in particular is sensitive to sedimentation increase, which obstructs sunlight and hinders their growth possibility. (SEARIN 2003: 34-37; Thai Baan: 84-85).

The geography of the Mekong River itself is to be remarked. Submerged rocks, caves, rapids and whirlpools provide natural habitats and spawning grounds for many fish species including endangered and rare species such as Mekong Giant Catfish. The *Mekong Giant Catfish* is the world largest scale-less fresh water fish, which can grow up to 200kg and can only be found in the Mekong and its tributaries. It is believed that they spawn in rapids and whirlpools in the Mekong between Thai Chiang Saen and Chiang Khong. They are herbivores and known to favour the mature *Kai.* At present, the Mekong Giant Catfish population has rapidly declined and so far attempts to breed the fish have been unsuccessful because the offspring cannot re-produce (SEARIN 2003: 34-36; MRC b).

Other Mekong fauna to be classified as endangered include 18 species of birds and 16 species of mammals e.g. the Irrawaddy dolphin and Eastern Sarus Crane (MRC b). In the dry season rapids, rock beaches, sand bars, dunes, sandy riverbank are emerged and some plants grow, becoming habitat of birds including several endangered species. River sediments deposited during the rainy season highly enrich the sand banks and beaches that surface during the dry season creating ideal conditions for plants to grow. Likewise, whirlpools, pools and swamps that are inaccessible during the rainy season, when the river level is high, become reachable during the dry season. Hence, the seasonal changes provide opportunities for people living by the river to carry out various kinds of their livelihood activities (SEARIN 2006: 39-41).

4.1.3 People, Mekong, and River Livelihoods

The Mekong not only is among the world's largest rivers but also hosts a great diversity of ethnic groups and has a long history of human settlements lasting over 6,000 years. Of the 60 million people living in the Mekong Basin, most live in rural areas and survive on subsistence or semi-subsistence agriculture (Öjendal and Torell 1997: 38; ADB 2004: 11; Starr 2004: 6). A large population of ethnic minorities in the basin and the adjacent countries is also to be marked. As for example in the Thai province of Chiang Rai, where communities studied in this thesis situated, the local population is composed of 12% ethnic minorities (UNESCAP).

In general ethnic minorities in the Mekong countries are in a more disadvantaged position than others in the society. This is evident from the observation that their status in social indicators is below the national average. This is partly because of the pattern of their settlement including socio-cultural differences. The language is a major barrier causing ethnic minorities disadvantage e.g. education (ADB 2001: 5-16). Furthermore, as for example, in a democratic country like Thailand, many ethnic people do not have Thai citizenship even though more than decades ago the laws were made to clarify and accord civil rights to the eligible minority individuals. Lack of citizenship has significant effects on not only political but also social and economic marginalization such as access to social services and economic resources of these ethnic minorities (Lyttleton 2002: 7-8).

On the Thai and Lao side of the Mekong, local people share similar cultures, traditions, and languages (Chiang Khong Conservation Group 2003: 31-33). On the Northern Thai border with Laos, people living in the communities are from diverse ethnic groups for example Thai, Laotian, and ethnic minorities, some of whom, to date, do not

have Thai citizenship and are poor and landless (Roberts 2001: 57; Thai-Baan 2004: 72-73; ADB 2001: 24). The Mekong has long been a source of various activities for these people as is evident by for example the decorated temples of Lao Laung Pra-Bang where the activities centred on the Mekong River are depicted (MRC a). The Mekong has been important to generations for their livelihoods and cultural heritage. Living intimately with the environment, local people have a great knowledge of the Mekong river and environment (Meynel 2003: 20). They have lived and adapted their livelihoods according to the local environment in terms of landscape, seasons and available resources (Lazarus et al. 2006:13). Communities have been sharing and overseeing communal resources like fishing grounds and land, and practice mutual exchange e.g. yields, catches, and labour. A "culture of sharing" is embodied in the communities (Thai-Baan 2004). People in the communities along the river pursue a range of livelihood activities, which will be described below.

Fishing on the mainstream as well as tributaries benefit from being restocked by the many species of fish that travel up and down the Mekong seasonally to breed and grow (MRC b). Along the Mekong, fishing is a way of life and livelihood for local communities (Lazarus et al. 2006: 19).

During the rainy season, water in the Mekong rises and floods the tributaries, where various fish species migrate and spawn. During this period, when the water in the Mekong is very deep and difficult to access, local fishers will catch fish in the tributaries. As water recedes in the dry season, the changing conditions of the river enable local fishers better access to the Mekong for fish (SEARIN 2003: 49; SEARIN 2006: 36-37). Various fishing grounds such as deep pools, whirlpools and sandbars also become accessible (Meynel 2003: 21). Local fishers are either those who make a living mainly on fishing, some of them being landless, or those who catch fish for food and as a secondary income (Dubeau 2004: 29). These fishers are characterised by using small boats, fishing net and fishing gears made from indigenous knowledge (Chiang Khong Conservation Group 2003: 43-44, 50, 60). They adapt different fishing gears according to the features and conditions of the river (Chiang Khong Conservation Group 2003: 49; Lazarus et al. 2006: 13, 18). Throughout the year, but mainly during the dry season, the fishers between the Thai-Lao border construct makeshift bamboo shelters along the sand beaches, rapids and islets of the river that they use for staying while they fish (Thai Baan 2004: 74).

On the Thai side of the river from Chiang Khong and Wieng Kaen district of the northern province, Chiang Rai, the local fishers organise themselves into groups to share fishing grounds, which are regarded as common property of communities. The fishing communities owning each fishing ground set up rules, which are to be respected by its community members and other communities. Communities also organise measures to clear up obstacles in the fishing grounds that would risk damaging the fishing gear. Members are obliged to participate in these organised activities or otherwise offer some forms of compensation to the community (Thai-Baan 2004: 75-76).

On the Lao side of the river, from Ban (Village of) Mom, near Chiang Saen, to Luang Prabang, there are a number of fishing villages among which is Ban Tin Tat sharing a fishing ground at Don Veng with its neighbouring Thai village, Dan Beng. Mekong Giant Catfish hunt has long been an important fishery tradition. In some villages, people mainly fish in smaller tributaries, back swamps, and ponds because fish are easier to catch and they cannot afford to invest in the necessary boats and gear for fishing in the main stream of the Mekong (Dubeau 2004: 29-30).

Gathering various non-timber forest products, e.g. bamboo shoot, rattan shoot, mushroom, and waterweeds is also important activities for villagers. Various plants growing naturally on the riverbanks, rapids, islets and sandbars, are gathered freely and used as vegetable and herbal medicine for household consumption, animal food and income supplements (Dubeau 2004: 27; SEARIN 2003: 40; Thai-Baan 2004: 57-60). Local Thai and Lao, mostly women, collect Mekong waterweeds, Kai and Tao, which grow abundantly in ponds along the river banks and on the seasonally submerged rocky beaches, reefs and rapids in the shallow water during the dry season for their own consumption as well as for earning an income. Mekong waterweeds are also used for feeding household animals e.g. pigs and ducks (SEARIN 2003: 34-37; Thai-Baan 2004: 58-60; Lazarus et al. 2006: 13). The khreua-lai waterweed growing in rapids and on rocky outcrops can even be used as a natural pesticide and as a fish bait that tranquillises the fish when it is ground and put into the water (Chiang Khong Conservation Group 2003: 89). Gold panning is among important activities providing income and saving for local people in several communities. During the dry season, in some areas e.g. Ban Hauy Tab, Khon Pi Luang Rapid, and Huay Xai, villagers, largely women, dig up sand and gravel to separate gold by panning and using mercury (Lazarus et al. 2006: 13; Meynel 2003: 21).

Riverbank Vegetable Cropping or Cultivation (RVC): As part of the rural life, farming is still an integral part of people's livelihoods. Seasonal change in the Mekong River is of great importance. During the dry season, the Mekong provides beneficial features and conditions for local people to utilise its riverbanks, islets, sandbars and beaches for vegetable farming. Riverbank farming or RVC is practised along the whole Mekong River from Yunnan to Vietnam and has history that goes many hundreds or even thousands of years back (Roberts 2001: 57; Blake 2004: 63).

Early in the dry season from around November to January when the weather is cool and sunny, RVC on demanding but fast growing crops like lettuce, cabbage and spring onion is the norm. These crops are also sensitive to pests, which are at a minimum during the cool period. From around February when the weather is warmer and wetter the riverbank farming turns to less demanding but slow growing crops, such as maize, peanuts, chilli and eggplant. In general people tend to grow multiple crops on their land to increase resilience to pests and ensure that if one crop type fails, there are others to harvest (Blake 2004: 63, 65).

It is an important component of RVC that the farmland is submerged in the river during the wet season. Firstly, the deposited river sediment enriches the soil with nutrients ideal for growing crops, and hence removes or greatly reduces the need to use artificial fertiliser. When fertiliser is used people often prefer manure recognising its positive effect on soil quality. Secondly, the yearly floods remove unwanted vegetation, kill off the seeds of weeds, and reduce other pests. Hence, pesticides are rarely used (Roberts 2001:57; Blake 2004: 63, 67). Finally, the flooding water leaves moisture in the soil, thus reducing the need for irrigation. All of the points mentioned, save farmers time and money as they need to provide very little input in order to successfully grow crops. The main input is labour, which at the start of the farming season is focused on preparing the land for the crops and later in the season, centred on carrying water for irrigation from the river. However, water fetching is combined with e.g. washing, bathing and checking of fishing gears and it is transformed in to an integral social activity where people meet and chat by the riverside (Blake 2004: 65-66).

The RVC contributes to people's livelihoods as crops are consumed in the household for subsistence, given away to strengthen social ties, or sold at local markets providing cash income. It is especially beneficial that RVC provides an income during the dry season where other employment is scarce. For farmers who are able to cultivate large areas, the money

earned from RVC can be substantial and sufficient to secure education of children and pay for non-food consumption goods (Blake 2004: 64, 67).

The land on the riverbanks is shared in the community and considered as the common property and the ownership is passed on through generations (SEARIN 2003: 40). Not all people have legal document for the land on the Mekong riverbanks but they can sell and buy the land according to customary rights. Those without land entitlements on the riverbanks can utilise the lands that emerge during the dry season in the river e.g. islets, sandbars, and beaches, which anybody can reserve temporarily for farming (Thai Baan 2004: 65). Besides the RVC, on both sides of the river, a large area of land is used for other types of agriculture e.g. paddy fields (rice), fruit orchard (banana, corn, sugar cane, and longan), teak plantation, and animal husbandry (Dubeau 2004: 26-27).

Trade Tourism and Transportation: Local people in the communities along the Mekong use small boats on the river to go fishing or to carry people who are going hunting or tending riverbank vegetable farms. Some of the villagers who have engine boats can also earn income by carrying tourists for sightseeing along the river or transport goods between Thailand, Laos, and Burma (Öjendal and Torell 1997: 41; Dubeau 2004: 29; Thai-Baan 2004: 73). Tourists tend to visit the North during the dry and cool season coinciding with the peak of RVC activities (Lazarus et al. 2006: 26).

4.2 Upper Mekong Navigation Project

4.2.1 Background of Mekong Navigation Development Initiatives

Mekong River not only provides valuable natural resources to people living along it but also serves as a means of transportation. For centuries, people use the Mekong for transportation, conveying goods and trade. Colonialist country, like France envisioned the Mekong River as a route to China. As a leverage to contend with the British power in Hong Kong, China and Portugal's interest in Macau and trading with South China, in the 19th century. On an expedition from Saigon with two steam-powered gunboats, French explorers managed to reach China's Yunnan province. However, they had to travel both by river and by land. The French efforts to navigate failed many times because of the Khone Falls in Laos. Later, they could reach Laos' Luang Prabang taking 37 days from Saigon plus several changes of boats by building the railway and bridge to cross over the Khone Falls and clearing rocks, marking passages, and dredging channels through the Sambor Rapids (Starr

2004: 6-10). In 1926, France and Siam, now Thailand, established the first major agreement on the Mekong called the Bangkok Convention, including treaties on commerce and navigation (MRC 2003b: 1). Two decades after France's withdrawal from the region, the U.S.'s interest in Indochina led it to draft the basic plan for Mekong development emphasising data collection and studies on navigation among others (Starr 2004: 10).

Under the MC, the potential of inland waterways to stimulate growth in trade was realised. In 1960, the MC adopted a navigation improvement plan and carried out significant work on charting and navigation channel marking. The large scale of navigation development was proposed and channel modification on the Mekong was discussed. However, during the subsequent Interim Committee, the navigation project was limited. Transit ports, vessels and cargo facilities were developed mainly in Laos and Thailand (Starr 2004: 10-15).

The ADB also promoted extensive use of inland waterways and improvement of transport infrastructure and navigation in the Mekong. China's search for trade routes for its southwest provinces resulted in the promotion of water transport on the upper Mekong. In 1993, China with Burma, Laos, and Thailand carried out a survey of the upper part of Mekong River. (Prior to this exploration, Chinese vessels had already investigated downstream to Luang Prabang and Vientiane.) The 300 km channel on the border between Burma and Laos was found to be unsuitable for goods transportation because of insufficient availability of navigation aids. In addition, vessels below 60 tonnes could navigate safely and this only 8 months per year (Starr 2004: 14-15).

The MC updated the hydrographic atlas of the region and produced Mekong navigation charts between the Golden Triangle and the South China Sea. In 1994 the MC drafted a basin-wide strategy for navigation development in the Upper Mekong. This project required enormous work and could generate significant environmental impacts on the river for transportation of large quantity of goods. There was a concern regarding the legal and regulatory framework for navigation and river pollution. In the same year, China together with Burma, Laos, and Thailand advanced an agreement to launch an administrative committee on the use of the Upper Mekong for navigation. Subsequently, at the GMS's meeting, all the countries agreed to establish sub-regional transport forum with the ADB aiming at increasing multilateral development projects for water transport on the Mekong (Starr 2004: 15-18).

In 1995, when the MRC succeeded the MC, the Navigation Strategy was updated acknowledging freedom of navigation on the Mekong (MRC 2003b: 1). Navigation was,

hence, incorporated in the cross border cooperation to develop and manage water resources in the Lower Mekong Basins. Each MRC member country is responsible to integrate navigation in its national development. In the same year, the GMS' sub-regional transport forum had the first meeting and issued a report on four specific water transport projects. The first project was to upgrade the port in Phnom Penh in Cambodia so as to triple cargo capacity. The second project was to improve navigation in the Mekong Delta by dredging the mouth of the Bassac River between Cambodia and Vietnam along with enabling access to Vietnam's Can Tho River. The third project aimed at year-round navigation on the Upper Mekong by vessels of 100-300 tonnes from China's Yunnan to Laos. The project included dredging, reconfiguring shoals, and providing navigation aids and improving ports along the stretch at Laung Prabang, Pak Beng and Ban Huey Xai in Laos, Chiang Khong and the Golden Triangle ports in Thailand, and Guanlei, Jinghong and Simao in China. The last one was the navigation improvement on the Mekong between Laos and Cambodia over the Khone Falls between Veune Khan and Phnom Penh. The ADB speculated that these international river transport improvement projects would generate economic and financial benefits to the riparian countries through increasing trade, tourism and economic activities (Starr 2004: 20-22).

In 2000, China, Burma, Laos, and Thailand signed a separate agreement on Commercial Navigation on the Lancang-Mekong (Upper Mekong Commercial Navigation Agreement) recognising freedom of navigation. The agreement proposed improvement, maintenance and safety measures on navigation, and environmental protection measures. The four countries also set up a Joint Committee on the Cooperation of Commercial Navigation on the Lancang-Mekong (JCCCN) (Starr 2004: 26; Campbell 2001: 73).

Under the MRC together with the UNESCAP guidelines, Burma, Laos, and Thailand agreed to use China's standards for navigation aid with respect to channel markers above the Khone Falls, while Cambodia and Vietnam would use the international navigation system below the falls. In 2002, MRC formulated a new strategy and programme for water transport. Member countries also asked the commission to consider cooperation possibilities with China and Burma (Starr 2004: 23, 24, 29). In its 2003 Navigation Strategy, the MRC also emphasised an importance of the whole transport network as a transport/economic corridor in the Mekong Region by including the upper Mekong stretch towards Simao in China's Yunnan (MRC 2003b: 5-6).

Figure 2: Satellite image of case study area – Mekong River on the border of Chaing Rai province in Thailand and Laos. Adapted from Google Maps.

4.2.2 Upper Mekong Navigation Project

a) Project Overview

The Lancang-Mekong River Navigation Channel Improvement Project or Upper Mekong Navigation Project (UMNP) is covered by the GMS cross-border transport programme, under the auspices of the ADB. The aim of the project is to

> " […] to facilitate exchange and the development of trade and tourism between and among the four riparian countries, improve navigation safety, and reduce poverty" (ADB 2008b).

This will be achieved by

> "upgrading of inland water transport on the upstream portion of the Lancang-Mekong River through port improvements, dredging, shoal realignments, provision of navigational aids, improvement of waterborne transport, implementation of a navigation agreement, and a variety of institutional measures" (ADB a).

For the implementation of the UMNP an Agreement on Commercial Navigation on the Lancang-Mekong was signed by China, Burma, Laos, and Thailand (Starr 2004: 26). This agreement was fostered by the Joint Economic Quadrangle Cooperation between the same countries (ADB 2008b; Berman 1998: 10). The agreement signed by the four countries was to allow ships to navigate freely from Simao in China's Yunan province to Lao's Luang Prabang, a distance of 886 kilometres (Governments 2000; Osborne 2004: 9). The four countries agreed to collaborate on the improvement and maintenance of a year-round Mekong River navigation channel, navigation safety measures and environmental protection

measures (Campbell 2001: 73). The UMNP on the Northern Thai-Laos border from Chiang Saen to Chiang Khong is the focus of the case study.

According to the hydrographical investigations, the river stretch from Burma to Thai-Laos border consists of rapids and reefs that impede and endanger the navigation. Navigation channel improvement requires removal of outcrops, reefs, sediment and shoals by blasting and dredging. This also involves disposal of waste rocks (Meynel 2003: 28-29). In terms of ship sizes, the UMNP aimed to allow 2,000 cargo-tonne barge trains (4x500tonnes) to navigate along the stretch by 2007. This would involve the removal of more than a hundred of rapids, reefs, and shoals by blasting and dredging (Campbell 2001: 73).

The project proposed three phases of implementation. The first phase of the project would work on a channel for vessels with a capacity of 100-150 tonnes, meaning that 11 rapids and shoals together with 10 reefs would be removed. The second phase aimed to allow vessels 300 tonnes capacity to be able to sail through, which would require removal of more than 50 rapids and shoals. Finally the third phase would clear up the waterway for 4x500 tonnes vessels (SEARIN 2003: 29). The project includes installation of navigation aids, landmarks and mileage marks, and self-winching facilities along with construction of other infrastructure related to the project e.g. dikes, ports, roads and clearance of forest for other service facilities (Meynel 2003: 28-31).

b) Environmental Impact Assessment (EIA) of the Project

As there were concerns about the environmental consequences of the project, the four countries agreed to assess the environmental impact of the project using the national criteria of China under the ESCAP framework guidelines (Campbell 2001: 73). The EIA survey team visited the project site for two days to collect data and after four months the EIA report drafted by China was finalised by Sep. 2001. The conclusions of the EIA were that the project was technically feasible, would not change the river hydrology and it should be carried out promptly. The project would facilitate sustainable development and benefit the region, the countries and the local communities (JEG-EIA 2001: 3,10). However, the MRC Secretariat requested international experts in fisheries, geomorphology and socio-economics to conduct independent studies on the project impact (Campbell 2001: 73-74; SEARIN 2003: 31). The studies found the EIA to be inadequate in that it did not estimate the long term impacts of the navigation channel on hydrology, ecosystems or of the river traffic on pollution and other social aspects. In 2002, despite the critical finding of the assessment, the

four countries approved the EIA and the first phase of the UMNP began in the dry season of that year (Cocklin and Hain 2001: 1; TERRA 2002: 40-41; SEARIN 2003: 31; Osborne 2004: 26-27).

c) River Modification Implemented, Observed and Planned

The first phase of channel clearance was to be implemented in 3 series of blasting and clearing during three consecutive dry seasons (Lazarus et al. 2006: 23):

- The first series (March- April 2002): Tang Ao rapids, Lower Tang Luang rapids and the Nam Loi River Mouth rapids.
- The second series (December 2002- March 2003): 16 rapids namely Huai La, Khai, Long Zhom, Nam Loi River Mouth (resumed), Khong Tan, Tang Salum, Wang Seng Shoals, Wong Wit, Sam Zhao, Chuang Nam Tang Lan, Tha Ban Bo, Kon Mu Tai, Ton Pa Nok Yang, Huai Na Yo, Saen Pi and Lower Mong Pa Liao.
- The third series (December 2003- March 2004): Nam Lor River Mouth, Tang Pang and Khon Pi Luang, which is at the Thai–Laos border, rapids.

