

Master Thesis

**Analysis of Transboundary Forest Management
in Borneo Border Area under the Framework of
the Heart of Borneo Initiative**

By:

AHMAD SARDANA
S.1941569
25408059

DOUBLE DEGREE PROGRAM

ENVIRONMENTAL AND INFRASTRUCTURE PLANNING
FACULTY OF SPATIAL SCIENCES
UNIVERSITY OF GRONINGEN
THE NETHERLANDS



And

DEVELOPMENT PLANNING AND INFRASTRUCTURE MANAGEMENT
DEPARTMENT OF REGIONAL AND CITY PLANNING
INSTITUTE OF TECHNOLOGY BANDUNG
INDONESIA



GRONINGEN, 2010

ABSTRACT

Analysis of Transboundary Forest Management in Borneo Border Area under the Framework of the Heart of Borneo Initiative

by

Ahmad Sardana

Transboundary environmental issues nowadays have attracted many international concerns because of the importance of environment toward human life as well as the difficulties of environment management across international boundaries. The growing concern of transboundary environmental issues is basically based on the nature of environment which could not be limited by political and administrative boundaries that will dissect environmental management administratively. This research analyzes the existence of transboundary forest management in Borneo border area through the Heart of Borneo initiative which involves Brunei Darussalam, Indonesia, and Malaysia. It focuses on the emerge of environmental issues in border area and the existence of institutional building under the framework of the Heart of Borneo initiative.

The result shows that transboundary forest management in Borneo border area is constrained by environmental issues such as deforestation, illegal logging, timber smuggling, encroachment, forest fire, etc. Some of that even increase political tension among countries. The existence of institutional building in this transboundary collaboration is expected to effectively solve those environmental issues and increase the effectiveness of transboundary forest management. Some lesson learns could be extracted from institutional arrangement in this collaboration which are the importance of clear statement and long term commitment from participating governments; the importance of legally binding consensus especially on sensitive issues of natural resources extraction; public participation and the involvement of very-competent stakeholders to avoid inefficiency of institutional framework to reach the goals; the importance of providing sustainable funding alternatives through environmental service payments; and the need of capacity building especially at local level.

Keyword: *Transboundary forest management, Borneo border area, the Heart of Borneo initiative, environmental issues, institutional building*

PREFACE

This research concerns to the development of transboundary forest management in Borneo border area as have attracted many international attention due to the richness and uniqueness of Borneo environment. Since I work for Indonesian Ministry of Forestry which has concern to encourage sustainable forest resources management in Borneo border area, thus I dedicate this research especially to my office in supporting policy formulation, to my country, and to the establishment of transboundary forest management in Borneo border area. By this research, several important policy recommendations have been given to increase the effectiveness of Borneo transboundary forest management collaboration.

In this occasion, I would like to express my greatest thankfulness to God for blessing me in finishing this thesis work. I would also like to express my special thanks to my supervisors, Dr. Justin R. Beaumont from RuG and Drs. Arief Rosyidie, MSP, M.Arch, PhD from ITB for guiding my writing. Beside, my great thanks are also addressed to all my lecturers and faculty staff in RuG and ITB for their supports in my whole study. I also address my appreciation to everybody for data support to my thesis work. Thanks also to all my fellows DD students 2009 for the discussions to enrich my perspectives. In this chance, I would also like to express my appreciation to NESO and Bappenas for the scholarship. Finally, I am very grateful to my lovely family in Indonesia especially to my parents, my brothers and sisters, my wife and children for remarkable support during my study in abroad.

Groningen,
August 20th, 2010

Ahmad Sardana

TABLE OF CONTENT

Abstract	ii
Preface	iii
Table of content	iv
List of tables	vi
List of Figures	vii
1. Introduction	1
1.1. Background of research	1
1.2. Research objectives	4
1.3. Structure of thesis	4
2. Literature review of transboundary forest management	6
2.1. Natural resources management across border	6
2.2. Issues in transboundary forest management	8
2.2.1. Ecological context	8
2.2.2. Socio-cultural context	9
2.2.3. Economic context	10
2.2.4. Politic and legal context	11
2.2.5. Institutional context	12
2.3. Institutional building for transboundary forest management	13
2.3.1. Multi-stakeholders on transboundary forest management	13
2.3.2. National framework of transboundary forest management	14
2.3.3. International cooperation for transboundary forest management	15
2.4. Planning process discussion on transboundary forest management	17
2.4.1. Pluralism and complexity in transboundary forest management	17
2.4.2. Collaborative and adaptive management in transboundary forest management	18
2.4.3. Participatory and multi-stakeholders in transboundary forest management	19
2.5. Concluding remarks	21
3. Research question and methodology	23
3.1. Research question	23
3.2. Research framework	24
3.3. Data collection	26
3.4. Research methodology	28
3.5. Scope and limitation of research	36
4. Borneo Environment and the Presence of Heart of Borneo Initiative	32
4.1. Borneo environment	32
4.1.1. Forest ecosystem	32
4.1.2. Biodiversity	34
4.1.3. Land use	34
4.1.4. Water resource management	36
4.1.5. Economic, social and cultural	37
4.2. Issues of Borneo transboundary forest	38
4.2.1. Deforestation	38
4.2.2. Illegal logging	39
4.2.3. Smuggling and cross-border timber trade	40

4.2.4.	Encroachment	41
4.2.5.	Poaching	41
4.2.6.	Forest conversion	42
4.2.7.	Oil palm plantation	42
4.2.8.	Forest fire	43
4.2.9.	Shifting cultivation	43
4.2.10.	Ethnic relationship	44
4.2.11.	Indigenous right	44
4.2.12.	Unintegrated spatial plan	45
4.3.	Heart of Borneo as a trilateral initiative	45
4.3.1.	Considerations	46
4.3.2.	Heart of Borneo's coverage area	46
4.3.3.	Heart of Borneo in the middle of existing international cooperation	47
4.3.4.	Concern aspects of Heart of Borneo initiative	49
4.4.	Forest governance under the Heart of Borneo initiative	50
4.4.1.	Brunei Darussalam	50
4.4.2.	Indonesia	52
4.4.3.	Malaysia	53
4.5.	Concluding remarks	54
5.	Institutional building for transboundary forest management	55
5.1.	Political and legal aspects	55
5.2.	Institutional framework and integrated planning system	71
5.3.	Key players in transboundary forest management	59
5.4.	Multi-sector cooperation in supporting transboundary forest management	63
5.5.	Coordination aspects and information management	64
5.6.	Financial support	65
5.7.	Public participation in transboundary forest management	66
5.8.	The need of capacity building	67
5.9.	Planning process discussions on transboundary forest management	68
5.9.1.	Pluralism and complexity in transboundary forest	69
5.9.2.	Multi-actors in transboundary forest management	70
5.9.3.	Adaptive management in transboundary forest management	71
5.10.	Concluding remarks	72
6.	Conclusion	73
6.1.	Summary of findings	73
6.2.	Reflection	77
6.3.	Policy recommendation	79
6.4.	Further researches	80

REFERENCES

LIST OF TABLES

Table 3.1.	Data required and sources	27
Table 3.2.	Stakeholder audit method	30
Table 4.1.	Main protected areas within the Heart of Borneo boundaries	36
Table 4.2.	The distribution of Heart of Borneo's coverage area in countries	55
Table 4.3.	HoB institutional framework of Indonesia	52
Table 5.1	Stakeholder involved and their stakes in Borneo transboundary forest management	60

LIST OF FIGURES

Figure 1.1.	Area of the Heart of Borneo initiative in Borneo Island	2
Figure 2.1.	Levels of transboundary forest management	15
Figure 2.2.	A continuum of collaborative forest management	19
Figure 2.3.	Conceptual framework of research	22
Figure 3.1.	Research framework	25
Figure 3.2.	Model for understanding institutional framework of transboundary forest management	29
Figure 4.1.	Forest covers change in Borneo Island	39
Figure 4.2.	HoB national council of Brunei Darussalam	51
Figure 5.1.	Institutional framework in Borneo transboundary forest management	57

Transboundary environmental issues nowadays have become essential matter to be discussed and learned because both of the importance of environment toward human life as well as the difficulties of environment management across national boundaries. There are aspects which restrain transboundary environment management such as sovereignty, legal and political issues, institutional constrain, financial aspects, ecological problems, socio-cultural constrains, etc. Those of constrain aspects and the following discussions to determine solutions have enriched viewpoints on environment management especially in cross-border areas, which become important aspects on environment planning discourse.

The instances of growing environment attention across national boundaries are obviously reflected in worldwide cases such as watershed and water resources management (Fox and Sneddon, 2007; Mamatkanov, 2007; Zuo Ting, 2001), biosphere and air pollution (Steinmetz, 2005), habitat and biodiversity conservation management (King and Wilcox, 2008; Trisurat, 2006; Petursson. et.al, 2006, Sharma and Chettri, 2005), natural resources management (Degorski, 2008; Harty, 2005), as well as in protected areas and forest management (Busch, 2008; Hanks, 2003). The growing concern of transboundary environmental issues is basically based on the nature of environment which could not be limited by political and administrative boundaries that will dissect environmental management administratively. This research is expected to contribute to the insight of transboundary environment management especially in cross-border forest context in terms of understanding current situation which will affect to transboundary collaboration, analyzing how institutional aspects in this transboundary collaboration, and how it correlates to the context of planning process discussion.

1.1. Background of research

One of the emerging examples of transboundary environment management is obviously seen in tropical forest area through the trilateral initiative of Heart of Borneo which involving three countries situated in Borneo Island that are Brunei Darussalam, Indonesia, and Malaysia. This initiative covering an area approximately 220,000 km² of equatorial forests in those three countries which are ecologically connected each other as Figure 1.

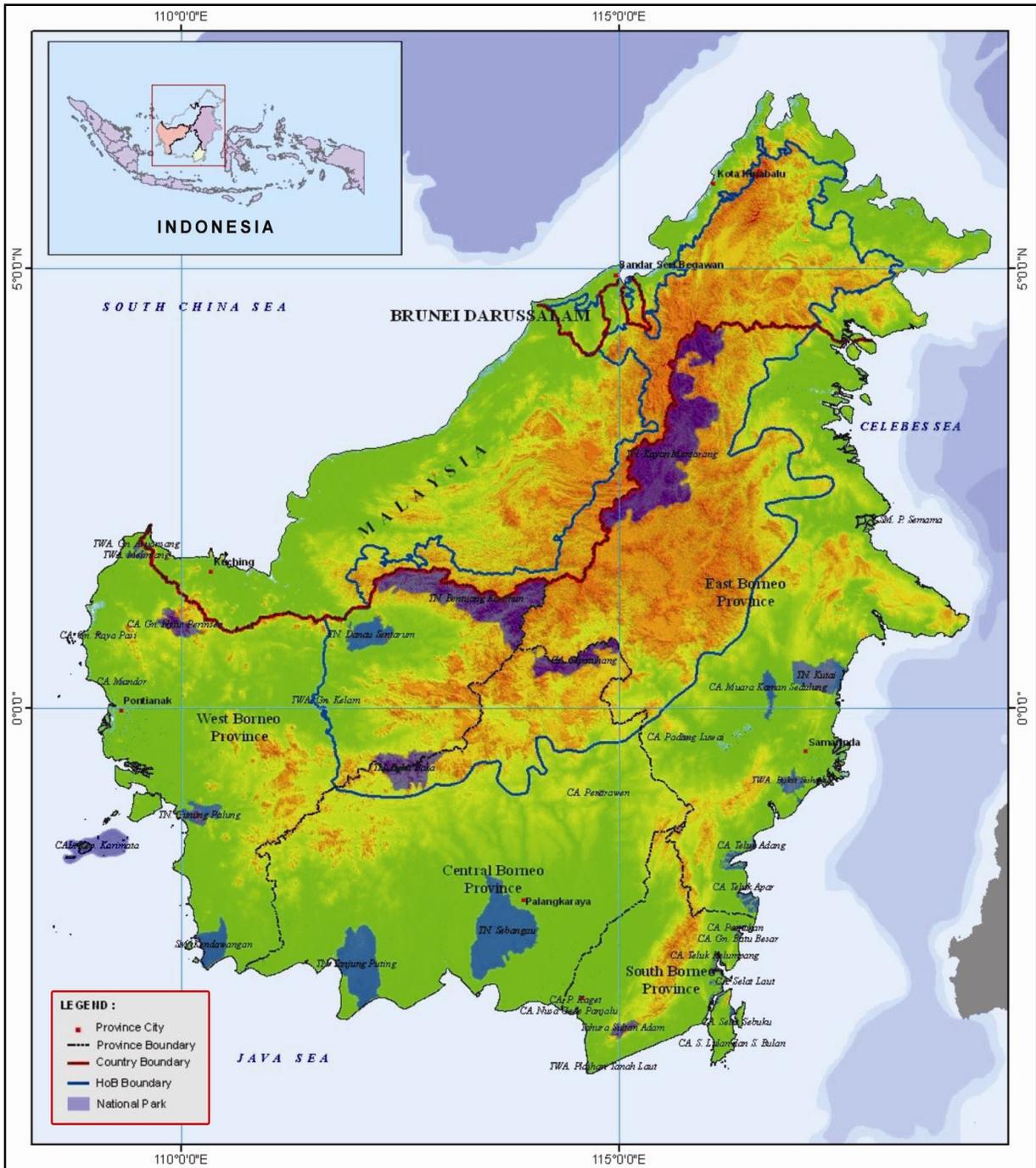


Figure 1.1. Area of the Heart of Borneo initiative in Borneo Island
 Source: Indonesian National Working Group HoB (2008)

The consideration of this strategic initiative is based on the fact that Borneo is the third largest island in the world after Greenland and New Guinea which is host of some of the most diverse and rich ecosystems on the earth. There are reported up to 15,000 different flowering plants and also more than 3,000 species of trees in this island which is 155 of these are endemic to Borneo (WWF, 2005). As well as flora, Borneo is rich in animal

habitat which some of that are endemic mammals. Most of the plant and animal species in Borneo could be found in forest habitats which are situated across these of three national boundaries, leading to the growing concern of transboundary forest management among these countries.

The importance of conserving this Borneo forest through Heart of Borneo initiative is also due to the fact that deforestation rate in Borneo Island is in worrying rate overtime. It is reflected that in the mid of 1980s, Borneo still covered by 71 percent forest and decreased significantly to 54 percent by 2000 (FWI/GFW, 2002 in Persoon and Osseweijer, 2008). Some of reports forecast that after 2010, all lowland forest in Borneo outer protected areas will be disappeared or fragmented (World Bank, 2001 in Persoon and Osseweijer, 2008; WWF, 2005).

By those considerations, Heart of Borneo initiative which was initiated in 2004 and formally signed and declared in 2007 brings to the understanding and cooperation to implement sustainable development of those adjacent forest areas. It is expected that this strategic initiative will be the collective framework of actions in each country due to the consideration of sustainable unity ecosystem. Although it is voluntary policy cooperation, it will encourage the members to be attractive in showing progress of forest conservation and proper forest uses management under the framework of Heart of Borneo initiative. There are still series of discussions on how to formulate the cooperation in practice and what kind of involvement of stakeholders in each country.

Above those understanding and cooperation among countries to be involved in this strategic initiative, there is something to be addressed and questioned in practical terms as well as in term of planning discourse. There are, indeed, problems and issues determination to identify appropriate cooperation and there must be tensions in planning discourse built in different arena of national circumstances, cultures, and political issues. Maintaining trans-national environment is not only considered about technical way of thinking but also socio-cultural and political way of thinking across border. As Patosaari (2003) mentioned that forest management across national boundary could not be based solely on a rigid demarcation or broken by nationality border line. It request political acceptance to cooperatively formulate such a joint environment planning which is very interesting to be analyzed in planning discourse.

There are many aspects could be scrutinized in joint cooperation of transboundary environment management because of differences in political and cultural circumstances among countries such as different key players and national institutional framework. As van der Linde, et.al (2001), there is no fixed blueprint approach for transboundary natural resources management since each transboundary situation has its own unique set of circumstances. All of differences in transboundary circumstances have consequences

in formulating integrated environment planning system as well as in case of Heart of Borneo initiative. Regarding to those of differences circumstances among countries, this research will successively analyze the current condition of forest management in each country and its influence toward transboundary forest management as well as how institutional arrangement settled in this trilateral cooperation. Furthermore, it is expected that this research will have valuable contribution in planning discourse especially in transboundary environment planning issues.

1.2. Research objectives

This research is aimed to analyze transboundary forest management in Borneo border areas under the framework of the Heart of Borneo with research objectives are:

1. Determining current situations and emerging issues of Borneo transboundary forest and how it implicates to transboundary forest management in those areas.
2. Analyzing the Heart of Borneo institutional building in managing Borneo transboundary forest.
3. Connecting issues of research analysis in terms of planning process discussion.

1.3. Structures of thesis

Content of this thesis are organized into seven chapters as describe respectively below.

Chapter 1. Introduction. This chapter explain the background of research and reason of why this research interesting to be carried out. Introduction of research is related to the growing concern of this topic which is enriched by some facts and figures of study area. There are also some reasons directing to some literatures which is important for planning discourse.

Chapter 2. Literature Review of Transboundary Forest Management. This chapter provides reviews of the relevant theoretical issues which support to this study. This chapter contains discussions on existing theories and practices of related issues around the world. This chapter is aimed at construction of theoretical framework of transboundary forest management issues as a basis to research analysis.

Chapter 3. Key Question and Research Method. This chapter addresses some key questions of this research extracted from background of research and followed by research method formulation. In this chapter also point out the scope and limitation of this research.

Chapter 4. Borneo Environment and the Heart of Borneo Initiative. This chapter successively explores detailed fact and figures of Borneo environment including the emerging issues. It is followed by the reviews of the presence of Heart of Borneo initiative as well as how forest governance in each country is run under the framework of the Heart of Borneo initiative.

- Chapter 5. Environmental Institutional Building of Transboundary Forest Management. This chapter provides analysis of facts extracted from chapter 4 which are supported by theoretical framework (chapter 2) in order to understand the problem as theoretical viewpoints. This chapter consist of several related aspects which is deeply analyzed and explored such as institutional arrangement including the framework, key players and their roles, and other related aspects such as financial support, public participation, capacity building, etc. In closing of this chapter, there is also part of planning process discussion related to this research especially about how planning discourse influence in this planning practice.
- Chapter 6. Conclusion. This chapter contains the results and recommendations of this research. This chapter gives a short conclusion of this research as well as further suggestion for policy recommendation and for the next sequence researches.

LITERATURE REVIEW OF TRANSBOUNDARY FOREST MANAGEMENT

The fundamental purpose of forest management is to secure the greatest continued values from the land allotted to forestry (Osmaston, 1968 in Singh and Moharrir, 2003). The main idea of well forest management is the provision of the maximum benefits to many people especially surrounding forest areas in sustainable way. In few last decade, forest management is tend to more than get a forest value but it become a dynamic process of maintaining wilderness area in terms of producing timber and non timber value and also conserving as much as its exploitation on the other hand. This increasing trend becomes broadly issues because of high pressure of increasing population surrounding forest areas in recent years.

Rosser (2005) determines that forest management nowadays is not simply cutting trees and replanting them to maximize the present value of their content but forest managers face multiple demands from public around the world as the homes of diverse species and other remarkable values. These issues are more intensively discussed in context of formulating certain policy of forest area which are situated across national boundaries and have more complex problems rather than common forest.

2.1. Natural resources management across border

Transboundary environmental issues have become the important aspects of cross-border wilderness management. International border areas generally contain some essential ecosystems in the world in which mostly are located in remote areas and relatively less supervised by the governments. The growing interest of transboundary natural resources management are broadly considered in managing cross-border natural resources area in last few years. Transboundary environmental planning and management nowadays should consider broad perspectives such as physical and ecological aspects, socio-economic and cultural aspects, legal and political aspects, financial aspects, and institutional aspects across national boundaries. Transboundary natural resources management as presented by van der Linde, et al (2001) is defined as any process of collaboration across boundaries that increase the effectiveness of attaining natural resource management or biodiversity conservation goals. As consequence, transboundary natural resource collaboration will only be success and bringing advantages if there is more effectiveness of goals achievement.

Although transboundary natural resource managements have great interest in recent years of maintaining natural resources across border, it is ascertained that this approach is not always become the most effective solution (van der Linde, et.al, 2001). In some cases, it would be better if the objectives are effectively achieved by internal action

within each country. There will be certain condition of which government should decide whether they should accept a transboundary cooperation or take actions solely in pursuing objectives considering their own ability and resources to do so. It influenced by how shared threats affect to the adjacent countries and whether transboundary natural resource management can be an effective solution to handle those of shared threats or not.

Consider to the definition of transboundary natural resource management, there are some principle aspects in applying this concept which are:

- It has to geographically across national boundaries and cover shared natural resources to be called as transboundary natural resource management.
- There is an active collaboration between countries which passed by transboundary natural resources areas
- There is increasing in the effectiveness of goals achievement and bring benefits for each country.

The importance of constructing collaboration through transboundary natural resources management is about an effort to ecologically re-connect the natural resources or forest landscapes broken by international boundaries and having possibilities to have different management of land use zoning and environment policy across borders. Patosaari (2003) explicitly stated that forest conservation cannot be based solely on a rigid demarcation between protected areas and all other forms of land use in particular forest use or broken by international border line. Protected areas should become part of an integrated landscape planning where the conservation of biological diversity, environmental services and other values are the main priority in the wider context of forest management in surrounding areas whereas international borders are more political boundaries perspective rather than ecological boundaries perspective.

