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**CONSERVING NATURE THROUGH COMMUNITY - BASED STRATEGIES  
A MULTIPLE CASE STUDY IN SOUTH EAST ASIA**



A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE MASTER OF SCIENCE DEGREE

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## ABSTRACT

Biodiversity loss is reported among the most serious environmental problems in the world over the past century, raising the urgent need for biodiversity conservation. Of thirty four "biodiversity hotspots" in the world, Southeast Asia overlaps with four of these, containing high concentration of unique species. However, this region has been experiencing rapid changes in economic and social transformation. Exploitation activities have resulted in immense habitat loss and environmental degradation. Community-based conservation is an emerging strategy which reconciles conservation goals and human needs. It is seen that Southeast Asia is the "hotspot" for biodiversity as well as the "hotbed" for economic and social issues. Therefore, it is a relevant area for this research to examine how community-based conservation is designed and implemented to respond to the development issues; and to explore how this strategy contributes to sustainable development in the region. The research is a qualitative analysis of multiple cases. Through conservation literature review and communication with project members, the result shows that an inter-connection between livelihoods and environment is complex. In term of economic and social outcomes, the communities benefit from improvements in food security, employment and income, public infrastructure, reduced vulnerability and people's empowerment. Environmental outcomes are also recorded to be progressive but remain possible negative impacts occurred from people activities i.e. agriculture, tourism in the long run with intensive levels. It is a major conclusion that the win-win situation is unstable. Community-based conservation could become instrumental to achieve sustainable development provided certain conditions are met. That is the management and operation of the projects, especially economic incentives and compensation to get people involved as well as the mechanism to deal with benefit distribution and conflict solving among stakeholders.

**Keywords:** community-based conservation, livelihoods, collective action, participation, Southeast Asia

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## ABBREVIATION

**ADB:** Asian Development Bank  
**AusAid:** Australian Aid  
**IUCN:** International Union for Conservation of Nature  
**MAB:** UNESCO's Man and the Biosphere Program  
**MPA:** Marine Protected Area  
**UN:** United Nations  
**UNDP:** United Nations Development Program  
**UNEP:** United Nations Environmental Program  
**UNESCO:** United Nations Educational, Scientific and Cultural Organization

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## 1. INTRODUCTION

Biodiversity as defined in the Convention on Biodiversity 1992 is the variability among living organisms from all sources. This includes diversity of species, genetic diversity within species and the diversity of habitat that supports biological life. Biodiversity loss is reported among the most serious environmental problems in the world over the past century, raising the urgent need for biodiversity conservation. Conservation issues recently have become fundamental in the global environmental agenda.

Owing to the fact that most animal and plant species are distributed in forests and oceans, the rate at which species are eliminated is closely related to the rate-percentage of the forests or coral reefs being destroyed (Western 1989:5). By the late 1970s, UNEP estimated that 76,000 square kilometers or nearly one percent of the total forest cover per annum were being permanently cleared or converted due to the shifting cultivation, resulting in a vast destruction of biodiversity. In the IUCN's Red List of Threatened Species, 11,167 species are threatened with extinction (IUCN 2002). The loss of numbers within species in some cases has been substantial. For example, tiger numbers in the fourteen tiger range countries are accounted for no more than 7,000 and several sub-species are totally extinct. Some scientists estimates that approximately 50 species become extinct each day and at present rates, up to 8 percent of all species could become extinct by 2020 (Elliott 2004:31). Loss of biodiversity has increased the threat to life on earth, including human life which is a part of the natural ecosystems.

Biodiversity is mostly concentrated in the tropical countries of the developing world. Of thirty four "biodiversity hotspots" in the world, those areas contain high concentration of unique species and undergoing immense habitat loss, Southeast Asia overlaps with four of these:

1. The Himalaya hotspot includes all of the world's mountain peaks higher than 8,000 meters. This immense mountain range, which covers nearly 750,000 square kilometers, has been divided into two regions: the Eastern Himalaya, covering parts of Nepal, Bhutan, the northeast Indian states, southeast Tibet, and northern Myanmar; and the Western Himalaya.
2. The Indo-Burma hotspot consists of 2,373,000 square kilometers of tropical Asia east of the Ganges-Brahmaputra lowlands. The hotspot contains the Lower Mekong catchment, encompassing nearly all of Myanmar, part of southern and western Yunnan Province in China, all of the Lao People's Democratic Republic, Cambodia and Vietnam, the vast majority of Thailand and a small part of Peninsular Malaysia.
3. The Philippines hotspot lies north of Indonesia and directly east of Vietnam.
4. The Sundaland hotspot covers the western half of the Indo-Malayan<sup>1</sup>.

Southeast Asia ranks as one of the highest species richness and endemism areas in the world. However, at the same time the region has been experiencing rapid changes in economic and social transformation. Exploitation activities have resulted in biodiversity

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<sup>1</sup> [http://www.biodiversityhotspots.org/xp/Hotspots/hotspots\\_by\\_region/Pages/default.aspx](http://www.biodiversityhotspots.org/xp/Hotspots/hotspots_by_region/Pages/default.aspx)

loss and environmental degradation. The deforestation is at the highest rate among major tropical regions. The region could lose three quarters of original forests by 2100 and up to 42 per cent of its biodiversity. This loss likely leads to a global extinction because of the high proportion of endemic species. For example, 59.6 per cent of 29,375 vascular plant species in Indonesia do not occur anywhere else (Sodhi 2004:654). There are a lot of programs and projects launched for biodiversity conservation. Currently, there are 2,262 protected areas in the region covering 58 million hectares (approximately to 12.9 percent of the land area). However, recent studies show that despite their 'protected' status, some of these areas have become increasingly isolated and deforested (Ibid:657).

Community-based conservation is an emerging strategy which reconciles conservation goals and human needs. It is expected to have two main outcomes: enhancing nature conservation and providing social and economic gains for local people. The idea is that through community-based activities, local people will benefit, thus will be more likely to support it.

It is seen that Southeast Asia is the "hotspot" for biodiversity as well as the "hotbed" for economic and social issues. Therefore, it is a relevant area for this research to examine how community-based conservation is designed and implemented to respond to the development issues; and to explore how this strategy contributes to sustainable development in the region. Furthermore, during the time studying the topic, I found out that research on community conservation in this region is neglected. Through the multiple case studies in Southeast Asia, my thesis also aims to find out the critical factors to promote community-based conservation and to contribute to the field of biodiversity research and management practices in the region.

Based on the overall aim to examine the role of community-based conservation in enhancing sustainable development, a set of research questions is chosen to guide the research strategy as well as literature search, data collection and analysis.

The main research question:

**To what extent does community-based conservation enhance sustainable development?**

The specific research questions:

- **How does community-based conservation improve livelihoods for local communities?**
- **How does community-based conservation achieve conservation goals?**
- **What are the critical factors to promote community-based conservation?**

The thesis is structured as follows:

- **Part 1: Introduction:** provides an introduction to biodiversity in Southeast Asia, also looks at the importance of biodiversity and why it should be conserved in the region. It is followed by the aim of the research as well as research questions to be answered

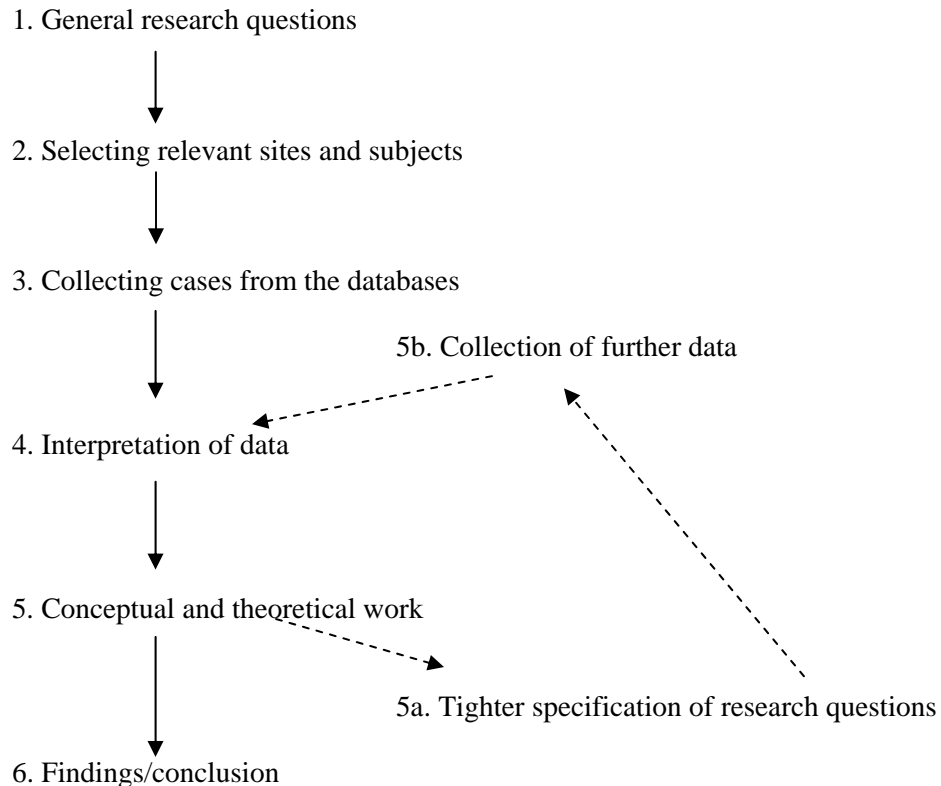
- **Part 2: Methodology:** defines the research method, materials and data collection
- **Part 3: Background:** gives a historical overview of conservation trends and discusses the main themes in current conservation strategies
- **Part 4: Theoretical framework:** defines concepts and theories to apply in the context of community-based conservation
- **Part 5: Analysis:** presents the profile of the cases and make the analysis through the parameters of the study
- **Part 6: Discussion:** answers the research questions and discusses the related issues
- **Part 7: Conclusion:** summarizes the findings, recommendations and proposes ideas for further research

## 2. METHODOLOGY

### 2.1. Method and Materials

While there are no rules for the choice of research strategy and method, there are nevertheless a number of steps to be taken in designing a research plan (Mikkelsen 2004:153). My research is developed through six main steps as shown in figure 1.

**Figure 1: An outline of the main research steps**



Source: Modified from Bryman (2004:269)



Regarding to the choice of research method, the case study is preferred when “how” or “why” questions are being posed (Yin 2003:1). My research is to investigate how community-based conservation enhances sustainable development and why this strategy is important in conservation policy. Thus, case study research is chosen as the most suitable method.

A number of cases is studied in order to find out the critical factors that successfully promote community-based conservation. According to Yin (2003:121), the goal of a multiple-case study is to build a general explanation that fits each individual case; even though the cases will vary in their details. Also having more than two cases could strengthen the findings further thanks to a broad coverage long span of time, many events and settings. In order to make the basis for the comparative study among cases, the following criteria are chosen:

- **Project outcomes**, which are elaborated in two aspects: people’s livelihoods and environmental improvements.
- **Local people’s participation**, which is demonstrated in the project processes.

I conduct a qualitative analysis of selected projects in the conservation literature. The unit of analysis is projects. I make use of the available reports which contain both quantitative and qualitative data. The analytical process is to corroborate and augment evidences from those sources for the explanation of the successes and failures of community-based strategies in South East Asia. Nevertheless, the existing documents from secondary sources might not always suit the research needs because of their other disciplinary orientation or focus (Yin 2003:84). Therefore, I tried to make the communication with project members in order to gather further information going beyond the texts to "address a broader range of historical, attitudinal and behavioral issues" (Ibid 97). I contacted the people who are referred for correspondence in each project via e-mails, described my research purpose and asked for their willingness to provide information and participate in the interviews. There are two main types of questions in my inquiry’s line. Firstly, details about project outcomes (such as recent data from executive reports). Secondly, information about actual project practices together with project members’ assessment on people’s participation activities. Most of the project members preferred me to contact them via e-mails with a list of questions; so that they could see if it is possible to provide relevant documents and answers. Two among six people agreed for the phone call interviews after several e-mail discussions.