Rapid blasting at all of these sites was completed by 2004, enabling passage from Laos' Xiang Kok down to Thailand's Chiang Khong. At some locations on the Lao side debris from the blasting appeared to have been disposed of on the riverbank (Dubeau 2004:19).

Construction of ports has been planned and will be implemented in response to the navigation improvement programme. In the Thai Golden Triangle, the first ports at Chiang Saen and Chiang Khong were built and opened for service in 2003 (PAT 2007a, b). Along with this, embankments have been constructed e.g. at Baan Sob Som, Chiang Khong (SEARIN 2003: 40-41). As trade between China and Thailand is increasing, a second port at Chiang Saen is planned for construction in two phases to be finished by 2009 and 2013 respectively. The second port would be 40 times larger than the first and accommodate general cargo, petroleum, container and support vessels (PAT 2007c; Lazarus et al. 2006: 28). Recently, an additional private port, owned by a trading company run by a Thai veteran politician, has been built at Chiang Saen (Khamthita 2007). The Thai riverside around Chiang Saen is very developed. Along the river, there are various kinds of construction activities e.g. embankment, digging of riverbanks, transfer of soil to other areas, and some industrial activities e.g. large oil canisters with nets on top (Dubeau 2004: 30).

d) Public Protest Against the Project

The first series of rapids were blasted successfully in 2002 along the border of Burma and Laos except the Nam Loi Rapids because of flood. During this time, the local Thai activist group called Chiang Khong Conservation Group, who focuses on the Mekong development, together with villagers from Chiang Khong as well as Wiang Kaen districts voiced their concerns to the Thai government about the effects of the rapid blasting project on the environment and their livelihoods. They demanded the government to stop the project, to provide information to the public and to include people participation in the decision making process regarding the project. Supporting this, 76 organisations along with experts from 25 countries called for each riparian country and the MRC to stop all work on the project and commence a comprehensive environmental and social impact study that should also include participation by people. Meanwhile, the Thai Harbour Department confirmed that the blasting would be completed by 2004. However, due to concerns about how the rapids blasting would affect the demarcation of the border between Thailand and Laos, the Thai Defence Ministry demanded a review of the project. As a result, the rapid blasting on the Thai-Laos border was halted until the Ministry could define the borderline. In addition, it was realised that the status of the Mekong River along the Thai-Laos border as a national wetland meant that according to Thai legal standards, a new comprehensive EIA ought to be conducted and approved (SEARIN 2003: 32-33).

In 2003, the MRC announced to the public that, in response to the critique of the EIA and because of concerns over downstream effects, China would not go beyond the first phase of the rapid blasting, aimed at improving navigation for ships capacity up to 150 tonnes only (Pinyorat 2003). At fifth meeting of the JCCCN in 2006, it was agreed to speed up the work on rapids and shoals (sandbanks) that obstruct the navigation channel. Since the boundary demarcation between Thailand and Laos at Khon Phi Luang Rapid was settled at the same time in an independent forum, with result that the rapid is located on Lao territory, the Lao government alone was able to approve the channel improvement work (JCCCN 2006: 2). Thus, the project could be completed before the end of 2006.

e) Overview of Mekong Navigation Development

Since the navigation development in the Mekong is, in to some extent, very complex and characterised by several cooperations in the development. Hence, this section, before introducing the actors, the ownership of the project will be identified. The diagram in figure 3 serves to give an overview of the navigation development in the Mekong that has led from

a traditional use of the river to the present day conflict. The arrows indicate the time axis for the inception of the various bodies along with a loose notion of their interconnectedness.

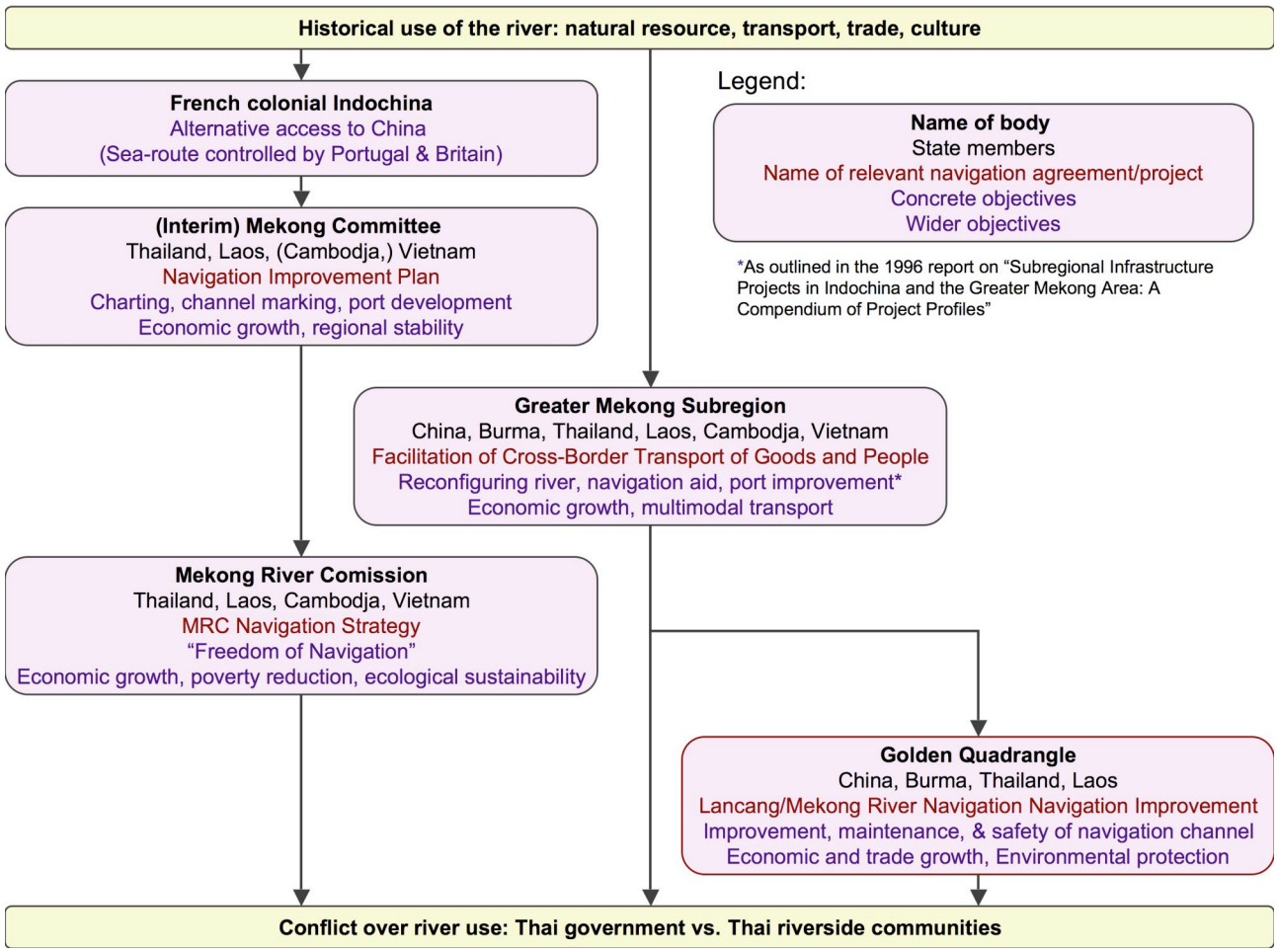


Figure 5: A chart of navigation development in the Mekong. Arrows indicate chronology and interrelationship of bodies.

4.2.3 Actors and Their Roles in Mekong River Development

There are many actors in the Mekong Region with different interests and degrees of influence demonstrated by their patterns of behaviour (Dore 2001: 87). For the purpose of this thesis, actors are stakeholders related to the Mekong River development, namely Mekong riparian states, regional cooperations involved in the Mekong development project i.e. ADB-GMS, MRC, Quadripartite Economic Cooperation, affected communities, ENGOs, and businesses.

Mekong Riparian States

The Mekong River runs through six countries namely China, Burma, Laos, Thailand, Cambodia and Vietnam. Theoretically the river basin is divided into two parts i.e. upper and lower. Among the riparian countries, only Thailand and Cambodia are democratic countries.

China

Though only around 20% of the water discharges into the Mekong from China, it is the country furthest upstream and is geo-politically significant. The Lancang/Mekong Basin in China's Yunnan hosts approximately 10 millions people, 48% of which are ethnic minorities with lower income and literacy than the rest of the province. The steep gorges make the Mekong in China of limited use for irrigation and the area unsuitable for agriculture. However, it has a large potential for hydropower. In fact, two dams i.e. Manwan (1500 MW) and Dachaoshan (1350 MW) are already built, while five others are on the plan, in the Lancang/Mekong mainstream in China. The upstream Mekong is also important in the ecological and water flow regime of the river. Even though China is not a rich country by GDP per capita, it can mobilise capital and engineers to perform any intervention (Öjendal and Torell 1997: 136-137).

Burma

As Burma covers a minor part of the basin, Mekong Basin cooperation is not a major issue for the country. The country has chosen not to be an active member of the MRC and, thus, is not a very key party in the Mekong Basin cooperation. However, Burma maintains strong ties with China (Öjendal and Torell 1997: 136; Osborne 2004: 8).

Laos

Laos hosts the longest stretch of the Mekong and a large part of the country is covered by the Mekong's catchment area. Laos is a landlocked country and is the only Mekong country, which borders all other Mekong riparian countries (Hirsch et al 2006: 15). A large section of its western part has the Mekong River as a natural border to Thailand. Being quite mountainous and densely forested, Laos, thus, has a high potential for hydropower and has rich natural resources. For example, in 1993, hydropower and forest products made up of two-thirds of Laos' export revenue. Its hydropower import partners are Thailand and Vietnam (Öjendal and Torell 1997: 122).

Among the Mekong countries, Laos has the smallest population with the largest area per capita and the lowest GDP per capita. Most Laotians still depend on fishing, livestock production and agriculture, which is mainly for subsistence. Very little of the agriculture has received major investment and only few products are marketed (Öjendal and Torell 1997: 122-123). Tourism has increased significantly in the period of 1991 to 1996 and through the economic quadrangle cooperation Laos expects the increase of tourists from Thailand and China. Even now, Laos still has a very low infrastructure development. It has no railroads, a basic road system, and limited telecommunications. Only a few urban areas have access to electricity (CIA 2008). Laos has experienced little economic growth. Its economy still heavily relies on primary production and natural resource exploitation, while it constantly faces widespread poverty problems, particularly in the rural area (Hirsch et al. 2006: 15, 14).

Thailand

Thailand is situated in the Lower Mekong Basin but in reality it is a mid-stream country. More than one-third of Thailand (approximately 182,000 sq km) is covered by the Mekong Basin, which is separated into two different areas. The first part is in the Northern tip of the country, on which the thesis focuses. The other area is in the North East, which is the larger part and has relatively low level in development, with the small section in the East Thailand, bordering Laos and Cambodia (Öjendal and Torell 1997: 119; Pednekar 1997: 7).

Thailand is a democratic state that allows civil society movements (Hirsch et al. 2006: 14). Among the Mekong countries, Thailand has the highest Gross Domestic Product (GDP) and a high level of industrialisation, which has occupied a basic priority in the development strategy of the country. While agriculture sector, which has long provided the basis for industrialisation, is now under re-structuring towards marketable and high priced products emphasising efficient use of natural resources, technology transfer and farm management. Thailand aims at shifting from the low-end-products to high-end-products, while turning to a more environmentally sound production (Öjendal and Torell 1997: 119-120). Thailand's tourism is a successful sector and is growing significantly in terms of revenue.

In Thailand, the quality and availability of public health care establishment and services have improved and cover all provinces and districts. In the rural areas, community health care centres including health education are also available. Most Thai citizens have access to health care and the socio-economic deprived people are entitled to cheap healthcare under the 30-Baht-for-every-disease programme (WHO-SEARO 2008: 1, 2, 15).

The increasing need of Thailand for energy and water has caused it to seek these resources from other countries. Thai has taken an effort to improve diplomatic relations and development initiatives with the countries in the Mekong region. It has undertaken various measures to strengthen the economic connections in the region through, for example, direct investment, official aid, training programmes for government staff from the region, and technical expertise in various areas. Apart from tourism, Thailand's expertise is largely in resource-based sectors such as food processing and agriculture, and inevitably its economic cooperation in the region, especially, with Laos and Cambodia, will concentrate on natural resource intensive sectors (Pednekar 1997: 31-32).

Thirty-eight agencies in eight ministries share the responsibility for water management, often with overlapping mandates resulting in contradictory management practices. The agencies that focus on environment experienced a strengthening and restructuring since the adoption of the environmental legislation framework in 1992. On the other hand, the resource management agencies, which focused on economic efficiency in resource use, have incorporated resource conservation in their scope. In principle, public participation and 'the-polluter-pays-principle' have been espoused, but actual resource management remain focused on 'end-of-pipe solutions' using top-down management and regulatory approaches (Hirsch 1996: 39-40; Hirsch 2006: 115; Pednekar 1997: 6).

Cambodia

Situated in the Mekong downstream, 85% of Cambodia is in the river basin. More than 90% of its population live in the Mekong's catchment area. Cambodia's Tonle Sap is the largest freshwater lake in South East Asia and its ecological balance depends largely on the Mekong water flow regime. It is also abundant of fish and is believed to provide the most productive fresh water fishing in the world (MRC b; Öjendal and Torell 1997: 125-127). Similar to Laos, Cambodia has experienced low economic growth and confronted persistent problems of widespread poverty, especially in the rural area (Hirsch et al. 2006: 14). It is amongst the World's poorest countries and agriculture is the main economy. It has few resources to safeguard its interests with little influence to upstream countries. A large number of the people depend profoundly on primary production. More than 85% of the people live in the rural areas and combine their livelihoods from agriculture, fishing, hunting, forestry and small-scale business. Fish is primary source of protein for the people in the country (Öjendal and Torell 1997:125-127). Cambodia is also burdened with many problems associated with a post conflict society relating to a lack of bureaucratic capacity

and corruption that is probably even more widespread than in the other riparian states (Hirsch et al. 2006:15)

Vietnam

The Mekong River finally runs through Vietnam's Mekong Delta into the South China Sea. While the water from the Mekong River helps protect seawater intrusion in the Vietnam's Mekong delta, the water quality also depends on the use of water of the upstream countries. Though the Mekong Basin covers only a small part of Vietnam i.e. Mekong Delta and Western Central Highland, these parts are crucial for the country. Mekong Delta hosts around 14 million people and generates 45% of Vietnam's paddy production. Besides, the Western Central Highland offers Vietnam hydropower potential and is viewed to be important for providing energy to serve the growing economy and rapid industrialisation process of the country. Vietnam is also one of the fastest growing economies in Asia. Despite the differences of the countries in the Mekong Basin, many of the basin communities are commonly dependent on the Mekong River and its resources for subsistence and livelihoods (Öjendal and Torell 1997: 129-130; Hirsch et al. 2006: 14-15).

Grassroots and ENGOs

In this thesis, grassroots are referred to people who live in the Mekong Basin especially those who live in the communities along the Mekong River. In the Mekong Countries, there is a lack of democratic structures and grassroots participation in national affairs is not yet a tradition, while in the socialist state public participation has not been encouraged. Among the six Mekong countries, though only Cambodia and Thailand are democratic countries, a cultural legacy and political tradition of hierarchical relations still exist. Nevertheless Thailand still allows civil society's action and is the only country, which has civil society's resistance to policies and planning in the Mekong. These grassroots are backed by a strong NGO community in Thailand (Öjendal and Torell 1997: 63,118, 138-139).

On the Thai side of the river, in Chiang Rai province, people living in local communities by the Mekong have organised a group called "Chiang Khong Conservation Group" or in the Thai terminology, "*Krum Raksa Chiang Khong*". It is part of Mekong-Lanna Conservation for Nature and Culture Network of the Thai Mekong riverside communities, closely working with and supported by SEARIN. This community-based NGO was formed to monitor, voice, and demonstrate their concerns about the development

on the Mekong that would generate an impact on the environment, society, and life and livelihoods of local communities. Through the assistance of SEARIN and with participation of people in thirteen Mekong riverside communities in Chiang Rai province, the group has initiated and conducted research on the Mekong River and its ecology based on the local knowledge. In the study, the group portray the ways the local communities utilise the river and riverine ecosystems and natural resources that are important to their lives and livelihoods (SEARIN 2003; Thai Baan 2004). Other ENGOs working in the Mekong are for example Foundation for Ecological Recovery and International Union of Conservation for Nature (IUCN).

Businesses

In the Mekong development, another important actor is business actor, which contain various sub-groups for example local business, multi-national and trans-national corporations, and private financiers such as commercial bankers (Dore 2001: 92). In the case of Thailand, several Thai companies have a large interest in a number of resource developments in the Mekong and are significant investors in the neighbouring countries (Pednekar 1997: ii).

Mekong Regional Cooperation

The important regional cooperations in the Mekong Basin, focused on in this thesis, are the MRC and the ADB-GMS programme, and Economic quadrangle Cooperation.

Mekong River Commission (MRC)

The MRC is participated by Vietnam, Thailand, Laos, and Cambodia with China and Burma being observers (Öjendal and Torell 1997: 57). The MRC is an important regional initiative for the Mekong River cooperation dealing with natural resources development planning, technical matters (e.g. data collection and research) along with management, utilisation, environmental protection and conservation of the river and resources in the Mekong Basin (Dore 2001: 95-96; MRC 2002; Hirsh et al 2006: 17). It operates under a new agreement conceived under the principle of SD called *the 1995 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin*. It coordinates river basin development centred on agriculture, fisheries, navigation and flood management. It also facilitates agreements between member countries on the river use, quantity and quality (MRC 2002: 13). In principle, the MRC seek to consider local community interests

through consultation with civil society organisations, UN agencies, donors and private sector (MRC 2003b: 3). The MRC itself does not have regulatory mandate but some of its core programmes involve some degree of regulation. At present, the MRC's governance is vague and characterised by varying commitment by its member countries (Hirsch et al. 2006: 6). The MRC is funded by the UNESCAP and a number of development agencies from various countries e.g. Australia, Denmark, Japan, Sweden and the USA.

Greater Mekong Sub-region (GMS) Programme

The GMS programme is participated by all riparian states i.e. China, Burma, Laos, Thailand, Vietnam and Cambodia. It is supported and funded by the ADB and other donors in implementation of high priority sub-regional projects (ADB). It functions as a forum for the sub-region's countries working together on specific activities and projects within the framework of existing relationship (ADB 1996: 3 in Öjendal and Torell 1997: 59; Osborne 2004: 7). The GMS initiative coordinates development plans in seven sectors i.e. transport, energy, telecommunications, trade and investment, tourism, environment, and human resource development with emphasis largely on transport and energy infrastructure development (Starr 2004: 13; Öjendal and Torell 1997; ADB 2004). The GMS cooperation vows to support sustainable and equitable development in the sub-region that "*aims to facilitate sustainable economic growth and reduce poverty in the sub-region by strengthening economic linkages among the six member countries"* (ADB). Hence, the GMS's key initiatives are to integrate the region's markets by improving infrastructure and harmonising institutions. At the same time, it sees a role in managing the shared environmental resources to safeguard sustainability and to address the social impacts of the regional integration. It declares to include key stakeholders i.e. governments, civil society organisations, and major external aid or funding donors, while the private sector is included through the GMS Business Forum (ADB 2004: 6, 31, 39-40).

Economic quadrangle Cooperation

The Economic Quadrangle Cooperation, was initiated by China, Laos, Burma, and Thailand in reaction to prolong negotiation within the MRC. It focuses on infrastructure construction, trade and tourism development (Öjendal and Torell 1997: 62). The Lancang/Mekong River Navigation Channel Improvement Project is realised through this cooperation.