In specific cases, transboundary natural resource management will become meaningful in managing conservation of such species which undoubtedly cannot be dissected by national boundaries as it is exemplified by jaguar conservation along US – Mexico border area consider to migratory routes and home range of species (King and Wilcox, 2008). It is important to consider that in the framework of species conservation, cross-border regulation is little bit difficult to be applied. Transboundary natural resources is also likely to be good approach for managing cross-border water resources as it is investigated by Fox and Sneddon (2007) and Zuo Ting (2001) in Zambesi and Mekong watershed between China and Laos. Focusing on transboundary forest management, it has also been analyzed by some researches such as Trisurat (2006) in Pha Taem Protected Forest Complex Thailand and Hanks (2003) in Southern Africa. It gives hope that transboundary forest management can be used for increase the effectiveness of forest management in Borneo Island border area under the framework of Heart of Borneo trilateral initiative.

2.2. Issues in transboundary forest management

High complexity of stakeholders involved in transboundary forest management showing that there are high variety of interests and expectations from all involved players. It will effectively lead to many issues which later become concern of all stakeholders to collaborate each other under the framework of transboundary forest management. Issues of transboundary forest management might be diverse from ecological aspects, socio-economic and cultural aspects, political and institutional aspects.

Considering many issues which are usually appear in managing transboundary forest, Petursson, et al (2006) asserts several perspectives to deeply understand about transboundary forest management in particular area. The thoughts behind transboundary forest management should be explored from an interdisciplinary viewpoint, emphasizing historical, socio-economic, managerial and environmental perspectives. These perspectives contribute jointly to the understanding of transboundary forest management on the area.

All of the issues and problems that emerge in transboundary forest management have to be identified and start to be overcome immediately to avoid cumulative impacts as exemplified by Harty, et.al (2005) in case of US - Mexico borderland. It was said that mitigation of transboundary cumulative impact is complicated by differences in each national standards and different enforcement of environmental law. It is also influenced by political condition between countries in which forest area are located. These parts below will explore the potential of emerging issues in transboundary forest management.

2.2.1. Ecological context

The purpose of doing transboundary forest management ecologically is how to get opportunities of maintaining connected ecological landscapes across borders which previously dissected by political borders and reducing transboundary threats in order to promote sustainable use of natural resources (van der Linde, et.al, 2001). This purpose can be achieved by always considering linkages of ecological landscapes in each of ecological treatment in transboundary forest management. It means that remedial action on one side should consider the impacts on the other sides of connected forest landscape. Identical case of transboundary forest landscape with ecological issue make transboundary forest management relied on ecological issues as the most concern of international organization.

Ecological issues of connected forest landscapes which are approached by transboundary environmental management could be reflected in case of agriculture encroachment, wildlife poaching, and forest fire in the Pha Taem Protected Forest Complex (Trisurat, 2006), deforestation and forest degradation in case of the Mt. Elgon

between Uganda and Kenya (Petursson, et.al, 2006), illegal forest product trade in Mekong watershed (Zuo Ting, 2001), biosphere conservation issue in Palatinat Forest – North Vosges between Germany and France (Steinmetz, 2005), and water resources issue in the adjacent countries of former Soviet Union (Mamatkanov, 2008).

Taking care of ecological issues in transboundary forest management should be careful because it sometimes is not merely about ecological aspects itself. It stands together with other related aspects even though the impacts of ecological aspects can clearly be seen physically then the other aspects. Restoration activities of ecological issues may take much time, efforts, and expenses which can be constrain for transboundary collaboration (van der Linde, et.al, 2001)

2.2.2. Socio-cultural context

Transboundary forest management is expected to bring social and economically improvement for all inhabitants living in surrounding adjacent forest area as well as maintaining culture and tradition stay on their original condition. Some of social and cultural aspects are severed by the presence of political boundary such as divided communities, broken of cultural ties, marginalized groups of people in border areas (van der Linde, et.al, 2001). Thus, transboundary forest management should consider to the facts that there are of communities living surrounding border areas and need to be involved as a part of transboundary collaboration. Taking local communities into account of transboundary collaboration will present such of opportunities like re-connecting cultural ties and legalize cross-border movement at tolerable intensity toward strengthening communities and increasing welfare and social life.

The presence of transboundary collaboration and socio-cultural issues are closely related especially in place where there are group of people who living surrounding border areas. Some of socio-cultural issues in transboundary forest management can be seen in case of cross-border of Mekong watershed which is crowded by illegal human migration across border, social marginalization, and poverty (Zuo Ting, 2001). Because of closest distance toward neighboring country, illegal migrations are believed as one of social aspects which generated by lack of supervision and the instance of social marginalization as well as poverty.

In case of cross-border trading, social and cultural linkages also take a part in a system and support its existence which some of that are illegal trade. This of trading are culturally happened in many of border area. Most of the products traded by cross-border market are agricultural and forestry products (Zuo Ting, 2001; Obidzinski, et.al, 2007). Urbanization will also become serious problem if it is happened out of control. Increasing of population will lead to the increase of demand for access which means there will be more areas to be occupied. This urban encroachment problem is also recognized as external threat for transboundary environment management (Kelsom and Lilieholm, 1999).

There were several enabling conditions of socio-cultural aspects in transboundary natural resources management proposed by van der Linde, et.al (2001) which covering wide opportunity of all related stakeholders to participate in the decision making and planning process, building trust among involved stakeholders, and considering common history, ethnic group, language, and tradition to enhance the success of transboundary collaboration at local level.

There was interesting example of socio-cultural integration between adjacent countries conducted in China and Laos border area by doing farmer to farmer exchange (Zuo Ting, 2001). The ideas was that conservation project should be integrated with sustainable rural development in which farmer to farmer exchange was previously shown as practical model of rural development of ethnical group in those cross-border areas. Sharing of experiences and skills are very important in practical for those ethnic who had separated by political border. It shows that collaboration in reality can be practiced at lowest level which sometimes has long lasting period rather than political agreement in higher level.

2.2.3. Economic context

Economic issues are always closely related with transboundary natural resources management. As it is mentioned by van der Linde, et.al (2001), economic reason will drive to such issues like exploiting natural resources in opposition to natural conservation, illegal cross-border trading and movement of people, goods, and money by ethnical groups against national income and sovereignty. Culturally, the lacks of supervision in border areas which many of that are located in remote areas and less developed causing people to behave so for economic reason.

By transboundary collaboration, adjacent countries have an opportunity to increase economic development for border area and people who living surrounding its area and keep maintaining for natural resources sustainability. It can be achieved, for instance, through developing transboundary regional economic such as nature and cultural tourism across border (van der Linde, et.al, 2001) and cross-border plantation (Zuo Ting, 2001). Furthermore, allowing private sector partnership to develop border areas are also become key issue to increase transboundary collaboration effectiveness with full consideration sustainable ecosystem in border areas. In case of involvement of private sector partnership, government should endorse through sets of easiness and conducive environment for private sector to invest in border area as well as to make such a trading activity under the applied law. Government Menghai County, for instance, has been practicing this collaboration in transboundary watershed management by applying pilot tea plantation and rice extension, sugarcane plantation, and rubber plantation (Zuo Ting, 2001)

2.2.4. Political and legal context

Kelsom and Lilieholm (1999) specifically pointing on political and legal environment as a key issue of transboundary natural resources management. The consideration behind is that the complexity and uncertainty of issues has led to conclude that transboundary environment management need some explicit support of law. The expression of law as a supporting tools toward transboundary natural resources management might be vary from one case to another. It needs some mutual understanding from adjacent countries to cooperate each other and legalize their cooperation as a law or agreement.

This multilateral cooperation usually appears as an important mechanism for managing transboundary natural resources. Politically, this international cooperation lay down some important basis for implementer to move forward in practice as the purpose of cooperation. It will bind members of international cooperation to take action accordingly as exemplified by the Mekong Agreement which regulate the equitable utilization of Mekong and Zambesi river basin under the UN Convention (Fox and Sneddon, 2007). This international agreement promotes a specific geo-political and environmental discourse because of widespread of the impact toward environments as well as political aspects.

Even so, some of international cooperation has chosen to collaborate without legally binding each other and tends to be a voluntary cooperation such as Heart of Borneo initiative in Borneo Island (Persoon and Osseweijer, 2008). Decision to blend each other into legally binding or voluntary cooperation might be influenced by the degree of complexities and the scale of impacts which will affect directly to the communities in other sides of connected landscape. It also depends on the willingness of government to take part in collaboration to cope these shared threats.

This political will of government to contribute jointly in transboundary environment management is also interesting point to be discussed. In some cases, government of member country is reluctant to give or receive such punishment in term of environmental violation. It will not so easy to ensure government to take part of transboundary environment management regardless what the benefits are. Political will and long-term commitment are essential for successful transboundary natural resources management (van der Linde, et.al, 2001). Good international political relations will also become opportunity in doing transboundary cooperation as it is become concern in the Pha Taem Protected Forest Complex in which some cooperation was achieved under some uncertainties (Trisurat, 2006).

Political issues also include improving security in border areas and enhancing transparency and accountability of natural resources utilization as it is emphasized in case of Longitudinal Range – Gorge Region, China through transboundary eco-security issue (DaMing, et.al, 2007). It involved series of securities of national territory as well

as environment due to the close linkage of both of them. Combined with national sovereignty as important parts of national eco-security, thus transboundary ecology is a sensitive issue. It is the result of increasing economic competition for transboundary natural resources which lead to the growing concern of international agreement on transboundary issues.

International agreement is also foundation for social construction of sovereignty in which generates the institution of international law. On the other hand, international law also supports the practice of sovereignty (Fox and Sneddon, 2007). Through international agreement, citizens will express their sovereignty in which they will behave on behalf of their nationalism in transboundary cooperation. It is also become their expression of autonomy upon their country.

2.2.5. Institutional context

Issues of institutional condition on transboundary environment management can widely be identified in terms of international and national institution. International institution as external factor might be involved as a driving factor for national institution to work collaboratively in achieving certain shared objectives. International institution can be constituted as international societies, NGOs, donors, or other multilateral initiatives through such of treaties, conventions, directives, or agreements (Degorski, 2008). Whereas, national institution condition might have more complicated situation because of many problems such as so many stakeholders and unidentified actors involved, lack of government capacity, shortage of information and communication (van der Linde, et.al, 2001; Trisurat, 2006, Zuo Ting, 2001).

Related stakeholders can be managed by carefully identifying who and what are their roles as shared responsibility in transboundary collaboration even though not always easy to recognize all actors who present in transboundary management especially at local level. Limitations of government capacity especially at local level are also always present in transboundary environment management as case in the Pha Taem Protected Forest Complex between Cambodia and Laos's local government (Trisurat, 2006). It sometimes becomes the weakness point of transboundary collaboration in which central government reluctant to give bigger responsibility to local government while it is broadly expected that transboundary collaboration should empower communities and institution at lowest level. In case of information and communication shortage, it is such of transboundary institutional constrain on behalf of false sovereignty in which government keep their information intentionally for any reasons. They may not be willing to share it, especially on crucial issues (van der Linde, et.al, 2001). This problem should also be considered in making transboundary collaboration.

The perennial problem of transboundary institution at local level is also about authority limitation since transboundary issues are diplomatic issues which should be solved by central government (Zuo Ting, 2001). The same issue is offered by DaMing, et al (2007), mentioned that central government should take care of this transboundary environment problem as diplomatic issue while they also face specific and unique local issues in decision making which are better known by local government. The best practices and long lasting solutions in reality are, indeed, involving local government and community to participate in joint transboundary collaboration rather than central government's agreement which prone to change due to political situation (van der Linde, et.al, 2001). This will be mean for giving bigger responsibility to local stakeholders and directly involve in decision making at lowest level.

2.3. Institutional building for transboundary forest management

Forest management issue is the instance of transboundary natural resources management in which many of adjoining cross-border areas are located in remote areas and some of those are covered by forest areas. Inside of transboundary forest, there are many natural resources management practices across national boundary which reflects transboundary environment thoughts. As defined by the World Bank, transboundary protected areas as part of forest management is relatively large areas which straddle frontiers (boundaries) between two or more countries and cover large-scale natural systems encompassing one or more protected areas (Petursson, et.al, 2006).

Recently, there are growing interests in the construction institutional building of transboundary forest areas, for varieties of environmental, social, economic and political reasons, especially the need for more effective management of fragmented ecosystems. It is emerge because there are increasing pressures on biodiversity and other values of forest area which nowadays and in the future become an expensive value. Transboundary forest management has been applied in some adjoining counties (Trisurat, 2006; Hanks, 2003; van der Linde et.al, 2001). There are some aspects to be considered in constructing institution for transboundary forest management, mostly about the framework and the actors inside, as it is explored below.

2.3.1. Multi-stakeholders on transboundary forest management

Collaboration of transboundary forest management will increase the degree of complexity in terms of stakeholders involved. Focusing on the wide range of stakeholders in transboundary forest management, it diverse from local to national and from national to international level. Each of stakeholders has their own role to ensure the successful of transboundary forest management. This presence of multi-stakeholders reflects the high interest of transboundary forest management and there are shared goals to be achieved as well as shared threats to be handled by ensuring sufficient participation of stakeholders.

In case of diversity of stakeholders involved in forest management itself, Purnomo, et.al (2005) conclude that there are actors, entities, and organizations among local community living close to the forest in which empowering local community in managing forest through participatory approach and will be meaningful to reach the goals. Knowing the range of actors in the beginning of constructing transboundary forest management is very useful to distribute shared responsibility. It was also described in Purnomo, et.al (2005) that to implement a participatory approach in forest management, there are several tasks have to be carried out such as identifying the relevant stakeholders who ultimately bring impact to the forest, determining roles of stakeholders properly, understanding behavior of stakeholders as they perform their purposeful action, and considering interaction among stakeholders in forest management.

In line, van der Linde, et al (2001) also emphasize how important to define and clarify the players and their roles. The reasons behind are to develop an internal understanding of roles and their stressed efforts and also to avoid any overlap of responsibility. It further is stated that roles of stakeholders are not always fixed and may change over time which is complementary each other because transboundary management is a dynamic process. Thus, identifying actors and their roles involved in transboundary forest management is deal with the wide spectrum of multi-stakeholders. The need of understanding this stage is to manage probable tension between stakeholders and between nations.

Interesting point of the emergence of multi-stakeholders within nation is sometimes about government capacity. Limitation of governments either national or local level to meet with all of demands and the way how to collaborate between nations are being concern of international organization. So that involvement of a wider range of actors, especially those who come from beyond the government, should also be taken into consideration (Aswandi, 2006). This kind of actors could be NGOs, donors, or other international initiatives.

2.3.2. National framework of transboundary forest management

Most of stakeholders in transboundary forest management are involved under the circumstances of national system. Each of countries has their own system of national forest management. It is about how appropriate solution should be done in their forest areas as their local knowledge of environment. Although almost all of transboundary forests have similar physical condition but they face different condition of social-economic and political circumstances. There are various possible ranges of stakeholders in transboundary forest management within national system. It is diverse in national, regional, or local level. Each level will probably have their own authority of certain

responsibility. Beyond government, there are also external organizations such as NGOs, universities, as well as communities living in surrounding forest areas. Huge number of players on transboundary forest management within national framework will have possibility to inefficiency to reach the goals.

The key of efficiency in achieving the goals within national system is shared responsibility among levels and among players. National framework of transboundary forest management should clearly divide this shared responsibility into national level and local level. Shared responsibility should also consider to capacity of each level in supporting transboundary forest management. It is because capacity of government and weak national structure frequently become constrains for creating strong transboundary forest management (van der Linde, et al, 2001). It is also said that transboundary forest management is sometimes constrained by government's narrow forest management approach.

Comparing each national framework of transboundary forest management, it is not ideally comparable because it sometimes contains different range of level between countries. It has possibility that not every level exist in every country. Otherwise, the same responsibility will probably be taken in different level of stakeholder between countries. Same level of government is not always mean same level of responsibility and same degree of empowerment. It sometimes does not correspond each other as illustrated in figure below.

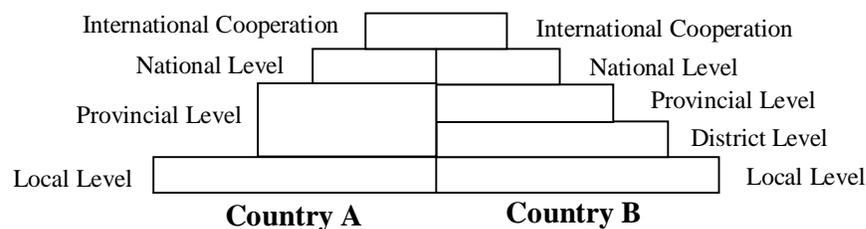


Figure 2.1. Levels of transboundary forest management
Source: Modified from van der Linde et.al (2001)

It is very important to determine and understand each national system of forest management before moving forward to transboundary cooperation. It, at least, will very helpful to map stakeholders involved, their roles, their presence in the level ladder of transboundary forest management and also their responsibility.

2.3.3. International cooperation for transboundary forest management

Trisurat (2006) obviously stated that among several threats of effectiveness in transboundary biodiversity conservation is about international relations. Managing cross-border natural resources such as forest areas will request high degree of cooperation. It must be need some similar understanding of the importance in doing

transboundary forest management as well as mutual benefits and threats of this international collaboration. Maintaining international relationship toward mutual purposes of natural resources management will be valuable in conducting transboundary forest management. It is something that always becomes concern of international collaboration for transboundary forest management.

This is one of the reasons why external organizations sometimes appear in transboundary forest management. Beyond national system of forest management, there are international concerns of many purposes such as conservation, social-economic, and culture through NGOs, donors, and other international initiatives. Their roles in constructing international trust and eliminating misunderstanding between adjacent countries are very expected. The need of the presence of international organizations or donors for transboundary collaboration could be reflected in the Pha Taem Protected Forest Complex case by ITTO (Trisurat, 2006), nature conservation of Polish – Germany borderland by WWF (Degorski, 2008), World Bank in transfrontier conservation in Mozambique (World Bank, 2004), ICIMOD in transboundary biodiversity management in the Hindu Kush-Himalayas (Sharma and Chettri, 2005), Peace Park Foundation (PPF) in transfrontier parks of Southern Africa (King and Wilcox, 2008), as well as in Borneo Island for this case through Heart of Borneo initiated by WWF (Persoon and Osseweijer, 2008)

Substantively, international cooperation should be constructed relied on each national forest management system. Considering the sovereignty of countries involved and appropriate solution for their environment, transboundary forest management should not replace the national forest management. It should be an extension of national resource management (van der Linde, et.al, 2001). Transboundary forest management will not be success if each national forest management does not work. It may need some adjustment for transboundary initiative to deal with each national forest management and to blend for working collaboratively.

Some countries have applied policies and strategies towards transboundary forest management. However, sometimes the implementation and enforcement of these policies and strategies are imperfect which trigger poor forest management in particular area. Insufficient coordination of institution in charge in adjacent forest area, inappropriate implementation strategies, lack of political will and financial capability and worse human resources are widely identified as the major reasons for the failure to achieve transboundary forest management goals in adjacent countries. At this point, the appearance of international initiative is expected to bridge national forest management as well as support for international objectives.

2.4. Planning process discussion on transboundary forest management

High attention in transboundary natural resources management around the world has led to the reviews of many perspectives toward its implementation. Wider perspectives of transboundary collaboration reflected in diverse issues as reviewed before, are interesting to be connected to the planning discourse especially to deal with the interaction in decision making and planning process. Some of aspects could be reviewed in planning discourse such as the emergence of complexity of problem, different value of interest as well as huge number of stakeholders involved. This planning discourse has been criticized by some literatures (Rosser, 2005; Wang and Wilson, 2007; Wollenberg, E. et.al, 2005; Bebbington and Kopp, 1998; Rishi, 2007) in different contexts and need to be connected in context of constructing transboundary forest management under Heart of Borneo initiative, as viewpoints below.

2.4.1. Pluralism and complexity in transboundary forest management

Shifting perspective of forest management nowadays from simply cutting and replanting trees toward high diverse of forest values and environmental services has changed the way of thinking in forest management turn to accepting dynamic condition within forests environment (Rosser, 2005; Wang, 2004). Thus, the huge numbers of forest values and environmental services especially in trans-border areas bring to the high interest toward forest ecology with interconnected aspects such as economic aspects, ecological aspects, social and cultural aspects which are very dynamic and prone to conflicts. How complex the transboundary forest managements are, can be reviewed from many conflicting interest toward the existence of forest resources as common goods (Wadley and Eilenberg, 2007; Rishi, 2007; Ngece, et.al, 2007). There are complex interaction among multi-stakeholders such as governments either national or local level, private and business sectors, conservationist, academician and researchers, NGOs and, commonly, there are also neglected local communities who hardly can access such forests in their surrounding living areas. Each of those has their own interest toward the same common good which carry to the complex and dynamic condition of forest use. Thus, taking attention of interest interactions and collective values in trans-border areas are very important in constructing transboundary forest management approach.

In line, considering collective values in forest management has also become new paradigm of governing forest practices (Wang and Wilson, 2007). It is conscious choice of complex actors as well as interests and it is deal to the dynamic condition of transboundary forest management which has to accommodate plural strand of multi-stakeholders involved. Since pluralistic nature has been widely accepted in sustainable forest management (Wang, 2004; Bebbington and Kopp, 1998), the policy framework thus turns to the collaborative forest management and accommodating multiple interest of forest use (Rishi, 2007; Wang and Wilson, 2007) and leads to the foundation of

pluralistic perspective in forest management. Accordingly, the complex conditions in transboundary forest areas need some approaches which respect to the pluralistic nature and multiple interests toward sustainable management. The plurality of forest management, at least, can be seen in three perspectives (Wang and Wilson, 2007), which are plurality in products and services it produces, plurality of how forest are managed, and plurality in the decision making and participation process. Those are explicitly connecting the aspects of who (actors), how (management), and what (products/environmental services).