## **2.2. Data collection**

I made a systematic search for relevant cases through ELIN (Electronic Library Information Navigator) and LOVISA (the Library Catalogue of Lund University) which are considered as concrete databases and reliable sources. My case searching was based on four criteria:

- Time frame: **on-going projects**, in order to see the durability and self-reliance of community-based strategies over the time.
- Sites: **protected areas, national parks or forest/marine areas**, to see how community-based approach is applied in the traditional "protected" status of national parks or high-valued biodiversity areas.
- The selected projects are those having **a management plan** as well as **specific results for both livelihoods and environment**.
- Projects with **external funds** are chosen, to see an ability to generate and access funding.

At first, I was trying to search for cases in the specialized conservation journals such as Journal for Nature Conservation, National Parks, Tropical Conservation Science; and Biodiversity and Conservation. However, the cases related to the research topic are not only confined in specific conservation themes or journals. They could be found in other inter-discipline journals such as Conservation and Society, Journal of Strategic Poverty Management or Asia Pacific Viewpoint Journal, etc. Therefore, I decided to broaden the searching scale through the whole ELIN and LOVISA by applying the right keyword: community-based conservation that suits my topic the most. Nevertheless, as different authors refer to the same topic with different names or terms, I tried different combinations of key words or interchanged keywords; for example "protection", "management" instead of "conservation" or "local/public participation" instead of "community-based".

Due to available documents from ELIN and LOVISA, there are seventeen cases matching the key word search: five cases in Thailand, two in Vietnam, three in Philippines, four in Indonesia; Malaysia. Cambodia and Laos each has one case. Other countries in Southeast Asia: Singapore, Myanmar, Brunei and East Timor do not have relevant cases to the topic. Having a deeper look at each case, I found that some focus on habitat criteria for forest management design. Others present the politics of decentralizing national park management, or discuss the role of local knowledge in natural resource management for example. Combining the selection criteria (time frame, sites, management plan, livelihood and conservation outcomes and external funds) with the purpose of choosing one representative case in each country, five cases are finally selected, making up the profile for the analysis. They emphasize on specific local settings in five countries (Thailand, Vietnam, Indonesia, the Philippines and Laos) and expose community-based conservation activities.

### **3. BACKGROUND**

#### **3.1. Historical perspective on conservation**

This section reviews the development of conservation policy through the important dates, events and initiatives in the conservation history in order to see the path for community-based conservation to emerge and how the concept has been reflected in the literature.

### **3.1.1. The period before 1972**

The establishment of Yellowstone National Park in 1872 in the United States was recorded as the first blue print for the nature protection era. It was in fact the first national park in the world and its establishment was seen as an accomplishment involving the reservation of public lands and the creation of governmental agencies to protect and manage them (Paehlke 1995:150). The basis of the park management according to the Act of Dedication (March 1, 1872) was to set apart a certain tract of land lying near the headwaters of the Yellowstone River as a public park. Owing to it, people should withdraw from settlement and occupancy, otherwise they would be considered as trespassers and being removed<sup>2</sup>. This could be seen that the initial philosophical basis of parks and protected areas emphasized the separateness of humans from nature.

To the second half of the twentieth century, the book *Silent Spring* by Rachel Carson (1962) raised public awareness on wildlife and conservation issues. It was as an ecological awakening through the study of chemical use (pesticide DDT and other insecticidal substances) in agriculture, forestry leading to the destruction of wildlife. Beyond the pesticide issues, the book contributed to reveal an "ecological radicalism" which was stated as "the control of nature - the intent of these pesticides- is a phrase conceived in arrogance, born of the age of biology and philosophy when it was supposed that nature exists for the convenience of man" (Carson 1963:243). According to Carson, only by taking account of life forces, we could hope to achieve a reasonable accommodation between the nature and mankind. This publication helped expanding the public attention in environmental related management issues and launching the environmental protection movement in the 1960s - 1970s.

In 1970, after the creation of the United Nations Man and the Biosphere (MAB) program, more than 280 areas have been protected as "biosphere reserve" in over seventy countries. However, with a main focus on wilderness preservation, the goal of improving the relationship between humans and environment seemed not to be fulfilled because without human engagement, the linkage between natural and social sciences for rational uses of the biosphere was not improved.

### **3.1.2. Stockholm Conference 1972**

The Stockholm Conference 1972 was referred to the United Nations Conference on Human Environment held in Stockholm with the participation of the representatives of 113 countries, 19 inter-governmental agencies, and more than 400 inter-governmental and non-governmental organizations. The conference was widely recognized as the beginning of modern politics for global environmental governance (UNEP 1972).

Through the Stockholm Declaration with 7 proclamations and 26 principles, environmental protection was made an overall objective for the international community.

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<sup>2</sup> <http://www.yellowstone-online.com/history/yhfour.html>

Principle 4 of the Declaration establishes the responsibilities of man to protect nature. And that nature conservation must receive importance in planning for economic development. Principle 8 adds that economic and social development is essential for ensuring a favorable living and working environment for man and for creating conditions on earth that are necessary for the improvement of the quality of life.

Apart from being seen as the framework for the development of international law, the Declaration included a number of principles aimed at the needs and concerns of developing countries for both economic development and environmental protection. Principle 12 and principle 21 stated that resources should be made available to preserve and improve the environment, taking into account the circumstances and particular requirements of developing countries and that each country has the sovereign right to exploit their own resources pursuant to their own environmental policies.

Developing countries are at the "conditions of under-development" (principle 9), therefore the need to deal with economic and social issues such as poverty eradication, health care or education; stringent standards for environmental protection seem to be not suitable for them. Many developing countries have their national revenues mainly based on exporting raw materials such as coal, crude oil, seafood and plywood for example. This natural capital is taken advantage for their economic growth and they "have been suspicious of Northern attempts to control their economic development" (Carter 2001:251). Therefore, international environmental policies should be in the sound way, not affecting the sovereignty of appropriate to conditions and different concerns of each country.

From a conservation perspective, the philosophical basis of parks and protected areas rooted in North American romanticism and European utilitarianism, emphasizing the separateness of humans from nature. When imported to developing countries, this vision has routinely conflicted with local visions of human - environment relations and can undermine local cultural and social norms, and traditional knowledge (Campbell 2003:422).

Although the Stockholm Declaration and Action Plan did not emphasize the role of local people and communities in environmental protection, it was a framework for further development of international environmental law which would explicitly mention about community role in the later period. In summary, this conference marks the "dawning awareness that ecological problems necessarily involve coordinated international approaches" (Paehlke 1995:684).

### **3.1.3. The period 1972 - 1992**

In the two decades following Stockholm Conference, approximately 100 multilateral treaties and agreements were transacted (UNEP 1992). Relating to conservation issues, numerous conventions and treaties were signed and ratified during this time. For example CITES (1973) - Convention on International Trade in Endangered Species of Wild Fauna

and Flora. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Ramsar Convention (1975) - Convention on Wetlands promotes the wise use of all wetlands. Bonn Convention (1991) - Convention on the Conservation of Migratory Species of Wild Animals aims to conserve terrestrial, marine and avian migratory species throughout their range. These are international agreements between governments to which countries adhere voluntarily, providing a framework which has to be incorporated into their own domestic legislations. Each country has to submit an annual report on legislative, regulatory and administrative measures to enforce the Convention<sup>3</sup>.

In general, these conventions do not specify the role of local communities which is actually important to make an effective implementation at the national level. Because these deal with wildlife trade, wetland management issues which are directly involved by people living in the rich biodiversity or wetland areas.

The World Charter for Nature adopted by the United Nations General Assembly in 1982 once more highlighted the need to conserve natural resources for the development of the present and future generations. All areas of the earth, both land and sea, should be subject to these principles of conservation. Special protection shall be given to unique areas, to representative samples of all the different types of ecosystems and to the habitat of rare or endangered species<sup>4</sup>.

In 1987, a report Our Common Future (or Brundtland Report) published by the World Commission on Environment and Development officially introduced the term 'sustainable development' to the environment-development discourse.

Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.

The reason for conserving nature is acknowledged that conservation of living natural resources (i.e. plants, animals, and micro-organisms) and the non-living elements of the environment on which they depend is crucial for development. It also introduces a National Conservation Strategies for each country which have the involvement of governmental agencies, non-governmental organizations, private sectors and the communities in analysis of natural resource issues and assessment of priority actions. Governments could think of 'parks for development', insofar as parks serve the dual purpose of protection for species habitats and development processes at the same time (Chapter 6).

The Brundtland Report served as a vital historical marker for the emergence of conservation as an important facet of international governance (Sneddon 2006:254). It particularly mentioned about an integration of communities in the National Conservation

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<sup>3</sup> <http://www.ramsar.org>; [www.cites.org](http://www.cites.org); [www.cms.int](http://www.cms.int)

<sup>4</sup> <http://www.un.org/documents/ga/res/37/a37r007.htm>

Strategies and the concept of ‘park for development’ - park for both conservation and development process.

### **3.1.4. Rio Conference 1992**

Whereas the first conference on environment held in Stockholm in 1972 with the participation of only two Heads of State; the Conference on Environment and Development, in 1992, in Rio de Janeiro brought together, for the first time in the history of the United Nations, over 100 Heads of State and Governments. It has been considered as a landmark event in which the dynamic relationship between the environment and development was duly addressed, giving the shape to the concept of sustainable development (Djoghla 2006:213).

The first Earth Summit adopted the Rio Declaration and Agenda 21, which is a comprehensive guide for achieving sustainable development during the twenty first century. It is a blueprint of action to be taken globally, nationally and locally by organizations of the UN, governments, and major groups in every area in which human impact on the environment<sup>5</sup>.

Among 27 principles of the Declaration, principle 10 identifies public awareness and access to information as crucial to achieving sustainable development. Environmental issues are best handled with participation of all concerned citizens. At the national level, each individual should have appropriate access to information concerning the environment and the opportunity to participate in decision-making processes. Governments should facilitate and encourage public awareness and participation by making information widely available.

Principle 20, 21, 22 proclaims the vital role of women, the youth, indigenous people and their communities. Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development (principle 20). The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership (principle 21). Indigenous people and their communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and enable their effective participation (principle 22).

Together with the Rio Declaration, Agenda 21 provides the comprehensive frame work for international, national and local programs and actions towards sustainable development.

There are 40 chapters in Agenda 21, divided into four sections. Section I: Social and Economic Dimensions, includes combating poverty, changes consumption patterns, population and demographic dynamics, promotes health, promotes sustainable settlement patterns and integrates environment and development into decision-making. Section II:

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<sup>5</sup> <http://www.un.org/esa/sustdev/documents/agenda21/index.htm>

Conservation and Management of Resources for Development, includes atmospheric protection, combats deforestation, protects fragile environments, conserves biodiversity and controls pollution. Section III: Strengthening the Role of Major Groups, includes the roles of children and youth, women, NGOs, local authorities, business and workers. Section IV: Means of Implementation, includes science, technology transfer, education, international institutions and mechanisms and financial mechanisms.

Rio Declaration and Agenda 21 are an important milestone in term of changing the viewpoint of seeing the relationship between environment and development as trade-offs to recognize it as an opportunity for win - win solutions, in which positive gains could be achieved from environmentally oriented change (Sanwal 2006:135). Particularly it recognizes the role of all stakeholders, nine major groups of civil society: Women, Children and Youth, Indigenous People, NGOs, Local Authorities, Workers and Trade Unions, Business and Industry, Scientific and Technological Communities, Farmers. One of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making (Agenda 21, Chapter 23).

Convention on Biodiversity (CBD) is the subject of Chapter 15 of Agenda 21. At the Rio Conference 1992, the Convention was signed and entered into force in December 1993. The Convention provides rules for the protection and use of biodiversity, aiming at sustainable use of biodiversity components; and fair and equitable sharing of benefits arising from genetic resources<sup>6</sup>. It requires governments to promote opportunities for indigenous participation, support the identity, culture, rights of indigenous people and to acknowledge and support indigenous knowledge and capacity (Elliott 2004:134).

### **3.1.5. The period 1992 - present**

This period is the promotion of a greater coherence in the international environmental governance. Since the creation of the Convention on Biodiversity 1992, the conservation movement has an increasing presence in the international arena with rapidly expanding lists of treaties and international agreements dealing with such issues as biosphere reserves, marine mammals, seabed mining, endangered species, acid rain and global climate stabilization. For example UNFCCC - United Nations Framework Convention on Climate Change 1993, UNCLOS - United Nations Law of the Sea Convention 1994, UNCCD - Convention on Desertification 1995, Basel Convention - Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal 1994, World Heritage Convention - Convention concerning the protection of the world cultural and natural heritage 1997.