4.2.4 Effects of Upper Mekong Navigation Project

The Mekong River has been source of food and lifeline for people living along it, and at present is subjected to development efforts, among them the navigation projects. The increasing number of human settlements and activities in the Mekong Basin related to these efforts could have consequences on the environment, human life and livelihood. It is, therefore, of great importance to identify and gauge these effects of the projects both negative and positive so as to ensure that the projects produce the desired effect on both the people and the environment in the present and the future.

The various actors, of course, have different opinions on degree and nature of the effects of the navigation project. The official EIA, for example, found that the disadvantages of the project were minor compared with the scale of the benefits from increased economic activity and the accompanying job opportunities (Osborne 2004: 26). The Civil society groups, on the other hand, are extremely sceptical of the project, believing that they will only suffer from the negative impacts while the benefits will go to other actors (TERRA 2002: 38). The environmental NGOs tend to side with the grassroots while academics and donors tend to acknowledge both the potential risks and benefits. Finally, some stakeholders' opinions are never heard, as is mainly the case for business actors. With this in mind, the following sections first describe the effects on the environment and then on people's lives and livelihoods as *observed* or *envisioned* by the various stakeholders in the project.

a) Effects on environment

As the Mekong ecosystem has not thoroughly studied, it is hard to assess the impacts because the previous state is not known in the places where river modifications have already been implemented. A great deal of information on the impacts are based on the knowledge of local people who have a very good knowledge on their environment (Meynel 2003: 6, 20, 29-30). The navigation channel improvement project as observed and projected has both direct and indirect impacts on the environment of the Mekong River and its surroundings. The effects of the project on the environment arise from the project itself i.e. river modification and canalisation by removal of obstacles that hinder navigation in the river; and from subsequent related navigation improvement projects e.g. embankment, navigation aid installation, and port construction; and the effects due to the navigation development e.g. road construction, river traffic, urbanisation, and river pollution.

- Direct impact from river modification

The project requires removal of navigation obstacles i.e. rapids, reefs, shoals, and islands by blasting, dredging and other extensive modification of riverbed and stream banks as well as continuous channel maintenance (Roberts 2001: 48). Removal of these natural features may not only cause changes in waterway and velocity of flow in particular sections of a river resulting in increase of riverbank erosion but also affect habitats of numerous animal and plant species (SEARIN 2003: 34-35, 38). Permanent loss of habitats would reduce or even wipe out the population of animal and plant species that rely on the habitats, posing a threat to the Mekong biodiversity (Meynel 2003: 28-30).

The blasting itself may kill fish, other aquatic life and plant in the effected areas. This is one of the main concerns in the EIA and the survey team suggest measures to lessen the impact. The measures include placing explosives in drilled holes, avoid blasting during fish migration periods and dumping blasted material in troughs and other designated dumping areas that not important to aquatic life. Naturally deep pools, islets, sandbanks, and riverbanks will be affected when waste rocks are dumped there (JEG-EIA 2001: 5-6; Meynel 2003: 28-30; Osborne 2004: 29), and rapids and deep pools are believed to be important habitat and spawning grounds for fish, other aquatic animals and plants, particularly the endangered Mekong Giant Catfish. *"Based on available knowledge, the stretch of river between China and Chiang Khong (Thailand) is considered to be critical Giant Catfish habitat"* (Meynel 2003: 32).

The EIA predicted that there would be no change in river flow or riverbank profile (JEG-EIA 2001: 8-9). The Thai Baan research, on the other hand, has found that there are recent changes to the river because of the combined effect of hydropower dams in China and rapid blasting together with port construction at Chiang Khong and Chiang Saen in Thailand. These changes include alteration of waterways, increased bank erosion and water level fluctuation that also led to the destruction of riverine ecosystem, reduction of biodiversity, disruption of fish migration patterns and decline in fish population. Furthermore, the sediment accumulated and covering the rapids obstructs sunlight for waterweed, particularly *Kai*. According to the local communities, the numbers of fish caught and production of *Kai* in the Mekong have declined by more than half (TERRA 2002: 36; SEARIN 2003: 35-36; Osborne 2004: 29; Thai Baan 2004: 86-87).

Other impacts include the changes of the hydrological and river morphology in the Mekong, which could affect on seasonal islands that are habitats and provide source of food for both native and migratory birds. Besides, the subsequent development due to the

Navigation Improvement Project such as other river modification measures, embankments and port construction, would also cause the further loss of riverine habitats (Meynel 2003: 31-32).

Maintaining navigation channel in the Mekong mainstream will contribute to rapidity of run-off that may cause the water-level fluctuation from the upstream dams to have a large impact on the water-level downstream e.g. sudden drought or flash floods depending on prevailing conditions. The quicker drainage decreases the ability of the river and the surrounding wetlands to retain water. According to the EIA, however, the UMNP would only cause a 58 seconds decrease in the time water flows through the total project area (JEG-EIA 2001: 9; Roberts 2001: 48, 56; Osborne 2004: 28-29).

- Indirect impacts from improved navigation

As navigation channel is improved, it facilitates higher capacity vessels boosting trade activities and river traffic. Port facilities and access roads are built or extended meaning that more forest and farmland are cleared. This results in extension of the environment problems e.g. pollution and loss of more biodiversity (Roberts 2001: 48, 57). Ship's spillage of dangerous or noxious goods (e.g. fuel), sewage and waste discharge into waterway will cause water pollution, which goes beyond borders (Starr 2004: 37-38). Increased river traffic generates more waves and water turbulence causing further riverbank erosion and disturbance of plants and animals. Invasive species of plants and animals might be introduced with ships. Trade in wildlife and non-timber forest products might cause more exploitation of plant and animal species. Along with this, using better-equipped boats might increase commercial fishery that could result in extensive decline in fish population. An increase in human settlements, urbanisation, and tourism causes further encroachment on forest and agricultural areas, and increase water pollution through domestic wastewater and sewage discharge (Meynel 2003: 31; Dubeau 2004: 29). However, indirect positive impact of tourism is that it encourages the local communities and countries to take measure to conserve the environment, as tourists require the environment to be attractive (Öjendal and Torell 1997: 107, 123).

b) Effects on livelihoods

Altering the river natural features e.g. removing rapids, rock outcrops and sandbars affect not only the river viewed as environment and ecosystem but also as a source of people's livelihoods. A central issue relates to loss of access to the natural resources. This

may be in the form of bank erosion due to increased water flow and velocity that force people to move (Terra 2002: 41; SEARIN 2003: 38, 40). Furthermore, villagers lose access to the river and lands by government expropriation for embankments, ports and road construction. These effects are not captured by the EIA, which only considers loss of access during the actual implementation of the project to be of (minor) importance (JEG-EIA 2001: 9). The important issue, related to loss of access, is that villagers do not receive any direct compensation for their losses, as they do not have any legal document on the lands along the river (SEARIN 2003: 40-41; Blake 2004: 68; Thai-Baan 2004: 89-90). The justification of the navigation project is that it will offer benefits, including livelihood opportunities, which compensate for the negative affects on the livelihoods that depend on the river (ADB 2004: 19; ADB 2007: 1). The negative and positive impacts on the livelihood activities of the villagers are as follow:

- Effect on fishing activities

Since the rapid blasting, the local fishers in Chiang Saen and Chiang Khong experienced difficulties to catch fish during the dry season, when they supposedly have easy access to the river. Besides, they could catch only few fish, while three to four years ago they could catch twice the number. They believed that fish population has declined due to the water-level fluctuation (up to 1 meter in the course of an hour) and cargo boats in the river disturb fish migratory patterns and behaviour as for example some fish no longer search for food during the daytime (Lazarus et al. 2006: 20,32-34; SEARIN 2003: 39; Meynel 2003: 30). The impacts on fisheries pose uncertainty to local fishers and their households as the numbers of fish caught decrease and become unpredictable, some of them have to give up fishing thereby losing a source of food and income. Although, the greater part of the impacts seems to be limited to the area around the project area, there is a possibility of large-scale impacts on fisheries down stream (Meynel 2003: 33; Perlez 2005).

Removing the river features e.g. reefs, sandbars and islets that provide access to fishing habitats makes it difficult for villagers to catch the fish (TERRA 2002: 36-37; Meynel 2003: 33; Lazarus 2006:18-19). Embankment, ports and other construction hamper the local people's access to the river. Some local fishers, who use small boats, claimed they had to give up fishing because of the waves from big ships and speedboats. Furthermore, the navigation regulation measures prohibit fishing gears or activities that obstruct waterways for large ships (SEARIN 2003: 39-40; Osborne 2005: 29). As a consequence, the villagers lose their local knowledge of the characteristics of local fisheries, e.g. net or trap sites,

management regime, fishing gear, that are specific to the geology and hydrology of the river (Meynel 2003: 33).

- Effect on RVC

For many generations, RVC is part of local people's lives and livelihoods. The river modification, waste rock dumping, embanking and eroding riverside remove riverbank farmlands (SEARIN 2003: 40-41; TERRA 2002: 36, 38). Along with this, the river fluctuations make it difficult for people to predict the water-level according to the seasons meaning that they have to give up RVC, hence their source of food and income (Roberts 2001: 57). Because of loss of income from fishing and RVC, Thai villagers have started to practice other kinds of agriculture encouraged by government policy for example fruit orchards or intensive cash crop farming as other ways to generate income. With the right market conditions, cash crops can potentially increase farmers' incomes. However, villagers, who are mainly small farmers with limited initial investment experienced difficulties in finding sufficient water for their orchards, lack expertise, and at times receive inadequate returns resulting in heavy debt (Blake p.70; TERRA 2002: 37; ADB 2004;19). Furthermore, the change to cash crops and the consequent use of fertilisers and pesticides contaminates the water and has led to conflicts with downstream stakeholders (Sunil p.11).

- Effect on gathering activities

As rapids, islets and sandbars have been removed, some naturally growing plants, vegetable and herbs also disappear. This means the local people would lose these natural plants, which are their source of food and income and herbal medicine. For example, the Mekong waterweed, according to the villagers in several communities on both Thai and Lao sides of the river, has declined significantly. They believe that waterweed is destroyed because of the environment conditions of the river e.g. water fluctuation, pollution, and turbidity caused by clearance of waterway, river traffic, and chemicals used in farming (Lazarus 2006: 13; TERRA 2002: 35-36; SEARIN 2003: 37,40).

- Effect on local trade and tourism

The benefits of the UMNP on trade are a common focus in the project proposals and are highlighted in the EIA, though the exact outcomes are usually not specified. As the regional trade relations expand, water transport is viewed as more efficient, energy and cost-

effective than competing road and rail transport, especially, in handling bulk goods, (JEG-EIA 2001: 9-10; Starr 2004: 36, 41-42). As argued by the ADB, the improved international river transport infrastructure would reduce the sailing time and operating cost, enhance trade competitiveness, boost international trade, and thereby increase economic activities, generate employment opportunities to the countries and local communities (ADB 2007: 2,6,9). The ADB also states that trade patterns might be influenced by transport infrastructure improvements so as to increase gains (ADB 2004: 32)

The exports from Thailand to China such as tropical fruits bring benefits on the related activities to orchards from trade. Villagers also find opportunities for jobs at the ports, where they load an unload ships from China. This activity is most common during the wet season where the traffic of large cargo ships is the largest. To the extent that people have the required skills, they can find jobs related to the construction or expansion of ports and to the improvement of the ship fleet (Perlez 2005; MRC 2003b: 30; Lazarus 2006: 26). Overall, navigation improvement is projected to give economic benefits to the riparian countries including an increase in revenue to port and river authorities (ADB 2008b; ADB 2007: iii; Starr 2004: 22).

Tourism already contributes significantly to the local economy by giving financial benefits, gaining foreign exchange, enhancing employment and increasing livelihood opportunities e.g. selling handicrafts, souvenirs, and other services to tourists. Improved navigation makes the river more attractive for tourists taking river cruises either to and from other countries or in the local area to visit cultural or natural sights (MRC 2003b: 30; Öjendal and Torell 1997: 41, 106, 123; Hook et al. 2003: 17).

c) Effects on societies and quality of life

More source of income: The navigation improvement project has caused an increase in economic activities, which in turn has generates employment opportunities for the local people. This widens income-earning opportunities for the poor, especially those who are landless. However, some of the jobs expose people to increased hazards of accidents or physical deterioration (MRC 2003b: 30).

Market and job competitions: Increased influx of migrant labour has raised competition on the labour market affecting the availability of livelihoods and the size of wages for local people. Navigation in combination with the agreement on free trade area may result in higher market competition reducing the price of commodities e.g. food and other basic

needs products. However, the arrival of large numbers of tourist risks creating social differentiation and a dependence on cash incomes and imported commodities (Öjendal and Torell 1997: 106; TERRA 2002: 36).

Illegal activities: A further side effect of the project is that, it might enhance unlawful activities e.g. illegal trade, smuggling, human and drug trafficking, which could worsen the quality of life in the society (Meynel 2003: 33; MRC 2003b: 25, 30). For example, a popular tourist activity for Thais is to cross the river into Burma to gamble, which is not allowed in Thailand (Bangkok Post 1999).

Health/disease control: Improved navigation in the Mekong facilitates the river transport, which enables people to commute easier. As one of two negative social impacts mentioned by the EIA, this will encourage people to contact more with the outside world and inevitably attract more people to migrate in and out of the country. As a consequence, it could be more difficult to control diseases and increase risk of spreading diseases quicker in the region. (JEG-EIA 2001: 9; MRC 2003b: 30).

Better access to public services: The positive side of improved water transport is that it would provide people various social benefits such as better access to markets, schools and healthcare facilities. Firstly, the increased economic activity generates revenue for the government to provide more and better public service (ADB 2004: 15). Secondly, improved water transport is still very important transportation means for many people, as access to all-season paved road is very limited along parts of the Mekong. In the Lower Mekong Basin, only Thailand has dense network of paved road (Starr 2004: 40-42). With few social services available is some areas, the navigation improvement could, thus, enhance access to various services (Dubeau 2004: 27-28; ADB 2007: 9).

River safety: The river traffic by larger vessels disturbs transportation of local villagers who use small boats, as means of transport and in some cases the waves from bigger boats have sunk the fisher boats (SEARIN 2003: 39, 44). In the future, the larger vessels would cause more such river accidents (Meynel 2003: 32). The ships that sail in the river are typically old and not designed according to the river's hydrology and international standards meaning that they are more accident-prone. In case of ships transporting dangerous goods, accident could pose threat to the river environment and to the local people who live by the river (MRC 2003b: 18; Osborne 2004: 30). Conversely, the improved navigation channel with fewer dangerous reefs and better channel marks should help reduce the number of accidents (JEG-EIA 2001: 9-10).

Pollution: In general, heavy river traffic may result in water pollution from sewage, waste disposal and oil suspension from propellers and dangerous goods spill from ships. This includes discharges from bilge tanks shipyards, ports and maintenance (JEG-EIA 2001: 6; MRC 2003b: 20, 25; Osborne 2004: 30). A large number of villagers living along the riverside use water directly from the Mekong for irrigation and consumption e.g. bathing, washing clothes, drinking and cooking. If the river were polluted, people living by the river not only in Thailand, but also other riparian countries would be affected from the loss of water supply (SEARIN 2003: 41).

Value of life – cultural values, living value, rural ways of life: Other development connected with the navigation improvement project such as port construction at Chiang Saen has caused the local community to lose further historical sites, some of which can be dated back as long as 700 years. Moreover, embankments or dikes on the riverbank not only make it hard for local people to utilise the river but also prevent their children to enjoy water life and learn local knowledge on the river, which is part of their way of life. In addition, trade activities and noise pollution from river traffic might disturb quiet rural life, which might drive out the local people (TERRA 2002: 36; SEARIN 2003: 41).

Chapter 5
Analysis

The analysis is divided into two parts according to theories applied to discern the case study of Mekong Navigation Development. Historical events and plausible scenarios of the Mekong River development and its effects will be examined under the SL framework with the focus on livelihoods of the people in the Mekong communities. Additionally, the thesis explores in greater depth explanations by various political ecologists in order to understand more about the Mekong development, the people and the environment. The rural setting implies a close relation between people's lives and the surrounding natural environment. Thus, development efforts, which change the environment, impinge on people's lives.

To assess the outcomes of the Mekong navigation project and the associated environmental change, it is necessary to uncover what role the Mekong plays in people's lives and thereby to explore the outcomes arisen out of the project. The SL approach is one way to assess these outcomes. SL analysis specifically applies to people in a rural setting and incorporates environmental outcomes. In the next sections the case study is fitted into the SL framework in order to get a systematic picture of the case.

5.1. Sustainable Livelihoods Analysis

The livelihoods of people living in the Thai riverside communities on the Thai-Laos stretch of the Mekong will be analysed and structured according to the SL framework. The first part of analysis aim to discern the vulnerability context, which influences the assets status of the villagers in either positive or negative way. Next the assets status of the villagers is scrutinized, first as it has been until recent and next in light of the changes that have been brought by the development. The analysis goes on to investigate processes, and activities that are important to the lives and livelihoods of the villagers in the Thai Mekong riverside communities to examine the crucial links between them and to help discover constraints and opportunities for their livelihoods. Subsequently, livelihood strategies of the villagers in the traditional way will be studied. Concurrently, possible livelihoods activities and strategies in light of the navigation development will be explored. Thereafter, the livelihood outcomes will be identified, contrasting the traditional setting with the situation after the implementation of the navigation improvement. Finally, the SL is concluded and discussed in brief.

5.1.1 Vulnerability Context

Seasonality:

The seasonal changes of the river environment used to be predictable in terms of rise and fall of water level, flood and drought. Seasonality means changing availability of different kinds of natural resources and livelihoods options to the villagers. This also gives rise to seasonality of employment. For example, the dry season enables people to fish, collect Mekong waterweed, do RVC on emerging land, and pan gold, while other employment opportunities are limited (Blake 2004: 67). In the rainy season, few people enter the river to fish and have no opportunities to carry out such activities, previously mentioned. However, cargo ship transport from/to China extends options for other kinds of livelihoods than the NR-based activities (Lazarus et al. 2006).

Shocks:

Through out the thesis study, the sorts of shocks experienced by the villagers, in the past before the development in the Mekong, are not that clear. However, since the development of dams and navigation channel in the Mekong, the villagers have experienced environmental shocks caused by the abnormal and extreme water flows and water level fluctuations in the Mekong flooding their riverbank crops and making it more dangerous to fish (Lazarus et al. 2006, p33). The abrupt riverbank erosion causes sudden loss of lands for livelihoods and/or housings. Some villagers living near the riverbank have to involuntarily evacuate and move out of their land (Lazarus et al. et al. 2006: 35, 37). In addition, villagers have faced a sudden loss of lands on the riverbank by the government expropriation for other projects related to navigation development e.g. embankment, port and road construction (Blake 2004: 68; Chiang Khong Conservation Group 2003: 80). These shocks are exacerbated by the fact that the villager did not get any compensation because they hold no legal rights to their lands (Thai-Baan, p.89-90). Villagers had to stop RVC and fishing because they have lost access to land and river resources. As a consequence, villagers have faced socio-economic shocks from the sudden loss of their source of food and income (Chiang Khong Conservation Group 2003: 83-91). With increased river traffic, the risk of pollution disasters caused by ship accident would also be higher (Öjendal and Torell 1997: 90; MRC 2003b: 18). Accidents involving local people in small boats with loss of health or life will cause shocks in the affected households (SEARIN 2003:39). Last but not least, the economic shocks that the people in Thailand (and other countries in Asia) have experienced

so far are market crashes, high inflation rate, and fluctuating prices of primary products exemplified by Asian financial crisis and the recent rice crisis.

Trends:

There has been a degrading and gradual loss of natural resources in the Mekong River and wetland e.g. reduced sedimentation and soil quality, loss of lands, decreased fish stocks, reduced growth of Mekong waterweed, and other plants that are important to people's livelihoods and food security (Blake 2004: 68, 72; Thai-Baan 2004: 82-91).

Due to increased educational levels and economic opportunities for female, the total fertility rate has dropped dramatically slowing down the population growth in Thailand. Economic expansion has made Thailand more industrialised and urbanised, resulting in sweeping social change. The emigration rate to the cities has risen as many people, especially youth, take newly-created jobs in the industrial and service sectors leading to labour shortages for household farming (Hook et al. 2003: 16; Blake 2004: 68).