On the other side, how pluralism can be helpful to understand forest management are appeared by Wollenberg, et.al, (2005) through describing the differences and determining principles for handling these differences. In practical ways it could be, for instance, identifying interest groups, acknowledging customary norms and laws, involving as many as stakeholders and interests. The key success of implementing pluralistic approaches in forest management, therefore, depends on the capacities of involving stakeholders to recognize each other, to understand the multiple interests, and to build relationship each other. In transboundary context, forest managements are generally coloured by lack capacity of local governments and local communities who typically are marginalized by development strategies. At this point, transboundary collaboration is needed to deal with the facts and bridging multiple interests and stakeholders build upon the principle of pluralism in trans-border forest.

2.4.2. Collaborative and adaptive management in transboundary forest management

Forestry governances are typically designed apart from the understanding of pluralism and problematic to handle multiple values of forest (Wollenberg, et.al, 2005). Centralized and technical decision-making, large-scale and conceptual planning and sometimes rigid bureaucracies have made it become hard to cover the complexity of forest management in transboundary areas. The presence of collaborative approaches with respects to the pluralism and complexity through participatory processes, community forestry and devolution schemes acknowledge the differences among stakeholders (Wollenberg, et.al, 2005) as being weak point of centralized forest governance.

Thus, collaborative in forest resource management is a process which involves people to explore their differences and common aims, seeking for a plan which is agreed by all parties (Petheram, et.al, 2004). The development of collaborative in forest management especially at local level is surely influenced by the support of government and other competent institution. At this point, government have strong role in encouraging collaborative management to be settled as the decision-making organ. Government need to have political will to loosen their planning intervention at local level and sharing to the communities to lead the planning process and deeply involve decision making

process as it is shown in Figure 2.2. There must be grey area of planning process continuum in which government and local communities can work collaboratively and alternately on certain parts depends on the beneficiary of collaboration. If communities stand as passive beneficiary, then governments have strong roles to lead and point the direction of collaboration through formulating such agreement and regulation while communities have part as implementing agencies in the field.

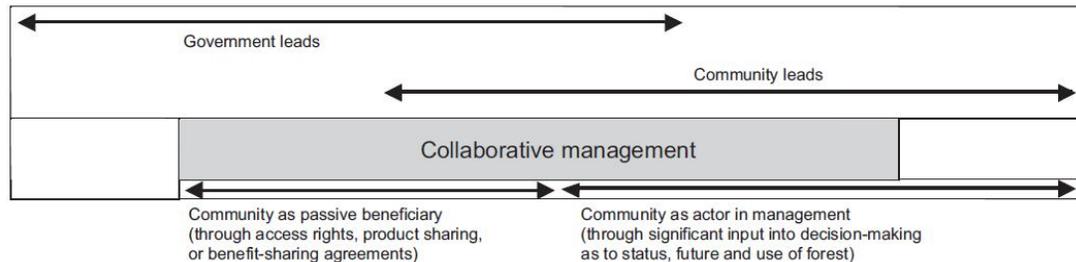


Figure 2.2. A continuum of collaborative forest management

Source: Dubois and Lowore, 2000 in Petheram, et.al, 2004

Furthermore, adaptive management is also believed as an appropriate way to deal with the complexity in transboundary forests. Agrawal (2000), for instance, mention that adaptive management is potential complement in recent trend of protected areas management in transboundary context which it becomes common to involve local communities. Similar argument is also raised by van der Linde, et.al (2001) who pointing out that adaptive management is essential part of successful transboundary natural resources management. The thing that becomes consideration is emphasized on how adaptive management can increase the effectiveness of transboundary forest management among countries. Of course, if there is no significant increase on effectiveness, then the presence of adaptive management is nothing. Critically, it can be detailed down into the field where adaptive management should involve and where field should not involve. It might be back to the field where communities stand as active or passive beneficiaries and the field when communities have strong role as actor in transboundary management, like drawn in Figure 2.2. It mainly will work at lower level of transboundary collaboration when local communities are encouraged to enrich perspectives through adaptive management.

2.4.3. Participatory and multi-stakeholders in transboundary forest management

Greater opportunities toward participatory of local communities around transboundary forest are essential to promote collaborative as well as adaptive management. Since it is generally believed that collaborative and adaptive management are the important part to increase effectiveness in doing transboundary forest management (van der Linde, et.al, 2001; Agrawal, 2000; Wollenberg, et.al, 2005), thus giving a bigger chance for

communities to participate in decision making process is an option that must be considered by governments. In context of constructing transboundary forest management, encouraging participation of local communities is an option to empower forest governance at local level. It is believed, as van der Linde, et al (2001) said, that it is best to work at the lowest possible level of transboundary cooperation, because bottom-up approach has the greatest chance of resulting in participation and involving the sense of belonging which come along to the process of transboundary cooperation. This valuable participation is usually appear in local level and tends to be long lasting rather than in higher level which is sensitive to political intervention and can change overtime.

The challenge appears when there are diverse ranges and interests of local communities and stakeholders who expected to give bigger participation in decision making processes. It can obscure the participation processes in which less empowered group of people might be ignored from decision making processes. Thus, it is important for government or other institutions, usually NGOs, to facilitate participation processes toward establishment of participatory forest management. Wood (2007) implies that focus of giving participation is only allowed for group of people or stakeholders who support the establishment of participative forest management in their way to achieve their interest, while on the other hand, it is sometimes complicated and driven by private groups such as agricultural settlers, loggers, or investors who potentially can shape the opinion of participation processes.

The presence of these multi-stakeholders in participatory forest management in transboundary areas will also increase tension in trust building of participative processes toward common pool especially between local communities and external actors (Negassa, 2007). Thus the effectiveness of transboundary forest management will also be affected by how decision processes should be clear, transparent and accountable to all involved stakeholders. At this point, the strong role of governments or other institution who act as facilitator is very important to maintain participative processes and achieving shared goals. Futhermore, multi-stakeholders processes essentially are means of actions in which two or more interest group provide their views on certain problems and make decision or coordinate activities together (Wollenberg, et.al, 2005). It is such of effective way to share diverse knowledge from interest group to build collaborative and adaptive management. Toward cross-border forest context in which transboundary collaboration is expected at local level, problem might appear not only about the presence of multi-stakeholders but also about the different circumstances of culture and political in member countries. It is emphasized that this different context should be taken into account to get general understanding of building transboundary collaboration.

2.5. Concluding remarks

Successive issues which are raised in this chapter attempt to give general insight of transboundary forest management before moving forward to the detail of Borneo context as an object in this research. As an ending, those of reviewed issues need to be wrapped up on how it relates and intertwines each other. There are transboundary forest management principles and thoughts from various literatures, institutional arrangement understandings, and various contexts of transboundary forest management which is connected each other as proposed diagram shown in Figure 2.3 as conceptual framework.

Transboundary forest management thoughts itself consist of several principles based on the nature of cross-border natural resource management which are cannot be dissected by political and administrative boundaries. Thus the thoughts are that there should be geographically across border and cover shared natural resources, there should be some active collaborations between member countries in which both countries actively involve and encourage the performances of transboundary collaboration, and there should be significant increase of effectiveness in achieving shared goals and bring benefits for each member countries. Those principles are become underlying concepts of analyzing transboundary forest management in this research.

Paying attention on forest governance and institutional arrangements in context of transboundary forest management, it will be criticized in terms of who (actors) and how (relationship) as Figure 2.3. Who actors involved are ranges from local to national level and international level with their embedded interests while how relationship among actors can be reviewed in context of national and international framework. National forest governance framework might be consists of several levels of governance in which they might be hierarchically collaborate each other while international framework mainly focus on political agreement between countries with probable supports from international organization.

On the diagram, it can be seen that the stand of institutional arrangement in transboundary forest management is correlate with many issues and different contexts surrounding its areas, and it cannot be held apart from the existing context. It always correspond each other in which how transboundary collaborations built are depend on the circumstance of each member countries. Different circumstances of cultural and political in each member countries can effectively shape the expression of international collaboration. The prominent existing issues of cross-border forest will also influence the type of international cooperation for example, in this context, are defined as ecological issues, socio-cultural issues, economic issues, politic and legal issues, and institutional issues. The stressed thing is that how important of different circumstances between members countries should be carefully considered in making transboundary forest management.

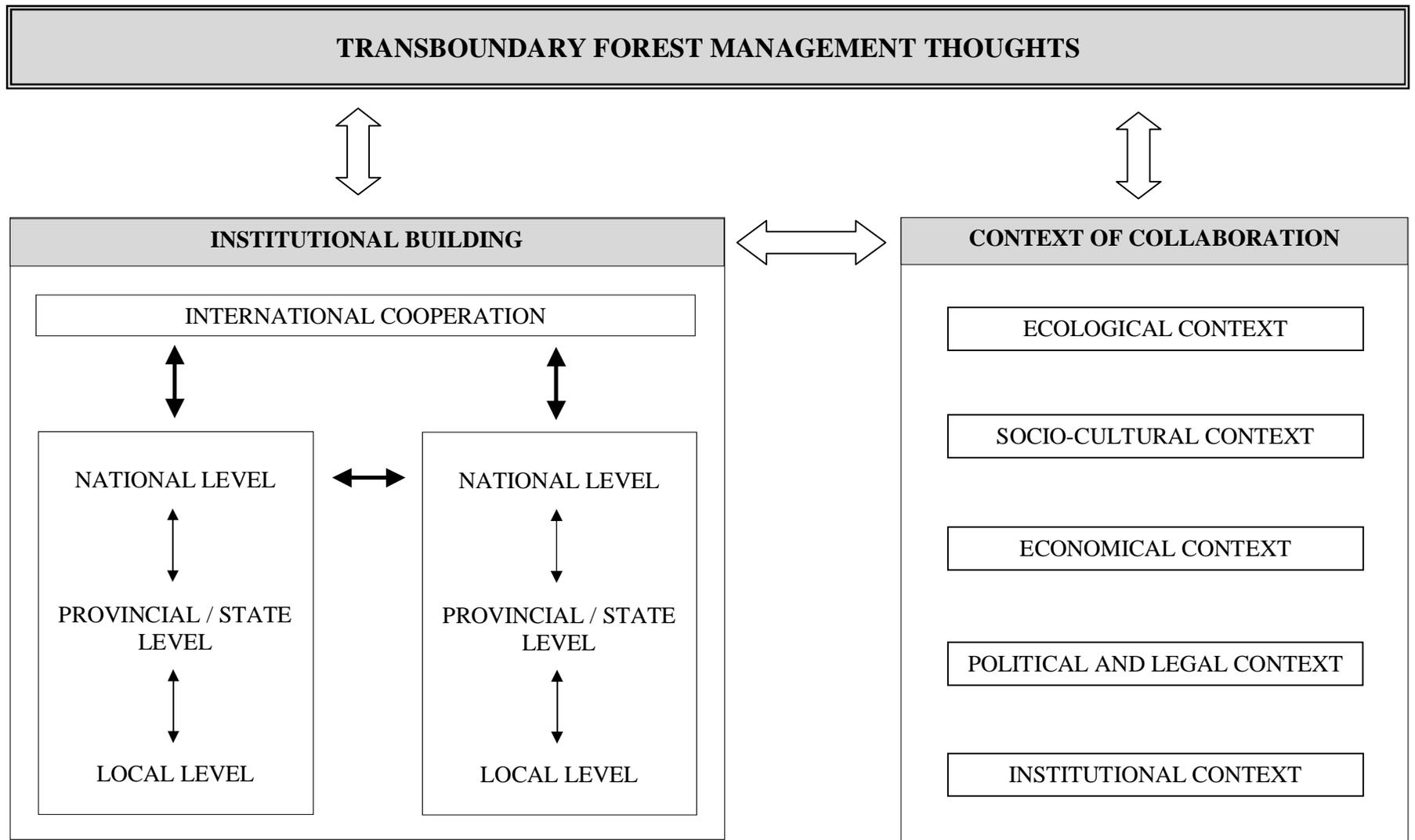


Figure 2.3. Conceptual framework of research

RESEARCH QUESTIONS AND METHODOLOGY

Formulation of this research question is initiated by an attempt to understand the whole current situations exist in these border areas and why this trilateral initiative is needed to be developed in these areas. Understanding the current situations and existing issues are the important things in conducting this trilateral cooperation. It could shape the kind of policy making and type of action plan they will construct. Afterward, institutional aspects become emphasis to be scrutinized in this research because it influence to any kind of policy and action plan they will make. Comprehending this institutional building is essential to be carried out because institutional building either in formal or informal manner will always appears at any formulation of policy and plan. It leads to the importance of determining some aspects in institutional viewpoint.

In this chapter, it provides sequential of research processes to the reader started by research questions, framework of research, data sources, research method formulation as well as limitation of this research. This chapter also becomes guidance in conducting whole processes of research and how it links to each other.

3.1. Research question

There are some questions proposed in this research according to those of considerations. The main question is about existing condition and institutional building which are respectively detailed as below.

1. *What are the current situations and emerging issues of transboundary forest in Borneo border areas and what are the implications for transboundary forest management in those areas?*

It discusses about how current situation influence in further decided agendas and plans. This question will be answered in order to determine certain conditions exist in border areas and how it implicates to transboundary forest management. There are some important issues which are generally known causing environmental problem in Borneo border area. Those of existing issues and its influence toward transboundary forest management will be respectively analyzed in this research.

2. *How does the institutional building of Borneo transboundary forest exists under the framework of the Heart of Borneo initiative?*

This question have emphasize on all form of institutional arrangement in each country in managing transboundary forest whether in formal or informal manner. The object of this question could be government institution, organization, NGOs, as well as communities. The sub questions of this main question are:

- a. *How does the form of institutional framework and legal aspect in this transboundary collaboration?*

It reviews the institutional framework of each country in this trilateral collaboration and related aspects which support to the form of institutional framework as well as political and legal aspect in for this trilateral collaboration.

- b. *Who are the key players in Borneo transboundary forest management and what are their roles?*

Determining key players are the important things to be started in conducting institutional analysis in this research. This question will lead to depict the whole current situation of involved stakeholder in managing transboundary forest and also recognizing their roles in this planning arena.

- c. *How do other aspects support to the implementation of the Heart of Borneo initiative?*

This question initiates to review all of related aspects in supporting the establishment of this transboundary collaboration such as the presence of multi-sector stakeholders, coordination aspects of this collaboration, as well as financial aspects to support this transboundary collaboration.

- d. *How are public participation accommodated in this transboundary collaboration?*

It highlights the presence of local communities living in surrounding border area toward the establishment of the Heart of Borneo whether there is enough opportunity for local communities to be involved or not. It is also highlights the need of capacity building to empower local government and local communities as a host of this transboundary collaboration.

3. *How do planning debates help account for and explain transboundary forest management in these border areas?*

This question is mostly addressed to the academic thinking of how planning debate appear at any planning arenas including forest management planning. In case of this research, it will be connected of what kind of planning issue comes out and involve in this planning arena.

3.2. Research framework

This research framework is formulated based on research objectives and aimed at answering all of research questions proposed. This research framework is composed regarding to the need of conducting this research which is separated into three phase of research process that are inception phase, analysis phase, and reporting phase. Each of phases is detailed to show the content of each as a clear guidance, as Figure 3.1.

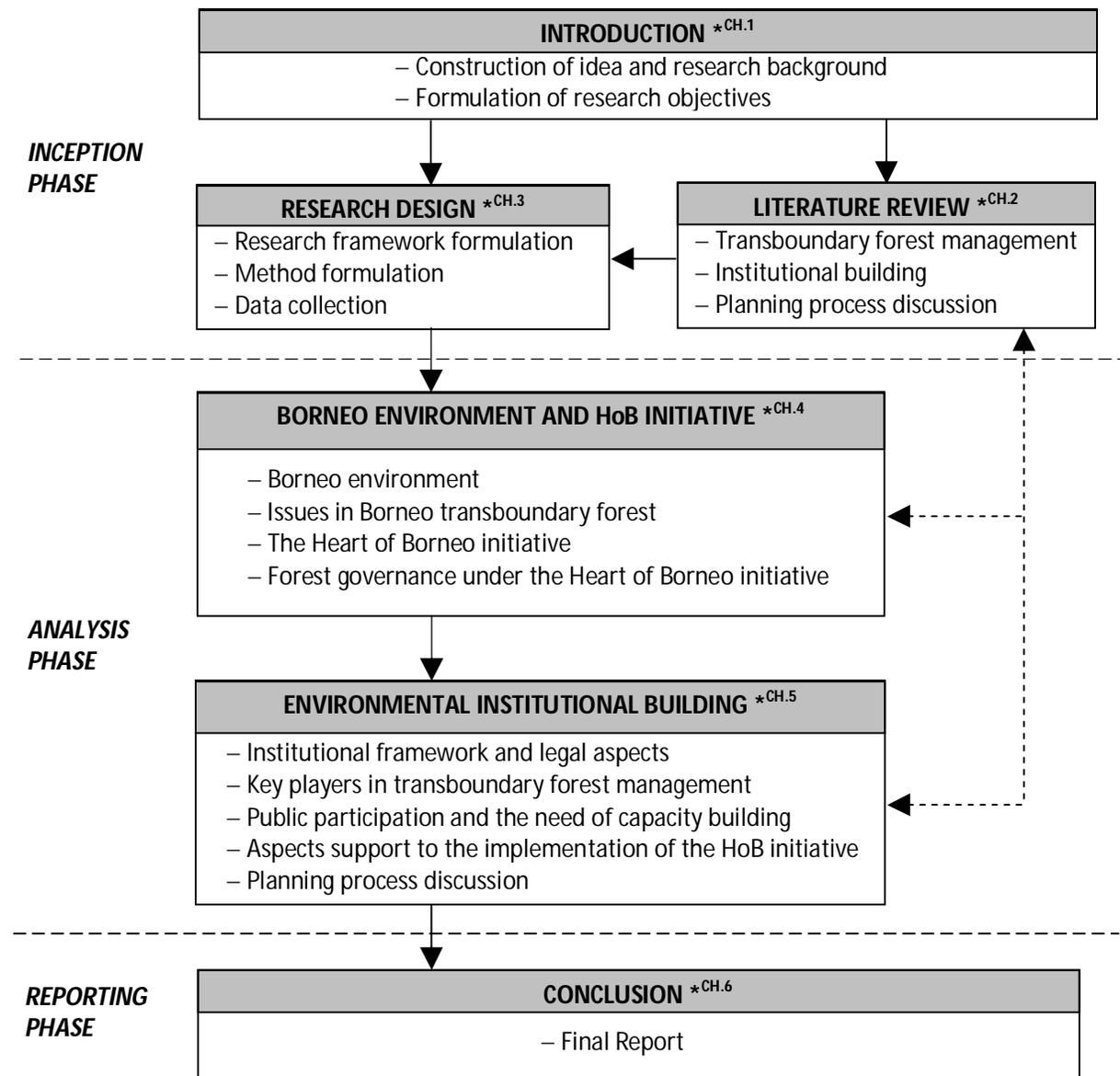


Figure 3.1. Research framework

This research is started by elaborating background of research in inception phase and why it is important to be analyzed. There is some information to support the need of research on this topic which is concluded by formulating certain objectives. The content of this introduction will be chapter 1 of this research. This chapter is used to construct research design which consists of research framework formulation, data requirement and how to gather such data, and also method of analysis which are written as chapter 2 of this research. In this inception phase, it is also conducted some review of literature to construct certain theoretical framework which connected to the topic. There are three main viewpoints of literatures which are reviewed as basis of doing this research and meant for theoretical construction, that are about transboundary forest management as

an environment management concept of making cross-border plan with some potential emerging issues and experience example around the world, about some important aspects of institutional building for transboundary forest management, and about what kind of issues in planning process discussion appear in this planning arena and how it contribute to planning debate. This literature review will be chapter 2 and used for guiding the analysis in respective chapters.

The next phase is about analyses phase of this research which is separated into three parts based on research objectives stated. Firstly is about understanding current situation in Borneo border areas and leading to determine of issues in making transboundary forest management. Each of those will be analyzed and connected to how it implicate toward transboundary forest management. Futhermore, it is also reviewed about the presence of the Heart of Borneo initiative in the middle of existing issues in transboundary forest. This part is expected to answer the first research question which is written as chapter 4 of this research. Second analysis is about evaluation findings which consist of determining institutional framework, analyzing key players and their roles, highlighting public participation, and analyzing other important aspects in institutional building for transboundary forest management such as the involvement of multi-sector stakeholders and financial support for this collaboration. This analysis is expected to answer the second research question which will be chapter 5 of this research. Finding analysis in this chapter will also be connected to the planning process discussion. There are some issues to be evaluated in this planning discussion chapter such as complexity in transboundary forest, adaptive management in transboundary forest, as well as multi-stakeholders participation in transboundary forest management. This analysis is expected to answer the third research question as a part of chapter 5.

The last phase is mainly about reporting all of research processes and its result. There will be some conclusions of findings and result of analysis as it is desired in the first chapter as well as suggestion for policy recommendation and for further researches. By this chapter, reader can get the general answer of research question raised in this research.