The Johannesburg Declaration adopted at the World Summit on Sustainable Development (WSSD) in South Africa in 2002 pro-claims the global commitment to conserve biodiversity and considers it as a platform for sustainable development. The Declaration also endorsed the target to achieve. By 2010, a significant reduction of the

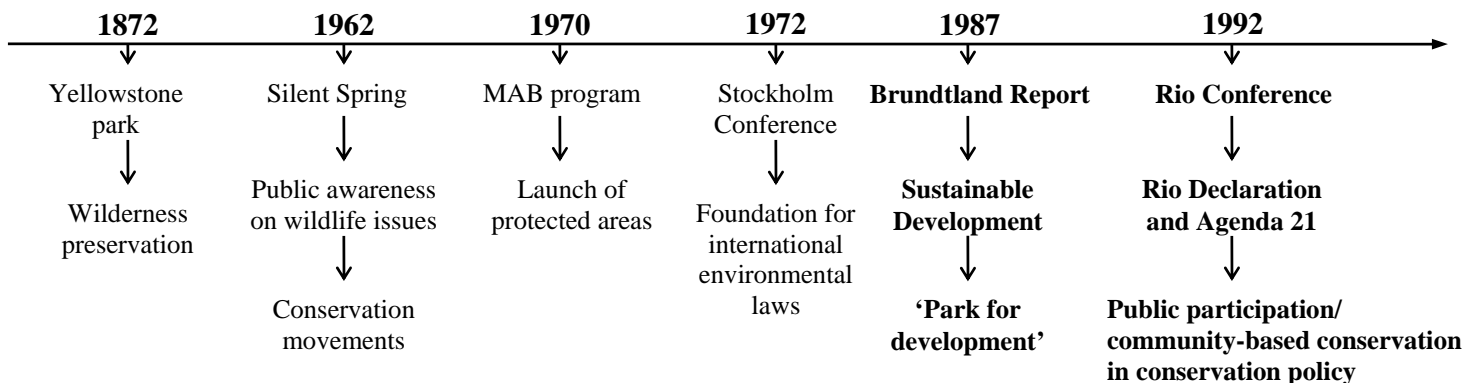
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<sup>6</sup> <http://www.cbd.int/convention/>

current rate of biodiversity loss at global, regional and national levels would contribute to poverty alleviation and benefit of all life on the earth<sup>7</sup>.

In summary, across the historical development of conservation policy from the late eighteenth century with the establishment of the Yellowstone park to the first UN Conference on environmental issues; the role of people, community was not taken into account. It was firstly explicitly mentioned in Brundtland Report under the spectrum of sustainable development concept via the idea ‘park for development’ concerning both conservation and people’s lives. Until Rio Conference 1992, the public participation or community-based conservation has been officially recognized and declared through Rio Declaration and Agenda 21. This strategy becomes increasingly popular in conservation laws and policy since then.

**Figure 2: Historical development of conservation policy related to community-based conservation**



Source: Figure created by the author

## 3.2. Main themes in conservation strategy

This section discusses the major trends and tries to explain the reasons behind the paradigm shift from a traditional narrative to counter-narratives in current conservation strategies.

### 3.2.1. Traditional conservation narrative

Narrative conservation has been the traditional and dominant theme in conservation discourse until recently. The narrative discourse argues that wildlife is threatened with extinction by an increase in human population and their needs for the development (Campbell 2002:30). In this discourse, local people are identified as the source of

<sup>7</sup> [http://www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/POI\\_PD.htm](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POI_PD.htm)



problems and the solution is to create parks and protected areas in which people are removed. They are not subject to any forms of human impacts. This protection is enforced by the state. If local people continue to hunt or harvest, they are labeled as poachers and thereby reconfirm beliefs about the source of the problem (Adams 2001:05). The narrative theme has existed in and continued to have an influence on contemporary International Union for Conservation of Nature (IUCN) strategies. The goal of parks and protected areas, as seen by IUCN, is to conserve biological diversity and productivity.

A protected area is defined as an area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means (IUCN 1994).

IUCN's goal is to include a cross-section of all major ecosystems in the protected area system, which calls for a total of 13 million kilometer squares, or 8.83 per cent of the world's land area (IUCN 2001). The objective of creating protected areas is based on ecological reasons. Human intervention is limited, only for scientific research and recreation purposes. The following table shows the linkage between the protected areas and the allowed human impacts according to each category

**Table 1: The linkage between the protected areas and the allowed human impacts**

Category	Allowed human impacts or intervention
I - Strict nature reserves and wilderness area	Little or none
II - National park	Low
III - Natural monument	Low to medium
IV - Habitat/Species management area	Medium
V - Protected Landscape/Seascape	Medium
VI - Managed Resource Protected Area	Medium to high

Source: Modified from Cunningham (2005:140)

The concept underlying the design of protected areas comes from the wilderness ideas: "in wildness is the preservation of the world" and that "wildness is a necessity, mountain parks and reservations are as fountains of life" (O'riordan 2002:63). Their management philosophy emphasizes that the public good was best served through the nature protection, even if this meant the displacement of local communities (Ibid). Wilderness preservation soon became central to Deep Ecology. From the moral perspective of this ideology, nature is a purifier of human spirit. Deep Ecology endorses strict preservation and the well-being and flourishing of nonhuman life. Nature has value in itself (i.e. intrinsic value, inherent worth). Such value is independent of the usefulness of the nonhuman world for human purposes (Doak 1994:4).

Considering human activities such as local harvesting or exploitation as the root cause of biodiversity loss, Garret Hardin in the article 'Tragedy of the commons' (1968) explained the mechanism of how natural resources are degraded. Using the metaphor of the common, a community pasture, Hardin discovered that farmers tend to put more cattle in the pasture while the costs of over-grazing are accounted for the entire community. The pasture is opened to all. And the herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons (Hardin 1968:20). It generates the idea that as long as natural resources exist as common properties; it will lead to over-exploitation since there are no restraints to individuals' behaviour, people try to maximize their profits. One of the management options suggested by Hardin is that resources should be managed from outside which means government's intervention – 'coercive devices'- in terms of protecting natural resources. Laws and regulations are enacted to restrict access to common resources and impose permit systems for exploitation activities. The approach to solve problems from Hardin's point of view falls into the narrative conservation context.

It can be agreed that strict protection could provide a good safeguard for nature. However it requires an adequate rationale to effectively conserve nature rather than a moral belief about intrinsic value with wilderness preservation. On the other hand, Hardin's solutions do not mention the possibilities that people could agree on common rules and enforce them collectively to achieve conservation goals (Cunningham 2006:333).

### **3.2.2. Conservation counter-narratives**

Over the last twenty years, conservation policies have shifted from traditional narrative towards reconciling conservation with human needs. Institutionally, counter-narratives have been developed since the IV World Park Congress in Caracas, Venezuela in 1992. In the Caracas Action Plan the emphasis has been given to the use of protected areas to combine conservation with local livelihoods. Protected areas in category V (Protected landscape) and category VI (Managed resource protected area) have been increasingly used.

The counter-narrative theme is embodied by two key concepts: sustainable use and community-based conservation.

#### **a) Sustainable use**

Sustainable use in the Convention on Biological Diversity is the use of components of biological diversity in a way and at a rate that does not lead to the long - term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations (IUCN 1994).

Sustainable use is based on the idea that wildlife and biodiversity must be valued and the values are often derived through utilization (Campbell 2002:30). This argument takes root in the environmental economics theory in which resources are seen as forms of natural capitals to create wealth or improve human lives. They are also the key consideration in economic calculation. The values assigned for natural resources according to their utilization are use values (i.e. food, raw materials, genetic resources, tourism services) and non-use values (i.e. climate regulation, nutrient cycling, soil formation) (Hussen 2000:300). Although both the environmental economics theory and sustainable use have many facets, the core idea is that economic values could be the incentives for main actors to manage and use natural resources in prudent ways that do not diminish them. At the governance level, it is necessary to create an appropriate incentive structure to achieve conservation goals. On a larger scale, the preservation incentives would be achieved through their becoming part of the local and global economy (Adams 2001:10).

Within the spectrum of sustainability, sustainable use is perceived to relate to both weak sustainability and strong sustainability paradigms. Weak sustainability is built upon the assumption that natural capital is an input into the production of goods and a provider of direct utility. It means natural capital can be depleted given there is a full accounting for it; as long as manufactured capital is augmented by a value equal or greater than the depletion (Harris 2001:4). On the other hand, strong sustainability seeks for the maintenance and enhancement of natural capital because its functions cannot be replaced. Natural and manufactured capital must be used together to be productive (Ibid). For example, a coral reef can well protect the coastal line by lessening forces of heavy storms and waves, but a dam can be built near-shore to perform the same function. Similarly, a reef has an ability to purify land run-off but if it is destroyed, a wastewater treatment system can take over this task. However, the coral reefs cannot be duplicated because it is home for wildlife and a key source of biodiversity in the ocean. It can be argued that the notion of sustainable use is more in line with weak sustainability as they are both rooted within neoclassical economic thinking given its assumption of substitutability of natural capital. Nevertheless, sustainable use proposes a first step in the right direction toward strong sustainability.

## **b) Community-based conservation**

A community is a group of people which is socially bound by a common cultural identity, living within defined spatial boundaries and having common economic interests in the resources of this area (Barrow 2001:4).

Conservation is the management of human use of the biosphere so that it yields benefits to present generations while maintaining its potential to meet the needs of future generations (IUCN 1980). It is actually a social and political process which is necessary to take into account the local communities' needs. In developing countries, local communities are poor and their livelihoods depend a lot on natural ecosystems nearby (e.g. land, forests, sea). Parks and protected areas should compensate people when their traditional activities are no longer possible, bring benefits and improve the quality of their

lives in the long-term. This is the essential requirement mentioned in the Brundtland report with respect to ‘parks for development’.

Community-based conservation is a process by which local groups or communities organize themselves with varying degrees of outside support to apply their skills and knowledge to manage natural resources and environment while satisfying livelihood needs (Leach 1997:4). Community-based conservation is expected to have two main outcomes: enhancing nature conservation and providing social and economic gains for local people. It is based on the idea that through community-based activities, local people will benefit, thus will be more likely to support it.

In the Programme of Work for Protected Areas 2004, the following principle is acknowledged: "recognizing the rights of local communities to participate in planning and management of protected areas, to provide communities full benefits from such areas, to respect communities traditional rights to territories and resources, and to seek prior consent before considering any resettlement of communities from within protected areas" (IUCN 2004).

### 3.2.3. Comparing traditional conservation narrative and counter - narratives

In summary, both the traditional conservation narrative and the counter-narratives are meaningful at their standing point for ecological preservation or social emancipation. The first theme advocates preservation for ecological balance, scientific research and public appreciation; while the latter promotes resource harvest for development. However, the recent trend for sustainable use and community-based conservation become more popular because of its pragmatic criteria of combining conservation and development which are seen as the indication of human progress. The basic differences between these approaches are summarized in table 2.

**Table 2: Traditional conservation narrative and counter-narratives**

	<b>Traditional conservation narrative</b>	<b>Conservation counter-narratives</b>
<b>Objective</b>	Landscapes without human	People's involvement
<b>Strategy</b>	Restrictive/prohibitive	Accessible/Sustainable use
<b>Management</b>	Institutional (state) control	Community control

Source: Modified from Campbell (2002:31) and Sarkar (2005:41)

## 4. THEORETICAL FRAMEWORK

Theoretical framework is intended to give concepts and basic assumptions to the important questions as well as suggest the way to make sense of data, helps to connect a single study to the immense base of knowledge (Mikkelsen 2004:156). Sustainable Development, Agenda 21 and Collective Action are the theories which this research is situated in.

### 4.1. Sustainable Development

The idea of sustainable development was first introduced in the Brundtland Report 1987 and has been widely adopted as an international and national policy goal since the 1990s. The Brundtland Report defined sustainable development as

...to meet the needs of the present without compromising the ability of future generations to meet their own needs<sup>8</sup>.