Agriculture is becoming modernised and inclined towards monoculture or cash crop farm systems, while riverbank farming is scaling back. Road infrastructure improvements have made transport faster, cheaper, and more efficient. This has stimulated market activities and encouraged cash crop farming while the profitability of traditional farm systems has been undermined by cheaper farm products brought in from other parts of the country (Blake 2004: 62-63, 67-68).

Despite some degree of decentralisation, the decisions on objectives and policies are still highly centralised (Öjendal and Torell 1997: 74). In Thailand, the development policies have emphasised economic sectors and agricultural policies have encouraged cash crop farms e.g. by providing loans and improving irrigation systems (Hook et al. 2003: 9; Blake 2004: 70).

Improvements in the water supply has made it possible for people to irrigate fields close to people's homes and leave behind the practice of riverbank farming. Moreover, washing and bathing in the river has also become unneeded and the social aspect of the riverbank farming is lost (Blake 2004: 68).

5.1.2. Assets

The livelihoods of the Thai Mekong riverside communities can be identified under the SL framework as follow.

Human capital: Most villagers in the communities are small farmers, some of who are poor and landless. The primary asset that they possess is their labour. People depend on their ability to labour, whereby the status of their health, skills, knowledge, and/or level of education are important. Mostly people use their labour for their own activities e.g. fishing, farming, collecting for subsistence as well as earning an income. People also organise to use and share their labour for e.g. fishing, preparing soil for farming, and maintaining the river or the riverbanks.

The Thailand literacy rate level (96%) implies that most villagers can read and write, but the enrolment and education attainment in Chiang Rai suggest low education level. The low HAI of Chiang Rai, with its index on health the lowest in Thailand, implies that the villagers, as part of Chiang Rai's population, have low human capital (Hook et al. 2003: 106-107; UNESCAP 2008). However, the villagers possess traditional knowledge and skills passed down through generations. Thereby, they are able to develop and increase their skills in e.g. farming, fishing, tool making, handcrafting, extracting and/or utilising their resources to fit their local conditions and environment. The villagers have good knowledge about their local environment and are able to extract natural resources efficiently. Seen in this light, human capital is vital to the people and their households.

However, human capital for the present generation as traditional skills and knowledge are fit mainly in traditional livelihoods. The villagers' very low level of education limits their ability to take advantage of the employment opportunities that come with the navigation project. Their choice may be restricted to engaging in low-income activities e.g. labouring. On the other hand, traditional skills and knowledge could give them opportunities to earn income by selling to tourist their handcraft products and services.

Physical capital: People do not have that much physical capital – they gain their livelihood by simple means/tools. They have homemade tools e.g. fishing gear, baskets, shelters etc. that they can use and/or sell for their livelihoods. Some villagers have small boats, which are used for fishing, transportation, and tourist sightseeing. Compare to the Lao side of the Mekong, Thailand has more extensive infrastructure and services e.g. road, electric power line, water supply, market, and health care and other public services (Öjendal and Torell 1997: 105, 110-111; WHO-SEARO 2008: 15). Access to transportation infrastructure enable villagers to commute to other places, whereby they can access markets, services, and job opportunities elsewhere (Ellis 2000: 8, 32-33). The villagers have access to lands only through customary rights, but no legal claim (Thai Baan 2004: 64). They could utilise emerging lands e.g. islets, sand beaches, and riverbanks during the dry seasons. Since

the Mekong subjected to development, some of the villagers have lost their land including access to emerging lands in the river due to the development projects. In return, they have better infrastructure e.g. transportation links and other development that brought by the navigation improvement e.g. better access to electricity, water supply and urbanisation.

Natural capital: Before any major changes affected the Mekong, the richness of its fresh water ecosystems both in plant and animal life granted farmers and fishers in the communities, rich natural resources opened opportunities for their livelihoods. Aquatic and riverine products e.g. fish, waterweed, plants and minerals are source of food and income for villagers and their households. Until now the fish stock has been replenished every season (Chiang Khong Conservation Group 2003:43-44, 50, 60; Dubeau 2004: 29).

Mekong waterweed is used as animal fodder and bait for fish. Hence, villagers can save expenses for fodder and bait (Dubeau 2004: 27; Meynel 2003: 40, Thai-Baan 2004: 57-60). Gold panning in the river contributes to cash income in some places e.g. around Khon Pi Luang Rapids. It is semi-renewable since the river current carries gold with it and uncovers new sediment every season (Lazarus et al. 2006: 13; Dubeau 2004: 21).

Furthermore, the physical features of the Mekong e.g. riverbanks, islets, sandbars and beaches that emerge during the dry season supply water and temporary lands for vegetable farming. Because of the special conditions, the land needs little care taking, villagers can save on fertilisers and pesticides. The physical features are also habitat for naturally growing plants that villagers know to extract for consumption and income earning. Villagers lose access to the river due to the physical river modifications, irregular water level, and increased boat traffic. These changes also cause a reduction in the quality of the natural resources.

Financial capital: The villagers might not have high financial capital gauging by the conventional measures i.e. financial capital in terms of money. Since they have no official property right to their lands they cannot easily borrow money. The small scale of their livelihood activities makes it hard to save up large sums and thus to invest in e.g. large fishing boats or cash-crop farm systems. Nevertheless, farmers have the possibility to get a loan from the government if they wish to start cash-crop farms (Blake 2004: 70). The loss of natural capital means that the villagers will also lose their income derived from natural resource based activities. However, the navigation development could expand employment opportunities (e.g. transport sector, tourism, etc.) that the villagers might be able to gain an income other than natural resource based activities.

Social capital: The social connections are old and ingrained in the rural setting. The rural communities, thus, have strong social capital i.e. social networks and groups. In the Thai Mekong riverside communities, traditional activities e.g. riverbank cropping, fishing, collecting waterweed and gold panning build up social ties. As part of their lives, villagers share food and labour, and cooperate e.g. to prepare lands for farming. Villagers also organise themselves to manage the resources e.g. define land and fishing rights, and take care of community's fishing grounds (Blake 2004: 66, Thai Baan 2004: 71-81). The new kinds of employment might take away the time and resources to participate in such activities, hence weakening their network (Ellis 2000: 36).

These capital assets are highly interlinked. The human capital of indigenous knowledge is almost entirely dependent on the regular condition of the environment i.e. natural capital. The physical capital of tools is only useful in the particular natural environment they were made for. On the other hand, the tools are a product of the human capital of tool making expertise. For many locals the natural riches in the river is a source of limited financial capital, which in turn grants access to some of the physical capital such as schools and transportation. The social capital of the village communities is interconnected with the natural capital. Using social capital they arrange to utilise and manage the natural capital and conversely the natural environment provides the source and the frame for their community lives. The high natural capital, which the villagers are endowed with, enables them to practice reciprocity among each other e.g. exchange different resources that they have extracted from the Mekong. This strengthens social ties and network within and outside communities, and aids them in their daily life and in times of need. Thus, assets are invested in social capital that the villagers can benefit from in the future (Ellis 2000: 31-32).

Natural and social capital assets are clearly important and also the one that the villagers are most endowed with. Surplus of natural capital (e.g. fish, vegetable, gold mineral) and physical capital (e.g. handcraft tools) can be exchanged, stored, or invested into other forms of capital e.g. physical, financial, human, and social capital. This allows villagers to have possibilities to secure, increase, and/or strengthen over all assets. It is also evident that for the landless people, natural capital substitutes physical capital of land holdings. In all this one dominant pattern appears; most capital is clustered around the natural capital. If people loose their natural capital they risk loosing the other assets as well.

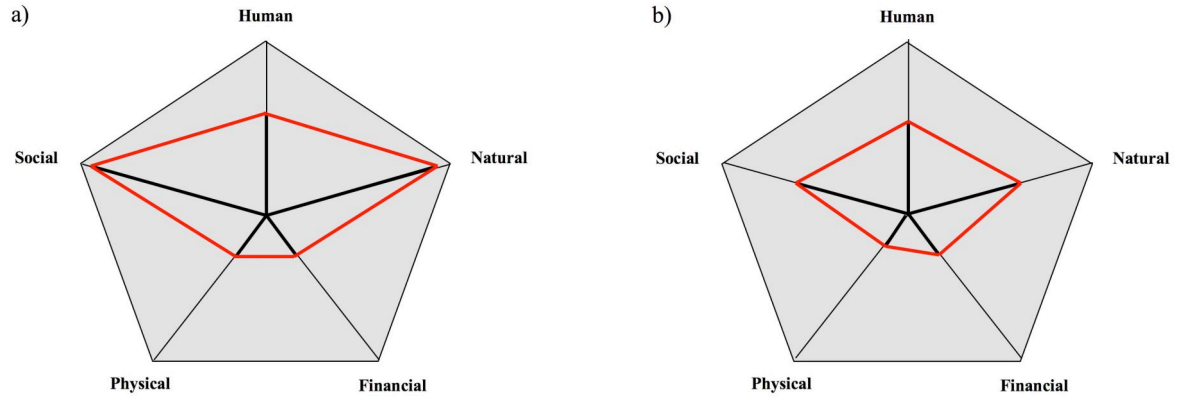


Figure 7: Assets status of villagers a) in traditional livelihoods and b) following navigation improvement

Classifying and identifying the assets owned, controlled, claimed, or accessed by the villagers help us to see clearer the basic building blocks, which the villagers can undertake production, engage in labour markets and participate in reciprocal exchanges with other villagers. The pentagons are not based on quantitative measures but used as a qualitative evaluation for comparing the asset status of the villagers in light of the traditional setting against the one in the emerging situation resulting from the navigation improvement. The axes, hence, represent a ranking of assets aimed at making a broad comparison between the two situations. The figure in the central area suggests the strengths and weaknesses of the asset portfolio in a particular situation (Ellis 2000: 31, 48-49).

Figure 7 a) of the assets status of the villagers living in the traditional setting shows that the villagers have high natural and social capital, medium physical, human, and financial capital. This highlights the villagers' abundant natural capital granted by the rich natural resources of the Mekong. Traditionally, communities along the Mekong used to have access to and manage their environment and environmental resources e.g. fishing ground and land on the riverbank.

Figure 7 b) illustrates how the status of assets of villagers might be changed in light of the navigation development. The present generation of villagers might not experience changing in human capital. However, since the assets are interlinked, the future generation might experience either negative or positive effects. The loss of natural and physical assets in terms of land for their livelihoods e.g. fishing, gathering and farming, means that the villagers will also lose the financial capital accruing from the activities based on such assets. Consequently, the villagers need to take more work in order to make up for the income loss. Hence, they risk losing surplus time that grant through traditional livelihoods activities that

they might not be able to participate in reciprocal exchange, and/or to devote and nurture their networks, jeopardising investment in the future livelihoods security through such networks (Ellis 2000: 36). Even though physical capital, in terms of infrastructure is improved, other physical assets e.g. access to land is lost.

Weighing all factors against each other, the conclusion is that the status of all forms of capital are either reduced or maintained. This qualitative estimation of the villagers' asset status that is sometimes based on predictions involves a considerable degree of imprecision.

5.1.3. Transforming Structures and Processes

Transforming structures and processes that are important and can shape livelihoods of the people and households in Thai Mekong riverside communities can be distinguished as follow.

I. Structures: Structures are organisations or actors that are "the players in the game" classified in North's term (Ellis 2000: 38). Direct actors under the livelihood framework are Thai government and its relevant agencies including administrative bodies, and local Thai communities living along the Mekong riverside. Even though, to some extent, Thailand has undergone decentralisation, it is still highly centralised and there are overlapping jurisdictions between agencies. This creates conflicts and difficulties for execution of policies and makes it hard for citizens to discern the relevant agency to address protests, complaints, suggestions etc. Thailand is known to have a large number of civil-society organisations, from grass-root level to state initiated groups (Pednekar 1997: 6; Öjendal and Torell 1997: 63, 74; Hirsch et al. 2006: 32-33, 36).

II. Processes: Institutions that are important and related to people and their livelihoods in the Thai Mekong riverside communities are land tenure arrangement, relevant Thai law and legislation, relevant government policies, markets, and other institutions that support and/or grant rights to participation and collective action of the people.

Land tenure arrangement: In Thailand, all riverbanks are supposedly property of the state. Communities only have customary rights to use such land. People pass down the rights to use plots of land to their descendants. They sell rights or allow access to their lands according to the customary rules. During the dry season, people in the communities, especially those who are poor and landless, can freely access to and temporary reserve plots of land that emerge in the river and on riverbanks to do vegetable farm. Villagers normally share these lands and commonly they will not take such lands if they have already owned plots of land on the riverbanks and highland. However, this practice is not supported by the

Thai legislation. These lands are not registered or documented and legalised to belong to the people in the communities. Hence, the state owns the sole rights to these lands and can grant or forbid legal rights to such lands. This discourages communities to make investment and long term planning for the lands (Blake 2004: 68, 71; Thai Baan 2004: 64-65, 89-90; Öjendal and Torell 1997: 91,101).

Rules and customs: Communities along the Mekong have customs and belief in respect of the Mekong River. They have traditions of managing their fishing ground, co-operating to catch fish, including sharing labour, food and resources. This is evident in several local terms for e.g. fishing grounds. Local communities arrange and use the fishing grounds according to community rules. For example, some fishing grounds are reserved solely to the community's members, some will be reciprocally shared between the communities, and others are open for free access (Thai-Baan 2004: 52-53).

Policies: Thai national policies encourage investment and export-oriented manufacturing. Thailand is less focused on developing its natural resources than neighbouring Laos, which has weaker institutions to protect the environment (CIA 2008; Öjendal and Torell 1997: 13). In the agricultural sector, the Thai government's policies have largely been pro agribusiness. The government actively supports monoculture/cash crop farm systems e.g. rice farming, as is evident by the government's provision of financial assistance and irrigation projects (Blake 2004: 70).

Markets in practice: Thailand's economy is integrated in the world market system and the country is partner to several trade agreements. Agricultural produce from cash crop farms contributes significantly to Thai exports (CIA 2008). Thus cash-crop farmers are exposure to international commodity prices (Ellis 2000: 39). The Mekong communities mainly access informal local markets. For example, fishermen sell fish catch in their villages and also to middlemen who are typically also from the village and the price is set and agreed upon between them (Öjendal and Torell 1997: 88; Thai Baan 2004).

Social relations or power relations: Within Thailand, social relations are characterised by a patronage system and reciprocity (Sriariya 1993). Social relations within the Thai Mekong riverside households e.g. gender and age mainly involve labour division in carrying variety of livelihood activities. For example, men will go fishing, other members like elders, women and children will do other tasks e.g. gathering waterweed and edible plants, crafting fishing gear or utensil, and panning gold. For farming activities, in the household, members normally help each other by sharing different tasks e.g. stronger members will plough the fields, children help put seeds in the soil etc. Within the communities, social relations are

based on relationship, status and reciprocity e.g. next of kins, acquaintances, highly respectable people (e.g. wise men), landowners, heads of the villages and members of the village (Thai Baan 2004: 72-81). However, in the Northern Thai Mekong riverside communities, some villagers are ethnic minorities and lack of Thai citizenship. They, automatically, are socio-politically and economically marginalized (ADB 2001: 6).

5.1.4. Livelihood activities and strategies

The villagers living in the communities along the Mekong carry out various activities to make a living e.g. farming, fishing, gathering, crafting, rural trading, and servicing. They adapt and form strategy for their livelihoods according to the context in which they are living and the outcomes for which they desire (Lazarus et al. 2006: 7, 13; Thai Baan 2004: 72-81). The shifting between livelihood activities often serves to stabilise livelihoods over the seasonal changes of the river.

The degree to which the villagers' livelihoods depend on the river varies. For some their primary livelihood activities are based on the river, while others only rely on the river for their secondary livelihood activities. In the first category, the villagers are mostly poor and their main livelihood activities are fishing, collecting waterweed, riverbank farming, and transporting of goods and people and servicing tourists to sightseeing. In the second category, the villagers mostly possess a plot of land in the upland and gain main livelihoods from rice cultivation, vegetable farming, and orchards. They rely on the Mekong River's natural resources only to make up additional livelihoods e.g. fishing, collecting waterweed etc. for food or earning extra income (Thai-Baan 2004: 72-75; Chiang Khong Conservation Group 2003: 43,45). Only few livelihoods are not directly based on the river's natural resources. These are mainly associated with handling goods from the river transportation and servicing tourists for river sightseeing. Grouping livelihood activities of the villagers reveals that their livelihoods are mostly natural resource based with only few that do not depend on natural resources.

The two groups of villagers diversify their livelihoods as a strategy by combining farming with other activities e.g. gathering, fishing, selling farm and non-farm products, and servicing. The nature of the villagers' indigenous cultivation methods e.g. RVC, in itself, is a diversification strategy. Being characterised by poly-culture or mixed cropping, RVC gives a steady yield because the crops are more resilient to pests. This kind of cultivation also reduces risk or vulnerability to e.g. drop of prices or failure of yield of one type of crops (Blake 2004: 65). The intensive use of farm area for greater production characterised

in RVC inherently implies an agricultural intensification strategy in the alternative sense (Ellis 2000: 111-115).

> "In general, these livelihood strategies are precarious and a combination of household activities is essential. Any loss in one activity – whether it be fishing, rice farming or riverbank gardening – will have significant impacts on the overall household economy" (Lazarus et al. 2006: 16).

People adopt or would be able to adopt different strategies in response to the changes to the environment and the livelihood options that accrue from the river development.

Agricultural extensification or intensification: Extensification of agricultural production is generally hard as the availability of suitable agricultural land is limited along the northern Thai stretch of the river. Planting of orchards is, however, a possibility even on difficult land (Pednekar 1997: 19; Blake 2004: 37). Agricultural intensification, in the orthodox meaning, implies adoption of modern farm techniques and specialisation to achieve higher yields. It involves monoculture farming and the use of pesticides and fertiliser (Blake 2004: 37; Ellis 2000: 111). For people with existing formal land holdings intensification is a common strategy. For the vast number of villagers with no land entitlements neither strategy is feasible. Acquiring land, in order to extend farm activities, is only possible by borrowing money (Blake 2004: 70; Pednekar 1997: 19-20).

Diversification: Locals commonly seek to diversify their livelihoods with new activities. The main livelihood opportunities that the development planners foresee, involve activities that are outside the traditional natural resource based cluster. Unskilled labour jobs in loading and off loading merchant ships are available in the ports. Servicing and retailing to tourists is another option predominantly for people with some form of asset (e.g. boat, vehicle, or property) or basic skill (e.g. language, local knowledge, hand-crafting, or other training). The work on constructing transport and tourist infrastructure as for example is a further opportunity for local villagers who are landless or near landless or unskilled (Ellis 2000: 104; MRC 2003b: 30, 65; Öjendal and Torell 1997: 41, 106; Perlez 2005; Lazarus et al. 2006: 26).

Migration: Most of the livelihood activities resulting from the development oblige some degree of migration either of the individual worker or the whole household. Migration goes from rural to urban centres of economic activity. However, the opposite trend of urban to rural migration is observed in periods of economic slowdown or shocks as during the late 90s' Asian crisis (Hook et al. 2003: 58-59).

5.1.5. Livelihood Outcomes

The outcomes of livelihoods that villagers in the Thai Mekong communities have achieved can be identified as follow.

First, adequate and secure livelihoods.

Prior development in the Mekong, villagers in the communities had adequate amounts of food for subsistence and income from utilising the natural resources provided by the Mekong River. In many cases farming, fishing and gathering activities provide people good income to pay for commodities and their children's school expenses. They gain a high net return from many of these traditional livelihood activities because they could achieve high output, while their input is low in terms of tools, labour, investment for fishing, gathering and riverbank farming. Because of the regularity of the river cycle people have managed to create secure livelihoods and achieved a high degree of self-reliance (Blake 2004: 67; Chiang Khong Conservation Group 2003: 37, 43, 45).

The navigation development can create a number of livelihood opportunities for people, but it is not certain whether these will be plentiful enough to fulfil the demands for jobs. It is also not certain that the jobs will befall the local people and not labour from elsewhere. The new livelihoods opportunities do not necessary provide adequate income to villagers and/or promote the villagers' self-reliance or self-esteem as they end up becoming unskilled labourers. The result is that some of the villagers could not meet up the basic needs for themselves and their households. In addition, they become "impoverished and miserable" (Chiang Khong Conservation Group 2003: 46; Perlez 2005).

Second, materially and non-material well being.