3.3. Data collection

Since this research is intended to analyze transboundary forest management in trilateral cooperation, it needs data either from secondary data or through efforts to reach contacts in those countries. Secondary data to be used are acquired from many sources such as books, journals, articles, publications, etc while official documents are gathered from national governments through contact persons or official sites as well as through Heart of Borneo secretariat. According to research objectives, these kinds of data and its sources can be indicated as below:

Table 3.1. Data required and sources

No	Data Required	Sources
1	<i>Determining current situation of Borneo transboundary forest</i>	
	– Borneo environment	Related researches and reports of existing transborder forests
	– Current issues	Related researches and reports of existing issues such as ecological, economical, sosio-cultural, and local community involvement supported by some statistical data of countries if available
	– The presence of the Heart of Borneo initiative	Competent bureau in each country such as forestry office, planning bureau supported by related researches and trilateral progress reports
	– Forest governance under the framework of the Heart of Borneo initiative	Competent bureau in each country such as forestry office, planning bureau supported by related researches and trilateral progress reports
2	<i>Institutional building</i>	
	– institutional framework and legal aspects	Competent bureau in each country such as forestry office, planning bureau supported by related researches and trilateral progress reports
	– key players and their roles	Competent bureau in each country such as forestry office, planning bureau supported by related researches and trilateral progress reports
	– Public participation	Related researches and reports of existing local communities involvement supported by trilateral progress reports
	– Aspects of institutional building in transboundary forest management such as financial support, etc	Competent bureau in each country such as forestry office, planning bureau supported by related researches and trilateral progress reports
3	<i>Planning process discussion</i>	
	– transboundary forest management issue in between planning debate	Related researches and literature review in strand of complexity of transboundary planning, multi-actor presence, collaborative and adaptive management

3.4. Research methodology

This study is a qualitative research which review, explore, and analyze sets of literatures, researches, reports, and official documents about the existence of transboundary forest management in Borneo border area to deeply understand how transboundary collaboration in this area is constructed. As Creswell (2009), qualitative research is a means for exploring and understanding social or human problem with analyzing data inductively, building from particular to general themes, and making interpretation of the meaning of data. Method of analysis is exploratory with single case study, which is the Heart of Borneo initiative. According to proposed research questions, there are three steps of analysis, described as below:

1. Determining current situation and issues of transboundary forest management

This part is obtained by collecting many of information coming from any sources such as literatures, related researches and reports, official documents, etc. There are some parts of context which are respectively analyzed that are the existence of Borneo environment, some emerging issues in transboundary forest management, as well as the presence of the Heart of Borneo initiative and the form of forest governance in each country to handle such transboundary issues. How to analyze this kind of data is conducted by elaborating the given data from any sources descriptively then going to discuss what kind of implication toward transboundary forest management in those border areas. Some of contexts may become constrain for this transboundary forest management which will further be discussed in next chapter.

2. Institutional analysis

There are some parts of analysis which are conducted in this chapter, as follow:

a. Determining institutional framework and legal aspects

This analysis is conducted in order to present the scheme of stakeholders' relationship in transboundary forest management in this border area. The objects reviewed are about how key players related each other in certain institution arrangements. Input of this analysis is taken from findings in previous steps about forest governance in each country to be drawn in certain scheme as illustrated in Figure 3.2.

The composition of institutions and relations each other constructed based on the simple model in Figure 3.2 will portray the institution arrangement of transboundary forest management in these border areas. This stakeholders' relationship will be analyzed in both of each country's level and international level. This general model in Figure 3.2 will be detailed in further analysis for each country based on actual condition and the scheme of institution arrangement may vary among countries regarding to fact findings. But the whole model is expected to follow the model in Figure 3.2.

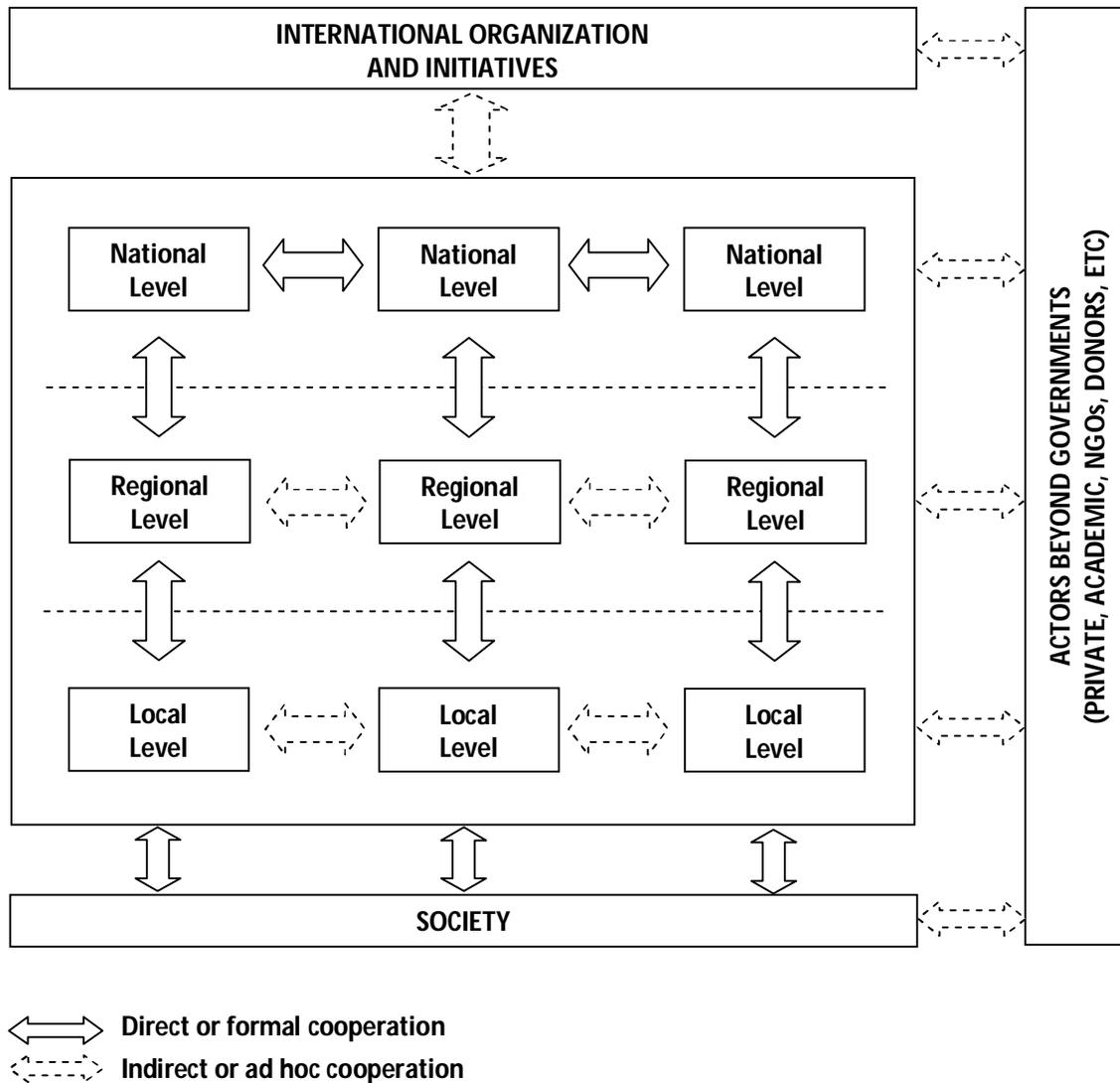


Figure 3.2. Model for understanding institutional framework of transboundary forest management

b. Identifying key players and their roles

This analysis process is carried out in order to recognize key players and their roles in conducting transboundary forest management in Borneo border areas. Identifying process is guided by stakeholder audit method which had been used by Roberts and King (1989) for mapping of key stakeholders in certain policy. This technique attempts to answer questions due to who individuals, groups and organizations are involved as stakeholders and what are their stakes in ongoing system. Ideally, this method is followed by review of stakeholder management strategies effectiveness and other further analysis. Due to the available data, simplification of this table has been made and adjusted as Table 3.2 below.

Table 3.2 Stakeholder audit method

Levels	Actors	Stakes
1. International level		
2. National level		
3. Regional level		
4. Local level		
5. Beyond government		

Source: modified from Roberts and King (1989)

By compiling this table, it is expected that clear portrays of key players and their roles will be achieved. It is very important to get an insight of stakeholders involved in transboundary forest management and how it shapes certain transboundary policies. It can also be determined on which areas are overlapping each other and how it should be.

c. Analyzing public participation and the need of capacity building

This analysis is conducted by collecting as much as information about the presence of local communities living in surrounding border area toward the establishment of the Heart of Borneo. It observes the enough opportunity for local communities to be involved in transboundary forest management by descriptively describe the facts coming from any literatures, researches or reports, and going to discuss the facts connected to the theoretical viewpoint as expressed in literature review chapter. Furthermore, it is also analyzed the need of doing capacity building for local communities and local government to support the implementation of the Heart of Borneo initiative by connecting the present condition and the better condition should be.

b. Discussing other relevant aspects of transboundary institutional building

This part analyze any relevant aspects of institutional building in supporting transboundary forest management in Borneo border area by descriptively describe the facts and discuss the matter connected to the theoretical point of view as literature review chapter. Some of discussed aspects in this part are the presence of multi-sector stakeholders, coordination aspects of this collaboration, as well as financial aspects to support this transboundary collaboration.

3. Planning process discussion

This analysis is conducted through raise some of issues in this research related to current planning debate on this topic such as complexity and pluralism in transboundary forest areas, collaborative and adaptive managements for transboundary forest managements, as well as participatory and multi-stakeholders involvement in transboundary forest management. These raised issues will be

analyzed descriptively and discussed by following some of planning reference to connect this discussion on theoretical framework. This discussion is intended to construct academic thinking of how planning debate appear in diverse planning arenas including transboundary forest management planning as this case.

3.5. Scope and limitation of research

This study is expected to answer all of proposed research questions with all of given condition of data and information it has. Since this study involving trilateral countries which have huge coverage of areas and difficulties of presence to those countries to get primary data sources, then this research is conducted mostly by using secondary data. There must be efforts to get connection to some of contact persons or related institutions in those countries about this topic, but the availability of supporting data still become constrain of this research. Nevertheless, the result of this research is still expected to be a valuable contribution of transboundary forest management thought.

BORNEO ENVIRONMENT AND THE PRESENCE OF HEART OF BORNEO INITIATIVE

Heart of Borneo initiative is an area management approach which represents conservation and sustainable development in Borneo Island appeared from growing concern of environment degradation in Borneo Island. The presence of Heart of Borneo initiative has been agreed and acknowledged by three countries involved that are Brunei Darussalam, Indonesia and Malaysia built upon conservation and sustainable development principle with respects to sovereignty of each. Reflecting to the current situation and widely-known issues of Borneo environment, it is mainly dominated by interaction of natural resources and economic interests which have become the central issue of environmental management in Borneo Island. The presence of Heart of Borneo initiative is expected to bridge these interest interactions to become mutually benefiting and provide sustainable development as expected from the Heart of Borneo vision. This chapter will successively describe current situation of Borneo environment to get insight on how Heart of Borneo initiative is constructed and how these three countries merge each other in one conservation vision.

4.1. Borneo environment

The natures of Borneo environment which are rich in biodiversity and have strategic roles in environmental services on global context lead to higher and wider interest of stakeholders in three countries situated in this island. Many literatures have shown and revealed the biodiversity richness of this island and how important it is toward global context. Some facts and figures of Borneo environment are described below.

4.1.1. Forest ecosystem

Most of diverse species exist in Borneo Island are found in forest habitat which widely spread in various ecosystem from hilly, lowlands, riverbanks and swampy ecosystem, until coastal and tidal areas. Several distinct forest ecosystems are recognized in Borneo Island such as mangrove forest, peat swamp forest, montane forest, heath forest, and dipterocarp forest (WWF, 2005). These different forest ecosystems give different possibility to the growth of various unique species.

Mangrove forests are mainly found in estuaries and coastal regions. Some of which are discovered in riverbank areas situated close to coastal region or delta river system which still have tidal influence. Throughout Borneo, mangrove forests cover about 1,2 million hectares which previously it was estimated up to 1,5 million hectares before 1980 when

most of mangrove forests were allocated for timber concessions (WWF, 2005). These exploitations led to change in ecosystem and biodiversity loss. Many of environmental services produced from mangrove ecosystem such as offshore protection from wave and abrasion, maintain land from erosion by its roots, as well as home for marine biota and organism have been significantly reduced by these exploitations and need to be concerned.

Along riverbank as well as other forms of wet lowland areas, there are generally swampy ecosystems which dominantly overgrown by freshwater swamp forest and peat swamp forests. Freshwater swamp forests are generally found close to estuaries and riverbank which more rich in species rather than peat swamp forests which generally found in swampy lowland areas with less organic materials and nutrients (WWF, 2005). These tropical peat lands which formed over hundreds years are massive stores for carbon (Butler, 2010). These peat lands can be prone for forest fire and release huge amount of carbon dioxide because of the nature of deeper layer of peat which can burn for months and release typical haze in dry season. However, protected peat swamp forest in Borneo is still less conserved. Remaining peat swamp forests in Borneo by 2002 were close to 10 million hectares of about 74 million hectares of Borneo landmass.

In other forms of lowland areas which more dry and comprise inland of coastal and river zone, it is generally found many of dipterocarp forest and heath forest. Lowland dipterocarp forests are considered as the most diverse ecosystem and largely contain of rainforest trees which produce some commercial timbers. Many of biodiversity richness were discovered in this forest ecosystem. This type of forest is constituted as the large ecosystem in tropical forest (WWF, 2005). Similarly, heath forest is recognized as lowland forest formation with sandy and well-drained soil. This forest ecosystem has less biodiversity because of fertile land and believed as poor in nutrients which lead to smaller trees than other tropical rainforests (WWF, 2005). However, these kinds of forests and plentiful biodiversity inside are those which considered as the most threatened ecosystem in Borneo which are predicted to be disappeared by 2020 (World Bank, 2001 in Persoon and Osseweijer, 2008; WWF, 2005). Some lowland dipterocarp forests have been cleared up to 68 % in Indonesian Borneo and 56 % in Malaysian Borneo (Butler, 2010).

Different forest ecosystems in Borneo are found in mountainous area in which the nature of plant and animal life is change. This montane forest is generally found at elevation from 900 to 3300 meters which is mainly situated along Indonesia - Malaysia border line. Typically, the trees in this montane forest ecosystem are shorter than in lowland forest and have smaller leaves with resulting decrease in biomass (WWF, 2005). These forests which generally still have large green areas are recognized as the main protected areas in Heart of Borneo initiative boundaries.

4.1.2. Biodiversity

Borneo Island has diverse and unique environment with complex topographical and geological situation, and also unique climatic condition which support for the growth of complex and rich habitat. Its habitat becomes host for the most diverse ecosystem on earth which is reported that up to 15,000 different flowering plants and also more than 3,000 species of trees are exist in this island (WWF, 2005). It is also home for many unique animals such as different kind of primates, mammals, carnivores, and birds. Most of the plant and animal species in Borneo could be found in forest habitats which are situated across these of three national boundaries.

The cross-border areas which is being concern of Heart of Borneo initiative have mountainous condition which contain large areas of dipterocarp forest, rainforest trees that produce valuable timber which can grow up to 60-70 m tall and considered as group of commercial timber. These dipterocarp are discovered up to about 300 species in this island (Payne, 2005; WWF, 2005). Moreover, the biodiversity richness is also spread in various environments in Borneo Island such as lowland forest, mangrove forest, and peat swamp forest.

Considering these biodiversity richness, the need of forest conservation in Borneo Island have become concern of local, national, and international stakeholders because of high diversity of habitat and species which is reported up to 40-50 % of those are endemic (Indonesian National Working Group – HoB, 2008). These biodiversity richness are important value for global world in which it constitute as natural heritage for conservation and environment services.

4.1.3. Land use

Principally, land use arrangement in Borneo is categorized as forest area and non forest area which is differently regulated amongst countries. This difference of land use arrangement in adjacent countries is mostly can be seen by different arrangement of land use in border area which are contrary different side by side. The continuous of landscape and land use on it is sometimes dissected by international boundary. The differences of land use arrangement especially the form of forest areas are also led by national demand which become more pressure every year.

In Kalimantan (Indonesian Borneo), forest areas are categorized as preservation area which are divided into Conservation Forest (4.6 million ha) that arranged for habitat protection and Protected Forest (6.4 million ha) that designated for serving environment function while productive areas is divided as Production Forest (14.2 million ha) for timber production, Limited Production Forest (10.6 million ha) for low intensity timber

production, and Convertible Production Forest (5.1 million ha) which prepared for reserve of other land use conversion (WWF, 2005). The vulnerable areas of forest degradation are mostly fall within productive areas which are caused by timber extraction in Production Forest except in Limited Production Forest which are generally located in hilly area to make logging operation more difficult. Basically, the Indonesian forests are state owned and refer to national regulation, but since decentralization era by 2000, local governments have bigger opportunities to shape regional land use which sometime do not correspond to the national spatial forest arrangement.

In Sabah (Malaysian Borneo), forest reserves are divided into seven categories which are National Parks, Wildlife Sanctuary, and seven classes of forest reserves which are Protection Forest Reserve, Commercial Forest Reserve, Domestic Forest Reserve, Amenity Forest Reserve, Mangrove Forest Reserve, Virgin Jungle Reserve, and Wildlife Reserve. Those total forest areas are classified as Permanent Forest Estate (PFE) with the total of 3.6 million hectares which 2.7 million hectares of those are classified as Commercial Forest Reserve (WWF, 2005). Some of areas fall within concession which are allocated for industrial timber plantations aside from non forest use outside PFE which reach total area of about 2.3 million ha (WWF, 2005). While in Sarawak (Malaysian Borneo), permanent forest is categorized as Forest Reserves, Protected Forest, and Communal Forest with the natural forest cover is still reach 67% of Sarawak's land (WWF, 2005). Some forest areas are proposed to be part of Heart of Borneo initiative which consist of PFE (existing and proposed) about 1.6 million ha and Protected Area (existing and proposed) about 0.6 million ha (Wibisono, 2008).

In Brunei Darussalam, forest areas have been gazetted as large as 235,520 hectares (40%) as Forest Reserve of about 438,000 hectares forested areas (Bibi and Berudin, 2009). Consider to National Forest Policy 1990, government is encouraged to gazette an additional Forest Reserve as large as 15% of forested areas to become 55% of Brunei's landmass. This Forest Reserve is classified according to functional categories into protection, production, conservation, recreation, and national park.

Of these forest areas in each country, some are proposed to be part of Heart of Borneo boundary which are categorized as main protected areas and become the concern Heart of Borneo initiative amongst other areas within. Those of main protected area within Heart of Borneo boundary can be seen as Table 4.1.

Table 4.1. Main protected areas within the Heart of Borneo boundaries

Brunei Darussalam	Indonesia	Malaysia
<ol style="list-style-type: none"> 1. Ulu Belait PFR 2. Ulu Temburong NP 	<ol style="list-style-type: none"> 1. Betung Kerihun NP 2. Sebuku Sembakung 3. Kayan Mentarang NP 4. Gunung Muller NP 5. Bukit Baka Bukit Raya NP 6. Danau Sentarum NP 	<ol style="list-style-type: none"> 1. Batang Ai NP 2. Lanjak Entimau WS 3. Apan Entulu 4. Balleh 5. Danum Linau 6. Apad Runan 7. Pulong Tau NP 8. Gunung Mulu NP 9. Gunung Buda NP 10. Maligan Virgin JR 11. Crocker Range NP 12. Imbak Valley CA 13. Kinabalu NP 14. Malinau Basin CA 15. Danum Valley CA

Source: Wibisono, 2008

These proposed areas as table above are considered as the conservation areas of Heart of Borneo initiative which some of that are exactly stretched along international border line such as Ulu Belait PFR and Ulu Temburong NP (Brunei Darussalam), Danau Sentarum NP, Betung Kerihun NP, Kayan Mentarang NP, and Sebuku Sembakung (Indonesia), Batang Ai NP, Lanjak Entimau WS, Apan Entulu, Balleh, Danum Linau, Apad Runan, Pulong Tau NP, and Malinau Basin CA (Malaysia). Some of those are already established and well organized as National Park or Conservation Area with their self management. There are joint conservation collaborations already exist in some of those cross-border protected areas which are pioneered by ITTO namely Lanjak Entimau WS (Malaysia) – Betung Kerihun NP (Indonesia) and Kayan Mentarang NP (Indonesia) – Pulong Tau NP (Malaysia). These joint collaborations can be constituted as milestone to broader transboundary collaboration between other cross-border protected areas to implement integrated land use plan among countries.

4.1.4. Water resource management

The concern areas of the Heart of Borneo initiative have important role in water resource management for the whole of Borneo Island. The areas especially in highland region are become water catchment area for most of urban areas in lowland area. From this Heart of Borneo area, there are at least 14 headwaters of 20 main rivers in Borneo Island start from. Some of important rivers such as Kapuas River (1,143 km), Barito River (900 km), and Mahakam River (775 km) in Indonesia are started from the highland region of Heart of Borneo areas (WWF, 2005). These main rivers are also play important roles for transportation and economic activities such as goods and services distribution in which many of urban areas in downstream are connected each other by such rivers.

Paying attention to human life in downstream of many rivers in Borneo Island, it is very important to maintain Borneo river system as an integrated water resource management especially, in this context, focusing on forest area in highland region within the Heart of Borneo boundary, areas where many rivers start from. The reason to maintain water resources in the Heart of Borneo region as an integrated water resources management is based on the thoughts to the importance of sustainable water resources and the critical role of headwater catchments for most of Bornean major rivers (Abdullah, 2005). Maintaining water resource in Heart of Borneo region will also mean for sustainability of human life in downstream areas of Borneo Island.

4.1.5. Economic, social and culture

Generally, the socio-economic condition of human life in Borneo Island is characterized by disparity between coastal zone or areas along rivers in which most of human settlements are concentrated and hinterland surrounding forest areas in which people rely on forest product and other forest value to support their daily life. Development acceleration in coastal zone and surrounding river areas have high opportunity to grow because of large access of infrastructure as well as facilities compared to the hinterland especially surrounding border areas in Borneo Island which are generally constrained by physical condition such as highly topography and limitation of infrastructures. It also generates lack access of products and services to reach villages in hinterland of border areas which lead to the high price of products and services. Thus the main economic incomes for communities who live around border areas are relied on extractive activities toward natural resources such as forest product, agriculture and plantation, mining or fishing.