The reason for committing to sustainable development can be clarified while answer to the rational question of why we should care about future generations. One of the answers according to Anand and Sen (2000:2030) involves the ethical need to guarantee that future generations continue to enjoy similar opportunities enjoyed by earlier generations. It is the right of future generations to have equal freedom of choices for all kinds of natural capitals such as fresh air, water, soil, forests, species richness, genetic diversity. People have not only needs but also the ability to reason, appraise, act and freedom to decide what to value and how to pursue it. Thus, sustainable development is to sustain the freedom so that the substantive freedom of people today does not affect the ability of future generations. Future generations are 'downstream in time' and therefore vulnerable to the choices made by 'upstream in time'. This position puts the present generation into a strong dominance on the continuous development of the following generations. However, there is no excuse for treating generations unequally despite of an asymmetric time horizon. It is the moral norm, obligation or a universal law requiring the inclusive consideration of future needs into the intergenerational decision making (Neumayer 2003:15).

The definition of sustainable development in the Brundtland report is easy to understand. However, it is argued to be "vague" to use as a basis for operational monitoring and theoretical study because it does not provide implications or measurement for the development (Purvis 2004:12). For example, to what extent the present generation should develop in order not to compromise the next generation's development. The Johannesburg Declaration (2002) provided further understanding of the concept by referring to three pillars of sustainable development:

[It is the need for] the integration of the three components: economic development, social development and environmental protection as interdependent

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<sup>8</sup> <http://www.un-documents.net/ocf-01.htm#II>

and mutually reinforcing pillars. Protecting and managing the natural resource base of economic and social development are overarching objectives and essential requirements for sustainable development (UN, 2002).

## **4.2. Pillars of sustainable development in the conservation context**

As mentioned above, the Johannesburg Declaration refers to the interdependent and mutually reinforcing pillars of sustainable development. Depending on the conservation context which this research used for, they are elaborated as follows:

- **The pillar of economic development** is defined in term of a rise in the well being of society. Not just a rise in mean income but this income is distributed equitably to increase the welfare of the whole society and entails increasing access to food, clean water and housing; improving standards of health and education (Purvis 2004:10). Economic development is to advance human conditions. Therefore it should be effective at the local level in the developing countries in terms of improving local people livelihoods. 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 and maintain or enhance its capabilities now and in the future, while not undermining the natural resource base (Ibid:88).
- **The pillar of social development** is reflected in the establishment of social inclusion: empowerment of local people. Additionally, the enhancement of local capacities (i.e. local institutions, conflict resolution mechanisms) is accounted within the social development implications (Campbell 2002:130).
- **Environmental protection** is an indispensable pillar for the achievement of sustainable development, referring to the maintenance and long-term use of natural resources i.e. land, water, forests, pastures, biodiversity (Campbell 2002:130).

## **4.3. Community role in sustainable development**

In favour of community-based conservation, the role of indigenous people and their communities have been emphasized in Agenda 21:

Indigenous people and their communities shall enjoy the full measure of human rights and fundamental freedoms without hindrance or discrimination. National and international efforts to implement environmentally sound and sustainable development should recognize, accommodate, promote and strengthen the role of indigenous people and their communities in term of their values, traditional knowledge and resource management practices (Agenda 21, Chapter 26)

In addition, the Aarhus Convention 1998 - the convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters - was adopted as a new kind of environmental agreement. It links environmental rights and human rights. It states that sustainable development can be achieved only through the involvement of all stakeholders. It focuses on interactions between the public and public authorities in a democratic context and it is forging a new process for public participation. The Aarhus Convention grants the public rights and imposes on parties and public authority's obligations regarding access to information and public participation and access to justice<sup>9</sup>.

#### 4.4. Collective Action

The collective action theory of Ostrom (1990) is applied for this research to make the analysis and assessment on the community-based projects and social inclusive programs. According to Ostrom, many common resources have been managed successfully by cooperative agreements among users. It is a communal resource management system consisting of eight principles:

- **Clearly defined boundaries:** Defining boundaries of resource and specifying those authorized to use it are the first steps for collective action of what is being managed and for whom.
- **Congruence between appropriation and provision rules and local conditions:** Appropriation rules restricting time, place, technology and quantity of resource units are related to local conditions and to provision rules requiring labour, materials and money.
- **Collective choice agreements:** Individuals affected by the operational rules can participate in modifying the operational rules.
- **Monitoring:** Monitors, who actively audit resource condition are the appropriators.
- **Graduated sanctions:** Appropriators who violated operational rules are assessed sanctions.
- **Conflict resolution mechanism:** Appropriators and their officials have access to local arenas to resolve conflicts among appropriators or between appropriators and officials.
- **Recognition of rights to organise:** The rights of appropriators to devise their own institutions are not challenged by external government authorities.
- **Nested enterprises:** Appropriation, provision, monitoring, enforcement, conflict resolution and government activities are organized in multiple layers nested enterprises.

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<sup>9</sup> <http://www.aarhus.be>

## **5. ANALYSIS**

### **5.1. Profile of the cases**

#### **5.1.1. Mangrove re-plantation project in Thailand**

The 26 December 2004 Indian Ocean tsunami disaster has raised attention on the role of natural barrier such as mangroves in protecting coastal line villages. Thailand is one of the countries worst affected by the tsunami disaster and the mangrove deforestation is at a high rate. Over the period of 1961 - 1996, Thailand lost 20,500 square kilometers of mangrove forests, accounting for 56 percent of the original area mainly due to shrimp aquaculture and coastal development. The recent effort supported by Thailand government is to rehabilitate and replant the mangrove areas. Four coastal villages in the southern part of the country are selected in the project: Ban Sam Chong Tai and Ban Bang Pat in Phang-nga Bay, Ban Khong Khut and Ban Gong Khong in Nakhon Si Thammarat.

Mangrove areas in Nakhon Si Thammarat have decreased by 53,811 hectares (87.93 per cent) and in Phang-nga 19,742 hectares (33.56 per cent) during the period of 1961–1996. At present in Phang-nga, there are 38,138 hectares of remaining mangrove area compared to 7,389 hectares in Nakhon Si Thammarat. Ban Sam Chong Tai has poor road access and consists mainly of traditional fishing households who also collect many products from mangroves. Ban Bang Pat is quite different, located on the main highway, commercialized and relatively modern. Although the villagers here still engage in coastal fishing, they generally do less traditional collection from the mangrove areas. Ban Khong Khut is a community of 278 households and population of 1200, all of them are Thai. Ban Gong Khong is within and surrounded by the reserved mangrove forest on the western coast of Talum Puk Cape. The community has 700 villagers living in 150 households which are scattered along the canal leading to Pak Panang Bay.

The project is funded by Thai government, Royal Forestry Department and NGOs.

#### **5.1.2. Nature-based tourism project in Cuc Phuong National Park, Vietnam**

Cuc Phuong National Park is the first national park in Vietnam and officially recognized as a protected area in 1966. The park covers an area of 22 220 hectares of undisturbed limestone forest, being home to a wide range of flora and fauna which is unique and precious for tropical biodiversity. Cuc Phuong is divided into three major zones:

1. A preservation area with limited uses, only for scientific research or management purpose
2. An ecological restoration zone
3. An area near the main entrance to the park used for park administration and tourist services.



The park attracted approximately 47 000 domestic and 2 500 foreign visitors in 2000 and this increased to 56 200 domestic and 4300 foreign visitors in 2003.

Residents in and around Cuc Phuong are mostly Muong people, the third largest of Vietnam's 53 ethnic minority groups (composing 1.5 per cent of the total population). There are 50 000 settlers of Muong origins living in 13 communes surrounding Cuc Phuong and 2 500 people within the park. They engage in shifting slash and burn agriculture, hunting and timber cutting, irrigated rice growing in valleys and animal breeding such as pigs and poultry. Their activities put pressure on the park in term of resource extraction and forest clearing. One of the objectives of park management (since 1996) is to provide alternative livelihoods for local people within and adjacent to the park, reducing their dependence on the park resources.

The project is funded by Vietnamese government, NGOs, AusAID and UNDP.

### **5.1.3. Community-based coral reef management project in Gili Indah, Indonesia**

Gili Indah consists of three island villages namely Gili Air, Gili Meno and Gili Trawangan with the total area 2 954 hectares of which the land area is 665 hectares. The island has abundant coral reefs, reef fish and seaweed. The average reef width varies from 100 to 400 meters, ranging from intertidal rocky reefs to those 10-20 meters deep. The main problem in Gili Indah is the degradation of coral reefs. The percent cover of live coral reef in Gili Air, Gili Meno and Gili Trawangan was 10, 10 and 5-20 per cent respectively. Blast and muroami-net<sup>10</sup> are considered the main anthropogenic causes for coral reef deterioration.

The most common livelihood of people is animal husbandry and small-scale fishing. Around 75 per cent of the inhabitants in Gili Indah are Buginese, originating from South Sulawesi. The Sasak people are native to the island but primarily inhabit the main island of Lombok. Gili Indah's marine park is an attraction for foreign tourists pursuing scuba diving and snorkeling. Snorkeling activities has started in 1978 whereas scuba diving has started in the 1990s. Responding to the rise in tourists, local people developed bungalows and tourism facilities. Mostly, the people who are involved in marine tourism were originally elite fishers. The growth of tourism since the 1990s creates the need for conserving coral reefs. As a result, the management system named Awig-Awig was created in 1998 to manage the marine resources as well as deal with local stakeholder issues.

The project is funded by the local government, Agency for the Conservation of Natural Resources (KSDA), Marine and Fisheries Service Office, ADB, WB and AusAid.

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<sup>10</sup> Muroami-net: the net by which fishers often drag coral reefs with weighted lines festooned with brightly colored strips of plastic to panic and herd the fish.

#### **5.1.4. Management of Marine Protected Areas in the Philippines**

At least 400 Marine Protected Areas (MPAs) have been created in the Philippines. These range in size from less than a hectare to hundreds of thousands of hectares and vary considerably in designs, implementation and enforcement. However, it is reported that only 10 percent of MPAs are properly managed and protected, the rest is not successful in meeting their management objectives.

Forty villages containing MPAs in the Visayas region of the Philippines are involved in the project aiming to improve the management situation through livelihood supports for local communities. These MPAs were established during the period 1986 - 1997, encompassing a wide range of sizes, designs and locations and municipal ordinance. The villages are located in 29 different municipalities in four provinces. Most of these communities are dependent on fishing. In average more than 50 per cent of people are involved in fishing.

The project is funded by local governments, central government and National Marine Fisheries Service

#### **5.1.5. An integrated land-use planning project for Nam Pui protected areas in the Lao PDR**

Nam Pui protected area is located in Sayabouli Province in the northwestern part of Laos. The total area is approximately 190 000 hectares of mixed deciduous forests. The forest cover is estimated to be 70 percent important species such as elephant (*Elephus maximus*), gayali (*Bos frontalis*), tiger (*Panthera tigris*), leopard (*Panthera pardus*), etc. The protected area was officially recognized in 1993 and managed by the Sayabouli Agriculture and Forestry Service in collaboration with villagers. Forty five villages were identified in 1998 with a population of 24, 5000 people. Rather unique are the Malabri and Thong Lueang people, nomadic forest dwellers who have lived in the forest along the eastern boundary of the protected area for many generations. The number of people in this group was unknown. In 2000, the project for land use planning was suggested to preserve natural forests and establish the production areas, particularly in two villages: an enclave village named Ban Vangphamone and an external village named Ban Phongsack.

The project is funded by Lao Ministry of Agriculture and Forestry, National Program for Shifting Cultivation Stabilization and Sayabouli Province.

Below is the summary of five projects.