According to villagers, they had a good and comfortable life without worries since through fishing, riverbank farming and gathering; they could acquire enough food and income. The villagers are relied on and proud of their native wisdom and knowledge that enable their capabilities to make a living. The villagers have had peaceful, happy and full lives because they are satisfied with living along the riverbank. Besides, they value their lifestyle and their cultural heritage, which are closely linked to each other (Chiang Khong Conservation Group 2003: 37-46, 70-91; TERRA 2002: 36; Thai Baan 2004; SEARIN 2003).

In Thailand the improvement of public facilities and services due to the navigation development is not clear, as the existing facilities and services are already extensive. Furthermore, under the 2002 health care policy, the public health care and services have been improved to be of higher standard and been expanded to cover all communities, especially benefiting the marginalised. The level of HDI and health status of Thailand implies that most Thai people have intermediate quality of life and a decent health (WHO SEARO 2008: 1, 2, 15; UNDP 2007)

With this in mind, it is clear that quality of life not adequately captured by monetary measures of poverty. In general quality of life in the Mekong Basins is better than indicated by these, because of the wealth of natural resources. People fish, farm, gather and exchange river and farm products within the village, and even though these are important for their livelihoods they are not included as an income and therefore do not contribute to the GDP per capita measure. This is a general problem of monetary measures in situations where there is a large informal economy and/or a wealth of freely accessible natural resources (Öjendal and Torell 1997: 42, 50-51).

Third, livelihoods that are adaptable, resilient and sustainable to stress and shocks.

The villager's traditional livelihoods have been adapted to cope well with shocks. The diversified nature of their strategies means that they can cope with failure of one activity and still have sufficient livelihood. This exemplifies by RVC practice. Moreover, villagers have strong social capital that they can use to cushion against effects from the vulnerability context by exchanging and sharing their resources (Thai Baan 2004: 79; DFID 1999: 2.6). However, most of the activities are highly dependent on the river's resources, thus any change in their condition or loss of these resources will negatively affect the livelihood security and sustainability, and hence the overall household economy (Lazarus et al. 2005: 16).

The intergenerational sustainability is ensured as customary and official rights to land or fishing grounds are passed on to children and at the same time the average fertility rate is below two. Capabilities are maintained or enhanced through community practice of indigenous knowledge and high levels of primary schooling.

The impacts of the navigation project on the environment have undermined the sustainability of most traditional river-based livelihood activities. The alternative livelihoods involve some added vulnerability. For example intensive cash-crop farming requires large annual investments in seeds, fertiliser, pesticides and equipment as inputs. The output, on

the other hand, is susceptible to failure crop failure due to pests or weather and crop price fluctuations. People who have taken up livelihoods in the trade or tourist sectors no longer have the common environmental resources as a subsistence buffer in case socio-economic shocks or trends (Hook et al. 2003: 58-59).

Fourth, environmental sustainability i.e. fostering a more sustainable use of the natural resource base.

Gauging the exact effect that traditional livelihoods have on the river ecosystem is hard, as only few studies have been performed prior to the development project (Dubeau 2004: 29). However, the long history of livelihood activities along the river suggests a high degree of environmental sustainability (Blake 2004: 64, 72; Roberts 2001: 53). Traditional fishing methods are small scale and fishermen respect the river and the fish (TERRA 2002: 37-38). The practice of RVC is particularly environmentally sensitive as it uses little pesticides or fertiliser (Blake 2004: 66-67).

Of course the sustainability depends on the size of the population and even though the Thai population growth is almost zero the Lao population still experiences significant growth rates. Hence, it is not certain that the traditional livelihood activities would be environmentally sustainable in the future (Hook et al. 2003: 15-16; Chambers and Conway 1991: 12-14). Locals may also adopt environmental unsustainable practices (over-fishing, excessive pesticide use, logging etc.) if they predict that they will soon lose access to the natural resources as in the case where customary property rights are neglected and land is expropriated (Hirsch 1996: 40; Blake 2004:71).

As has been described in detail in the case study, the navigation development causes deterioration of the environment ranging from change of the river hydrology to a decrease in quantities and species of flora and fauna. Thus, the project is evidently not environmentally sustainable, but the severity of the environmental deterioration is contested (TERRA 2002; Lazarus et al. 2006: 24). Several of the activities that come in the wake of the navigation development also have negative impacts on the environment. It has been noted that tourism might influence development to be more environmentally sustainable. However, it is clear that not all tourist activities necessitate environmental preservation. Local participation in development planning might put the focus on eco-friendly tourism (Öjendal and Torell 1997: 106, 123).

5.1.6 Concluding the livelihood analysis

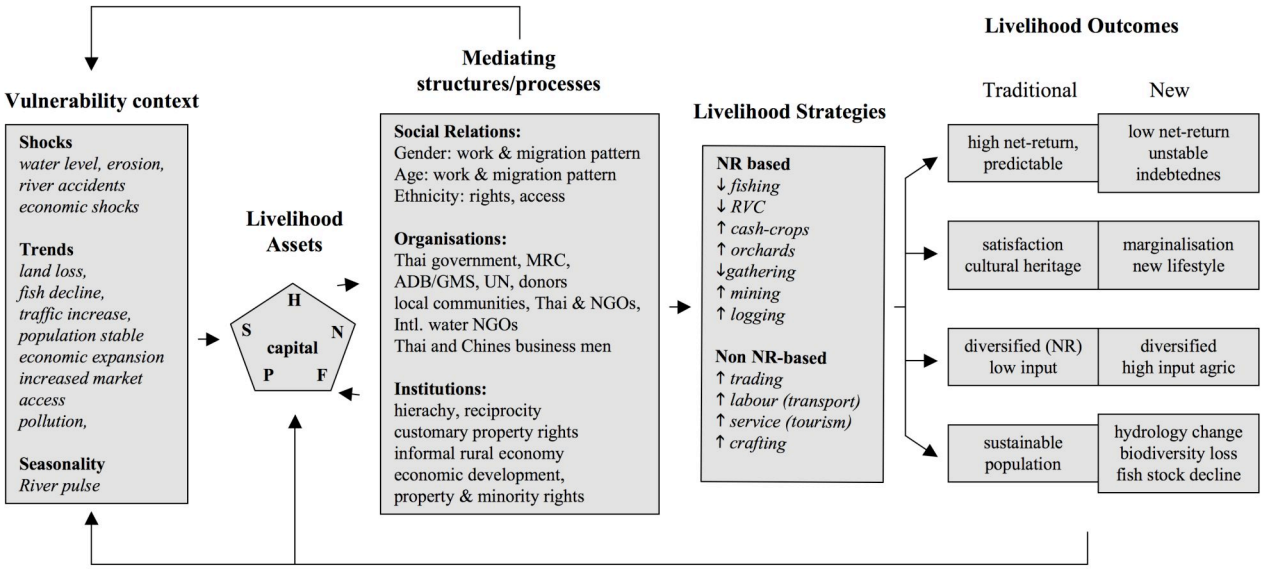


Figure 8: SL diagram for the case study

The SL analysis of the case can be summarised in the diagram in figure 2 combined with the asset pentagons in figure 1. The arrows adjacent to the activities listed under the strategies indicate whether their importance is expected to increase (↑), decrease (↓) or stay unchanged (→) in the future. To conclude the analysis, a list of the major points uncovered will follow.

It is apparent that the natural capital and human capital are principal foundation assets that enable the villagers to pursue other kinds of capital. Though the villagers diversified their livelihoods, the cluster of their activities heavily surround the river's natural resources. Since the future trend of the environment in the Mekong is expected to be negative, the villagers risk losing their entire livelihoods. This illustrates the need for diversification towards livelihood activities that are not based on natural resources (Ellis 2000).

Public policy means that those who own land tend to concentrate on cash-crop farming, and the loss of diversification increases their vulnerability. This is exacerbated if they have become indebted from investment in cash-crop farming (Blake 2004: 70). Due to the changes in the river ecosystem the natural resources can no longer act as a buffer for their livelihood (Ellis 2000; Di Gregorio et al. 2004: 21). This shows, once again, that the resilience of their livelihood will be increased if they diversify towards non natural resource based activities.

A key problem for landless people and others unable to undertake cash-crop farming is that they lack formal rights to land. The consequence of loosing access to the river's resources is that they must migrate to the cities for alternative livelihood opportunities and often they end up as urban poor (Blake 2004: 68, 70; Thai-Baan 2004: 89-90; Öjendal and Torell 1997: 91). Furthermore, for those who are landless, physical capital e.g. land for farming is interconnected with the natural capital derived from the physical feature of the river (Di Gregorio et al. 2004: 12-14; Farrington et al. 1999: 3; Ellis 2000: 31).

As some villagers are ethnic minorities with no Thai citizenship, they have no or limited access to social services, economic resources, and political/civil rights. For example, they have no rights in election, participation in policy decision-making, legal land ownership, and loans, while having limited education and health care services (ADB 2001: 24, 31; Lyttleton 2002: 8-9). Seen in this light, the issue of ethnicity is one of the factors that limit some villagers to access particular assets: financial asset e.g. loan; physical asset e.g. public services; and social asset if they might not be able to participate in reciprocal exchange or being excluded. If the access to natural resources is taken away from these villagers, this will tremendously affect them. Actually, this has already happened to some of the villagers. The villagers are, hence, exposed to a high degree of uncertainty that make them very vulnerable. A way to formulate the problems that the poor face is to say that:

> "Traditional knowledge and local practices of natural resources management [...] are being affected and are difficult to maintain in today's society due to rapid economic development. This is leading to poor communities becoming poorer." (Lazarus et al. 2006: 21)

Villagers posses strong social capital, which may be claimed in order to substitute for e.g. human and financial capital. This may provide only short-term assistance for example while finding other kinds of livelihoods such as employment in town or other villages. Seen in this light, the improved physical capital in terms of infrastructure e.g. transportation network would facilitate villagers to go to other places and hence increase opportunities for livelihoods that remunerate better (Ellis 2000; Farrington et al. 1999: 3).

Perhaps the new generations might no be satisfied with the traditional way of life, and for them the navigation project may not spell doom. Navigation improvement project makes "modern" livelihoods available more locally compared with one in the major national urban centres (Ellis 2000: 103). However, education of young generations is important if poor people are to be able to take advantage of the new "modern" livelihood opportunities.

The SL analysis has provided insight into the way livelihoods are affected by the changes to the environment due to the river development. In the next section, political ecology framework is employed in an attempt to discern the interests, motives, and power of different actors in the conflict over the river development.

5.2. Analysis of the UMNP in light of political ecology

The environmental change that is caused by human activities and the environmental impacts on human are the concern of this thesis. The Mekong navigation development project has brought some change on the biophysical environment of the Mekong and the people living by it. The SL framework has helped scrutinising the effects of the project on the environment of the Mekong and the local people living along it with the result that the local people protest against the project. The case of the navigation development project illustrates the conflict surrounding the use of and control over the resources in the Mekong. This emphasises the importance of social and political aspects of the environmental change in the Mekong navigation development, alongside the livelihood perspective. Political ecology provides theoretical foundation to explain actors and their power relations and how these mediate interactions between humans and the environment. Political sociology helps to explain outcomes of environmental conflict/change as a result of interactions of various actors under unequal power relations. It directs to scrutinise motives and interests of actors, while drawing attention to the potential power of grassroots actors (Bryant and Bailey 1997: 13-14).

The conflict in the use of resource in the Mekong brought by the UMNP deserves to be scrutinised. The UMNP has brought about some ecological change, which brought about conflicts at local and regional level. An actor framework for analysis will be applied to elucidate the role of actors in the Mekong. In the next section, the actors in the UMNP development will be identified following the framework of Bryant and Bailey (1997). The analysis of the actors will focus on their share of the costs of the environmental change; their interests, motives, and organisational character; their role in the project; and their power endowment. The impacts of development on actors and conflicts on the development will be analysed at two spatial scales i.e. local and regional. Thereafter, the development approach embraced by the GMS countries will be assessed. Lastly, the section will conclude and answer the research questions.

Since the navigation development in the Mekong is, in to some extent, very complex and characterised by several co-operations in the development, hence this section, before introducing the actors, the ownership of the UMNP will be identified. Then, the actors' interests, motives and benefits in the development will be scrutinised.

Before analysing the actors in light of the navigation project it is important to clarify the ownership of the project. Apparently it is not only the author of this thesis who has found it hard to discern who is behind what in the Mekong development (Hirsch et al. 2006: 46). The diagram in figure 3 gives an overview of the navigation, oriented development in the Mekong that has led from a traditional use of the river to the present day conflict. The arrows indicate the time axis for the inception of the various bodies along with a loose notion of their interconnectedness. The UMNP is a part of the GMS water transport programme called "*W1: Upper Lancang-Mekong River Navigation Improvement Project"*, but it is realised under the quadripartite cooperation or "*Economic Quadrangle"* with the separate agreement on Commercial Navigation on the Lancang-Mekong River signed by China, Burma, Laos and Thailand. Since the GMS functions as a forum, unsurprisingly that the development programme is realised under an adhoc basis, which is favoured by some of the Mekong countries, especially China (Osborne 2004:7; Hirsch et al. 2006). The next section, actors and their roles, their interests and motives in the use of resources of the Mekong will be identified.

5.2.1 The UMNP – Whose interest?

Applying spatial scales of Bryant and Bailey (1997), the actors will be analysed at two scales: local i.e. local Thai communities living along the Northern Thai-Laos stretch of the Mekong, on which this thesis focuses; and regional i.e. the GMS. The actors that act as stakeholders or parties with interests in the environment and development of the Mekong, identified and focused in this thesis, are the Mekong riparian states namely China, Burma, Laos, Thailand, Cambodia and Vietnam; Mekong regional institutions namely MRC, GMS, and Economic Quadrangle; grassroots communities living by the Mekong in the Northern section of Thailand; ENGO i.e. Chiang Khong Conservation Group and its supporter, SEARIN; and lastly businesses, who seem to be appear invisible in the project.

On the local level the actor analysis focuses on the relationship between the Thai state and the local communities while on the regional level it is the relations between and the interests and motives of the regional actors that are studied. Naturally, the two levels influence one another. Now, the actors will be analysed with focus on their interests and

their gain from the navigation development project. Furthermore the internal structure determining these interests will be noted and for the regional actors with emphasis on the role of the civil society. The analysis of the actors will start with the basin states, as this will help to understand the regional cooperation, which to a large extent is influenced by national interests.

a) States

State actors are conventionally ascribed a set of national interests that are shaped by the overall geography and economic potential of the state. National interests are created from a multitude of interests, which are assembled by the administrative and political institutions. Depending on the nature of these institutions the national interests will to a greater or lesser degree represent the interests of the broader public. Meanwhile, businesses play an important role in defining and influencing the states' interests. The room for public debate and participation in the formulation of these interests varies greatly between the states in the region (Reed 2002: 13; Hirsch et al. 2006: 2-3, 30).

The political institutions in the states share a common culture sometimes phrased as the "ASEAN way" or "Mekong Spirit". This political culture is characterised by a strong hierarchy with top down ownership of decision-making and a dislike of 'hard-law', but preference for 'soft law' that allows flexible procedures for conflict resolution and consensus making (Hirsch et al. 2006: 50, 52).

China is the dominant regional power in terms of economic, political and military strength. This is underlined by its status as nuclear weapons power and as a permanent member of the UN Security Council. China has the capacity and funding to plan and implement virtually any development project it wishes to do (CIA 2008; Osborne 2004: 43).

China's main interests are in the development of dams for hydropower, irrigations schemes (though limited), and navigation channels. River navigation would facilitate the large trade that Yunnan has with Burma, Thailand and Laos (Hirsch 1996: 67; Hirsch et al. 2006: 30, 103; Öjendal and Torell 1997: 45). Yunnan province has been a bad example of environmentally unsustainable development practices and from the central Chinese government one has now condemned 'development at all costs'. This view has led to the formation of a State Environment Protection Agency (SEPA), which must approve development projects and can veto them if it has to. On the positive side of China's role is that if it gets a strong environmental policy one can expect it to centrally coordinated and clear in contrast to the case in most of the other GMS countries (Hirsch et al. 2006: 40-41)

China's policy on regional cooperation has so far been to avoid any commitment that would limit or make it accountable for its decisions (Osborne 2004: 7-8). Accordingly, China has stayed out of the MRC though it might slowly be moving towards considering membership. The reason for this shift is a general move towards multilateral cooperation, but importantly also from its interests in maintaining good relationships with the countries in Southeast Asia, which become more important to China. There are fears that China might dominate the MRC and seek to renegotiate the Mekong Agreement, however China might also boost the relevance of the MRC (Hirsch et al. 2006: 38-39, 42).

Burma's interests in the Mekong river is mainly the extraction of resources e.g. timber, gold, without much concern about the environmental sustainability or the social impacts on locals. These interests are determined by the government together with various local armed militias. The civil society in Burma almost non-existent and limited to exiled groups with very limited influence inside Burma. China is a vital ally of the Burmese government and supplier of military equipment. Thus Burma will be sensitive to China's interests (Hirsch 1996: 69-70; LNDO 2003; Osborne 2004: 8; Hirsch et al. 2006: 33).

Laos has significant stakes in the Mekong's natural resources as it has the longest stretch of the river. Having cultural and economic ties with its largest trading partner and investor, Thailand; implicitly, Laos is significantly influenced by the Thai interests on its resource policies. Coincide with improved transport infrastructure across-border; Laos has interests to develop its hydropower to meet Thailand's growing demand for energy. Besides, Laos's economy is still largely agricultural, hence it needs the Mekong for irrigation to meet the demand for water during the dry season. In Laos, the civil society is very limited and with little influence on the government and its policies (Öjendal and Torell 1997: 45; Hirsch et al. 2006: 30, 33).

Thailand: Because of strong economic growth Thailand has a powerful role influencing its neighbours in the region. On its territory the interests have comprised damming and large-scale water diversion schemes for power generation and irrigation. Thailand's rising demand for energy, water and timber, fuelled by its rapid economic growth, have strained its own natural resources and made it look to its neighbours. Because of its geographical location and cultural ties with neighbouring countries, Thailand has an advantageous position in the region, especially with respect to Laos, which has a large un-exploited hydropower (Pednekar 1997: 1; Öjendal and Torell 1997: 108; Hirsch et al. 2006: 30)

Thailand's record of resource management has largely been viewed as "based on inadequate knowledge of the complexity of underlying issues". Thai agencies dealing with resource management have traditionally focused on the economic efficiency of resource utilisation, but are now demanded to incorporate environmental conservation in their approaches. This policy change causes clashes between agencies with different practices of resource management (Pednekar 1997: 1, 6).

A major problem in Thai resource governance is the influence of narrow interests of government, business, and military elites[5] to exploit natural resources for their own profit. In this case the interests of the public are expended and environmental problems are created. Common resources are increasingly captured by the state and subsequently expropriated to private sector. The neighbouring countries have been careful about Thai initiatives to develop resources in their countries because they have observed how Thailand has exploited its own natural resources (Hirsch 1996: 94-96; Pednekar 1997: 6-7, 31; Öjendal and Torell 1997: 101).

Thailand is democratic with a lot of room for civil society organisations to voice their view. In Thailand, *"mainstream bureaucratic thinking and practices are challenged by advocacy style civic movements"*. Nevertheless, it is difficult for communities to get through the bureaucracy and influence decisions, and even with the support of NGOs (Hirsch 1996: 44; Hirsch et al. 2006: 16, 35-36).

Cambodia: Much of Cambodia's geography is dominated by the river. Naturally, it has significant interests in the river for its fisheries, irrigation and flood prevention. This means that the quality and regularity of the river is of great relevance to Cambodia. Any projects that impact any of these features, Cambodia is expected to be sceptical about. In Cambodia, the civil society exists, but they are weak and in some cases alternative views are not tolerated (Hirsch et al. 2006: 30,33).

Vietnam mainly covers the Mekong delta and its interests are to have a regular flow so as to avoid floods or saltwater intrusion and loss of irrigation in case of too low water

[5] Though in Thailand it doesn't really make sense to distinguish these groups as they to a large extent overlap e.g. ousted prime minister Thaksin Shinawatra who came from a position as police colonel to build a business empire making him Thailand's richest and finally take up the highest position in the government.

flow. Un-critical civil society organisations are seen, but views that don't agree with the official line are usually not heard (Hirsch 1996: 63-64; Hirsch et al. 2006: 30-31,33)

b) Mekong Regional Institutions

In the Mekong Basin, institutions that emerged from regional initiatives to cooperate and shape the resource management and development of the Mekong are the MRC, ADB/GMS, and the Economic Quadrangle cooperation. They act as supporters and/or stakeholders in the Mekong River Development. Their development programmes and projects are to some extent, overlapping. Likewise, it is also important to note that some states are members in several of the bodies simultaneously. The bodies will be analysed in order of their inception and thus not necessarily according to their importance in the case.