Most of those communities are traditional agriculturalist with traditional style of shifting agriculture. Combined with permanent settlement, they occupy several plots of land surrounding their areas to practice this kind of agriculture with the cultivation of rubber, maize, cassava, and upland rice (Persoon and Osseweijer, 2008). Still, they also practice hunting and gathering for forest animal and also non timber forest products (NTFPs) to support their needs. Their ability to adapt with their environment leads them to have long range of hunting coverage. Nowadays, they might be decrease in number as well as in activities because of introduction of some modern life through integration and assimilation did by government (Boedhihartono, 2008).

Demographically, the population distributions in border area tend to sparsely populated and uneven among each region. Most of inhabitants reside in Borneo border area are ethnical group which are widely recognized that it is host for 50 Dayak tribe with diverse language and culture (Indonesian National Working Group – HoB, 2008). Some of those have ethnical ties in Indonesia and Malaysia which are separated by

international border. They are sometimes connected each other by crossing border line. With less supervised, border areas in these location sometimes become crossing point of forest products smuggling (WWF, 2005; Indonesian National Working Group – HoB, 2008).

4.2. Issues of Borneo transboundary forest

Borneo forests as mostly represented in trans-border area of Borneo Island have important and strategic roles in local, national, trilateral as well as global world covering economical, socio-cultural and environmental services. Those wider interests of Borneo forests lead to the emergence of many issues which colouring transboundary forest management in these border areas. Some of important issues in these Borneo transboundary forest are reflected in the cases below.

4.2.1. Deforestation

Borneo Island has the largest forests in Southeast Asia even though it is endangered by many causes overtime. It is reported that between 1985 and 1997, some 20 million hectares of forest areas were ruined in Kalimantan (Indonesian Borneo), most of those are in located in lowland forest (World Bank, 2001 in Persoon and Osseweijer, 2008). It is reflected that in the mid of 1980s, Borneo still covered by 71 percent of forest and decreased significantly to 54 percent by 2000 (FWI/GFW, 2002 in Persoon and Osseweijer, 2008) with some terrify condition are located in Kalimantan. This trend will still continue with prediction that after 2010, all lowland forest in Borneo outer protected areas will be disappeared or fragmented (World Bank, 2001 in Persoon and Osseweijer, 2008; WWF, 2005) as portrayed in Figure 4.1.

The figure depicts that by 2020, forest cover in Borneo Island will decrease significantly compared to nowadays condition. As issued by WWF (2005), this figure predict that by 2010 the forest cover in Borneo Island will decrease up to 8,640,000 hectares and by 2020 these forest losses will up to 17,280,000 hectares. The main areas of predicted forest losses as figure above are located around existing road network and logging access which is mostly spread in southern parts of Borneo Island especially situated in lowland areas. Thus, almost all of remaining forest areas in Borneo Island is located in highland region especially along Indonesia and Malaysia border line with elevation above 500m asl and have steep slope, an area where Heart of Borneo initiative is proposed, indicated as green colour in the figure above. Some parts of that are spread in lowland areas which generally are fragmented. The high-rate trend of deforestation in these lowland forest areas are become concern of many stakeholders and attract international attention. The remaining of forest areas especially those which are situated in mountainous areas across national border become the focus of Heart of Borneo initiative.

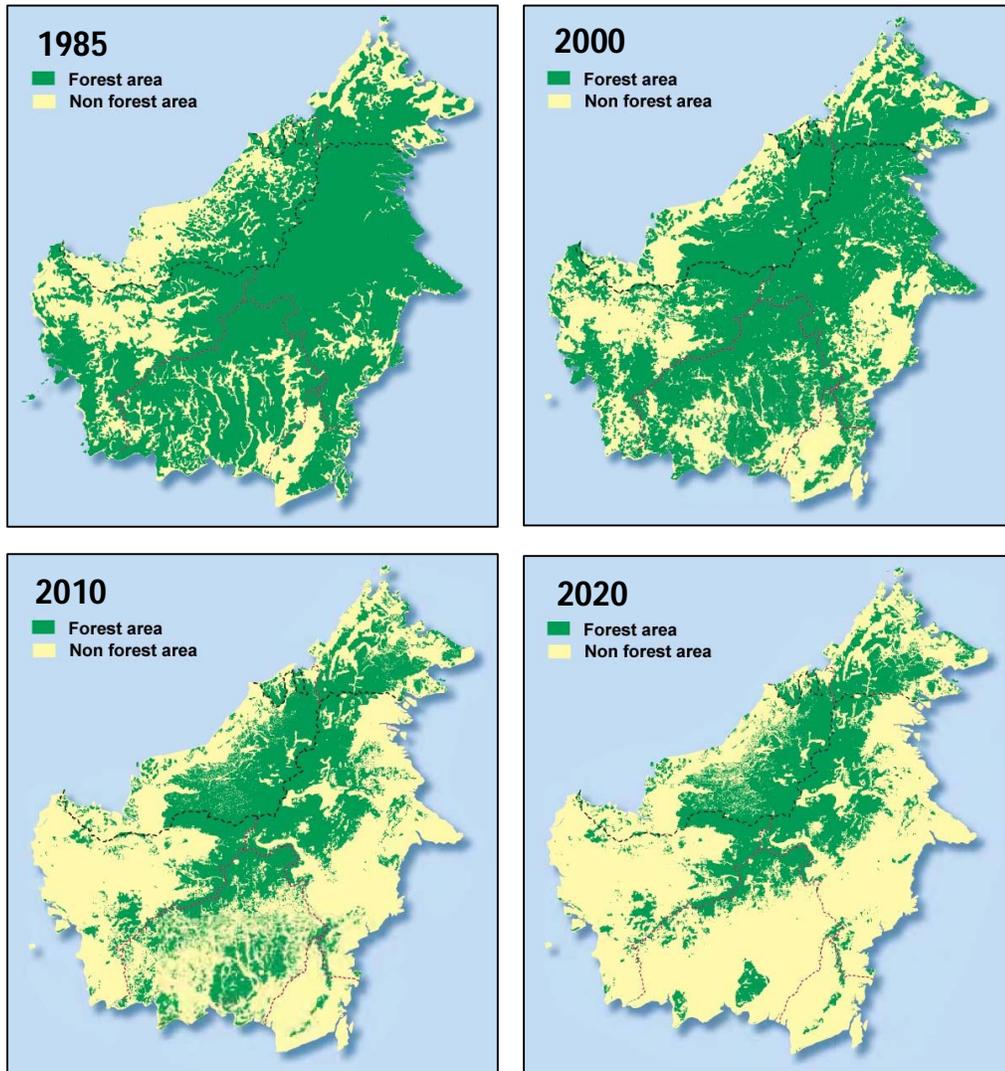


Figure 4.1. Forest covers change in Borneo Island
(Source: WWF, 2005)

4.2.2. Illegal logging

Logging tales have long history in Borneo Island due to the huge potencies of forest products in this island especially dominated by valuable timber which attract commercial logging for many years. Initially, logging operation had been done by selective logging in which government granted large-scale logging concessions to the vast industrial conglomerations (Persoon and Osseweijer, 2008). Since the demand of forest product had grown rapidly followed by the growth of wood industries such as sawmills, plywood, and pulp industries, thus the significant increase of wood demand led to large-scale logging over the capacity of non protected forest area and started to occupy some parts of protected forest areas as illegal activities (Bappeda Kalbar, 2004). Basically, the term of illegal logging can be seen as two perspectives which are logging

activities beyond concession areas which sometimes encroach protected forest and logging activities which over capacity of logging quota in certain time and area. For the second reason, illegal logging is difficult to be identified and sometimes is used to legalize illegal timber product coming from beyond concession area.

Since decentralization era in Indonesia, local governments have a larger opportunity to make development on the basis of natural resources extraction. Numerous natural resources concessions have been granted to private sectors by local governments as well as in forest concession through small scale forest concession. Within few years after decentralization era, local companies were soon founded and took over the logging operation, leading to the rage logging of forest areas. This small scale forest concession is often misused as undercover for illegal operation of forest logging in the name of forest for people (Bappeda Kalbar, 2004). Although it decreases, this kind of logging operations is still happened especially in the borderland of Indonesia - Malaysia. But the most recognized illegal logging nowadays are identified as logging operation by small private company or individual agent who generate local communities to execute forest logging without right in the name of economic prosperity which mostly happened in cross-border areas (Bappeda Kalbar, 2004). The existence of timber financiers and their power toward local communities is very strong on which they can shape opinion and agitate people to cut down the trees and against the law (Wadley and Eilenberg, 2007).

4.2.3. Smuggling and cross-border timber trade

In line with illegal logging activities, timber smuggling in across Borneo border has also become the sequential problem of cross-border timber trade which becomes serious issue of political relation between Indonesia and Malaysia (Persoon and Osseweijer, 2008). Timber smuggling is also often blamed as the decrease factor of timber industry in Indonesia. It is reported that in the beginning of 2000, up to 2 million m³ of timber per year have gone to Sabah Malaysia from East Kalimantan Indonesia which nearly all of those are illegal. (Smith *et al.* 2003, Tacconi *et al.*, 2004 in Obidzinski et al, 2007). It is also widely known that hundreds of timber-loaded trucks are crossing border everyday from West Kalimantan Indonesia to Sarawak Malaysia (WWF, 2005; Obidzinski et al, 2007).

There are close cross-border interactions between timber trade actors from both countries which generate high tension of timber smuggling. It is acknowledged and believed that the presence of timber buyers and their network in the border of Indonesia - Malaysia is very strong (Wadley and Eilenberg, 2007). In small cases, the traffic of timber smuggling is indeed only for traditional subsistence economic for people who inhabited along border line, but in the other side, it is also done by groups of capital who supported by heavy equipment (Obidzinski et al, 2007). The absence of adequate supervision along border area let high activities of smuggling to be done over time.

These facts have been considered by many of stakeholders in both countries as long lasting issue and has attract many NGOs and international concern to significantly contribute in reducing illegal cross-border trade in this border area such as Heart of Borneo initiative. Considering to huge impact of this illegal activity ecologically and economically, thus the Heart of Borneo initiative should give more attention on the handling of this issue.

4.2.4. Encroachment

Forest encroachment is also indicated as environment disruption in Borneo border area which is generated in context of illegal logging. Instead of official border gate, illegal timber traffic has also been done through illegal-small road which is directly built to access forest areas. The instance of cross-border intrusions between West Kalimantan Indonesia and Sarawak Malaysia is recognized by 2003 satellite imagery which indicates 81 points along the border line which start from logging concessions on Sarawak (Obidzinski et al, 2007). Some of those have encroached Betung Kerihun National Park in Indonesia. On the other region, CIFOR confirmed that in between East Kalimantan Indonesia and Sabah Malaysia there are also intrusions on at least 56 point along border line which some of those penetrated to forest areas in Indonesian side and appeared to be still in use (Obidzinski et al, 2007). The existence of encroachment path across Borneo border is also worried to be entry gate for immigration and other illegal trade. These illegal gates could be led to the security issues and increase political tension between countries. It needs such political will to carefully overcome this issue by dialog within the framework of the Heart of Borneo initiative.

4.2.5. Poaching

Poaching and smuggling of protected animal are the growing problem in Borneo in line with forest cover reduce and the increase of demand for certain animal for various purposes. A number of endangered species in Borneo are illegally traded such as sun bear, clouded leopard, gibbon, and orang-utan. The last-mentioned species is the most threatened which nowadays receive many international attentions because dire condition of orang-utan poaching through killing several orang-utans to capture one infant of this species (WWF, 2005). Young orang-utan represents money and can be traded or bartered as a commodity for low income villagers living in surrounding forest areas. This is such difficulties to be cracked down while most of villagers are still in lower income and no punishment can be made. International initiatives such as Heart of Borneo are expected to exist in field to gradually change these habits through introduce other sustainable livelihood.

4.2.6. Forest conversion

The long lasting issue of Borneo forest management is about forest conversions which are reflected in the decrease of forest cover over time as seen in Figure 4.1. The decrease of forest cover in Borneo forest is mainly happened in productive forest areas as commercial timber concession to be several stages of forest degradation such as logged over area on the first step then going to various degrees of degraded forest which finally completely turn to be other land use type. The large scale of forest conversion in last few years is generated by agricultural or private plantation such as industrial harvesting such as rubber and oil palm plantation which are indicated as a major driving force behind mass forest conversion (Persoon and Osseweijer, 2008).

The most threatened areas of forest conversion in Borneo are situated in lowland forest including mangrove and swampy forest which nowadays facing high demand of convertible land for other land uses. In certain cases, large areas which already converted into plantation were never planted with oil palm after forest cleared because the concession holders only intended for income resulted from forest clearing and never have intention to invest in plantation (Persoon and Osseweijer, 2008). Similarly, forest areas which are already converted to timber plantation in the whole of Indonesian Borneo has reached more than 3 million ha which only some of those had already been planted (WWF, 2005). The majority of land clearings for these timber plantations were done by large landholders or private company who cleared nearly 1,7 million hectares of forest compared to small and traditional landholders who cleared nearly 0,5 million hectares during the period of 1985 – 1997 (World Bank, 2001 in Butler, 2010).

4.2.7. Oil palm plantation

Economic contribution of oil palm plantation is widely acknowledged. Success story of oil palm plantation in economic terms has provided impression of prosperity increase toward society as it is desired by local communities who support the development of oil plantation in Borneo. Therefore, the government of Indonesia and Malaysia actively encourage the establishment of such plantation which is dramatically grown in last few years up to 1.6 million hectares in Malaysian Borneo and nearly 1 million hectares in Indonesian Borneo by 2003 (WWF, 2005).

The large expansion of oil palm plantation in Borneo reached its problem and become wider issue while government of Indonesia planned to convert as large as 1,8 million hectares stretched along Indonesia - Malaysia border line to be oil palm plantation under the banner of *“bringing prosperity, security and environmental protection to the Kalimantan border area”* (Wakker, 2006). Million hectares of tropical forests will be cleared in Borneo Island for oil palm plantation purposes with large impact on habitat destruction and species extinction. Many critics and protests were showed by civil society, media, and various stakeholders to discontinue this plan. Instead of bringing

prosperity, this plan will just make environment destruction and cause social unrest. Recent change in government stance after many critics are delivered is acknowledging conservation concern into account and accepting the facts that not as long as of border area are suitable for oil palm plantation especially for mountainous area which still grown by natural forest. The plan is then adjusted to avoid forest area and prioritized to occupy abandoned areas as Indonesian Agriculture Minister stated. However, conversions of remaining forest along Borneo border line and other lowland tropical forest for oil palm plantation are still considered as one of the biggest issues and threats for environmental sustainability in Borneo. The existence of the Heart of Borneo initiative can become a milestone of effort to internationally pressure the moratorium of mass forest conversion in Borneo border area.

4.2.8. Forest fires

Forest fires have almost become annual hazard in Borneo with the coming of dry season. The widespread fires were mainly triggered by land clearing which carried out by both farmers and plantation companies. In government viewpoint, farmers are often blamed as starter of forest fire with the practice of shifting agriculture through slash and burn method while satellite imagery revealed that large scale land conversion has been made for commercial development particularly oil palm plantation (WWF, 2005). During the period of 1997-1998 while the unusual El Nino disaster, forest fires in Borneo have reached its peak ever known which burned some 9.7 million hectares and caused economic lost more than 9 million dollars as well as released 0.8 – 2.5 gigaton carbon into atmosphere (WWF, 2005). These uncontrolled forest fires which affect to surrounding countries increase political tension in the region. As reported, Malaysia and Singapore blame Indonesia to its failure in controlling forest fire while on the contrary, Indonesia accuses Malaysian firm which starting many of land clearing processes in Indonesian territory (Butler, 2010).

Nowadays, even though decrease after the increase of several international pressure and the implementation of sanction and punishment for land burner as well as the introduce of zero burning technique and early warning system, this hazard is still potentially threaten because of the nature of deeper layer of peat lands which can burn for months undetected and release typical haze in dry season. The Heart of Borneo initiative has an opportunity to reduce this practice in field by introducing sustainable agriculture especially for traditional agriculturalist.

4.2.9. Shifting cultivation

Most of typical agriculture style in local communities along Borneo border area are shifting cultivation which characterized by the rotation of cultivation fields rather than intensively farming in permanent plots. It is such of short cropping periods which maintaining land fertility by allowing natural vegetation to regenerate on bare land after cultivation period and has traditionally been practiced over generation in Borneo

indigenous communities. The use of land clearing of new field which is often accomplished by cutting and burning the rest vegetation lead to environmental impact such as forest fire and smoke hazard which always become central issue while facing planting season in Borneo (Bappeda Kalbar, 2004). Another limitation of shifting cultivation in recent context in Borneo is the availability of arable land which going scarce nowadays and sometimes starts to encroach forest area (Bappeda Kalbar, 2004). Their traditional style of shifting agriculture with slash and burn method is often blamed as smoke hazard cause which annually happened and become trans-national dilemma for surrounding countries leading to economic loss (WWF, 2005; WWF, 2008). Again, introduction of more advance agriculture technique can be made by the Heart of Borneo initiative through direct involvement in field as what has been made by WWF and local NGOs.

4.2.10. Ethnic relationship

The development of Borneo border area especially between Indonesia and Malaysia is often coloured by ethnic relationship which is stretched along border and dissected by international boundary. As one of the largest ethnic groups in border area, the Iban ethnic group dominates some of border region in Kalimantan (Indonesian Borneo) as well as in Sarawak (Malaysian Borneo) as indigenous community (Obidzinski et al, 2007). The relationship of Indonesian and Malaysian Iban on both sides has been existed since over century and often attracts tension between countries as long as their history since colonial era (Wadley and Eilenberg, 2007).

The presence of ethnic relationship across national border with their close interaction sometimes leads to the traffic of people or goods between these communities on both sides of border line. Wadley and Eilenberg (2007) mentioned that they have long tradition with border crossing for various purposes, mostly for timber trade and goods traffic on which they have high dependency toward neighbouring economic. The remoteness of border area from central government which are less developed and supervised is seems also become enable condition to illegally crossing border through unofficial border gates and footpaths. There are at least 50 footpaths and numerous waterways that allow ethnic communities to connect across border (Obidzinski et al, 2007). It might implicate to the form of the Heart of Borneo's action plan which considering ethnic relationship such as cross-border ecotourism.

4.2.11. Indigenous rights

Broader issues of developments in border area which affect to forest communities are abandoning of indigenous rights. It is widely spoken that indigenous people do not have enough right to access their own environment as their desire. Even in the Heart of Borneo initiative, people who living in the proposed area did not play an active role in this process (Persoon and Osseweijer, 2008). The existence of ethnic diversities,

dispersed settlements, complicated structures of land rights and claims are anticipated to become complicated and time-consuming of collaboration formulation. Critics of the less involvement of indigenous people are also highlighted by Eghenter (2008) who argues about to whom Heart of Borneo is for. Concerning to how illegal activities existed in border area such as logging, smuggling, and poaching, they often associated to against the law. They almost always left behind for any formulation of transboundary development. Thus the challenge of the Heart of Borneo initiative is to bridge their presence toward their environment rather than only government to government collaboration. Bottom-up approach is needed to present sustainable development and conservation in practice which get valuable support from indigenous people.

4.2.12. Unintegrated spatial plan

Different land use arrangement between countries is considered as one of the important aspects which stated in the strategic plan of the Heart of Borneo initiative. It is acknowledged that there are differences of land use activities along border line which dissected by international boundaries and should be taken into consideration. It may come and generated by different policies of countries which lead to different implementation of regulations in field. Sarawak State in Malaysia was set up a long-term land use planning with 6:6:1 policy for the distribution of agriculture and settlements (6 million ha), commercial forests (6 million ha), and protected areas (1 million ha) while Sabah State does not give an exact number for how much forests want to be protected in long term (WWF, 2005). In Indonesia, forest allocation is regulated under the Forest Law no 41/1999 which stated that each region has to proportionally share at least 30 percents of total area even though it may differ in practice with some region have less than 30 percents and sometimes have different implementation in which actual implementation does not correspond to spatial planning (WWF, 2005). Therefore, unintegrated spatial plan should be bridged in the Heart of Borneo initiative especially for some protected areas stretched along border line through collaboration media such as joint spatial planning.

4.3. Heart of Borneo as a trilateral initiative

Heart of Borneo initiative which was campaigned by WWF in 2004 and formally signed and declared in 2007 shows the growing concern of transboundary collaboration in conserving high biodiversity in Borneo Island, covering about 220.000 km² of equatorial forests situated in Brunei Darussalam, Indonesia, and Malaysia. It is challenge to these three countries to collaborate each other in the framework of the Heart of Borneo initiative, mainly focus on conservation, amongst other international cooperation applied in the same regions. Some facts and figures of this trilateral cooperation and the behind situation of other international cooperation around these areas are briefly described below.

4.3.1. Considerations

Under the vision of Heart of Borneo initiative, the Borneo's equatorial rainforests are expected to be effectively managed and conserved through the network of protected areas and productive forests as well as other sustainable land-uses (WWF Indonesia – HoB, 2008). It is also desired that through international cooperation led by Bornean governments and supported by private and industries, this equatorial rainforests will bring as much as benefit for people and nature which sustained by a global efforts. This strategic initiative is considered relied to the facts that the biodiversity and ecosystems exist in this area are the most diverse and rich on the earth in which nowadays are in serious threats of degradation (Persoon and Osseweijer, 2008). It is also considered because forest areas within the Heart of Borneo boundary have essential functions to adjacent countries such as water management and source of living for local community as well as environment services for around the world such as home of biodiversity, carbon sequestration and pooling (WWF Indonesia – HOB, 2008).