No.	Case description	Scale	Time frame	Types of fund			
				Public fund		NGOs	International organizations
				Local government	Central government		
1	Thailand Aims to replant mangroves in the coastal villages	4 villages	Since 2004		✓	✓	
2	Vietnam Aims to improve livelihoods of local communities within and adjacent to Cuc Phuong national park through nature-based tourism	4 villages	Since 1996		✓	✓	UNDP, AusAID
3	Indonesia Aims to create a community-based conservation management in the Gili Indah marine area	3 villages	Since 1998	✓	✓		ADB, WB, AusAID
4	Philippines The management projects of marine protected areas (MPAs) with sub-component aiming to improve human well-being for nearby communities	40 villages <sup>11</sup>	Since 1986	✓	✓	✓	
5	Laos Aims to apply an integrated land-use planning for the management of Nam Pui protected area	2 villages	Since 2000	✓	✓		

<sup>11</sup> The management project began in 1986 and continued for the new MPAs established recently. Up till now, there are total 40 MPAs in 40 villages 29 different municipalities in four provinces

## 5.4. Parameters of the study

It is seen that the issues each case deals with vary from mangrove re-plantation in coastal villages, reforestation in highland areas to marine conservation and land use zoning projects. This research does not only look into the specific outcomes but also draw the commonalities and diversities across the cases in order to find out the critical factors to promote community-based conservation strategies. The basis for this comparative analysis is the two criteria as mentioned in part 2 (Methodology): project outcomes and local people's participation in each project with specific aspects.

### 5.4.1. Livelihood outcomes

Using the defined economic and social pillars from the theoretical framework, the following table presents livelihood outcomes in more details from the case findings. They are categorized in the items of food security, employment and income, public infrastructure, vulnerability, human well-being and empowerment activities.

**Table 3: Livelihood outcomes from the community-based conservation projects**

<b>Positive outcomes</b>	<b>Livelihood outcomes</b>	<b>(Possible) negative outcomes</b>
Sources of food: - Honey, fish and other wild products (1,2,3,4) - Agriculture (2,5)	<b>Food security</b>	
Basis of employment and income opportunities - Agriculture (2,5) - Fisheries (1,4) - Tourism (2,3) - Involved in management jobs (patrollers, monitor...) (1,3,4) - Micro-credit programs (2)	<b>Employment and income</b>	- Un-fairly income distribution (3) - Conflicts among stakeholders because of different concerns and interests (3)
- Road (2,5) - Water supply, sanitation and irrigation systems (2,4,5) - New schools and clinics (4) - Electricity (2)	<b>Public infrastructure</b>	
- Mangroves, coral reefs as a natural barriers for storm (1,3,4) - Forests as flood protection (2,5)	<b>Reduced vulnerability</b>	
- Identification of the issues(1,2,3,4,5) - Participation in project implementation (1,2,4,5) - Monitoring and evaluation (1,2,4,5)	<b>Empowerment activities</b>	- Resistance of people who are not involved (3)

Note: The numbers refer to the project codes

Source: Table created by the author

### a) Food security

All the projects deal with communities in remote and rural areas, poverty is observed as a big issue. Thus food security, an ability to obtain "sufficient food on a day-to-day basis" (Cunningham 2005:151) is the first priority of the projects. Forest and wild product collection is permitted at the low level in order to provide subsequent food. People in Thai villages collect fish (mainly shellfish, crabs) from mangrove swamps. In Indonesia and Philippines, people do coastal fishing while in Cuc Phuong and Nam Pui national park, honey, herbs, etc. are collected. The main source of food in Vietnam and Laos' cases comes from agriculture which is practiced on a small scale using traditional methods. In Cuc Phuong park, people grow paddy, hill rice, maize and cassava within the park boundary with supports from the project such as seedling provision and technical assistance. There was not any report of food shortage from the villagers (Interview 3). In Nam Pui protected area, the land area for food production was increased gradually from 400 hectares in 1999 to 430 hectares in 2004 and is estimated to be 450 hectares in 2009 (Figure 3) with a stable productivity. The type of agriculture activities in these two cases is culturing non-timber forest resources in forest settings, in which local people's experiences are utilized to select suitable species for crops in order to optimize the production and positive effects within the system.

### b) Employment and income

Employment and income is an important implication for livelihoods, showing the possibilities for people to attain certain earnings in order to guarantee their lives in the long term. Among the cases, employment and income opportunities come from agriculture, fishery, tourism and related small industries such as handicraft production; also local employment for management tasks (e.g. guards, wildlife monitoring).

In 40 MPAs in the Philippines, 85 per cent of people are involved in small ground fishing in the adjacent areas as their main source of livelihood.

In average, four villages in Thailand, representing 52.3 per cent of households engage in fishing and wild product collection, from which 83 per cent in the total household incomes is accounted for.

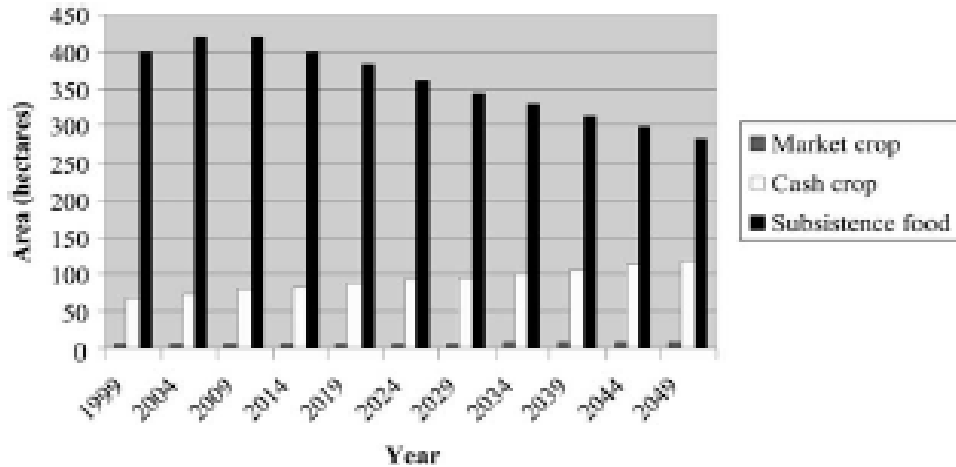
**Table 4: Income share of households in each village in Thailand**

	Phang-nga		Nakhon Si Thammarat	
	Ban Chong Tai, N=55	Ban Bang Pat, N=41	Ban Gong Khong, N=52	Ban Khlong Khut, N=51
Fishing and wild product collection (no. of households)	35	33	15	21
Mangrove dependent income share of total income (%)	95	89	66	83

Source: Barbier (2006: 242)

In Nam Pui protected area, most of the income is obtained through the market crops (e.g. cotton) and cash crop production (e.g. paper mulberry trees). In recent years, market and cash crop production have been increased thanks to good infrastructures such as roads, irrigation and broader markets. For example paper mulberry crop increased from 55 hectares in 1995 to 60 hectares in 2004. It is estimated at 75 hectares for 2009 and continuously an increasing trend in the following years.

**Figure 3: Agriculture production trends in Phongsack village during 1999-2049**



Source: Sawathvong (2004: 563)

In Cuc Phuong Park, 84 per cent of the villagers are engaged in agriculture which is mentioned above as a type of agro-forestry, allowing them to produce a wider range of crops (lychee intercropped with cassava, maize, soybean, pineapple, etc). Particularly, people are involved in the micro-credit program, through which loans are given to households for them to keep, breed and feed deer, bee-keeping and one hectare of land is allocated for each household to plant lychees. In turn, people are asked to reforest an area of land and give the reforested land back to the park in term of payment for the loans. People have been successful in doing so and these income-generating activities reduce their dependence on forest resources (Interview 3 and 4).

The most expected alternative for generating incomes, tourism, however is reported to have less effect on income generation than other sectors. 79.5 per cent of people in Cuc Phuong Park responded having almost no contacts with tourists. Tourists come to the village as a part of an organized package tour. The host family is paid from 25 000 to 50 000 Vietnamese Dong (about 2 -3 dollars per group per night), depending on the size of the groups. The accommodation fee is paid by the park tour guide, not directly by tourists. Therefore villagers depend on the park officials for both supply of tourists and payment for their stay. Moreover, most tourists are accommodated by some selected households, usually village heads or chefs, unless when there are too many tourists in one or two houses, other household could have a chance to host tourists. As a result, benefits from tourism are not evenly distributed among village households. Besides, just few

people can sell their hand-made products such as honey, weaving or crafts to tourists because of the limited connection.

It is clear that un-fair income distribution is the most tackling issue when community-based conservation comes to practice. The case of Gili Indah marine area - Indonesia is another example. Profits from tourism are mainly accumulated for the elite group, tourism entrepreneurs or “pengusaha”, who have land and money in the joint business with foreign investors for tourism services such as scuba diving, snorkeling, bungalows, hotels and restaurants. The rest of the community does not have a chance to gain benefits from tourism as well as other possibilities of getting income because fishing activities are restricted due to the dominance of marine tourism in the region. Conflicts arises because fisherman lose their fishing grounds and bear with fines for fishing activities although their operations are out of the restricted zones and they received fishing licenses from the Regency Amrine and Fisheries Service Office (Dinas Kelautan dan Perikanan). According to them, the local management system of the marine area is bias towards marine tourism interests.

Referring to income from management jobs related to the projects, it was found relatively low in the total household income. In the case of Thailand, only 10 per cent of people receive payment for replanting efforts mostly for supervisory or organizational roles. The mean share of replanting income in total income is 7 per cent and the median share is 2 per cent. In general, villagers contribute their labour to replant mangroves and it is considered as un-paid conservation activities. It is similar to the project in Cuc Phuong park where people are voluntary to be patrollers or biodiversity monitors (i.e. record sightings of endangered species) and they do not get high pay for those activities.

### **c) Public infrastructure**

Not only income provision, public infrastructure is also recorded to be improved via the projects. In Ban Khanh village inside Cuc Phuong park, two water tanks and a filter system are installed together with a micro hydroelectric generator with one supply line for each household. The irrigation system is also installed and positively affects the crops' yield. In addition, the road is seen by the people as the most expected outcome. The ways is accessible to the village through a 12 kilometers rugged walk or 6 kilometers rough track, bringing along further opportunities for people to travel to outside park boundaries for food exchange, trade of agricultural or handicraft products as well as being accessible to the public services in the central province such as schools and clinics. In the cases of MPAs in the Philippines and Nam Pui protected areas in Laos, water supply (piped water) and sanitation improve people's living standards in term of reducing risks of having diseases related to lack of water or polluted water. Particularly in the Philippines case, children nutritional status is proved to be better because of new health and nutritional services and infrastructure (e.g. child vaccination, sanitation, clinics).

#### d) Vulnerability

Vulnerability is defined when a household, or a larger group, is exposed to danger, decreasingly capable of avoiding or absorbing threat and usually unable to exert any demand to improve conditions (O'riordan 2002:302).

The Indian Ocean Tsunami in 2004 caused extraordinary damages to coastal villages in southern Thailand. Thousands of people were missing and injured, suffering trauma of losing family members, their homes and their livelihoods. Fishing boats and gears were totally destroyed. This natural disaster appeared cruelly random but its impacts have remained significantly. Mangrove forests have the potential to function as natural barriers against storms such as typhoons, cyclones, hurricanes and tsunamis because they can absorb energy and slow the hydrological flows of storm surge. The replanted mangroves are predicted to protect the vulnerable coastal communities from such storm events.

In the marine areas, coral reefs is seen as a water treatment system to reduce suspended solids, clarify water within as well as surrounding marine areas, reduce disease possibilities because of polluted water, implicitly contribute to the public health. Moreover, healthy coral reefs result in an abundance of fish stock, provide resources for people nearby and minimize the threat of food shortage. In Philippines case, fish stock has been increased due to the MPA management. Accordingly, the volume of fish catch is increased within small fishing scale to remain the growth of fish stock in the sanctuary (see table 5).

**Table 5: Variables describing fish abundance and fish catch in Philippines MPA**

Variable description	N	Mean	Minimum	Maximum
How is abundance of reef fish inside sanctuary in 2002 compared to pre-MPA; 1=worse, 3= better	298	2.470	1	3
How is fish catch in 2002 compared to 2000; 1=worse, 3=better	298	2.844	1	3

Source: Gjertsen (2004: 206)

In Cuc Phuong and Nam Pui parks, reserving forests is an effective way to protect people in lower altitude hillside stands from flood as forests prevent soil erosion, absorb water as well as reduce flood flows to downstream areas.

In summary, minimizing people's exposure to natural hazards and disasters is one of the indispensable outcomes of the conservation schemes, through which the functions of such ecosystems as mangroves, coral reefs, and forests are preserved to help people confront with natural threats. Moreover, these ecosystems indirectly contribute to deliver environmental services for instance soil quality, water, air, hydrological function and biodiversity reservation.