MRC: The MRC is much acclaimed as an example of regional cooperation on resource management. However, the status of the MRC is not always clear and the countries in the region do not consider it to be a regulatory body. Its role as an institution of the Mekong is still weak. This is evident from level of commitment by and attention from the member states, which are represented by low-ranking politicians from secondary technical ministries or departments. Furthermore, the member governments are more concerned about national interests than engaging in binding co-operation. This illustrates that the member state do not consider the MRC to be a vital mechanism for the realisation of national interests (Hirsch et al. 2006: 1, 3,34).

The Mekong agreement is not legally binding but only serves to establish the best procedures with respect to the various aspects of river basin management. Furthermore, the member governments are more concerned about national interests than engaging in binding cooperation. Besides, the original agreement on the Mekong was largely influenced by the external donors, who have an institutional culture, which is alienated from that of the countries in the MRC. On the other hand, the agreement might not reflect the true interest of the member countries (Hirsch et al. 2006: 1-2, 5-6, 34).

The MRC has been challenged in the river basin development planning by the richly funded GMS cooperation. Moreover, the GMS programme is participated by all countries in the Mekong, notably China (Hirsch et al. 2006: 46).

ADB/GMS: The GMS programme under the auspices of the ADB is the key actor in development investments in the river basin. As such it attracts high-level political attendance and attention from all the six basin countries. China particularly favours the GMS programme and uses it as a channel for its investments. The focus of the GMS is on

economic development predominantly in transport and energy infrastructure with environmental sustainability as a secondary concern (Guttal 2006: 38; Dore 2001: 97; Hirsch et al. 2006: 34-35,46-47; Öjendal and Torell 1997: 59). This has caused local communities and the international community to voice strong concerns over the environmental impact of the GMS's projects (Dore 2001: 59; Hirsch et al. 2006: 35). In response, the GMS set up the Working Group on Environment (WGE) with the task to initiate its own environmental projects and to ensure that environmental concerns are addressed in development projects. The general approach of the WGE has been to identify a project's environmental impact and then find methods to minimise the impact (Dore 2001: 97-98).

Economic Quadrangle: Like the GMS, it is funded by the ADB. As a matter of fact, it is a separate forum of the GMS transport corridor to implement the UMNP, which is the focus of this thesis. The motive behind the creation of this cooperation outside the GMS can be speculated. One consequence of the project being implemented in this forum is the exclusion of Cambodia and Vietnam would prevent these downstream countries from making any formal objections against the project. This should be seen in the light of these downstream countries, which expressed their concerns about the impact on them from the navigation project (Öjendal and Torell 1997: 62; Osborne 2004: 30).

c) Businesses

Last but not least to mention is the businesses as another key actor, which are almost invisible but have significant influence behind the development (Hirsch 1996: 97; Dore 2001: 92). They can be local businesses, state actors in business (e.g. government, military or politicians), consultants, multi-national and trans-national corporations and private financier (Dore 2001: 92; Hirsch 1996: 97). Many Thai companies have economic interests in several of the development projects in the Mekong and behind the use of the Mekong natural resources e.g. hydropower, trade and investment (Hirsch 1996: 99; Hirsch in Pednekar 1997: ii-iii). Chinese businesses, in particular, benefit from the navigation improvement since most large cargo vessels are Chinese and Chinese are setting up businesses in Thailand and Laos (Osborne 2004: 28).

d) Grassroots and ENGOs

In this case, grassroots are the local people who live in the Mekong riverside communities. They seek to claim and secure the access rights to the land on the riverbank,

the river and its natural resources. Their main interests are to defend their livelihoods and culture, which are interconnected with the river and its natural resources. To reach these objective, they together with and supported by interest parties e.g. scholars, researchers, some local government employees, and some private sector actors form the Chinag Khong Conservation Group or in the Thai terminology, *"Krum Raksa Chiang Khong"*. The group is supported by the ENGO i.e. SEARIN. They have protested and called for justice in relations to the management and control over the Mekong River and its natural resources (Dore 2001: 92; SEARIN 2003).

The actor analysis has illustrated what stakes the different actors have in the navigation project and this allows one to critically assess the project itself. The complexity of the Mekong navigation development in itself is worth investigating. The background of the development initiative, hence deserve some scrutiny.

5.2.2 Dissecting the Distribution of Impacts on Actors

UMNP, Actors, Who gains and who loses

It appears not at all easy to discern *who* is behind *what* in the Mekong navigation development. This can be seen by several cooperations in the basin development that are overlapping (Hirsch et al. 2006: 46). This exemplified by the UMNP. The conflict between the Thai communities living by the Mekong and the state on the UMNP is under investigated in this thesis. Though the project covers four countries it is only the Mekong riverside communities in Thailand who protest and struggle to defend the natural conditions of the Mekong. Their motivation is not purely environmental conservation but also the conservation of Mekong ecosystems to securing their livelihoods base. Hence, the question of 'who gains and who loses' from the project and the resulting environmental changes, linking to the issue of environmental justice in the use of environmental resources, the benefits from which often are unequally distributed among the actors (Sachs 2003: 5-6; Bryant and Bailey 1997: 8; Forsyth 2003). Following the thread from the SL analysis, Third World Political Ecology analyses the impacts of environmental change in terms of vulnerability and risk leading to marginalization (Blaikie 1999: 141). The analysis is divided up into two spatial scales i.e. local and regional.

Local Scale

The question of who loses and gains at the local level indicates the degree to which the development is actually benefiting the poor. The SL analysis has shown that the riverside

communities lose an important pillar of their livelihoods, namely access to the river and its natural resources. The magnitude of their loss depends on the role of the river resources in their livelihood strategies as either a supportive pillar (land- based livelihoods) or a main pillar (river-based livelihoods).

For villagers, who hold lands with the option of practicing intensive cash cropping, may benefit from the improved navigation through the expansion of market and increasing trade. Hence, the loss of access to Mekong resources does not immediate marginalise them. However, it increases their vulnerability to market prices, besides the weather fluctuation. The loss of the supportive pillar from the Mekong resources for their livelihoods means that if the cash crop production and market prices fail, they risk being push into poverty if they cannot bounce back to or alternatively depend on nature (Sachs 2003).

For villagers, who have relied on fishing, gathering, and RVC with no official land holdings the loss of natural resources forces them to seek alternative livelihoods. Thus they become vulnerable to the availability of jobs, which again depends on their capability, economic, political, social and seasonal factors. The large population of ethnic minorities, especially in the north of Thailand and in the adjacent countries brings about the ethnic issue of the impacts of navigation development. Villagers who belong to ethnic minorities and have no citizenship, and automatically have no civil rights including land rights. The loss of access to the Mekong resources without alternative livelihoods potentially push them into severe poverty and further marginalized (Hirsch 1996: 102).

As evident in the SL analysis, activities envisioned to emerge from the improve navigation are largely part of modern sectors such as trade, tourism, fabrication, and cash crop farming. These potential for new livelihood activities will possibly offer them opportunity to diversify their income generating activities. For example, the local people who produce cash crop may increase revenue from selling cash crops if the demand rises. In terms of labour jobs from the ship cargo transport, the villagers who are landless but physically capable may derive income through physical exertion (New York Times 2005). Activities in the tourist sector can benefit the poor and ethnic minorities with traditional dresses and handicraft can take the advantage of this opportunity to raise the income by selling their handcraft products, which are special “tourist value” (Theerapappisit 2007). In the Thai case, the government promotes the communities’ products by supporting them advise, credits and loans (DIP).

The issue of property rights to land is central in determining the distribution of gains. Firstly, villagers with customary land holding are not compensated for the loss of land from

either erosion or expropriation. Thus, they have no financial capital to invest in a new livelihood activity. Secondly, government expropriation is commonly used for land grabbing. Government and business interests thus acquire the land for free and use it for timber plantations, orchards, and cash crops or to construct piers, hotels etc. Hence, the political and business elites stand to gain the most from the increased trade and tourist activities (Ives 2002: 76; Hirsch 1996: 94-95; Guttal 2006: 36; SEARIN 2003: 40, 41; Blake 2004: 68; Thai-Baan 2004: 89, 90). There is a general trend of the navigation development benefiting the interests of business over those of poor. For example the navigation is a benefit for cargo ship transportation but a disadvantage for local people who have trouble crossing the river to trade their products because of the increased current and traffic of large cargo vessels (Bryant and Bailey 1997: 3-4; MRC 2003b: 16; SEARIN 2003: 39).

Regulation and fair distribution of the benefits from the development of natural resources is important. Unfortunately, the environmental and resource laws of the countries in the region are inadequate and below international standards (Hirsch et al. 2006: 2; Öjendal and Torell 1997: 13). As noted by Bryant and Bailey, the costs of environmental changes often fall on the poor while the benefits are collected by the stronger business and state actors (Bryant and Bailey 1997: 34).

Regional Scale

The gains and losses of actors on the regional level will illustrate some of the reasons why the actors promote certain national interests. This should also be seen in light of their power to pursue their interests, an issue that will be discussed later. The benefits for China are that it gets a cheap transportation alternative to and from one of its interior provinces, Yunnan. As is evident from its construction of several dams on the Mekong, China has so far not been seriously concerned about down stream impacts. Burma gains improved access to transportation for its natural resources that are traded with Thailand and China. Besides, the central government strengthens its control over the region (Öjendal and Torell 1997: 98, LNDO 2003).

Thailand seems to receive a significant part of the benefits as the navigation project fits into its economically oriented national development policy, though some believe that China gains much more than Thailand. Firstly, the ships and trading companies are nearly all Chinese owned. Secondly, China gains important access to Thai market for cheap agricultural and manufactured products, while Thailand has a hard time to export to China (Hirsch et al. 2006: 104; TERRA 2002: 36).

Landlocked Laos is set to receive a share of benefits in terms of improved connections to international markets. However, the major urban and transport facility developments appear on the Thai side. Likewise China is benefiting from access to Lao markets and resources. Laos risks retaining the patterns of a colony, receiving benefits only in terms of increased trade in its natural or agricultural resources while bearing most environmental costs (Bryant and Bailey 1997: 7; Lazarus et al. 2006: 26, 28, 40, 41; Cocklin and Hain 2001: 4).

Vietnam and Cambodia have no apparent gains from the project. Cambodia will probably be affected the hardest because the hydrology in the country is so dependent on seasonal fluctuations, which are disturbed by the upstream development (Roberts 2001: 44; Hirsch et al. 2006: 104, 105).

Scrutinising the effects of environmental change caused by the UMNP on actors demonstrates how the immediate impacts are highly unequal with the local people especially the poor living by the Mekong affected negatively, while nobody guarantees that they really receive benefits. Furthermore, the change likely will increase socio-economic inequality and, thus will power difference between the poor and the other stronger actors (Bryant and Bailey 1997: 31-33). Efforts to solve problems are headed by the state on all scales, and together with multilateral organisations and business actors the state tends to employ technology oriented solutions that neglect the political aspect of the problems. It is worth noting how these solutions may be influenced by the circumstance that state, multilateral organisations and businesses usually have an economic involvement in the activities that cause the environmental problem. By giving a voice to grassroots, ENGO's play a democratising role on the local scale. While the ENGOs do not cause any change themselves it is important to keep in mind that they benefit from the existence of an environmental problems (Bryant and Bailey 1997: 36-38).

5.2.3 Actors and Power Relations

When talk about poverty, environment, and development, it is inevitable to talk about social, environmental and economic justice. As such advantages and disadvantages that come from development, more but not less, often are distributed unequally in the society (Bryant and Bailey 1997; Sachs 2003). It is, hence, necessary to understand how actors derive and exercise their power in relation with one another (Blaikie 1999: 133). The ability of actors to act and shape the outcomes of development and environmental change hinges on their power endowment. Power, on the other hand, is rooted in the resources and inherent

organisational character of the actors. Actors with common interests or characteristics form alliances to increase their power. Examples of this are on the regional scale the many cooperation forums and on the local scale the civil society organisations resisting the project (Bryant and Bailey 1997: 39, 189-190). The actors' power will now be summarised.

Power relations in the Mekong Region: At regional level, it points toward power relation between state actors even though business play an important role in defining and influencing the states' interests (Reed 2002:13). Two countries dominate in the sub-region. First to be mention is Thailand, because of its advanced state of economic development, the size of its economy and its central location in the region, has a great deal of power to influence the resource use in the region. This is particularly evident from the involvement of Thailand in extracting Laos' natural resources, but also Thailand also plays a major role in Burma and Cambodia (Hirsch et al. 2006: 103-105; Pednekar 1997: 1). Secondly, China, as a world power in economic, military and political spheres, has a large influence on the river management and development. China is not in the centre of the sub-region, but instead it is the country farthest upstream, which gives it great freedom to plan according to its own wishes. Nevertheless, China is sensitive to the views of downstream countries that it wishes to maintain good relations with, as part of its foreign policy and strategy to boost the domestic economic growth and further its political influence in South East Asia (Hirsch et al. 2006: 39).

Currently, the MRC and its policies and organisational culture reflect the influence from the (mainly western) donors. Whereas this influence might positively impact environmental concerns in its policies, it has also resulted in the MRC being virtually isolated from any real decisions. The GMS programme, on the other hand, is a strong regional actor. It derives this power from its large financial resources and from the fact that its objectives are shaped along the lines of the powerful state actors. Moreover, China favours the GMS as a way to extend its interests in the sub-region's development. Seen in this light, it is evident by the level of interests and participation by state actors that the GMS programme is considered as the accepted institution for the resource management of the Mekong River. In reality the region is dominated by national interests, and the power to influence development goes through state channels (Hirsch et al. 2006: 30, 34-36, 46-47,50-52).

The countries in the navigation improvement project have not involved the downstream countries that might experience negative impacts. The downstream countries

have little use the MRC clauses on downstream impacts because of the weakness of the MRC and the project's belonging to the GMS. As is typical for the GMS cooperation the UMNP implementation is isolated in a loosely organised narrow forum where there are no objections by the downstream countries.

The benefits of navigation seem not to be equal for all state actors, however the regional relations show examples of actors trading off benefits. Cambodia sees no benefits from the navigation but on the other hand it is major receiver of Chinese aid. Laos is bound to follow development initiatives along the lines of its powerful neighbours China and Thailand who have interests in Laos' natural wealth. It is positive, though, that conflicts are resolved through bilateral negotiations and within the framework of regional institutions, which has been effective in preventing serious confrontation (Öjendal and Torell 1997: 9, 122-123; Hirsch 2006: 105).

State vis-à-vis civil society: At local scale, the civil society on the Thai side of the Mekong is in focus. Like the rest of SEA countries, Thailand's political and administrative system is hierarchical with strong tradition of top down decision-making and overlapping management (Pednekar 1997: 7). This endows high-ranking officials with a lot of power to take decisions (Hirsch 2006: 4). Furthermore, the state is greatly influenced by big businesses and individuals' interests (Sriariya 1993: 55-57).

Like the official institutions, the business environment in Thailand is also characterised by a patronage system, where favours are exchanged within and between the political and economic spheres (Sriariya 1993: 55). These relationships strengthen the power base of the business and political actors, but exclude those that are less endowed with resources (Bryant and Bailey 1997: 13). Altogether, it is difficult for locals to gain information and influence decisions about projects that would affect them.

In resistance local communities have organised themselves to form grassroots movements. The movements receive substantial support from national and international ENGOs who help them to reach the greater public through media and the politicians through formal and informal channels. Moreover, the ENGOs posses or can facilitate contacts with researchers and scientists who can create credible accounts from the civil society's point of view (Hirsch et al. 2006: 36; Dore 2001: 92; Öjendal and Torell 1997: 63). Even though the influence of civil society has increased, it is still undersized when compare to the corporate influence (Reed 2002: 13). However, the possibility of grassroots resistance is not to be under estimated but should be emphasised. The work of SEARIN in supporting the local communities network is one of the examples of the role of ENGOs in supporting and

facilitating channel and strengthening grassroots communities to gain power to fight for social and environmental justice. This points towards an importance of participation by grassroots to have influence in the project. Since the state is the only institution that possess the mean of coercion making it more relevant to address public participation in policy formulation and decision-making (Bryant and Bailey 1997: 13, 189, 195; Blaikie 1999: 140).

The level of Community Participation in the project: As the GMS acclaimed to include communities in its development planning, however in practice the communities were left out and un-informed about the project. This illustrates by the process of EIA. According to international standards, the community's participation is to be included, while noting that local people should be informed about the project schedule and the impacts they might experience (JEG-EIA 2001: 6). However, this was completely neglected (Cocklin and Hain 2001: 5).

In the case of Thailand, Thai legislation ensures public participate in management, maintenance, preservation and exploitation of natural resources and to access information and express their opinion on any project that affects the quality of the environment, health condition, quality of life, or any other material interest (Hirsch et al. 2006: 111). Contrastingly, in Thailand, civil society organisations conclude that there has been "neither information disclosure nor consultation to the affected communities" on the project (SEARIN 2003: 43). However, the villagers informed that there had been no formal announcement of the channel improvement and they had only learnt about the project through locally elected politicians and media reports (TERRA 2002: 34,37). By organising in groups, however, it has been possible for grassroots to resist the powerful actors' control over and use of natural resources (Bryant and Bailey 1997: 13).

Grassroots resistance: In Thailand the civil society movement grew strong enough that there were able to contests the development project and force authorities to halt it. The halt in the blasting of the rapids at Khon Pi Luang was, however, only temporary. Moreover, the formal reason for stopping the blasting at Khon Pi Luang was that the border demarcation between Thailand and Laos was unclear. Thus, Thailand could use the demarcation issue as an excuse to the GMS for halting the project. The issue was taken off the shoulders of the Thai government (thus out of reach of the Thai civil society) by the decision that the blasting area is on Lao territory. This decision provided a painless way out for the Thai politicians and government, in the sense that they could excuse to the civil society that there was nothing the politicians could do as the project area was out of the Thai

governments control (Osborne 2004: 28). Even if the rapids at Khon Pi Luang were finally blasted and the navigation channel completed, it is probable that the civil society opposition in Thailand with subsequent focus on the issue from national and international ENGOs and media, has been a contributing factor to China's decision to limit the project to the initial phase i.e. a limited channel size for ships up to only 150 tonnes (Hirsch et al. 2006: 105)

Determining who gains and who loses: Actors use their power to ensure that they collect the gains and that the losses are put on other actors (Bryant and Bailey 1997: 40). Especially, profits from natural resource extraction are easily diverted into the pockets of powerful actors (Öjendal and Torell 1997: 99). It is illustrated by the local villagers who have expressed that the majority of the people in the community did not believe in the benefit from trade and tourisms claimed by the project, on the contrary the large businessmen would rather gain from these development (TERRA 2002: 38).

Thailand's national interests in the Mekong River are centred on benefits for the whole country. Actors in the central government have political interests in securing resources and supporting national economic growth. Business interests in trade with China, cash crop production, and tourism involve actors in other parts of Thailand. These actors will tend not to be concerned about negative impacts on the river (Hirsch et al. 2006: 6).

Mould environmental facts and prioritise projects: Actors use their power to promote the projects that are in their interest and in the most cases this effort justified by arguments about the benefits that the project will bring. These arguments are another way of exercising power by attempting to mould social, economic and environmental facts (Bryant and Bailey 1997: 41,192). In the case of the UMNP, the development planning is based on a number of implicit facts. Development follows a trickle-down philosophy where it is believed that economic growth will, automatically, spread wealth and alleviate poverty (Hirsch et al. 2006: 16; ADB 2007: 9; ADB 2004: 15). With respect to the environment, the navigation project is justified by arguing that water transport is more energy efficient and thus cheaper and also environmentally friendly compared to road or rail transport (Starr 2004: 36). Meanwhile the environmental impacts are considered not to be substantial or long term, as is evident from the findings of the EIA (JEG-EIA 2001: 9, 10; Campbell 2001: 74, TERRA 2003: 40).