The Heart of Borneo initiative is such of area management approach toward conservation and sustainable development which is constructed to get balance of environment condition toward broader areas in Borneo Island. The initiative of Heart of Borneo is the concept of transboundary development at eco-region scale which is expected to bring high beneficiaries of environment, social and economy. As the vision, the programs are to ensure the effective management of forest resources and conservation for the benefit of people and nature, to promote local wisdom, acknowledgement and respect for laws, regulations and policies among involved countries with consideration of relevant existing multilateral agreements, and to implement sustainable development principles through any activities that are relevant to transboundary management (WWF Indonesia – HOB, 2008).

These programs are correspond to the facts that among different situations of forest managements dissected by political boundaries, there is one and connected condition of geographical, environmental, and cultural among each others. It means that conservation of these fragmented forest area should be connected and constituted as one vision of management, which are represented by the Heart of Borneo's vision. It is also correspond to the challenge of social change which is significantly increase in terms of economically need and culturally re-connected which lead to the illegal trading through border and threatening the environment sustainability.

4.3.2. Heart of Borneo coverage area

Borneo Island is situated in the equatorial region of Pacific Ocean with landmass of nearly 74 million hectares (WWF, 2005). Its landscape is demarcated into three nations which are Brunei Darussalam and Malaysia in northern part and also Indonesia in southern parts. Some of the demarcation line between Indonesia and Malaysia are mountainous areas which are mostly covered by forest areas that become the essence of the Heart of Borneo initiative for conservation and sustainability development.

The principles of Heart of Borneo management itself are sustainability of human life system, attentions to socio-cultural, economic and ecologic functions, as well as interregional and international cooperation (Indonesian National Working Group - HoB. 2008). Consider to the existing landscape of Borneo Island, thus the criteria of Heart of Borneo coverage area is defined as distribution pattern of conservation area in highland region of Bornean trans-border country with paying attention to hydrological aspects, forest cover, land use, important habitat and species.

Based on these principles and criteria above, the distribution of Heart of Borneo's coverage areas are spread into Indonesia as the biggest part with 56,54% followed by Malaysia (42,16%) and Brunei Darussalam (1,59%). Each of Heart of Borneo coverage areas in each country are separated into several province/state which are East Kalimantan, West Kalimantan, Central Kalimantan (Indonesia), Sarawak, Sabah (Malaysia), and Brunei (Brunei Darussalam). The distribution of Heart of Borneo coverage areas is demarcated as Table 4.2.

Table 4.2. The distribution of Heart of Borneo's coverage area in countries

Countries	Province / State	Areas	
		Hectares	Percentages
Brunei	Brunei Darussalam	355.278	1,59
Indonesia	East Kalimantan	4.010.000	18,10
	West Kalimantan	6.137.000	27,70
	Central Kalimantan	2.466.000	11,13
Malaysia	Sarawak	5.373.000	24,25
	Sabah	3.968.000	17,91
Total		23.309.278	100,00

Source: Indonesian National Working Group - HoB. 2008

As the biggest countries of the Heart of Borneo area in this trilateral initiative, Indonesia plays an important role to provide sustainable development and initiate conservation regarding to the fact that many of protected areas stretched along border line are fall within Indonesian territory. On the other hand, the smallest area of Brunei Darussalam does not mean to have un-significant effort in this trilateral initiative. As reported, Brunei's forest cover also contributes significantly to the Borneo's biological richness (MIPR of Brunei, 2007). These three countries have equal right to significantly contribute in collaboration regardless the proportion of area within the Heart of Borneo boundaries.

4.3.3. The Heart of Borneo in the middle of existing international cooperation

Heart of Borneo initiative is present amongst other existing multilateral cooperation and agreements. High concerns of economic and natural resources in these and surrounding areas have led adjacent countries to collaborate each other since many years ago. It is recorded that there are many international cooperation exist already in these areas for

various purposes. It is believed that the high number of international cooperation ever exist are significant to the importance and strategic value of these areas to the member countries and attract international supports.

Existing international cooperation in this regional area can be seen from several perspectives, for instance multi-sectoral purposes such as ASEAN (Association of Southeast Asian Nations), economic purposes such as BIMP-EAGA (Brunei Darussalam Indonesia Malaysia Philippine - East ASEAN Growth Area), IMS-GT (Indonesia Malaysia Singapore - Growth Triangle), social cooperation such as SOSEK MALINDO (Sosial Ekonomi Malaysia Indonesia), KASABA (Kalimantan Sarawak Sabah), and conservation purposes such as TBCA (Transboundary Conservation Area). There are some other sectoral cooperation in this area which are voluntary constructed during the time, for instance energy joint cooperation between local governments of City of Pontianak, Indonesia and Kuching, Malaysia (Bappeda Pontianak, 2009) and handling of human trafficking between countries (Citizen Welfare Ministry of Indonesia, 2005).

Since Indonesia and Malaysia are situated directly adjacent each other, thus the creation of bilateral cooperation are more intensive rather than cooperation which involving the other countries. SOSEK MALINDO, KASABA, and TBCA are the examples of bilateral cooperation between these two countries. Focusing on the environment and conservation purposes which is in line with this thesis work, TBCA are the right instance of bilateral cooperation between Indonesia and Malaysia which exactly represent the growing concern of sustainable environment. This cooperation is supported by ITTO which is implemented in two trans-border biodiversity locations that are Lanjak Entimau Wildlife Sanctuary (Sarawak, Malaysia) – Betung Kerihun National Park (West Kalimantan, Indonesia) and Kayan Mentarang National Park (East Kalimantan, Indonesia) – Pulong Tau National Park (Sabah, Malaysia). Some of lesson learns from this transboundary conservation cooperation in this area are focuses on the need of international support, high-level political commitment from participating governments, involvement of all related stakeholders, and the need to capacity building within management authorities (Sarre, 2005). These lessons might be very useful as comparative ideas and thoughts for the Heart of Borneo initiative since the location of this international cooperation are similar and the problem faced might also resemble each other.

Furthermore, some of existing international cooperations welcome to the presence of Heart of Borneo initiative and ready to collaborate as a part in transboundary cooperation (Sarre, 2005; WWF, 2007). The things which are endorsed consist of establishment of protected areas network and sustainable land-uses as well as effective management of development and conservation in these areas with respect to each

sovereignty and territorial boundaries which also become concerns of existing international cooperation. It is desired that this trilateral cooperation at operational level will enhance and strengthen the existing international cooperation among these of adjacent countries.

4.3.4. Concern aspects of Heart of Borneo initiative

Heart of Borneo initiative is a conservation and sustainable development program aimed at conserving and managing the contiguous tropical forest in the island of Borneo (HoB, 2008). The conservations and managements aspects of these connected tropical forests are not only the matter of local and national governments which are divided by political boundaries but also attract international concern to involve and collaborate each other to get shared benefits for the future. Efforts of international collaboration to ecologically re-connect fragmented forest managements in these areas are implied in the vision of Heart of Borneo initiative which constructs forests network management effectively for the benefit of people and nature.

There are five concern aspects which are reflected as its programs of transboundary collaboration at operational level. Those programs concern on transboundary management, protected areas management, sustainable natural resources management, ecotourism development, and capacity building (HoB, 2008). It is formed with the consideration of ecological linkage combined to stakeholders' interest and local wisdom as well as acknowledgements and respects to each national's policies. These concerns are relied on the facts that there are different land use activities along the border which has to be considered with respects. There must be many pressures of border land such as agricultural, road building, timber industries which generate to complicate the issues in these border areas. This collaboration is expected to bridge these facts into better and re-connected land use management through developing such a master plan or joint spatial planning in these border areas. Effective management is also become the concern aspects of this collaboration which is deemed as valuable aspects to conserve biodiversity in protected areas (HoB, 2008). Enhancing effective management of protected areas with emphasis to current border issues is programmed in this collaboration to achieve the whole vision.

The existence of various forest values such as richness of biodiversity, watershed areas, climate change protection, carbon stocks, and other environmental services are highly considered as a concern aspects in this trilateral collaboration (HoB, 2008). It is stressed in practical through enhancing mechanism of the best practice natural resources management. Involvement of local community and local government is also taken into consideration of this collaboration which is formulated by constructing trans-border ecotourism as well as preparing capacity building (HoB, 2008). It is considered that culture and local wisdom will be highly influence in this trilateral collaboration.

4.4. Forest governance under the Heart of Borneo initiative

Since the Heart of Borneo initiative is declared in 2007 which involves Brunei Darussalam, Indonesia, and Malaysia as the main countries in which fall within the Heart of Borneo boundaries, thus these three countries are asked to formulate such a national project document to be implemented under the framework of Heart of Borneo initiative. Series of discussions have been made in each country to formulate and adjust the Heart of Borneo principle into each national context and should be reported in annual trilateral meeting which take place rotate in these three member countries. This part will respectively describe the formulation of forest governance of member countries under the framework of Heart of Borneo initiative.

4.4.1. Brunei Darussalam

With the total area of 577 ha, Brunei Darussalam is the smallest country in Borneo but the existence of forest areas in this country have nationally significant role because it is estimated about 80% of country. Thus forest management has got high concern on government's agenda through National Forest Policy introduced in 1990. In this term, Forestry Department as the primary government agency is responsible for the management of forest resources throughout Brunei. It is regulated under the Forest Act of Brunei which mandated that Forestry Department should manage and develop its forest resources in sustainable manner within the context of Sustainable Forestry Management. Principally, the Forestry Department has sole right to manage forest resources under Forest Reserve. However, as far as overall planning, development and management of land is fall under the authority of relevant government agencies and individual or private where the land are gazetted or allocated to (Bibi and Berudin, 2009). The role of Forestry Department in these areas is only limited in administering the utilization of forest product under the existing laws and regulations.

On the other hand, the presence of the Heart of Borneo initiative plays important roles in Brunei to encourage the implementation of sustainable development in forest area which strengthening the existing effort of the Forestry Department. In Heart of Borneo context, Brunei has also prepared Project Implementation Framework (PIF) for national guideline and roadmap to realize HoB vision for Brunei with determination of HoB boundary of Brunei, national priority for implementation and themes for transboundary collaboration. The core themes of Brunei's transboundary collaboration are focus on sustainable forest and agriculture management, natural resource management, natural tourism, biodiversity management and conservation, scientific research, as well as education and awareness. Those themes are adopted and formulated within the framework of PIF correspond to the vision of the Heart of Borneo initiative. It is also formulated that the institutional framework of Brunei for the Heart of Borneo initiative through HoB National Council as drawn below.

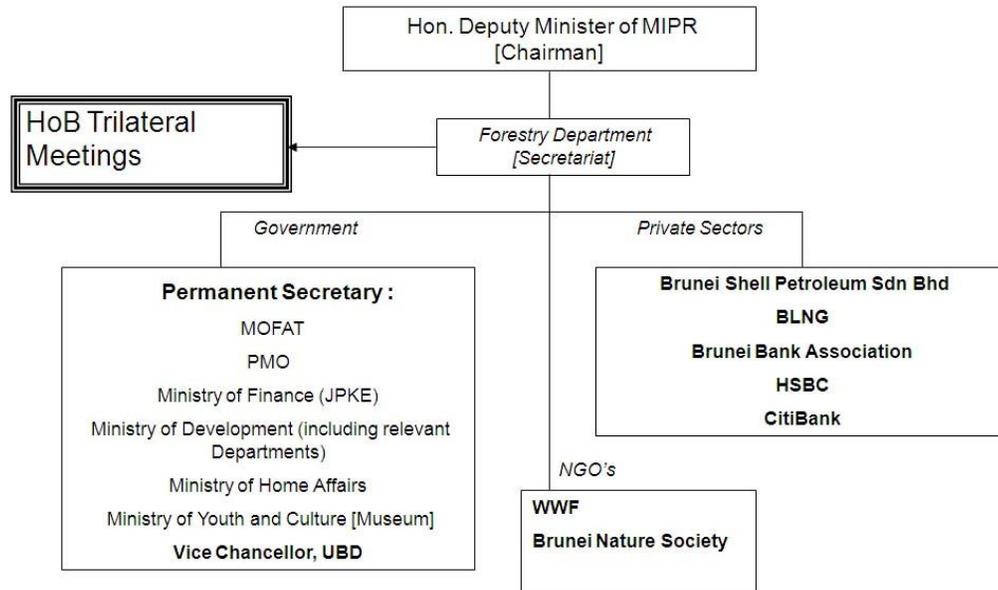


Figure 4.2. HoB National Council of Brunei Darussalam
(Source: MIPR of Brunei, 2008)

The whole of Brunei's HoB National Council is formed under the Ministry of Industry and Primary Resources (MIPR) and chaired by Deputy Minister of MIPR. The position of Forestry Department in this National Council is act as secretariat which strategically plays important roles in bridging the views of various stakeholders groups, delivering in trilateral meeting as well as reporting to national chairman. The involvement of various stakeholders as presented above is categorized into three groups which are government, private sectors, and NGOs. Each of groups represents certain views and perspectives which come from different interest background such as economic purposes and conservation purposes.

The establishment of HoB National Council with involvement of various stakeholders as presented above puts wider perspectives of forest resources management in Brunei which previously were mainly organized by Forestry Department as annual activities then become collective responsibility which involving various relevant stakeholders. Private sectors and other stakeholders which previously give passive supports are encouraged to proactively involve in such conservation activities like rehabilitation and replanting projects (Bibi and Berudin, 2009). The formulation of HoB National Council of Brunei has involved various members consists of representative from several ministries which have relevancy toward land use and forest resources management. The involvement of various relevant stakeholders will significantly provide opportunities and strengthen decision making process and policy formulation through share ideas, views and information.

4.4.2. Indonesia

Implementation of Heart of Borneo initiative in Indonesia is in line and supported under the National Spatial Planning Act no. 26/2007 and Ministry of Forestry Decree no. 55/Menhut-VII/2004 which concern at the strategic plan on forest area management at the boundary of Indonesia-Malaysia in Kalimantan. The proposed Indonesian area into HoB boundary is consist of mountainous areas with biologically diverse ecosystem stretched along border area. Series discussions have been conducted both in local and national meeting with concern to determining proposed area, public hearing and dissemination about Heart of Borneo initiative, the benefit and its consequence, and also formulating national strategy and action plan.

Several strategies and action plans have been made for Indonesian context concerning the aspects of district and provincial collaboration and synergism, protected area management, and human resources mobilization. Each of those has been detailed in concrete plan such as guide for sustainability land use management, public participation and private involvement. Toward institutional arrangement, it is also formulated such of framework which involving various stakeholders and intended to develop capacity building within Heart of Borneo initiative especially for local governments. This institutional framework formulation can be seen in table below.

Table 4.3. HoB institutional framework of Indonesia

Level	Structure	Task / Activities	Organizing Committee
National	National committee: Advisory Group, National Working Groups, Secretariat (independent, small)	<ul style="list-style-type: none"> – Development of coordination & Domestic outreach – Funding Synergy – Regulation, guidelines & mechanism 	<ul style="list-style-type: none"> – Related ministries and department – Related local government agencies – Experts – NGOs
Province	Provincial Steering Committee/ Provincial Working Group	<ul style="list-style-type: none"> – Local Policy Synergy – Partnership/ Network Development Forum – Monitoring 	<ul style="list-style-type: none"> – Provincial planning agencies – Related government services – District/City government – Universities – NGOs
District	Local Government on each district/city	<ul style="list-style-type: none"> – Public dissemination – Community involvement 	<ul style="list-style-type: none"> – District planning agencies – Related district services – Community groups – Ethnic leaders – NGOs

Source: Indonesian National Working Group – HoB, 2008

Based on table above, involved stakeholders at national level which are formed as National Steering Committee are asked to develop national action and strategic plan as well as coordinate for any implementation either in province or district level. National Steering Committee plays roles to integrate and harmonize action plans coming from province and district level as well as from other sectoral stakeholders. The central role of National Steering Committee is to bridge interest from various purposes such as economic, conservation, research and education which are formulated into regulation, guideline and mechanism for implementation in practice. Meanwhile the roles of provincial and district level are mainly for supporting national strategic plan through public involvement and provide policy synergism at local level. Governments at local level are allowed to formulate certain policy which in line with national strategic plan that has been agreed at national level. The adoption of national action plan should be the basis of implementation HoB programs at local level. Thus, the principles of institutional development under the Heart of Borneo in Indonesian context are intended to build synergism between national-provincial-local levels, efficiency in natural resources utilization, and flexibility to adapt with existing condition (Indonesian National Working Group – HoB, 2008).

4.4.3. Malaysia

Basically, the forest governance both in Sarawak and Sabah are fall under the jurisdiction of state government instead of national government. It is because Malaysia has two tier government which are federal and state in which both of them have legislative powers. The federal government has authorities over matters such as foreign affair, international trade, and national defence while state government has control over their natural resources such as minerals, water, land, agriculture, including forest resources (Yong, 2006). Thus forest policies in Malaysia are made at state level and might be differ among state.

In this collaboration which involving three countries, federal government has involved to accommodate state government's involvement as a nation. Correspond to the Heart of Borneo vision, Malaysia has formed a National Expert Working Group for the HoB which chaired by Secretary General of Ministry of Natural Resources and Environment with the members from Sabah and Sarawak State, where the Heart of Borneo region are located in. This Expert Working Group was asked to discuss the implementation of Heart of Borneo vision and the formulation of national project document for Malaysia. Series meetings have been conducted in which each of state has formed a Technical Committee on the Heart of Borneo initiative for state levels and tasked to formulate Heart of Borneo boundary for each state and support for the formulation of National Project Document. This document reflects the various development needs in perspective of social, economic as well as environmental aspects and incorporates the strategic and operational plans which become the basis of realizing the Heart of Borneo vision.

In this conservation collaboration, Malaysia highlights on the fact that this initiative is the extension of previous bilateral conservation collaboration with Indonesia which has been conducted through transboundary biodiversity collaboration in Lanjak Entimau Wildlife Sanctuary (Sarawak, Malaysia) – Betung Kerihun National Park (West Kalimantan, Indonesia) and Kayan Mentarang National Park (East Kalimantan, Indonesia) – Pulong Tau National Park (Sabah, Malaysia). These two transboundary collaboration are in line with the Heart of Borneo vision and expected to be extended in other connected area within Heart of Borneo boundaries.

4.5. Concluding remarks

Reflection to the current situation and widely-known issues of Borneo environment, it is mainly dominated by interaction of natural resources utilization and economic interests which have become the central issue of forest management in Borneo border area. The high values of natural resources as well as the high benefit of its extraction lead to the growing of sensitive issues such as illegal logging, smuggling, cross-border timber trade, and forest fire which sometimes increase political tension. The scarcity of available arable land have also threatened land use sustainability in Borneo border area with the growing issues such as deforestation, forest conversion, oil palm plantation, encroachment, and shifting cultivation, as well as the existence of broken environment management through un-integrated spatial plan across border. The neglect of indigenous right as well as the lack of public participation in formulating any development policy in Borneo border area are also highlighted in cross-border management. These of issues will always accompany any efforts of each government to develop Borneo trans-border area. Therefore, the need to doing transboundary forest management to integrate sustainable development planning in Borneo border area with all consideration to these issues is highly desired.

The presence of the Heart of Borneo initiative in the middle of these environmental issues is expected to bridge these interest interactions to become mutually benefiting and provide sustainable development as expected from the Heart of Borneo vision. The consideration of the Heart of Borneo creation to effectively manage and conserve connected forest areas with desire to bring as much as benefit for people and nature constitutes the ideal condition to be provided in the development of Borneo border area. With respect to each sovereignty, the member's governments adapt this trilateral initiative into their special forest governance in border area through the forming of national working group and their each framework. Consider to the different circumstances of political, cultural, as well as national forest governance system, it is challenge for this trilateral initiative to work collaboratively under the difference of these circumstances.

INSTITUTIONAL BUILDING FOR TRANSBOUNDARY FOREST MANAGEMENT

Institutional building has become one of important aspects to be concerned in Heart of Borneo initiative as it is reflected in the 4th trilateral meeting held in Brunei Darussalam on April 2010. After accepting of the vision of Heart of Borneo initiative followed by formulation of strategic plan of action, thus one of the next essential parts which was discussed in trilateral meeting is about institutional arrangement and modalities. This aspect is very likely to be the central issue in next phase of this trilateral collaboration because of the importance of institutional arrangement to be settled in this collaboration and how most of emerging problem will be solved under the framework of institutional building through such negotiation and treaty. This chapter discusses several aspects of institutional building for transboundary forest management in context of Heart of Borneo initiative such as political and legal aspects, institutional framework and integrated planning system, key players in transboundary forest management, the presence of multi-sector cooperation and financial support in this transboundary collaboration, as well as public participation and the need of doing some capacity building to empower local communities and local government. Furthermore, this chapter also discusses the matter of Heart of Borneo initiative as transboundary collaboration connected to such theoretical perspectives as the contribution of research to planning process discourse.

5.1. Political and legal aspects

Heart of Borneo initiative is international level agreement which appears in the middle of sensitive issues of natural resources utilization among countries in Borneo border area. The uniqueness of landscape and the richness of biodiversity in Borneo Island which are in danger of extinct over time (WWF, 2005; Persoon and Osseweijer, 2008) have led to the growing concern of conservation collaboration which engenders this trilateral agreement. As reflected in previous chapter, the huge potencies of natural resources in this border area have been the central issues of natural resources extraction toward economic purposes in which there are many environment nuisances exist. Interest conflicts of natural resources extraction for economic purposes and environment degradation have led to the dispute of environment and political relationship (Obidzinski. et al, 2007; WWF, 2008). Thus, it is expected that through Heart of Borneo initiative, such problems can be managed collaboratively under the umbrella of integrated plan which involve each other. Sounds of sensitive issues bring to the formulation of agreement which is respect to the each sovereignty and respective laws, regulations, and policies. With respect to each country's rules, environment management does not mean to be managed solely within countries but it is hoped to be handled integrative among countries. This aspect is what should be appeared in practice.