## e) Empowerment activities

Another essential dimension of livelihood outcomes is the empowerment activities of local people in conservation project. According to Sen (2004:6), among the opportunities to value is the expansion of individual rights in term of the freedom to participate. If participatory deliberation was to be hindered or weakened, something of value would be lost. Empowerment is actually the transformation of attitudes and values from passive, authorities-dependent into more independent, dynamic, participatory bottom-top civic and inclusion in decision-making processes that concern one's life, and becoming a beneficiary of changes in those processes<sup>12</sup>. It is necessary to assess empowerment activities among the case studies since the issue plays a central role to illustrate the way of how people could take initiatives for conservation practices.

In order to assess the local participation that each case achieves, I create the table reviewing people participation from the initial project process of problem identification, preparation, appraisal to the implementation and monitoring, evaluation. At the same time, their participation is analyzed from the lowest to the highest levels according to the definition given by the World Bank<sup>13</sup>.

- **Information sharing:** information is provided from the initiators to people (through brochures, briefings, press releases, etc). It is a one-way flow of information, downwards. People do not themselves have the opportunity to give opinions as they only consume the information that is offered to them.
- **Consultation:** the flow of information is two-way, among initiators and local people through means of interviews, opinion polls, and public hearings. Interactions among stakeholders are recorded and shared control over decisions and resources.
- **Self-mobilization/empowerment:** a highest degree of participation, in which local people are transferred of control over decisions and resources, external agents facilitate them.

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<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTCDD/0,,m enuPK:430167~pagePK:149018~piPK:149093~theSitePK:430161,00.html>

<sup>13</sup> <http://siteresources.worldbank.org/CSO/Resources/ProgRptFY0001.pdf>

**Table 6: Local people’s empowerment activities**

Case	Local people’s empowerment activities					
	Participation of local people in project processes			Level of participation		
	Identification, preparation & appraisal	Implementation	Monitoring & evaluation	Lowest level	Highest level	
Information sharing				Consultation	Self-mobilization	
<b>1. Thailand</b> Mangrove re-plantation	✓	✓	✓			✓
<b>2. Vietnam</b> Nature-based tourism	✓	✓	✓		✓	
<b>3. Indonesia</b> Community-based conservation system	✓			✓		
<b>4. Philippines</b> Marine Protected Area management	✓	✓			✓	
<b>5. Laos</b> Integrated land-use plan	✓	✓	✓			✓

Source: Table created by the author

Collective actions are concerned with the participation of individuals affected by the projects. From table 6, it is seen that not in all projects people take part in every process. However, the first process: problem awareness and identification is all obtained. Thailand, Vietnam and Laos’ cases got people’s involvement in all processes while in the Philippines’ case, the monitoring and evaluation stage did not include people. In the case of Indonesia, people only engaged in the first stage. They got to know about the project via brochures, briefings, meetings but actually responses and attitudes of the majority of the community (of which 80 percent are small-scale fisheries) are not taken into consideration appropriately. People did not participate further because the management, implementation and monitoring processes were mainly carried out by the elite group ‘pengusaha’.

As the results of different involvement in project processes, the participation levels in each case are assessed to be various. The two cases, Thailand and Laos attained the highest level: self-mobilization because people actively took over control of resources and management. In these cases, the role of project's members was to support and facilitate them as well as keep the information flow smooth and transparent. Thai

villagers considered an area of 60 hectares as their community forests, organized themselves in groups and worked together to replant mangroves. In Nam Pui, people were willing to engage in land use planning, discussed with the project staffs about the Participatory Rural Appraisal (PRA), verified data from point sampling and contributed to create the park management rules based on the common understanding and agreements. People in Cuc Phuong park were active in reforestation via the micro-credit programs and also involved in park management as patrollers and wildlife monitors. However, in the tourism program, they are not provided a chance to participate, 79.5 per cent of total responses commented that they would like to be involved in this program.

Meanwhile in Gili Indah marine area-Indonesia, the participation is observed at the lowest degree: one-way flow of information because of the failure of a conflict resolution mechanism to deal with different groups in the community. Fishermen are restricted to marine resources, collecting marine biota or seaweed culturing must be authorized by the village chief, not based on the collective choice agreements. Sanctions such as fine, compensation fee are applied for fishing activities. The alternative income projects, tourism projects, do not bring benefits to the majority of people, except an elite group. Besides, in the management system Awig-Awig, local fishermen were not representative as one of the main stakeholders.

The projects are conducted in the rural settings where people have low quality of life and are prone to social and environmental changes. Consequently, social inclusion is a prerequisite to enhance empowerment activities. When all vulnerable groups such as the poor, women, the youth, minorities, or other disadvantaged groups are included, they could express their interests and concerns. It is also the way to make sure that the projects are designed to directly serve the most disadvantaged groups. The social inclusion in each case study is explored as follows.

**Table 7: Social inclusion**

Case	Social Inclusion			
	The poor	Women	The youth	Minority groups
<b>1. Thailand</b> Mangrove re-plantation	✓	✓	✓	✓
<b>2. Vietnam</b> Nature-based tourism	✓	✓	✓	✓
<b>3. Indonesia</b> Community-based conservation system			✓	

<b>4. Philippines</b> Marine Protected Area management	✓	✓	✓	✓
<b>5. Laos</b> Integrated land-use approach	✓	✓	✓	✓

Source: Table created by the author

Most of the cases targeted and included the vulnerable groups as shown in table 7. In Cuc Phuong as well as Nam Pui park, the residents are minority groups (Muong and Malabri people), who are in the focus of the projects. In addition, the participation of women in the project is accounted for 43 per cent. In the mangrove project, among 199 households, of which 69 have at least one female undertaking re-plantation activities. On average, male and female labour allocation is 65 per cent and 35 per cent (see more in table 8).

**Table 8: Labour allocation (average hours per year)**

	Phang-nga				Nakhon Si Thammarat			
	Ban Chong Tai, N=55		Ban Bang Pat, N=41		Ban Gong Khong, N=52		Ban Khlong Khut, N=51	
	Male	Female	Male	Female	Male	Female	Male	Female
Mangrove-based activities (hours/year)	1471	550	1137	408	2254	611	2588	605
Outside work <sup>a</sup> (% of mangrove-based hours) <sup>b</sup>	158 (11%)	226 (41%)	177 (16%)	302 (74%)	622 (28%)	362 (59%)	542 (21%)	393 (65%)
Adjusted outside work <sup>c</sup> (% of mangrove-based hours) <sup>b</sup>	1083 (130%)	3102 (-)	1035 (86%)	1767 (61%)	1043 (61%)	1567 (155%)	1842 (59%)	2006 (490%)

Source: Barbier (2006: 243)

Notes:

<sup>a</sup> Hours in outside employment averaged in all households

<sup>b</sup> Ratio of average hours in outside employment to average hours in all mangrove-based activities

<sup>c</sup> Hours in outside employment averaged in households whose members participate in such work

Exceptionally for the Indonesia case, in which there are not representatives of the poor, women, minorities and local fishermen. The voice of these groups is not being heard during the establishment of the Awig-Awig management system. In fact, to monitor the system, the Gili Indah Youth Task Force (Yayasan Front Pemuda satgas Gili Indah) was established. However, it was not effective because of lacking coordination and guidelines. The management system was imposed without negotiation with majority of

people. Thus nobody has interests in monitoring and evaluating although that project is supposed to serve the community.

### 5.4.2. Conservation outcomes

In the above section, conservation projects were analyzed in favour of the outcomes for people, the followings will focus on their impacts on nature and biodiversity.

**Table 9: Conservation outcomes from the community-based conservation projects**

Conservation outcomes	
Positive outcomes	(Possible) negative outcomes
<ul style="list-style-type: none"> <li>- Healthy coral reefs (coral cover and abundance of fish stock) (4)</li> <li>- Replanted mangroves, forests (1,2)</li> <li>- Remained natural forests (2,5)</li> </ul>	<ul style="list-style-type: none"> <li>- Over-exploitation from the permitted activities (2)</li> <li>- Impacts from agriculture activities (2,5)</li> <li>- Impacts from intensive tourism (2,3)</li> </ul>

Note: The numbers refer to the project codes  
 Source: Table created by the author

The positive outcomes are measured via the improvements in ecosystem health. The Philippines case presents the results obtained through the set of explanatory variables of reef fish abundance and coral cover in sanctuary. Each people's response is a single observation. The main result is that the abundance of reef fish is increasing as well as coral cover in sanctuary is better over the years.

**Table 10: Variables describing coral reef health in Philippines MPAs**

Variable description	N	Mean	Minimum	Maximum
Proportion hard coral cover from 2000 snorkel surveys	40	0.297	0.047	0.713
Proportion hard coral cover from 2002 snorkel surveys	40	0.348	0.086	0.705
How is coral cover in sanctuary in 2002 compared to pre-MPA; 1=worse, 3= better	296	2.605	1	3
How is abundance of reef fish inside sanctuary in 2002 compared to pre-MPA; 1=worse, 3= better	298	2.470	1	3

Source: Gjertsen (2004: 206)

In Nam Pui, the area of natural forests (category 6 and 7) preserved is 5,308 hectares according to the land-use zoning plan as shown in table 11.

**Table 11: APM scenario on land use transfer in Nam Pui during 1999 – 2049**

Year	Crop production	Category after land transfer (hectare)							Total
		1	2	3	4	5	6	7	
1999	330	46	20	673	0	0	1222	4086	6377
2004	364	12	20	673	0	0	1222	4086	6377
2009	385	0	11	673	0	0	1222	4086	6377
2014	389	0	7	673	0	0	1222	4086	6377
2019	375	14	7	673	0	0	1222	4086	6377
2024	355	34	7	673	0	0	1222	4086	6377
2029	338	51	7	673	0	0	1222	4086	6377
2034	323	66	7	673	0	0	1222	4086	6377
2039	308	81	7	673	0	0	1222	4086	6377
2044	295	94	7	673	0	0	1222	4086	6377
2049	284	105	7	673	0	0	1222	4086	6377

Source: Sawathvong (2004: 563)

Notes: 1: Other land, potential agriculture land; 2: Other land, potential forest land; 3: Farm forest land, natural forests; 4: Industrial forest land, natural forests; 5: Natural environmental forest, inaccessible; 6: Natural environmental forest, protection areas; 7: Natural environmental forest, reserve forests.

In Vietnam and Thai cases, forests and mangroves are indicated to be replanted and preserved. However, available documents offer little quantitative data to prove such improvements. One of the responses from project members is:

I am trying myself to learn more about how much replanting has been done lately in Thailand. Unfortunately, nobody has kept track of this important statistic or the success rate of replanting projects (Interview 1).

In the case of Cuc Phuong park, the reforested areas are confirmed to be increasing since the project implementation (in 1996) up till now (Interview 3 and 4). However, there are not statistical reports provided.

On the other hand, although agriculture activities are designed to operate in the buffer or production zones, negative impacts are likely to occur. For example fertilizers, pesticides or artificial growth factors might lead to soil erosion nearby or even inside the park. In Nam Pui, it is proposed when agriculture reaches a higher level which might cause negative impacts; they will be moved outside the area. Nevertheless, it could create another social issue of the resettlement for people.

In some cases, collection and use of wild products are still permitted, which might result in resource over-exploitation. In Cuc Phuong, project members admitted that timber for firewood, herbs for medicinal purposes, small bamboo for handicraft works and tree bark to be boiled to make tea are regularly collected and in the recent report, 15 kilometers of timber is removed from Cuc Phuong each year. In Philippines MPAs, as long as fishing activities are in a small scale, the fish stock of the marine areas can remained abundance.

Tourism can bring along negative impacts, for example tourists' disturbance to nature or the construction of tourism facilities. In Cuc Phuong, it is observed graffiti and vandalism caused by tourists, also soil compaction, vegetation trampling and old camp-fire sites. In Indonesia, bungalows, hotels and restaurants are built along the coastal lines making air and water pollution during the construction and their current operation discharge wastewater into the marine area.