There are, however, conflicting opinions on the benefits to livelihoods and the severity of the environmental deterioration. The evaluations of the EIA find that it is to a large extent *"based on little more than speculation, subjective judgements, or unsubstantiated research"* (Cocklin and Hain 2001: 3). Critical voices do not believe that the benefits of the river

development will automatically go to local people to improve their well-being (TERRA 2002: 38). They stress that project planning should emphasise the governance of distribution of benefits much higher than it does (ADB 2004: 48). With respect to the environmental impacts, the claim that water transport is more environmentally friendly should take in to account the whole environmental impact. Referring to better fuel efficiency is not an adequate justification for environmental sustainability if there are substantial impacts on the riverine environment. Some have pointed out that, in comparison, rail transport has far fewer impacts on the natural surroundings while it requires less than twice the amount of fuel (Starr 2004: 37).

The actors in the UMNP have different accounts of the negative and positive impacts of the development. This is a central reason for the conflict between the local communities on the one side and the governments and regional development planners on the other. External actors, scholars and ENGOs, have documented significant shortcomings of the development planners' predictions the impacts, but also acknowledge the arguments of potential for benefits from the development including UMNP (TERRA 2003: 40; Lazarus et al. 2006: 24, 25; Öjendal and Torell 1997: 150-152; Cocklin and Hain 2001: 4).

5.2.4 Conclusion of political ecology analysis

The villagers believed that river modification by the UNMP including obstacles e.g. dams in the upper part of the river cause change in natural conditions of the Mekong. They were concerned that the UNMP activities on the Mekong would affect the ecosystems and, hence, their source of food and livelihoods. The environmental change appears mainly as trends in the quality and accessibility of the river and to some extent as shocks. The change resembles what Bryant and Bailey identified as everyday and episodic events, which caused by human activity. However, in the view of Bryant and Bailey, a common proposal by Third World political ecology is to embrace participation in decision-making by grassroots, who are inspired by social justice and environmental conservation i.e. sustainable livelihoods.

As the current GMS approach to economic growth, it appears that the burden to social and environmental costs are likely to be more than benefits on the weakest and most vulnerable, and on future generations. As expressed by Reed, the efforts of civil society are central to alter the current development approach will continue until such time as the power of corporate world is curbed by the concerns of communities seeking to promote more sustainable, democratic approaches to development and resource management (Bryant and Bailey 1997: 13; Blaikie 1999: 140; Reed 2002: 13). The GMS programme that seek to

manage Mekong resources to protect environment using SD without a genuine participation of, benefits to and reflection of the wishes of local communities, as argued by Forsyth, call for minimisation of interference in the environment of the GMS and decentralise decision making and management of the resources to the local (Forsyth 2003: 10, 142, 220).

Chapter 6
Conclusion

Mekong Development, Poverty and Environment in Dilemma

People have long been trying to find the way to achieve well being, security and prosperity. Development was viewed as imperative for countries, which want to reach these objectives for their citizens (Sachs 1999: 12-13). Countries in the Mekong, as well, became aware of the need for development and to this end the potential for regional cooperation. As explored in chapter two, there are different pathways to development depending on people's values and ideas. The kind of development that is best in terms of reaching a set of outcomes depends also on the choice of outcomes and the way they are measured. In the Mekong Basin, countries have agreed on the importance of economic growth to increase people's well being in a sustainable way. The countries realised that the lack of infrastructure hindered the achievement of these ends. Having rich natural resources, the Mekong countries also saw the potential benefits derived from these resources including the Mekong River. Hence, many development projects have been planned including the navigation improvement project.

However, the environmental change in the Mekong brought by the project raised the conflict between the parties who have different interests in the Mekong. The states, on the one hand, claimed that because of poverty and overexploitation of natural resources in the Mekong, point toward the need to alleviate poverty and manage these common resources on a sustainable basis (ADB 2004:12, 26). On the other hand, the people claim that the state activities on the Mekong bring changes to, destroy and degrade the environment, which their livelihoods depend on (Thai-Baan 2004).

The section of Mekong People and River Livelihoods offers us an understanding how the environment, in the sense of natural assets, of the Mekong plays an important role in people's lives in the communities by the Mekong. As one may observe, for generations, the Mekong River ecosystems have provided important resources for subsistence and market production to the people living by the Mekong (Reed 2002: 11). Hence, the change in natural conditions of the Mekong pose threats to the local people, especially those poor and landless who are very vulnerable and at the worsen position of them all. Several actors have stakes in the river and compete over its resources,

any exploitation and development of the Mekong risks leading to degradation and deterioration that might fall unequally on different users (Bryant and Bailey 1997; Reed 2002: 11). Thus the degradation of the Mekong ecosystems undermines the base on which the people sustain themselves and may push them into severe poverty (Sach 2003: 5).

In case of the UMNP, the question is what trade off that the development offers to the local people in the communities. According to GMS, the project will stimulate the trade and economy of the region and country. This again will generate jobs and increase economic opportunities of the people. It is relevant to ask what sorts of jobs, qualification that the local people have to be able to take an advantage of such opportunities. As is evident in the case, villagers who are small farmers fishers can sell their labour to carry goods at the port. However, the case shows that there is already a problem of cheap immigrant into the country meaning that competition for jobs is also higher, hence leading to other relevant issues like the governance level, law and policy of the country. On the positive side, tourism can offer the local communities opportunities to generate an income with potentially high return through servicing the tourists and selling handcraft products, which are valued by the tourists. This can provide villagers dignify and sufficient livelihoods while retaining their community and cultural roots. Hence, they need to be supported and participate in the tourism project. Meanwhile, tourism can potentially stimulate incentives to environmental and nature conservation in order to attract tourists (Öjendal and Torell 1997: 106; Theerapappisit 2007: 627).

In this way, tourism in the basin development plans may promote sustainable livelihoods and potentially alleviate poverty and sustaining the environment. The improved infrastructure with minimal impacts on the environment and the people who live by it will be more likely benefiting through improved access to public services and market. If people participate in the project, they might be able to influence the decisions on the project so that it echoes their wishes and needs. Unfortunately, as it is evident in the case, local communities protest against the project because they were not included in the project and it did not reflect their wishes and needs.

The conflict between the development planners and the local people is, to some extent, over the question if there is a need for development. The national interests in development are not a response to a crisis in either the environment or in livelihoods (Hirsch et al. 2006: 31). Thus, one could argue that people could as such continue to have traditional livelihoods utilising the natural resources. However, local people also wish to enjoy the privileges of

social services in health care and education and they desire to have modern consumables e.g. televisions, radios, motorcycles (Blake 2004).

In the Third World, rural economy is based mainly on traditional sector i.e. agriculture and resource based activities, which establish the rural poor welfare. The ADB views the traditional ways of life as less desirable than those that can be gained through economic development. It emphasises that livelihoods based on subsistence agriculture should be diversified to a broader range of economic activities (ADB 2004:11,19). This is even more important since poor people face a shortage of natural resources due to "environmental, population and commercial pressures" on the resources. The GMS also holds that regional integration is a crucial in order to stop unsustainable exploitation of resources. Thus it argues that its role is to guide economic development to make it more sustainable and more equitable (ADB 2004: 7,12).

Despite the poor gain a large part of their income through the environmental resources that are provided freely in the nature, yet as argued by many development agencies and some scholars in the field that natural resources alone will not provide the sufficient means to raise them out of poverty (Ellis 2000; Reed 2002: 11; World Bank 2002). Along with this, today competition on the resource use is more intensely, where the poor find themselves at an increasing disadvantage to defend and secure access to natural resource wealth (Reed 2002: 11). Besides, "without stable access to land and environmental resources, the rural poor are left without a solid foundation for raising household incomes for investing in rural enterprises and for improving the environmental assets" (Reed 2002: 11). Meanwhile, *"it is […] widely accepted that provision of infrastructure, social services, technology improvement, and credit are also necessary component of strategies designed to address rural poverty"* (Vosti and Reardon 1997 in Reed 2002:11).

Seen in this light, the navigation development project is justified for it offers an alternative and opportunity to traditional livelihoods e.g through trade and tourism. Hence, it is not at all bad if the developer will ensure the fair distribution of wealth deriving from the project. Nevertheless, it is essential to identify trade-off and gauge how much the local people and the poor will gain and lose.

Since the impacts of projects are so difficult to gauge, the ADB itself underlines the importance of "comprehensive social and environmental impact assessments" prior to even the project preparation (ADB 2004: 7, 12, 29). It is surprising that the EIA on the UMNP was so limited. Participation has several advantages for the project. In the first place it would allow the poor people the chance to influence the type of development they want, but

it would also allow them to see the advantages that the government project would have for them and thus enabling them to make more qualified decision of what sort of project they want conditioned on what outcomes they value the most.

Chapter 7
Outlook and Discussion

The analysis of the development planning in the Mekong shows several examples of how the natural reality has been shaped by the covert assumptions of the discourse. From the very start of basin cooperation in the MRC regime the development planning was modelled on experience from river basin management in the Tennessee Valley, which is on a different continent in a completely different social, cultural and economic setting (Öjendal and Torell 1997: 54, Hirsch et al. 2006: 58). This approach was obviously very convenient and reflected the contemporary view of universal solutions to environmental planning (Bryant and Bailey 1997: 10, 11).

Several features of the indigenous natural resource use have been ignored in development planning simply because no research had been conducted on them. In this study, RVC is a notable example of a river based livelihood activity that has received no attention in the official development schemes. Instead policies have favoured modern (i.e. western) intensive monoculture farm systems (Forsyth 2003: 1, 2, Escobar 1996: 225; Blake 2004: 62, 63,69).

The potential of tourism is another element of natural resource development that has sometimes been under emphasised (Öjendal and Torell 1997: 106). However, the tourist sector is receiving more and more attention in planning, which is possibly because of the size of this sector in Thailand that has given priority to its interests.

The lack of human capital in the form of educated staff to fill positions in development bodies or to undertake research projects is a major cause of the lack of local sensitivity of policies. Often, foreign experts, who are assigned to conduct advance management, EIAs, etc., might overlook certain aspects of the socio-economic or natural setting (Öjendal and Torell 1997: 50).

Diagnose the Development in the Mekong

The GMS's embracing of the SD philosophy to solve poverty and environmental problems justifies it to pursue resource development projects and manage the Mekong resources. This is exemplified by technological solution to reducing CO2 emission by integrating navigation in their transportation sector because of a belief that it is

environmental friendlier than other kinds of transportation such as road transport, which use more petrol when compared to the amount of goods carried (ADB 2007).

The Mekong countries focusing on sustainable development rationalises their management on the nature, where it is capitalised and treated as a resource or commodity i.e. environmental capital, which is a base for economic growth for capitalist market expansion (Escobar 1996: 211 pp).

The goal of the GMS countries is modernisation and development to expand trade for economic growth and to be able to join and compete in the world economy (ADB 2004). This leads to GMS policy to emphasise the role of technology and free market, and to support cash crop agriculture that can be exported, while viewing rural people as a resource of cheap labour (Öjendal and Torell 1997; Reed 2002: 13). These symptoms are connected with the world capitalist economic model, which influences and affects the environment and people in the Third world. As argued by Sachs that economic growth means more use of natural resources. The competition of resources often results in the poor being the main loosers since the economic growth benefits the powerful, elites big, and businesses more (Bryant and Bailey 1997:3,4, 7: Sachs 1999: 30, pp). Thailand can serve as an example of these points. Meanwhile, it is not convincing that economic growth, as such, will solve poverty. One may give the examples of the economic success stories of the NICs, which have not yet experienced a significant reduction in poverty. This is mainly because the economic wealth is inequitably distributed (Bryant and Bailey 1997: 8). This, thus, calls for an alternative prescription to cure these symptoms, suggested by some political ecologists and developers, are bottom-up grassroots participation, decentralisation in decision-making, and good governance (Sriariya 1993: 56, 57; Byrant and Bailey 1997: 4,5; Blaikie 1999: 142; Forsyth 2003: 22; Di Gregorio et al. 2004: 26).

Appendices

Appendix A: History and Timeline of the Mekong Development and the UMNP

Development and the Mekong in Brief

Once used to be untamed river, the Mekong is now set as a stage for development. In the mid 20th century, after World War II, many countries gained independence from the former colonial nations and post-war reconstruction began. Many development projects are initiated all over the world, including the Mekong Project (MRC 2002: 5-6).

Pre-1990s

During this time, it was realised that there could be a great economic benefit from developing the Mekong. The international nature of the Mekong coupled with the riparian countries' common interests and increased competition over the river resource use has posed a challenge to find ways to share and manage these resources. In the wake of this, the first Mekong cooperation emerged to facilitate sharing the Mekong for development namely *the Mekong Committee* (Osborne 2004: 5).

The Mekong Committee (MC) was established by Vietnam, Thailand, Laos, and Cambodia. This UN-initiative influenced by the United States aimed at supporting regional cooperation and conflict resolution between non-communist states and promoting economic development (Öjendal and Torell 1997: 52-54). Data collection, surveys and research on Mekong hydrology, topography, geology, and meteorology were carried out for flood control, fisheries, agriculture, irrigation, hydropower and navigation. Several projects on major dam construction were proposed (Öjendal and Torell 1997: 57; MRC 2002: 10-11; Osborne 2004: 6; Hirsch et al. 2006: 17).

In 1970, the committee formulated the basin plan and framework for the 20th century development in the LMB with a focus on power generation, navigation and irrigation (MRC 2002: 12, 20). By 1971, Laos completed its first hydropower dam (capacity of 150 Mega Watts) (MR 2002: 20). However, in the late 1970s, regional instability interrupted the Mekong's cooperation. As a result only few dams were built on tributaries (Starr 2004: 10). During this time, only small projects were undertaken under the Interim Mekong Committee (IMC), but with no comprehensive plan for the LMB. Nevertheless, the potential of hydropower dam sites were suggested, while navigation development was limited (Öjendal and Torell 1997: 56).

1990s until present-day

The turning point was in 1991 when stability in the Mekong region resumed, the potential for economic cooperation was recognised. In the following year, the Greater Mekong Sub-region (GMS) Programme was initiated under the support of the ADB. The programme focused on transport and energy infrastructure development, though at that point in time inland water transport was not yet a key feature (Starr 2004: 13). The transport infrastructure development aimed to improve the connection between the Mekong countries to strengthen their competitive ability on trade in the globalise world (ADB 2007: 1). Hence, in 1994, the first friendship bridge was built across the Mekong River between Thailand's Nongkhai and Laos' Vientiane (MRC 2002: 22). In the same year, Thailand built Pak Mun Dam (capacity of 136 MW) in the largest tributary of the Mekong even though since 1980s, dams and their impacts were subjected to debate in the global community (MRC 2002: 20, 11). China's Manwan Dam Construction followed and was completed in 1996, marked the first dam built on the mainstream Mekong with the height of 126 meters and a generating capacity of 1,500 MW (MRC 2002: 22).

In 1995, the late MC was re-born as the Mekong River Commission (MRC) membered by all of the LMB countries. A new agreement was conceived under the principle of SD. The MRC was since then marking the new era of the Mekong and development operating under *the 1995 Agreement on Cooperation for the Sustainable Development of the Mekong River Basin*. Despite the commission attempted to involve all Mekong riparian countries by including China and Burma, the two countries chose to participate as observers (Öjendal and Torell 1997: 57).

Meanwhile, the GMS countries furthered its transport plan (Transport Master Plan) with the concept of an economic corridor focusing on investments in infrastructure e.g. energy, telecommunications, tourism, and transport to maximise its development impact (ADB 2007: iii, 1). Under the banner of SD, the GMS cooperation envisioned a more integrated regional market, creating a sense of regional community and an increased collective action capacity for the common good. The development of a regional market with increased mobility of goods and people would come from promoting transport and economic corridors (ADB 2004: 5). The Cross-Border Transport Agreement was signed by the GMS countries, initiating a programme of directed investments in infrastructure, especially, and multimodel transport systems linking road, rail, air and inland water transports. Many more infrastructure development projects on the Mekong are considered to

make links within and to outside of the region (ADB 2007: 1-2). The Joint Economic Quadrangle Cooperation was established between China, Burma, Thailand and Laos as a forum to focus on the development potential of the area connecting these countries (Öjendal and Torell 1997: 62; Berman 1998: 8-9).

Mekong Development Timeline

A timeline of the human activities on and around the Mekong River from early to modern history. The Timeline is taken from Osborne (2000).

1st century AD	Archeology covering this period has revealed the existence of a seaport at Oc Eo on the edge of the Mekong Delta that had links with China and the Mediterranean world.
2nd–6th centuries	Chinese records speak of 'Funan', a state established in the Mekong Delta region. Modern scholarship judges Funan to have been a collection of petty states rather than a single polity.
c. 3rd century	The Chinese build a bridge across the Mekong in western Yunnan.
6th–9th centuries	Chinese records no longer speak of Funan but of 'Chenla', a state in two parts, one around the territory of modern Cambodia, the other possibly centred on Wat Phu in southern Laos.
9th–15th centuries	Period of the great Cambodian empire based at Angkor.
c. 1278	Marco Polo presumed to have crossed the Mekong in western Yunnan when travelling out of China on his way to Bengal.
1296–97	Chinese envoy Chou Ta-kuan visits Angkor

		and writes a detailed description of the city and its inhabitants.
post-14	31	The Cambodian king leaves Angkor; henceforth the Cambodian capital is located at or near the site of modern Phnom Penh.
1511		The Portuguese capture Malacca and shortly afterwards references to the Mekong appear in their records.
1555		First recorded visit to Cambodia by a European, the Portuguese priest, Father da Cruz. He leaves in 1557.
1563		Publication of the first map showing the Mekong running through Cambodia.
1580s		After an absence of decades, Portuguese and Spanish missionaries return to Cambodia.
1593–99		Portuguese and Spanish freebooters, led by Blas Ruiz and Diego Veloso, play an active role in Cambodia's royal politics.
1603		First reference to Angkor in a European publication.
1641–42		A Dutch trader, Gerritt van Wuysthoff, travels up the Mekong to Vientiane.
1778		The Siamese sack Vientiane and carry off the Emerald Buddha.
1783		After many decades during which there is no firm record of any visits to Angkor by Europeans, a French priest, Father Langenois, travels to the temples.
1828		The Siamese sack Vientiane again.
1850		Father Bouillevaux visits Angkor.

1858	France begins its invasion of Vietnam, capturing Saigon in 1861.
1860	Henri Mouhot visits Angkor (he later dies near Luang Prabang in 1861).
1863	France establishes a protectorate over Cambodia.
1866–68	The French Mekong Expedition explores the river from Vietnam to Yunnan.
1886	Auguste Pavie appointed French vice-consul in Luang Prabang.
1893	France begins to assert control over Laos, with Pavie at the forefront of exploration of the Lao territories. The French construct a railway across the Khone Falls and launch gunboats on the Falls' northern (upriver) side.
post-1900	France extends control over Cambodia, Laos and Vietnam as 'French Indochina'. European powers recognise China's sovereignty over the Sip Song Panna (Xishuangbanna) region in the far south of Yunnan Province.
1914–18	First World War.
1930s	The Great Depression has major effects in Vietnam. Emergence of the Indochinese Communist Party.
1941	Outbreak of the Pacific War. By this stage Japan has effective military control of the countries of Indochina.
1946–54	First Indochina War.
1957	Establishment of the Mekong Committee.
1963	Major renewal of hostilities in Vietnam, signalled by the Battle of Ap Bac.

1965–75	The Second Indochina War (the Vietnam War) involves Cambodia and Laos as well as Vietnam, and leads to the defeat of the American forces and also of their South Vietnamese, Cambodian and Lao allies.
1975	Communist governments come to power in the whole of Vietnam, in Laos and in Cambodia. In Cambodia, the Pol Pot regime embarks on a reign of terror.
1978–79	Vietnam invades Cambodia and overthrows the Pol Pot regime.
late 1980s	Renewed discussion about possibilities for economic development of the Mekong and its surrounding region.
1991	Arrangements to settle the Cambodia problem give added impetus to planning for development of the Mekong and its region.
1993	The Chinese complete the first dam built on the Upper Mekong, at Manwan, after starting work in 1984.
1994	Pak Mun Dam on the Mun River, a tributary of the Mekong in Thailand, is completed. The 'Friendship Bridge' linking Thailand and Laos, the first bridge built over the Lower Mekong, is completed.
1995	The Mekong Committee is reconstituted as the Mekong River Commission.
1996	The Chinese commence construction of a second dam on the Upper Mekong, at Dachaoshan.
1998	Theun Hinboun Dam is completed in Laos.

UMNP Timeline (Lazarus et al. 2006).