Beside, Heart of Borneo initiative is present among other existing international cooperation in this area. The high number of international cooperation ever exists in this area is believed as an evidence of the importance and strategic value of this area in international context. Various purposes of existing international cooperation as reviewed in previous chapter, mostly for economic and natural resources concern, reflect the multiple interest toward this area in which the Heart of Borneo is initiated. Among other existing international cooperation, Heart of Borneo initiative is strived to be in line with existing international cooperation although it has different concern of cooperation. The emergence of the Heart of Borneo initiative should build new paradigm of environmental perspective in economic development which strengthen existing international cooperation in wider perspectives. The acceptance of Heart of Borneo emergence to play role among other international cooperation is reflected in 11th ASEAN Summit in 2005 and 3rd BIMP-EAGA Summit in 2007 in which this trilateral collaboration is supported and acknowledged to be existed in the middle of ASEAN and BIMP EAGA cooperation (WWF, 2007). Thus, it reflects that the acknowledgement of environmental value has being one of consideration on existing international cooperation and has been internalized as cooperation agenda (BIMP-EAGA, 2007).

Politically, the presence of Heart of Borneo initiative is officially acknowledged and endorsed by the leader of involved government through Joint Leaders Statement which is stated in 3rd BIMP-EAGA Summit Meeting in Philippine by 2007 (BIMP-EAGA, 2007). For transboundary cooperation at international level, a clear commitment by the leader of country is very essential to be a milestone of further cooperation in practice. As van der Linde, et al (2001), political will and long term commitment from national government are very essential for the success of transboundary natural resources management. Formally, this collaboration is also legalized by signing of declaration in 2007 entitled Three Countries One Conservation Vision. Under this declaration, commitment of transboundary forest management to implement sustainable development in Borneo border area becomes stronger with formal support. It becomes political support which can effectively accelerate the progress of collaboration. On the other hand, support of international organization and donor has made this trilateral collaboration become more robust and significantly important. High appreciation is addressed to the international attention especially from WWF which has high concern to this Borneo environment through researches and field activities and finally initiate this conservation collaboration since 2004. It gives valuable support and enrichment of reference toward construction of this trilateral collaboration.

Concerning to the content of cooperation, this trilateral cooperation is tend to very general and did not regulate any rule which legally binding each other. It just seems to be mutual understanding and commitment among member countries to collaborate each other in conservation vision. Accordingly, it is mentioned in the declaration of Heart of Borneo initiative that the nature of this international cooperation is voluntary collaboration which gives wider opportunities to express action plan under each national circumstance with their own interpretation. This cooperation is carefully formulated

consider to the natural resources utilization as sensitive issues. Lesson learn from environment institutional building comparison of ASEAN and EU conducted by Iskandarsyah (2006) mentioned that the cooperation among member state in ASEAN organization in which these three countries deeply involved are fragile to solve environment problem. This trilateral cooperation is seem to have similar nature and hesitates to give such punishment, something that clearly defined in environment institutional building in European Union. Regarding to the importance of unique landscape and biodiversity richness in Borneo border area which endangered nowadays, it may important to regulate such punishment fairly to the member countries. The consideration behind is that the complexity and uncertainty of issues has led to conclusion that transboundary forest management in Borneo border area need some explicit support of law which legally binding each other.

5.2. Institutional framework and integrated planning system

Institutional arrangement for transboundary collaboration specifically for environment and natural resources purposes is often varies and unique among international cooperation. It involves sets of political, economical, and socio-cultural circumstances among member countries. In context of the Heart of Borneo initiative, member countries have opportunity to form each national institutional framework consider to national forest governance system and availability of existing stakeholders in charge. There are possibilities for appearance of different range of stakeholders involve within each national framework between countries. As reflected in previous chapter, these three countries have different tier of forest governance in Heart of Borneo initiative as presented in Figure 5.1.

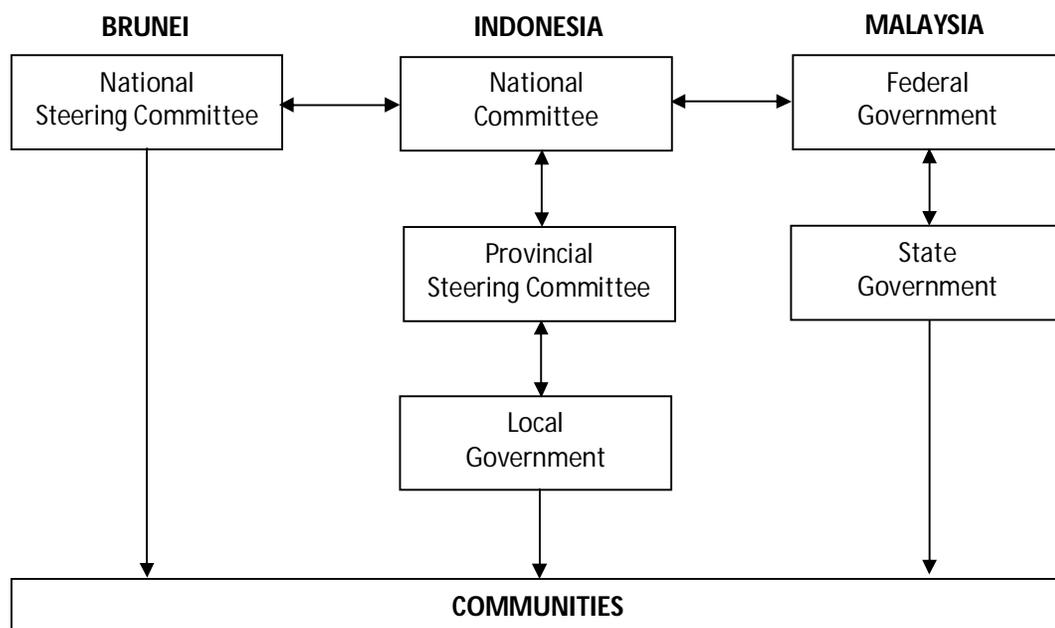


Figure 5.1. Institutional framework in Borneo transboundary forest management
(Source: compiled by author)

Brunei has single structure of national framework in which national government together with relevant stakeholder at national level are formed into National Council. There will be executing agencies in field but it is not obviously mentioned in their institutional framework. Indonesia has three tier of national framework in which national steering committee as decision maker agency is tasked to formulate national guideline which adopted by provincial level as monitoring agency and implemented by local government as executing agency in field. Meanwhile Malaysia has two tier structures of national framework for this transboundary collaboration which are federal level and state level even though main duties toward this trilateral cooperation are governed by state level of Sarawak and Sabah. It is deal to what proposed by van der Linde, et al (2001) in which level of transboundary forest management is sometimes contain different range of stakeholder between countries and not every level is likely to be exist in each member country. Thus the responsibility of certain similar task will probably taken by different level of stakeholder between countries.

Structurally, this institutional arrangement of member countries is influenced by national system of forest governance which involve existing stakeholder in charge. In line with van der Linde, et al (2001), transboundary forest management should not replace the national forest management and should become an extension of national forest governance system. The task of each national working group in this cooperation is mainly for the formulation of national action plan and setting up for regional and local precondition toward transboundary forest management. National working group has mandate to formally build communication between countries to be implemented in practice at lower level whether provincial/state or local level. Meanwhile, local level as lowest tier is tasked to implement such action plan resulted from national working group formulation.

At this point, government at local level is supposed to have bigger opportunities to build their own transboundary collaboration with closest adjacent district in neighboring country. Learning from the case of farmer to farmer exchange in between China and Laos border area (Zuo Ting, 2001), transboundary collaboration should be exist in practice which tends to be long lasting and distant from political change in national level (van der Linde. et al, 2001). Formally, institutional structure in trilateral level is not agreed yet among these three countries so that the annual trilateral meeting is considered as the highest forum of Heart of Borneo initiative. This annual trilateral meeting is mandated to build such commitment, exchange idea and information, formulation of strategic plan as the basis of joint activities, and seeking for international outreach such as fundraising, awareness, conflict resolution, etc.

Furthermore, integrated planning system is also required for the success of transboundary forest management. In Heart of Borneo context, integrated planning system is strived since the early stage of collaboration creation. Started from the agreement of vision and objectives followed by the formulation of strategic plan of action, this initiative is adequate for the basis of transboundary collaboration. This strategic plan of action has become guideline for the formulation of each national

project document which is asked by the 1st trilateral meeting in Brunei, 2007. The contents of this strategic plan are also covering many aspects of transboundary environment management which is strategically interlinking each other. This document should be regularly reviewed and updated consider to the existing and upcoming circumstances of physical, political, economical, and sosio-cultural condition.

Realize about the interconnected of environment landscape in border area, the formulation of this strategic plan is strived to be integrated both in substantial and geographical (HoB, 2008). On the other hand, this integrated strategic plan is still not fully translated yet in practice among each national action plan. Each country has proposed national action plan in separate way based on each viewpoint and urgency even though, indeed, still in context of transboundary forest management. There is still no effort to integrate each national plan into collaborative action plan in annual trilateral meeting instead of presenting the progress of each national working group. This integration effort should be accustomed as common agenda in annual trilateral meeting. There will be such deal to make transboundary conservation become visible.

Physically, integrated planning system on land use activities is considered as one of the important aspects. It is placed in the first order of strategic plan that the difference of land use activities along border line should be realized and taken into account. With respect to each sovereignty, it is important to enhance transboundary collaboration through land use management along border line. Thus integrated land use planning especially along border line should be constructed in the occasion of actualize the Heart of Borneo vision. This is such of good opportunity to provide it while this trilateral initiative is going to establish. The Heart of Borneo initiative could be used as mutual consideration to implement transboundary integrated land use plan. As so far, there are 23 forest areas as presented in Table 4.1 which were already proposed as main protected areas inside the boundary of Heart of Borneo initiative among other land use arrangement such as agriculture, oil palm plantation, etc. Of these, some are exactly situated adhere to international border line and have different arrangement of land use in adjacent country, such as Ulu Belait PFR and Ulu Temburong NP (Brunei Darussalam), Betung Kerihun NP, Kayan Mentarang NP, and Sebuku Sembakung (Indonesia), Batang Ai NP and Balleh (Malaysia). These protected areas should be considered as priority to review master plan and develop joint spatial planning as clearly mentioned in the proposed action of Heart of Borneo strategic plan and awaited for real implementation.

5.3. Key players in transboundary forest management

Identification of key players in Borneo transboundary forest management is conducted in general, regarding to the limitation of available data and information, in purpose to portray general condition of stakeholder involved in this trilateral cooperation. Simplification of stakeholder audit method by Roberts and King (1989) has been made to identify key players in Borneo transboundary forest management as resulted in Table 5.1 below.

Table 5.1. Stakeholder involved and their stakes in Borneo transboundary forest management

No	Levels	Actors	Stakes / Roles
1	International level	HoB Trilateral Meeting	Annual Trilateral Meeting as the highest organ in this collaboration is used as the forum of sharing information and exchange of idea to develop collective commitment and formulate strategic plan for whole activities within HoB framework. This trilateral meeting also have stake to identify international outreach such as fund raising, increasing awareness, and conflict resolution.
		BIMP-EAGA	BIMP-EAGA international cooperation involves Brunei Darussalam, Indonesia, Malaysia, and Philippines as member countries established since 1994. Even though the core of cooperation is tend to economic and development growth, but there is a concern of ecosystem awareness through The Forestry and Environment Working Group. The HoB initiative and cross border response mechanism are include in the agenda of this working group, showing that the HoB initiative has been acknowledged and fully supported in line with BIMP-EAGA vision, even though not really visible in practice.
		ASEAN	ASEAN as the main international organization of South East Asia in which Brunei Darussalam, Indonesia, and Malaysia are deeply involved has encouraged such environment awareness since early time of the establishment of this organization. Through ASEAN Centre for Biodiversity (ACB), HoB initiative has been encouraged to establish among other transboundary conservation cooperation under the ASEAN member's territories. Acknowledgement of this regional political forum as well as in BIMP-EAGA toward the existence of HoB initiative is very important to be inserted as added value in trade and investment policies.
2	National level	National / Federal government	Government of member countries has established their each national council / national expert working group which consists of related ministries in each country. These national working groups have roles in formulating national project document and national action plan as well as coordinating for national level's implementation. These national working groups have also tasks to identify any possibilities of domestic outreach such as funding and society supports. In practice, these national working groups have important stakes to set up or prepare necessary precondition for implementation in field through supporting regulations and guidelines.
3	Local level / lower tier level	Provincial / State government	In Malaysia, state governments through each Technical Committee have important role in formulating such state action plan which are combined into national project document. Because of state forest governance, the existence of state level of Malaysia in HoB initiative is very significant. In Indonesia, the roles of provincial government are to bridge national and district level's interests which should deliver national's policies and accommodate local's aspiration. This provincial level is also tasked for monitoring of implementation at local level. While in Brunei Darussalam, the stakes of local level governance is tend to not clearly visible instead of mainly undertaken by national council.

No	Levels	Actors	Stakes / Roles
		District level	District government play roles as implementer as government body which has closest range to communities. It is appear in Indonesia through district government which is deeply involved in practice. It is because the lowest tier of forest governance in Indonesian system is district government in which they can shape forest policy locally.
4	Beyond government	NGOs	WWF is the most involved NGO on the Heart of Borneo since initiation process in 2004 up to now. Among other NGOs, WWF's involvements reach not only on governmental level but also on the ground. There are valuable supports from local NGOs, especially for community assistance, such as Riak Bumi, Tana Tam, Formadat, Brunei Nature Society, etc. Their stakes in this trilateral cooperation is to foster the establishment of the Heart of Borneo initiative either on political level through trilateral government cooperation, mostly by WWF, or on practice level in field, mostly by local NGOs.
		Donors	Certainly, this transboundary collaboration needs some assistance in funding as mandated to be outreached by trilateral meeting. Such donors play roles in supporting implementation financially based on their interest. ITTO is one of the donors which has spent financial support for transboundary conservation area in 2 connected national park in Indonesia - Malaysia. In practical, Asian Development Bank also offers funding for technical assistance to each member country.
		Companies	Private sector and companies are expected to deeply involve in this conservation collaboration. Their roles are varies from facilities supports up to financial supports. Brunei is the member country which has clearly stated about the involvement of companies such as Brunei Shell Petroleum Sdn Bhd, HSBC, and Citibank.
		Academic groups	Many studies have been conducted in the areas where the Heart of Borneo is initiated as reflected in meeting in Leiden, 2005, entitled Reflections on the Heart of Borneo, in which many researchers provided their findings about Borneo environment and contextual within. These studies contribute significantly to the forming of the Heart of Borneo initiative and the direction shaping in the future. Their stakes is clearly to enrich perspectives and approaches of action plan in practices.
5	Communities	Local community groups	Local community groups suppose to be an important part of HoB initiative because they live within and surrounding Borneo environment. Their stakes are to support action plan in practice by improving and enriching better implementation which is expected from their day-to-day experience. Formadat as alliance of indigenous people of the Highland of Borneo is one of the community group which support the establishment of the Heart of Borneo initiative through community-based transboundary ecotourism program.
		Ethnic leaders	Ethnic leaders have significant roles in shaping opinion of local communities and delivering such action plan to the communities. Their very strong stakes are expected to improve and support government plan in HoB initiative. An important role of ethnic leaders is exemplified from a case of joint transboundary community-based ecotourism in which village headmen lead the organization namely Formadat which represent about 15,000 people on Malaysian side and 20,000 people on Indonesian side (Hitchner, et al. 2009)

Source: Compiled by author

The table above provides overview of stakes and roles of some identified actors who involve in the Heart of Borneo initiative. They are ranged into several groups which are categorized based on the level and type of institution. Group of level could be recognized as international, national, and local players while outside of formal level institution, there are actors from beyond government who can be identified as NGOs, donors, companies, and academic groups as well as communities who could not be abandoned as an important part of this trilateral collaboration. Several significant international players could be recognized such as BIMP-EAGA and ASEAN which are clearly support the emergence of the Heart of Borneo initiative since the early stage of Heart of Borneo creation. At the national level, there are similarities of stakes in each member countries compared to the differences of stakes in local level or lower tier of government which are varies in each member country because of different structure of national forest governance system. Indonesia have more complex and longer tier of forest governance system in which district level also have significant role in shaping forest policy in local term. The role of district level in HoB initiative in Indonesia is obviously accommodated through the creation of the district working group. That is why district government in Indonesia is specially included as a player compared to the other member countries.

There are interactions of stakes which connect one actor to another. Formally, national level has direct interaction with local level because of their national system of forest governance. They are bounded each other by law in which many issued rules and regulations of national and local level are intertwine each other. Beyond these tiers of government, remarkable supports are showed by many players whether at international level such as international organization, donors, companies or at local level such as NGOs and communities. Their stakes are very important to run the whole of Heart of Borneo initiative implementation instead of only rely on government's stakes with all their limitation because there are so many aspects which are not covered by government's resources such as financial, human resources capabilities, technical abilities, etc. Therefore the integration and collaboration of stakes which are played by various related stakeholders is very essential to the successful of this transboundary collaboration. Well maintenance of key players' relationship and their stakes in the whole context of transboundary collaboration will bring huge benefit for the establishment of the Heart of Borneo initiative. As van der Linde, et al (2001), failure to maintain key player's relationship and establish stakeholder involvement will have risk for losing the opportunity to ensure stakeholder ownership to the process and respective impacts such as information shortage, lack of support, etc.

From several involved players above, the emerging question then is about major stakeholder(s) who significantly shape the direction of this trilateral initiative or dominantly involved in this transboundary collaboration. Principally, the major stakeholder is the one who has the largest stakes among other involved stakeholders. It can be recognized that the largest stakes are naturally dominated by government as formal institution who has power and authority to manage the processes and other

stakeholder involved. Their roles as formal public leader enable them to lead the formulation process, distribute stakeholder's role, and monitor the implementation. It is correspond to Bryson and Crosby (1992) who argued that the major stakeholder plays role as public leader who conducts the assessment of stakeholders. In this transboundary collaboration, government especially at national level in each country play central role to run this collaboration through the framework of Heart of Borneo initiative. It is indicated that some essential documents such as national action plan which are used as whole reference for implementation in practice is formulated under the authority of national government in each country. Collaboration of national governments through trilateral meeting as the highest forum in this transboundary collaboration is also considered as the significant element in shaping the direction of HoB initiative.

Another major stakeholder is indicated from their deep involvement since the initiation process of Heart of Borneo initiative up to the implementation of this collaboration. In line with Aswandi (2006), the roles of major stakeholder are started since the very early stage of transboundary collaboration formulation and should be ended at the very last stage of implementation. For this reason, WWF as the most involved NGO which has initiate this transboundary collaboration since 2000s, long before this collaboration is declared, is undoubtedly categorized as the major stakeholder. Their involvement either in political level through shaping international opinion or in practice level through field assistance in local communities are recognized as a remarkable support for the establishment of this transboundary collaboration.

Ideally, the role of local communities should be encouraged since the formulation of collaboration. Their possible stakes are potentially bigger than instead of only giving support for the creation and formulation of this collaboration. It is because they are group of people who living nearest to the resources and directly will receive the impact of any environment improvement. Up to now, there are limited activities which are considered as the implementation of the Heart of Borneo initiative in practice. The absence of local communities' involvement in formulating such transboundary collaboration is also raised by Persoon and Osseweijer (2008) in which local people did not play an active role yet. The bigger involvement which should be showed by local communities corresponds to Nan Lin (1999) in Aswandi (2006) who argued that one of key aspect for major stakeholder is the closeness to the embedded resources, which undoubtedly is experienced by local communities. Thus the local communities exist in Hear of Borneo areas should become another key stakeholder among other existing players.

5.4. Multi-sector cooperation in supporting transboundary forest management

Wider range of government sector and agencies are involved in the Heart of Borneo initiative. It shows that this transboundary collaboration attracts many interests from various related stakeholders as their own purposes. The complexity of issues as well as the importance of Borneo environment toward adjacent countries needs wider perspectives and approaches to tackle existing transboundary issues which can be

collaboratively managed by involving as many as related stakeholders. As reviewed in previous chapter, Heart of Borneo institution framework of each member country consist of various stakeholders which mainly coming from governments both national and local level, and stakeholders beyond government such as private sectors, NGOs, etc. In this course, involved government agencies in each country are mainly consist of natural resources and forestry sector, environment sector, economic and finance sector, etc. Even in Indonesia, it is completed with the creation of Provincial Working Group and District Working Group which also involve related stakeholder in local level. It is hoped that involving as many as related stakeholders can benefit the implementation Heart of Borneo initiative through sharing idea and information as well as enrich perspectives and approaches to handle transboundary issues.

Nevertheless, on the other hand, many involved stakeholders have also possibilities to be pitfall for the success of transboundary collaboration. As raised by van der Linde, et al (2001), the creation of transboundary collaboration should increase the effectiveness of natural resources management across border instead of solely managed within each country. If there is no significant increase on the effectiveness of transboundary forest management, then the creation of transboundary collaboration in this Borneo border area is useless. Thus the performance of many involved stakeholders in this transboundary collaboration should be monitored whether it can help to effectively reach the goal or not. It might be visible after several years of implementation in which some certain stakeholders are actually do not really need to be included into the Heart of Borneo institution framework instead of only copying the existing national forest governance system. Their stakes might be performed by other stakeholders.