### **Personal reflection from the multiple case study:**

Although the cases were selected according to the common criteria, they are still different from each other and not really comparable. Each case does not represent the complete set of indicators for livelihoods and environment as they pursue their own objectives and focus. For example, Philippines case selected two indicators: children's nutritional status and coral reef health to assess human well-being and environmental improvement. Whereas in Thailand case, data about household income, expenditure, labour allocation, mangrove-based activities, etc. is aimed to investigate. In Nam Pui - Laos, forest land-use zoning is emphasized. Therefore, I was trying to not only draw similarities and differences, but also sort out the project outcomes and create the synthetic tables (table 3 and table 9) with specific items in order to present evidences for livelihood and environment improvements within the community-based conservation scheme.

The data available in five cases is both quantitative and qualitative. Among those, quantitative data (statistics through variables, mean, standard deviation) provide strong evidences for community conservation outcomes. On the other hand, dealing with qualitative data requires understandings of the contexts in which data is produced. Some implications such as people's vulnerability or empowerment were not easy to interpret through the texts. Feedback, assessments from the project members who actually worked in the communities helped to provide more insights.

However, I encountered several difficulties while acquiring data from the project members. All projects consist of many phases from identification, appraisal, implementation to monitoring and evaluation. In some projects, even the people who were mainly in charge did not have sufficient data or be able to make an overall assessment. Hence, I was recommended by them to write to other people in different departments. Sometimes, five e-mails sent gave back one reply with little information and not exactly what I was looking for. For instance, I was asking for the reforestation areas in Cuc Phuong park to see if those are increasing with good quality. The answer was only a confirmation "Yes" and not statistical documents provided. The process of obtaining data took longer time than I had expected due to the time for seeking people, waiting for their replies, arranging phone call interviews if possible. My experience from doing these data collection and analysis, especially while conducting a research from a far distance from the fields is that finding the right people as the key respondents who could provide the most relevant data and opinions. In the interview with a member of Thailand re-plantation project, who closely worked with local communities, introduced the projects ideas, organized meetings and supported the project implementation; I gained a lot of insights from his experiences while working with people through each project step.

## 6. DISCUSSION

This section brings about the answers for the research questions and discusses the related issues.

The first two research questions can be answered jointly:

**How does community-based conservation improve livelihood for local communities?**

**How does community-based conservation achieve conservation goals?**

Community-based conservation as examined through the cases improved both livelihoods and environment. However, the win-win situation is unstable and the inter-connection between livelihoods and environment is complex. Outcomes for communities are the improvements in food security, employment and income, public infrastructure, reduced vulnerability and people's empowerment. Environmental outcomes are also recorded to be progressive but remain possible negative impacts occurred from people activities (i.e. agriculture, tourism) in the long run with intensive levels.

Community-based conservation could become instrumental to achieve sustainable development provided certain conditions are met. That is the management and operation of the projects, especially the mechanism to deal with benefit distribution and solving conflicts among stakeholders.

**What are the critical factors to promote community-based conservation towards sustainable development?**

The critical factor for the success of this strategy centres on people's participation. The cases of Vietnam, Thailand, Philippines and Laos have proved that when people are well-organized, their knowledge is incorporated and built upon during all the projects' processes, the projects give out positive outcomes. The Indonesia case failed because of lacking participation of the whole community.

Participation of local people is considered important not only because of the need for their support, but also the potential value of what is termed 'traditional ecological knowledge' to conservation undertakings (Campbell 2002:130). The project in Thai villages took advantages of local people's thorough knowledge of the characteristics of the setting i.e. location, movements, and other factors explaining spatial patterns and timing in the mangrove ecosystem, including sequences of events, cycles, and trends to replant and conserve mangroves. In Vietnam and Laos' forests, local knowledge is utilized to select indigenous tree species for the reforestation as well as the approach for agriculture in a small scale with traditional methods.

According to O'riordan (2002:34), collective action or social inclusive programs imply connectedness, networks and groups. The common aspects of the projects in term of meeting their objectives have shown a successful inclusion of the poor, the youth, the women and minority groups in the practices. They targeted the poor who are living in high insecurity and prone to any economic, social and environmental changes and need the most support to attain the baseline for their survival.



The Philippines case showed that conservation strategy could take advantages of the youth's experiences and initiatives. They are the active group which contributed to marine conservation with the role as the next generation. The Indonesia case revealed the potential that the youth could have taken over the task of biodiversity monitoring as long as they were well coordinated.

Women especially have an important role in community-based conservation. In Thailand case, women were raised awareness about the importance of mangrove for their daily lives (i.e. source of food, reduced vulnerability to storms). They were helped to organize and develop their capacity for representation and participation in a re-plantation scheme. The project applied the framework giving them access to make decisions concerning the household's labour allocation as well as environment issues.

At last but not least, minority groups were given opportunities to participate in the projects. According to Brockington (2006:251), supporting for indigenous people's right is fundamental for advancing human rights. Moreover, indigenous knowledge and cultural values of ethnic minorities are connected with the concept of the fourth pillar of sustainable development as conserving cultural diversity. Cultural diversity is as necessary for humankind as biodiversity is for nature. It has become one of the roots of development understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence (UNESCO 2001). Besides, well-being entails cultural values and indigenous knowledge of ethnic groups as important aspects.

Community-based conservation is a social strategy in which responses to conservation are sought from people and their participation is essential to guarantee the success of this approach. However, whether full participation exists is not unanimous among the cases. Two cases (Thailand, Laos) remained at the highest level of participation as self-mobilization or empowerment while others confined to information sharing and consultation levels. The lesson learnt again is how to let people participate and how to facilitate them to reach their self-mobilization. In this sense, the projects have to do with methods, techniques to promote awareness, attitude and commitment of local people. It has been discovered from the case studies that economic incentives are indeed important. In Cuc Phuong case, it is the micro-credit programs that encouraged villagers to preserve the park resources. Another evidence is that highly dependent income on mangroves stimulated Thai people to volunteer and contribute labour to re-plantation activities. This principle of economic incentives and compensation is also indicated in Ostrom's theory that incentives are applied in order to encourage people to comply with rules while sanctions for non-compliance keep community members in line (Cunningham 2005:333).

Incentives could get people involved; however the mechanism to guarantee fair distribution is essential to remain their involvement and reduce discords and resistance. The Indonesia case is a typical example to show an importance of the benefit distribution and conflict resolution mechanism. The Awig-Awig management system was failed because it was design to bring profits only for an elite group, not the whole community, especially poor fishermen. The mechanism to deal with conflicts between those groups in

the Awig-Awig system was missing. It can be seen that once benefits are fairly distributed among people and stakeholders according to their collective choices and agreements, conflicts would be reduced.

## **7. CONCLUSION**

Community-based conservation is a sustainable strategy reconciling local people's needs and conservation targets. However, the implementation could hinder its actual effectiveness. While studying the five cases which are both successful and un-successful in term of meeting their objectives, their outcomes are revealed for lessons learnt. As discussed above, people's participation is crucial for this type of project, I have generated some suggestions to integrate people into all stages of the project process.

In the project stage 1-identification, preparation, appraisal, the first task is identifying current resource users-stakeholders, together with their specific needs and priorities. Secondly, communication with people and stakeholders/groups should be created through information sharing and consultation. The purpose is to make people well-informed, aware of their role and to encourage them to take part in the project which is organized for solving their problem. Through the means of brochures, briefings, public hearings for example, an idea of the project is introduced as well as responses and attitudes from people are discovered. It is also the way to mobilize local people to work together to find solutions to their own problems. The project takes advantages of their indigenous knowledge and experiences for a better plan design.

In the project stage 2-implementation, economic incentives, compensations are catalyst to promote people to engage. Alternative livelihoods instead of resource exploitation are introduced, for instance agro-agriculture in a small scale with traditional methods or community-based tourism (like in Laos, Vietnam cases). Or the micro credit programs, in which people receive loans for their livelihoods and in turn replant forests or preserve coral reefs as loan payment. Together with economic incentives, the mechanism for benefit distribution and conflict solving among people or different groups, stakeholders is to remain their participation during the whole project process. It can be organized through the meetings, in which people can discuss on specific issues to reach the collective choices and agreements. In general, the meeting is the flat form for individuals and groups to meet, discuss their problems and suggest ideas to improve the situation of the project implementation. The important point in this stage is that every stakeholder could speak up their voices of which the importance is set equal among themselves. Some groups such as the business, industry or elite group might be more powerful; however, their role is not higher than any other groups in the meeting and discussions. Moreover in this stage, training, skill transfer (i.e. management skills) and technical supports are important to help people make decisions, allocate resources (human, financial resources) effectively.

In the project final stage-monitoring, evaluation, people organize themselves to monitor and evaluate the progress and quality by improving village/community regulations or making new rules to maintain the project outcomes. In this activity, the role of the project's members is to keep the information flow smooth and transparent.

**Table 12: Suggested structure to integrate people into a conservation project**

Project process	Check list
Stage 1 Identification, preparation, appraisal	<ul style="list-style-type: none"> <li>✓ Identify resource users, stakeholders</li> <li>✓ Information sharing</li> <li>✓ Consultation</li> </ul>
Stage 2 Implementation	<ul style="list-style-type: none"> <li>✓ Economic incentives, compensation</li> <li>✓ A mechanism for benefit distribution and conflict solving</li> </ul>
Stage 3 Monitoring, evaluation	<ul style="list-style-type: none"> <li>✓ Keep the information flow smooth and transparent</li> </ul>

Source: Table created by the author

**Suggestion for a further research:** Since community-based conservation is embedded by default in highly complex social and political settings (Brechin 2002) and South East Asia consists of eleven countries with diverse landscapes, cultures, societies and economies. It might be interesting to explore how different political, economic and social contexts in these countries affect people’s empowerment activities in the community-based conservation projects.

## REFERENCES

- Adams William and Hulme David (2001), 'Conservation and communities: Changing narratives, policies and practices in African conservation', *Community Conservation Research in Africa*, Working papers, Paper No. 4, Institute for Development Policy and Management, University of Manchester, Manchester, UK
- Anand Sudhir and Sen Martya (2000), 'Human development and economic sustainability', *World Development*, Vol. 28, No. 12, pp. 2029 - 2049
- Barbier Edward (2007), 'In the wake of tsunami: Lessons learned from the household decision to replant mangroves in Thailand', *Resource and Energy Economics*, Vol. 30, pp. 229 - 249
- Barrow Edmund and Murphree Marshall (2001), 'Community conservation from concept to practice: A practical framework', *Community Conservation Research in Africa*, Working papers, Paper No. 8, Institute for Development Policy and Management, University of Manchester, Manchester, UK
- Brechin Steven, Wilshusen Peter and West Patrick (2002), 'Beyond the square wheel: Toward a more comprehensive understanding of biodiversity conservation as social and political process', *Society and Natural Resources*, Vol. 15, pp. 41 – 64
- Brockington Dan, Igoe Jim and Schmidt-Soltau Kai (2006), 'Conservation, Human Rights and Poverty Reduction', *Conservation Biology*, Vol. 20, No.1, pp. 250-252
- Bryant Raymond (1998), 'Power, knowledge and political ecology in the third world: A review', *Progress in Physical Geography*, Vol. 22, No. 1, pp. 79 – 94
- Bryman Alan (2004), *Social Research Methods*, Second Edition, Oxford University Press, Oxford, UK
- Buckingham Susan (2000), *Gender and Environment*, Routledge Publication, London UK
- Campbell Lisa (2002), 'Conservation Narratives in Costa Rica: Conflict and Co-existence', *Development and Change*, Vol. 33, pp. 29 - 56
- Campbell Lisa (2002), 'Community-based conservation via global legislation? Limitations of the International-American Convention for the protection and conservation of sea turtles', *Journal of International Wildlife Law and Policy*, Vol. 5, pp. 121 - 143
- Campbell Lisa (2002), 'Science and sustainable use: Views of marine turtle conservation experts', *Ecological Applications*, Vol. 12, No. 4, pp. 1229 - 1246