1980s - 1993

1980s The GMS focuses on the joint development of natural and human resources, and the strengthening of the interregional economic linkages through improved infrastructure.

1992 The Asian Development Bank (ADB) organises a series of conferences bringing together high-level government officials from the GMS countries with the aim of coordinating their infrastructure investments.

1993 A joint investigation on waterway transportation on the Lancang-Mekong River, organised in February, reaches the following conclusion: under natural conditions, the waterway is navigable by vessels of 60 dead weight tonnage (DWT). However, after improvement, the waterway will become navigable by vessels of 100-500 DWT for at least 95 per cent of the year.

1993 In May, the Governor of Yunnan province, He Zhiqiang, outlines a plan to develop the "Lancang Economic Belt". The plan also includes opening up the lower section of the river through Xishuangbanna to international shipping.

Project information

Project implementation is divided into three phases:

Phase 1 includes the removal of 11 major rapids and shoals, and 10 scattered reefs plus the setting up of 100 navigation marks, 106 markers and 4 winches. The waterway will then be navigable by vessels of at least 100-150 DWT during at least 95 per cent of the year.

Phase 2 covers the removal of 51 rapids and shoals, allowing the waterway to be navigable by vessels of at least 300 DWT during at least 95 per cent of the year.

Phase 3 involves canalisation, after which the waterway will be navigable by vessels of 500 DWT during at least 95 per cent of the year.

1994 - 2001

1994 During the fourth GMS conference in September, implementation of the water transportation subsector's "Upstream Lancang–Mekong River Navigation Improvement Project" is given high priority.

1994 The "Free" Navigation Agreement is signed in October by senior officials of China, Myanmar, Thailand, and the Lao PDR, officially opening ports in each of the four countries to the entry of ships from the other three countries.

1995 With the formal establishment of the Lao PDR–China and China–Myanmar borders, tremendous potential for the formation of the greater 'Economic Quadrangle' is created.

2000 The Transportation Ministers of China, the Lao PDR, Myanmar and Thailand officially sign an Agreement on Commercial Navigation on the Lancang-Mekong River on 20 April 2000 in Tachilek, Myanmar. The agreement stipulates that, one year after its signature, vessels of any contracting parties will be entitled to sail freely between the ports of Simao in China and Luang Prabang in the Lao PDR.

2000 During November, a Joint Survey Group conducts a feasibility study of the project, which concludes that:

(a) The project is technically feasible;
(b) Implementation will not change the discharge flow of the river or the boundaries along the river; and
(c) Implementation is imperative.

2001 A joint environmental impact assessment (EIA) and detailed survey team from the Chinese side is established in March and carries out site surveys along the river on the 18 and 29 April. The joint team completes the site surveys, data collection and related work on 12 June and adopts the outline for preparation of the EIA report.

2001 The EIA report and conceptual design for the Navigation Channel Improvement Project are finalised and submitted in September to the contracting parties for comments/improvement.

2002 - 2003

2002 The Thai Cabinet approves the EIA in January. The Lao PDR is the last to approve the EIA in March. Implementation of the first phase of the project begins in the dry season (April-May) and is scheduled to be completed by the end of 2004, as detailed below:

29 March to 15 April 2002 – The first stage. A Chinese construction team, accompanied by observers representing the four countries making up the Project Co-ordinating Office visits three working sites along the Myanmar-Lao PDR border to begin project implementation. Work on the Tang Ao rapids and Lower Tang Luang rapids is completed but work on the Nam Loi River Mouth Rapids cannot be finished due to early flooding.

December 2002 to March 2003 – The second stage. Blasting of 16 rapids is scheduled to start in December 2002, with completion scheduled for the beginning of the dry season in March 2003. The rapids include those at Huai La, Khai, Long Zhom, Nam Loi river mouth, Khong Tan, Tang Salum, Wang Seng Shoals, Wong Wit, Sam Zhao, Chuang Nam Tang Lan, Tha Ban Bo, Kon Mu Tai, Ton Pa Nok Yang, Huai Na Yo, Saen Pi and Lower Mong Pa Liao.

December 2003 to March 2004 — The third stage. Blasting of the Nam Lor river mouth, Tang Pang and Khon Pi Luang (Thai–Lao PDR border) rapids is scheduled for completion by March 2004.

2003 The Thai Cabinet issues a resolution on 8 April suspending a plan to blast the Khon Phi Luang Rapids to avoid further complications in Thai-Lao PDR border demarcation. The resolution requires the Office of Natural Resources and Environmental Policy and Planning, of MoNRE, to conduct a new EIA along the Thai-Lao PDR border. TEAM Consultant Engineering and Management Co., Ltd. is hired to conduct the new EIA (called the post-EIA). The post-EIA begins in September 2003 and is completed in June 2004.

2003 In June, the MRC CEO reveals to the public and the press that China will not continue with the project past the first stage of rapids blast.

2004 - 2006

2004 Officers from the Thai Harbour Department organise a public consultation on 20 January in Chiang Khong, Thailand.

2005 Local groups in Thailand released Thai Baan research carried out in Chiang Khong, Thailand. The research addresses critical environmental and social concerns of the Navigation Improvement Project.

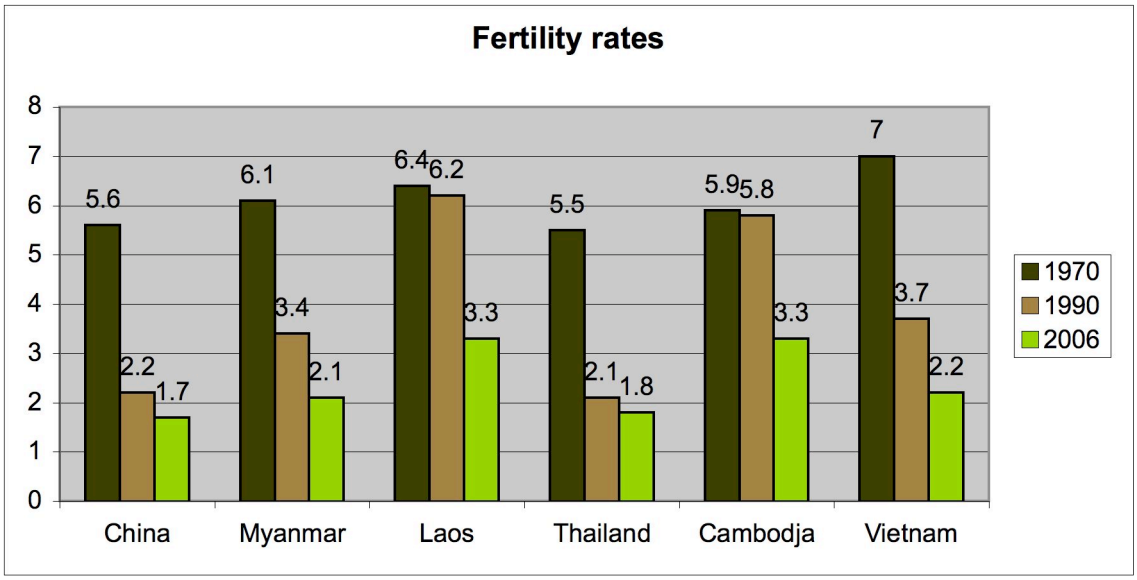
2005 China's Yunnan province and nine provinces in northern Lao PDR hold their second working group meeting at Kunming in November. The working group recommends active preparation for removing 15 big rapids that remain as obstacles to smooth navigation along the stretch between Houay Xai and Luang Prabang in the Lao PDR.

2006 The Joint Co-ordination Committee for Commercial Navigation (JCCCN) on the Lancang-Mekong River holds its fifth meeting on 6 March 2006 to discuss commercial navigation and the promotion of trading activities among the four upper Mekong countries. In 2006, major cargo ships are expected to be upgraded from 250 DWT to 300 DWT, reducing transportation costs by about 30 per cent.

JCCCN also reaches consensus on the following nine items:

- The "upper Mekong watercourse navigation map" will be submitted to the committee by the end of June 2006;
- "Regulations for charging the commercial navigation on upper Mekong River" are approved;
- Chinese sailors will be allowed to use the Chinese sailor identity card starting from 1 August 2006;
- More water gauges will be installed in the upper Mekong navigation channel;
- The preparatory work for removing the three shoals (sandbanks) and rapids that hinder navigation in the upper Mekong navigation channel is to be speeded up;
- Capital stability and good management of the upper Mekong navigation channel is to be actively pursued;
- Navigation co-ordination and marine co-operation between the four countries will be enhanced;
- Law and order along the navigation channel will be strengthened in order to ensure the safety of commercial ships, sailors and travellers; and
- Transportation of oil products along the Lancang-Mekong navigation channel will be developed after the related regulations and review processes have been improved.

Appendix B: GMS countries' statistics



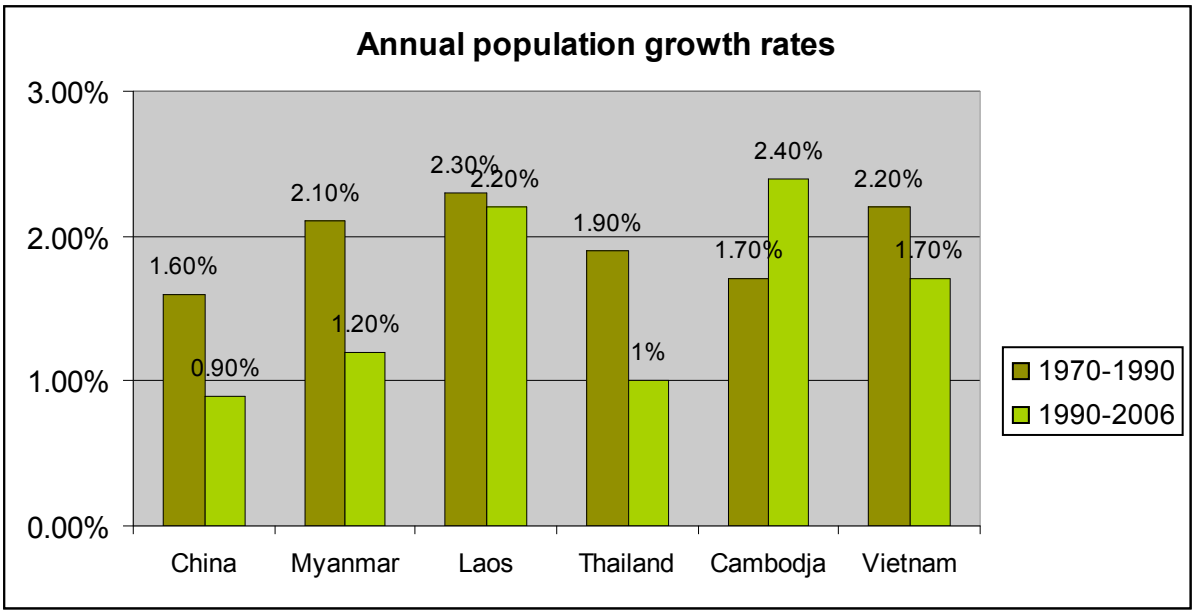
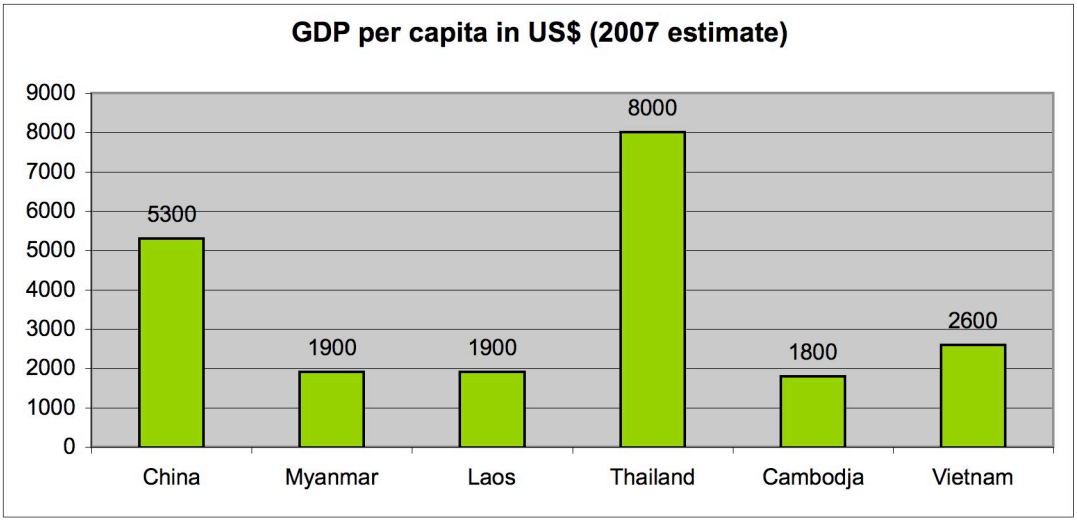
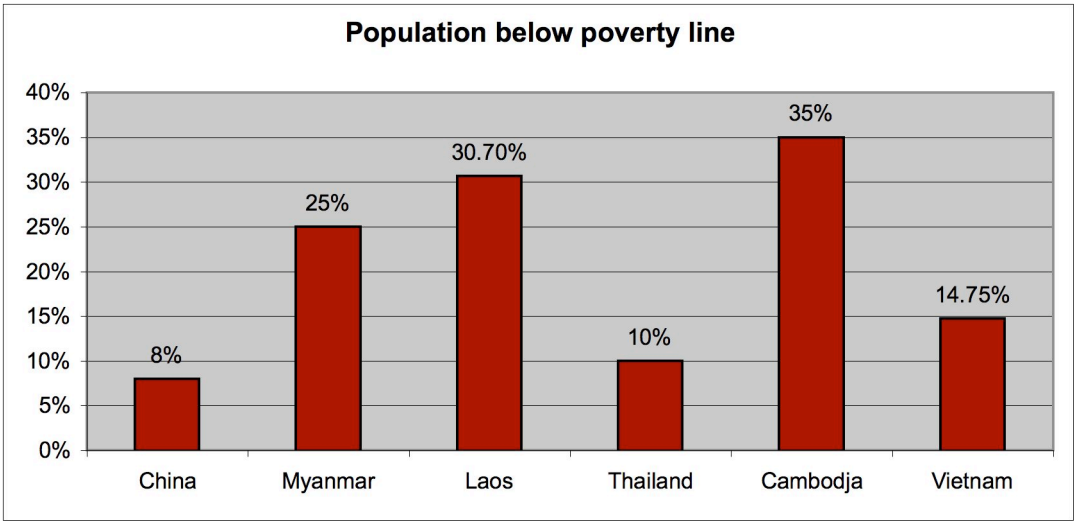


Figure 1: Population indicators - source UNICEF





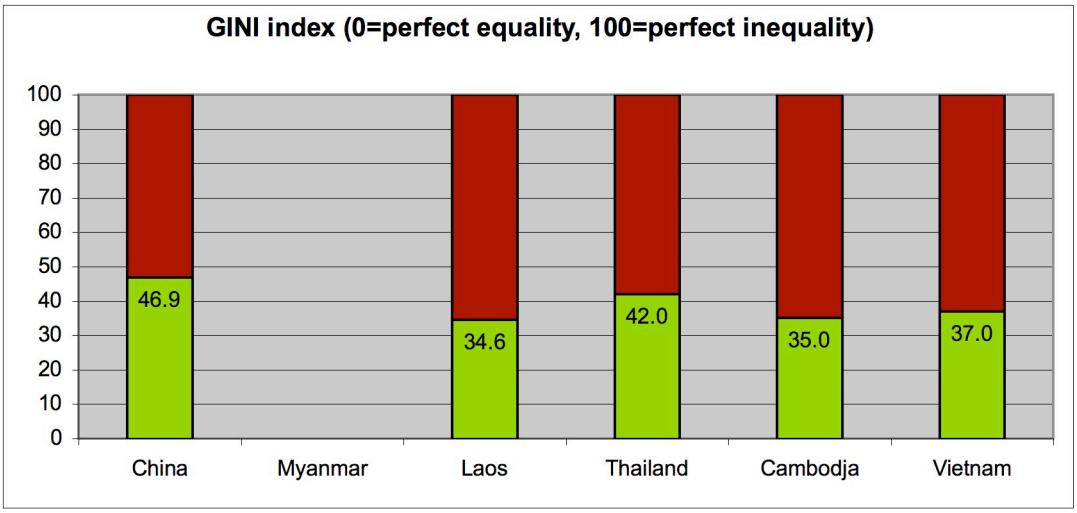


Figure 1: Poverty indicators - source CIA (2008)

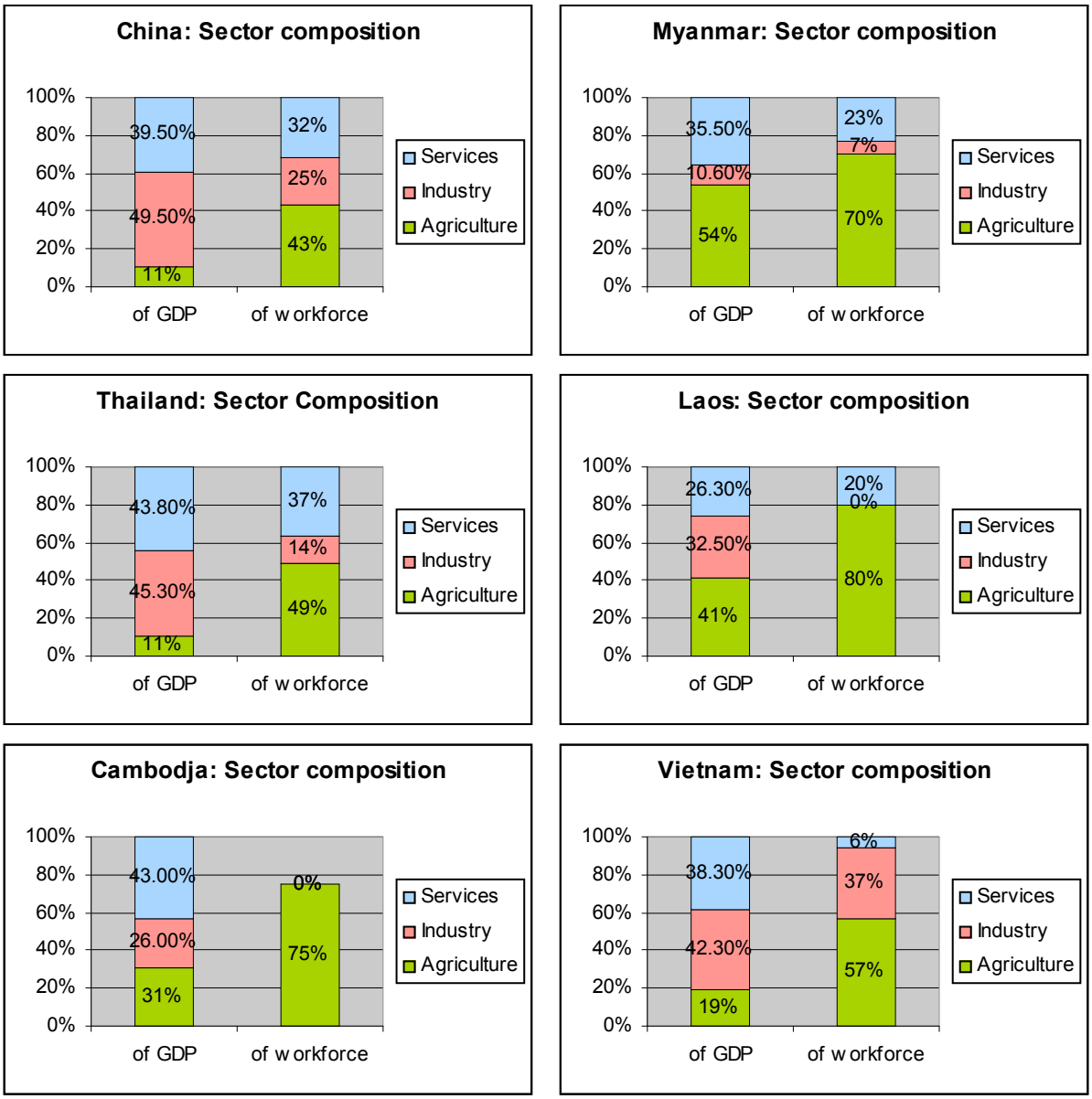


Figure 3: Economy and labour indicators – source CIA (2008)

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