- Campbell Lisa and Mattila Vainio Arja (2003), 'Participatory development and community-based conservation: Opportunities missed for lessons learned', *Human Ecology*, Vol. 31, No.3, pp. 417 - 437
- Carson Rachel (1962), *Silent spring*, Trinity Press, London, UK
- Carter Neil (2001), *The politics of the environment: Ideas, activism, policy*, Cambridge University Press, Cambridge, UK
- Common Michael (1995), *Sustainability and policy: Limits to economics*, Cambridge University Press, Cambridge, UK
- Cunningham William and Cunningham Mary (2006), *Principles of environmental science*, Third Edition, Mc Graw Hill Press, New York, USA
- Djoghlaif Ahmed (2006), 'Other international developments - The concept of sustainable development', *Environmental Policy and Law*, Vol. 36, No. 5, pp. 211-218
- Doak Kevin (1994), *Dreams of difference: The Japan romantic school and the crisis of modernity*, University of California Press, California, USA
- Elliott Lorraine (2004), *The global politics of the environment*, Second Edition, New York University Press, New York, USA
- Gjertsen Heidi (2005), 'Can habitat protection lead to improvements in human well-being? Evidence from Marine Protected Areas in the Philippines', *World Development*, Vol. 33, No. 2, pp. 199 - 217
- Hardin Garrett (1968), 'The Tragedy of the Commons', *Science*, Vol. 162, No. 3859, pp 1243-1248
- Harris Jonathan, Wise Timothy, Gallagher Kevin, and Goodwin Neva (2001), *A Survey of sustainable development - Social and economic dimensions*, Island Press, Washington, USA
- Hussen Ahmed (2000), *Principles of Environmental Economics*, Routledge Publication, New York, USA
- Leach Melissa, Mearns Robin and Scoones Ian (1997), *Community-based sustainable development: consensus of conflict?*, IDS bulletin, Vol. 28, No. 4
- Meyer Judy and Helfman Gene (1993), 'The ecological basis of sustainability', *Ecological Applications*, Vol. 3, No. 4, pp.569 - 571
- Mikkelsen Britha (2004), *Methods for development work and research - A new guide for practitioners*, Second Edition, Sage Publications, London, UK

- Neumayer Eric (2003), *Weak versus strong sustainability: Exploring the limits of two opposing paradigms*, Second Edition, Edward Elgar Publishing, Cheltenham, UK
- O'riordan Tim and Kleemann Stoll Susanne (2002), *Biodiversity, sustainability and human communities: Protecting beyond the protected*, Cambridge University Press, Cambridge, UK
- Ostrom Elinor (1990), *Governing the commons: the evolution of institutions for collective action*, Cambridge University Press, Cambridge, UK
- Paehlke Robert (1995), *Conservation and environmentalism: An encyclopedia*, Fitzroy Dearborn Publishers, London, UK
- Purvis Martin and Grainger Alan (2004), *Exploring sustainable development: Geographical Perspectives*, Earthscan Publications, London, UK
- Rigg Jonathan (2008), 'Grounding a natural disaster: Thailand and the 2004 tsunami', *Asia Pacific Viewpoint*, Vol. 49, No. 2, pp.137 – 154
- Roe Emery (1991), 'Development narratives or making the best of blueprint development', *World Development*, Vol. 19, No. 4, pp. 287 - 300
- Rugendyke Barbara and Nguyen Thi Son (2005), 'Conservation costs: Nature-based tourism as development at Cuc Phuong National Park, Vietnam', *Asia Pacific Viewpoint*, Vol. 46, No. 2, pp.185 – 200
- Sanwal Mukul (2006), 'What drives Environmental Policy', *Environmental Policy and Law*, Vol. 36, No. 3, pp. 135-136
- Satria Arif, Yoshiaki Matsuda and Masaaki Sano (2006), 'Questioning community based coral reef management systems: Case study of Awig-Awig in Gili Indah, Indonesia', *Environment, Development and Sustainability*, Vol. 8, pp. 99 – 118
- Sawathvong Silavanh (2004), 'Experiences from developing an integrated land-use planning approach for protected areas in the Lao PDR', *Forest Policy and Economics*, Vol. 6, pp. 553 – 566
- Sen Amartya (2004), 'Why We Should Preserve the Spotted Owl', *London Review of Books*, Vol. 26 No. 3
- Sneddon Chris (2006), 'Analysis Sustainable development in a post-Brundtland world', *Ecological Economics*, Vol. 57, pp. 253 – 268
- Sodhi Navjot, Koh Lian and Barry Brook (2004), 'Southeast Asian biodiversity: an impending disaster', *Trends in Ecology and Evolution*, Vol.19, No.12, pp.654-660

Western David and Pearl Mary (1989), *Conservation for the twenty-first century*, Oxford University Press, Oxford, UK

Yin Robert (2003), *Case study research: Design and Methods*, Third Edition, Applied Social Research Series, Vol. 5, Sage Publications, California, USA

### **Internet sources:**

Biodiversity hotspots, Hotspots by region, retrieved on 16 September 2008  
[http://www.biodiversityhotspots.org/xp/Hotspots/hotspots\\_by\\_region/Pages/default.aspx](http://www.biodiversityhotspots.org/xp/Hotspots/hotspots_by_region/Pages/default.aspx)

Congressional Acts Pertaining to Yellowstone, the Act of Dedication, retrieved on 20 September 2008, <http://www.yellowstone-online.com/history/yhfour.html>

Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, retrieved on 20 August 2008,  
<http://www.aarhus.be>

Convention on Biodiversity, retrieved on 16 July 2008, <http://www.cbd.int/convention>

Convention on International Trade in Endangered Species of Wild Fauna and Flora, retrieved on 06 September 2008, <http://www.cites.org>

Convention on Wetlands, retrieved on 16 September 2008, <http://www.ramsar.org>

Convention on the Conservation of Migratory Species of Wild Animals, retrieved on 16 September 2008, <http://www.cms.int>

UN Department of Economics and Social Affairs, Division for Sustainable Development, Agenda 21, retrieved on 07 August 2008  
<http://www.un.org/esa/sustdev/documents/agenda21/index.htm>

UN Department of Economics and Social Affairs, Division for Sustainable Development, Johannesburg Declaration on Sustainable Development, retrieved on 07 August 2008  
[http://www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/POI\\_PD.htm](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POI_PD.htm)

UN Documents Cooperation Circles, Report of the World Commission on Environment and Development, retrieved on 10 August 2008,  
<http://www.un-documents.net/ocf-01.htm#II>

World Bank, Community Driven Development, retrieved on 25 July 2008  
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTCDD/0,,menuPK:430167~pagePK:149018~piPK:149093~theSitePK:430161,00.html>

World Bank Civil Society Collaboration, Progress Report for Fiscal Years 2000 - 2001, retrieved on 27 July 2008, <http://siteresources.worldbank.org/CSO/Resources/ProgRptFY0001.pdf>

World Charter for Nature, United Nations 48th plenary meeting, retrieved on 30 July 2008, <http://www.un.org/documents/ga/res/37/a37r007.htm>

### **Interviews/E-mail Correspondence**

1. Barbier Edward, Department of Economics and Finance, University of Wyoming, USA, a member of the mangrove re-plantation project in Thailand, 26 August 2008, E-mail: [ebarbier@uwyo.edu](mailto:ebarbier@uwyo.edu) ; Telephone: 307-766-2358
2. Gjertsen Heidi, Southwest Fisheries Science Centre, NOAA-Fisheries, La Jolla, CA, USA, a member of the management project in the Philippines MPAs, 05 September, E-mail: [heidi.gjertsen@noaa.gov](mailto:heidi.gjertsen@noaa.gov) ; Telephone: 858-546-5686
3. Nguyen Thi Son, Faculty of Geography, National Pedagogic University, Hanoi, Vietnam, a member of the nature-based tourism project in Cuc Phuong National Park, Vietnam, 25 August 2008, E-mail: [sonngt2001@yahoo.com](mailto:sonngt2001@yahoo.com)
4. Rugendyke Barbara, School of Human and Environmental Studies, University of New England, Australia, a member of the nature-based tourism project in Cuc Phuong National Park, Vietnam, 2 September 2008, E-mail: [brugendy@une.edu.au](mailto:brugendy@une.edu.au)
5. Satria Arif, Faculty of Fisheries, Kagoshima University, Japan, a member of the coral reef management project in Gili Indah, Indonesia, 10 September 2008, E-mail: [arifsatria@gmail.com](mailto:arifsatria@gmail.com)
6. Sawathvong Silavanh, Department of Forest Resource Management and Geomatics, Swedish University of Agricultural Science, Umea, Sweden, a member of the land-use planning project for Nam Pui protected areas in Laos, 26 August 2008, E-mail: [silavanh@hotmail.com](mailto:silavanh@hotmail.com)



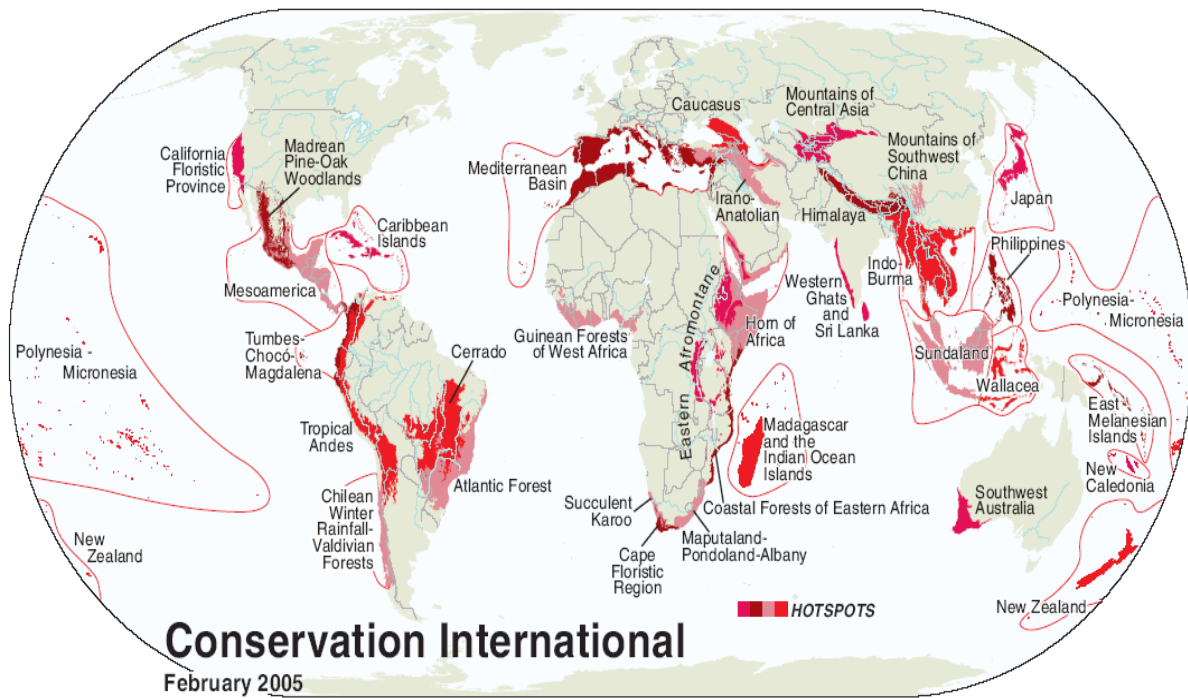
## APPENDIX

### Categories of Protected Areas

<b>Category Ia</b>	<b>Strict Nature Reserve: managed mainly for scientific research</b>
Definition	Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.
<b>Category Ib</b>	<b>Wilderness Area: managed mainly for wilderness protection</b>
Definition	Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.
<b>Category II</b>	<b>National Park: managed mainly for ecosystem protection and recreation</b>
Definition	Natural area of land and/o sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.
<b>Category III</b>	<b>Natural Monument: managed mainly for conservation of specific natural features</b>
Definition	Area containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.
<b>Category IV</b>	<b>Habitat/Species Management Area: managed mainly for conservation through management intervention</b>
Definition	Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.
<b>Category V</b>	<b>Protected Landscape/Seascape: managed mainly for landscape/seascape conservation and recreation</b>
Definition	Area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.
<b>Category VI</b>	<b>Managed Resource Protected Area: managed mainly for the sustainable use of natural ecosystems</b>
Definition	Area containing predominantly unmodified natural systems, managed to ensure long-term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

Source: IUCN 1994

## Biodiversity hotspots in the world



Source: <http://www.biodiversityhotspots.org>