If the proposed institution framework of the Heart of Borneo in each national level does not effectively run to reach the goals, thus the formulation of institution framework should be simplified and brought down into lowest level possible. Institutional support at national level might be needed but the real transboundary collaboration will be effectively conducted at implementation level through, for example, community to community cooperation across border as already implemented through transboundary ecotourism of Indonesia - Malaysia (Hitchner, et al, 2009) or farmer to farmer exchange at the border of China and Laos (Zuo Ting, 2001). Again, as van der Linde, et al (2001), transboundary natural resources management will more efficient if it involves the simplest range of lowest level possible to achieve the goals.

5.5. Coordination aspect and information management

One important key of transboundary natural resources management is a good communication and coordination among member countries. Therefore communication and coordination aspect is essential for the successful of Heart of Borneo initiative. The forming and appointing of national focal point and national focal agency in charge in the Heart of Borneo institutional framework is such a good effort to maintain communication effectively among member countries. This form is a good basis for

transboundary institution arrangement for decision making process as well as monitoring the implementation. Formally, trilateral meeting as the highest forum of Heart of Borneo initiative is constitute as the right place to offer such issues and discuss in comprehensive way. Apart from that, there are also possibilities to joint in the meeting of regional multi-lateral organization such as ASEAN and BIMP-EAGA in which Heart of Borneo initiative can arrange side meeting or thematic working group for discussing any urgent matters as an alternative of the Heart of Borneo trilateral meeting. These of institutional efforts to make a good coordination and communication is fully in line with what expressed by van der Linde, et al (2001) in which member countries of transboundary collaboration should seriously maintain good communication across the border, within countries, within and across levels, and across institutional and technical sectors. The successful of maintaining good communication will also ensure process of information sharing become easier and transparent.

Organizationally, what has been reached and agreed as institutional arrangement in the Heart of Borneo's structure is already ideal which accommodate each possibilities of trilateral coordination. But, it should be waited in practice while several issues coming later on whether this communication effort is still run effectively or not. So far, transparency of collaboration is still not fully tested yet because it just on the early stage of collaboration which concern to general matters and does not specifically touch to sensitive issues yet, such as natural resources extraction, illegal logging, etc. Learning from some transboundary management cases, information shortage often hampers transboundary collaboration. (Zuo Ting, 2001). The capacity to share priority information is often colouring transboundary collaboration in which some countries may not be willing to share it, especially on crucial issues. Worries of environmental fragile consensus as it happens in ASEAN (Iskandarsyah, 2006) where Brunei, Indonesia, and Malaysia are deeply involved should be avoided to be happened in the Heart of Borneo initiative.

5.6. Financial Support

Cost of transboundary forest management is predictably high. It covers many efforts to tackle any transboundary issues as well as mobilize resources to develop trans-border areas. Therefore in some cases, the progress of transboundary natural resources management is often constrained by financial capacity. Lack of financial capacity also threatens the Heart of Borneo initiative in which government call for financial support to run transboundary collaboration. Self funding is quite impossible to cover as large as the Heart of Borneo's areas. Thus, the decision to bring adjoining natural resources in Borneo border area into transboundary collaboration management have led to internationalize the issues which easier to attract international attention including donors. As reviewed in previous chapter, Asian Development Bank has offered such technical assistance and funding to help each country in this transboundary collaboration. Likewise with ITTO which has already spent such funding for 2 connected national park in Indonesia – Malaysia.

Involvements of external funding are expected as mentioned in the Heart of Borneo strategic plan of action. Trilateral meeting as the highest forum as well as each national government have mandate to seek international funding and any national finance support through, for example, corporate donors, private sector sharing, etc. Therefore, each country needs to determine their proper financial mechanism to sustainably fund this transboundary collaboration. Brunei Darussalam seems to lead in its effort to seek financial support from corporate donors while receives such huge amount from Brunei Shell Petroleum and HSBC as a part of their ongoing efforts to protect the environment. Different stage of development as well as infrastructure establishment might lead private sector to spend some funds easier than adjacent countries. While it looks so easy for Brunei to acquire corporate financial support, it is little bit difficult for Indonesia to seek fund raising from national private sector. It might be resulted from the less tangible benefit for corporate which lead companies become reluctant to give financial supports.

In fact, there is also another mechanism for fund raising which is potentially taken from environmental service market. Some schemes of environmental service market have already been known such as watershed service payments, carbon trade, and ecotourism payments. The possibilities of getting fund by these kinds of schemes for Heart of Borneo initiative have always to be observed because these schemes are considered to be more sustainable rather than merely expecting financial support from corporate donors or multi-lateral organization periodically. Thus ensuring sustainable development in the Heart of Borneo area will also ensure the existence of long term financial sustainability from environmental service market. Up to now, some schemes of these environmental service markets are being discourse in trilateral meeting such as REDD scheme for carbon trade and the possibilities of implementing this scheme into Heart of Borneo areas have been introduced. But, still, the establishment of institutional and supporting policies is being waited to support the implementation of environmental service payment.

5.7. Public participation in transboundary forest management

This transboundary collaboration has possibility to be brought down to the lowest level possible in order to involve as many as potential stakeholder which are local communities as a subject in field. This collaboration will not work properly and become useless if there is no support in implementation coming from local communities who living closest to the resources. Ideally, the involvement of local communities should be showed since the early stage of creation this initiative which is absent in fact as stated by Persoon and Osseweijer (2008) and criticized by Eghenter (2000) about whose Heart of Borneo we are talking about. It is about building of communities and resources which are suffered by transboundary collaboration in which they are supposed to be the main actors. Thus the need to bring down this transboundary collaboration into local communities is deal with the argument that raised by van der Linde, et al (2001) who

stated that transboundary natural resources management should work at the lowest level possible. The reason to bring this initiative down to local level is based to the fact, experience, and argument that working of transboundary natural resources management at lowest local level will tend to long lasting rather than at higher level which is prone to political change (Zuo Ting, 2001; van der Linde, et al, 2001). It will also answer the raised issue in previous chapter that indigenous right is sometimes abandoned.

The recent development of public participation under the framework of Heart of Borneo initiative is improved. As mandated in the Heart of Borneo strategic plan of action, the bigger public participation is encouraged through community-based transboundary ecotourism development. This is the most obvious strategy among other strategies of Heart of Borneo initiative which clearly involves communities in transboundary collaboration. With the geographically closeness of communities across border as well as ethnic relationship, community-based transboundary ecotourism has already been introduced in Borneo border area such as the Kelabit Highlands Malaysia - the Kelayat Highlands Indonesia ecotourism (Hitchner, et al, 2009). This transboundary ecotourism program offers such a trip which crossing border organized by connected local communities living in both side of countries. With all the limitation it has such as tourism infrastructure, communication device, etc, it shows that local communities have desire as well as capacity to participate in joint collaboration through transboundary ecotourism.

The need of government support is about legality of international border crossings which should be managed at inter-governmental level. In fact, going transboundary management such as this example can re-connect local communities across borders which surely cannot be strictly dissected by international boundary as stated by van der Linde, et al (2001). Apart from this community-based transboundary ecotourism, public participation sounds still limited in the Heart of Borneo initiative except in small context such as community assistance, capacity building, etc. Active roles of communities in context of the Heart of Borneo initiative are still not significant yet. It should be realized that taking local communities into account of transboundary collaboration will present such of opportunities like re-connecting cultural ties and legalize cross-border movement at tolerable intensity toward strengthening communities and increasing welfare and social life.

5.8. The need of capacity building

Generally speaking that international border area is mostly situated in remote area and relatively less developed. Lacks of infrastructure development, less supervision of natural resources extraction, as well as low human resources capacity are generally colouring international border area as it is also happened in Borneo border area. Most of populations in Borneo border area are heavily dependent on agricultural and forest products in traditional manner which need to the introduction of sustainable way of natural resources utilization. At this point, transboundary collaboration is needed to deal

with the facts and improve the quality of human resources through capacity building. Many benefits of doing some capacity building for indigenous people will be achieved regarding to the existing environmental issues such as decreasing the rate of forest conversion, reducing the practice of shifting agriculture, combating illegal logging and illegal trade, etc. Thus the capacity building is very important to be conducted in the middle of indigenous communities as a part of this transboundary collaboration.

The implementation of capacity building in context of the Heart of Borneo initiative has been accepted as one of strategic plans, acknowledging that there is a gap between present condition and ideal condition of human resources capacity for the success of transboundary collaboration. This strategy is aimed at ensuring the effectiveness of this transboundary collaboration at all levels, including government, private sectors, and communities. Thus the objects of doing this capacity building in context of Borneo border area is not only focus on local communities but also on the involvement of government and private sector especially at local level since transboundary collaboration is considered as something new in practice on their field. Some scenarios of capacity building has been proposed in the Heart of Borneo action plan such as research and development, education, conservation, land use planning, ecotourism management, law enforcement, as well as promote public awareness for wider communities. It varies based on the target of capacity building.

In Borneo transboundary collaboration, capacity building should be encouraged as a major activity at the early stage of collaboration in order to ensure balance input and output on the whole planning processes which involve related stakeholders. It is in line with van der Linde, et al (2001) who argued that capacity building at the early stage will secure balanced input into the process and ensures equal power of decision making process. The consideration to encourage capacity building as the major activity at early stage in the Heart of Borneo initiative is about the facts that the institution capacity in these member countries is slightly different. When there is a significant disparity of organization and human resources capacity across border, then capacity building should be endorsed as a priority to avoid imbalances in decision making power. Weak capacity of involved stakeholders, if there is no significant improvement on capacity building, will become serious constrains for creating strong transboundary forest management in Borneo border area.

5.9. Planning process discussions on transboundary forest management

Emerging concern of transboundary forest management around the world has led to the reviews of many perspectives of its implementation. Wider perspectives of transboundary collaboration in forest management which are reflected in handling diverse issues as discussed before have close correlation to the planning discourse especially in context of decision making and planning process. Complexity of problem,

interaction of multi-actors, and the practice of collaborative planning under the framework of the Heart of Borneo initiative are constitute as planning discourse aspects in constructing transboundary forest management. This part will discuss about how planning process discourse as mentioned above influence in the landscape of transboundary forest management.

5.9.1. Pluralism and complexity in transboundary forest

It is widely accepted that forest management nowadays has shifted from simply cutting and replanting trees toward acknowledging high diverse of forest value and environmental services (Rosser, 2005). There is also recognition of the existence of indigenous people living surrounding forest areas which lead to the acceptance of wider values and dynamic condition within forest management (Wang, 2004). Huge interests toward forest values and diverse condition inside such as economic, ecology, social and cultural from various stakeholders has led to the dynamic and complex condition of transboundary forest management in Borneo border area. How complex of Borneo transboundary forest can be reflected from raised issues in previous chapter which involve interaction of various stakeholders at all levels, attract diverse interests, and increase political tension in some cases such as illegal logging, smuggling, illegal trading, and forest fires.

Acceptation of dynamic and complex condition in Borneo transboundary forest into the framework of the Heart of Borneo initiative is very important as a good start of constructing transboundary forest management. Sounds of accepting wider interests based on conservation value and local wisdom with respects to each sovereignty appear in the formulation of strategic plan of action as the way to acknowledge dynamic condition in Borneo transboundary forest management. Consideration of accommodating as many interests as exist at local level based on conservation value and local wisdom in this transboundary collaboration cannot be separated from the growing spirit of sustainable forest management which deals with pluralistic nature which is now widely accepted around the world (Wang, 2004; Bebbington and Kopp, 1998). It leads to the foundation of pluralistic perspective in transboundary forest management and accommodating multiple interests in formulating such transboundary collaboration framework.

According Wang and Wilson (2007), there are three perspectives in reviewing at pluralism in forest management, which are plurality in environment product and services, plurality in how forests are managed, and plurality in the decision making and participation process. It connects to the aspects of who (actors), how (management), and what (products/environmental services). In this course, the Heart of Borneo initiative has accommodated mainly on the recognition of 'what' aspects, which are multiple interest toward forest products and environmental services which has become the cause

of this transboundary collaboration creation. But for the aspects of 'who' and 'how', it just starts to be accommodated through the formulation of the Heart of Borneo's strategic plan and need to be waited for the real implementation in field. In practice, the Heart of Borneo initiative is challenged by the capacity of recognize each involved stakeholders especially at local level, understand the multiple interests, and build such relationship among each other in order to give enough opportunities to involve in this transboundary collaboration. It corresponds to the key success of implementing pluralistic approach in forest management as raised by Wollenberg, et al (2005).

5.9.2. Multi-actors in transboundary forest management

Generally believed that involving as many as competent stakeholder in forest management through collaborative planning is one of important parts to increase the effectiveness of doing transboundary forest management (van der Linde, et.al, 2001; Agrawal, 2000; Wollenberg, et.al, 2005). It leads to the impact of giving bigger chance to competent stakeholders especially for local communities who living closest to the forest resources to deeply participate in decision making process. In fact, the formulation of Heart of Borneo initiative did not fully reach this spirit yet instead of still mainly formulated by government as major stakeholders correspond to Persoon and Osseweijer (2008) who raised issue about the less involvement of local communities. Bigger chance of various stakeholders' involvement including for local communities is given at implementation level through particular activities which need wider public participation in practice. There is adequate acknowledgement of complexities in Borneo transboundary forest as implied in strategic plan, but it still does not guarantee for enough opportunity to actors beyond governments especially local communities to involve since the early stage of transboundary collaboration formulation.

There is challenge to accommodate as many as competent stakeholders and their interests in planning and decision making process. Too many stakeholders involved without enough competent will also obscure the essence of planning process and hamper for the formulation of transboundary collaboration. Furthermore, many involved stakeholders have also possibilities to be pitfall for successful of transboundary forest management which hamper the effectiveness of doing transboundary collaboration as raised by van der Linde, et al (2001). Therefore, ensuring the only very-competent stakeholders who can involve in planning and decision making process is very important to be carried out by government who has central role in this transboundary collaboration formulation. It will also encourage the less empowered group of indigenous people who might be ignored in decision making process. In line with Wood (2007), giving chance to deeply participate in this process is only allowed for group of stakeholders who support to the establishment of transboundary forest management as their way to achieve their interests.

5.9.3. Adaptive management in transboundary forest management

As Wollenberg, et al (2005), forest governances are typically designed apart from the understanding of pluralism and problematic to handle multiple values of forest. It seems also occur in transboundary forest management in Borneo border area context while most of the content of Heart of Borneo initiative is formulated mainly by governments. There are, of course, series of discussions, public hearings, and dissemination which involve as many as related stakeholders but it does not cover enough as many as the need of local communities nearest forest areas. As explained before, the long lasting transboundary collaboration is the cross-border cooperation which involves very competent stakeholders at lower level possible. Thus, giving bigger chance to those who living nearest forest resources and will get impact directly from any improvement toward forest resources is very essential for the success of transboundary forest management.

Such bigger involvement of local communities can be practiced since the early stage of transboundary collaboration through explores their common aims and seeking for a plan which is agreed by all stakeholders. This bottom up planning constitutes adaptive management which more accurately determines the desire of local communities toward forest resources utilization and the way to achieve their desire goals. As Agrawal (2000), the practice of adaptive management in context of transboundary protected forest has become common in recent trend and has been widely implemented in some connected protected area over the world. The need of implementing adaptive management in Borneo transboundary context is relied on the learning process from long-term experience by local communities as well as recognizes interest interaction among actors which lead to the better formulation of alternatives or scenarios of decision making. This process is expected to bring robust and effective transboundary collaboration in Borneo border area especially at local level.

There is a practice of adaptive management in Borneo transboundary collaboration which is already acknowledged in the Heart of Borneo initiative and has been inserted as one of strategic plan, that is community-based transboundary ecotourism. This program is initially designed by WWF supported by local NGOs which is intended to organize cross-border ecotourism activity which is held by connected local communities from adjacent countries, Indonesia and Malaysia. After adoption of this community-based ecotourism program into the Heart of Borneo's agenda, then the need of government support is about legality of international border crossings which should be managed at inter-governmental level. Among other things, such adaptive management needs to be adopted as common approach in planning and decision making process especially at local level because doing adaptive management in transboundary forest management will very useful to get comprehensive assessment of forest values and the interest interaction among actors toward these forest values.

5.10. Concluding remarks

Institutional building has become one of important aspects which is concerned in Heart of Borneo initiative. Various perspectives can be reviewed in order to get insight of how institutional building establish in this trilateral initiative. It connects to the thought that how most of emerging problem will be solved under the framework of institutional building through such cooperation, negotiation, and agreement. In this research, several perspectives are used to analyze the existence of institutional building of Borneo transboundary forest management under the framework of the Heart of Borneo initiative, which are political and legal aspects, institutional framework and integrated planning system, key players in transboundary forest management, the presence of multi-sector cooperation and financial support in this transboundary collaboration, as well as public participation and the need of doing some capacity building to empower local communities and local government.

Result of analysis shows that this transboundary collaboration has good start with clear commitment from participating governments to joint in this initiative. In practice, there are some limitations which should be improved to support the effectiveness and sustainability of this transboundary collaboration such as the involvement of local communities and the need to capacity building. There are also enabling conditions as well as challenge which should be encouraged to support the sustainability of this collaboration such as the existence of environment value to sustainably fund this collaboration through environmental service payment. In planning perspective, this transboundary collaboration is appear in the middle of complexity in planning arena reflected with multi-actor and multi-interest toward forest resources which lead to the emerging environmental issues. The highlighted issue of planning and decision making process in this transboundary collaboration is about the less participation of local community which should be more accommodated in the next phase.

CONCLUSION AND RECOMENDATION

The emergence of transboundary environmental issues in Borneo border area and the importance of institutional building in creation of the Heart of Borneo initiative become the central issues which are discussed in this study. What the transboundary issues in Borneo border area are and how it implicates toward transboundary environment management and the arrangement of institutional building in the Heart of Borneo initiative is the core of discussion in this study as previous chapters. This chapter expresses the core results as research question and further recommendation based on the results.

6.1. Summary of findings

The growing concern of transboundary environmental issues in Borneo border area context is basically related to the nature of environment management which could not be separated by political and administrative boundaries. By the Heart of Borneo initiative, it is expected that there will be a collective framework of actions due to the consideration of sustainable unity ecosystem. Normally, there must be tensions in planning and decision making process built in different planning arena of national circumstances, cultures, and political issues of Brunei Darussalam, Indonesia, and Malaysia. It involves different national forest governance framework and also different key players among these member countries. As raised by van der Linde, et.al (2001), each of transboundary natural resources collaboration is unique and there is no fixed blueprint approach. As of Borneo border area, all of differences in transboundary circumstances complicated by existing cross-border issues have consequences in formulating integrated environment planning system.

The members of this trilateral initiative, Brunei Darussalam, Indonesia, and Malaysia, are agree to collaborate each other to handle such issues with respect to each sovereignty and territorial boundaries. Decision to merge each other in one conservation vision and sustainable development principle is based on the widely-known facts that there are multiple interests toward Borneo border area which threaten biodiversity richness in these areas as deeply reviewed in previous chapters. The central issues of Borneo transboundary environment management is mostly dominated by interaction of ecological resources and economic interests which lead involved stakeholders to behave partially. At this point, the need of the Heart of Borneo initiative is very important to bridge these interests and bring mutually benefit through sustainable development.

This study answers some raised question about transboundary environment management in Borneo border area context under the framework of the Heart of Borneo initiative as summarized below:

1. Current issues of Borneo border area and how it implicates to transboundary forest management.

The nature of Borneo environment which have high value of natural resources and also have strategic roles in environmental services on the other hand bring to the emergence of multiple interest toward environment management in Borneo border area. The uniqueness of forest ecosystem and the richness of biodiversity as acknowledged by many researchers have led to the growing attention of environment through creation of the Heart of Borneo initiative. On the other hand, the high values of natural resources as well as the unlucky-situation which located exactly on the international border area have also led to the broken environment management and different land use arrangement which is dissected by national boundary. These interesting facts have become the important aspects which are discussed in the Heart of Borneo initiative and acknowledged as one of the main strategic plan of action. With respect to each sovereignty, the Heart of Borneo initiative has mandated to develop and review such master plan consider to the connectivity of ecosystem across border through joint spatial planning, something that being waited in practice.

Furthermore, many issues are widely-known in Borneo border area. The long lasting issues which are recognized toward economic decrease are illegal logging, smuggling and cross-border timber trade, and forest fire disaster. These issues often cause protest and increase political tension among countries in this region and even sometimes is brought to regional forum. Oddly enough, these issues seem to do not have enough attention explicitly in the Heart of Borneo strategic plan. Other issues are connected to land use sustainability such as deforestation, forest conversion, oil palm plantation, encroachment, and shifting cultivation. It mostly happens in Indonesia and Malaysia in which the forest areas are threatened by big scale conversion mostly by corporate as well as in small scale through encroachment and shifting cultivation by indigenous farmers. It implicates to the adoption of sustainable development principle within the Heart of Borneo strategic plan as well as the biodiversity-loss issue which accommodated through giving attention on researches, educations, and protection of biodiversity richness. The rest issues are about indigenous rights and the lack of public participation. As explained, it is said that the public participation within the Heart of Borneo is still less accommodated. Encouraged by local NGOs as well as WWF, community participation is then accommodated in Strategic Plan through community-based ecotourism, one of the explicitly strategies. Other forms of public participation might be appearing in practice by supporting the Heart of Borneo implementation.

2. Institutional building in Borneo border area

Institutional building has become one of important aspects to be concerned in Heart of Borneo initiative. Many aspects of transboundary environment management could probably be started and ended by the arrangement of Heart of Borneo institutional framework. The need of institutional arrangement to be settled in this collaboration is very important consider to most of emerging problem can be solved under the framework of institutional building through such negotiation and agreement.

On political aspect, this transboundary collaboration has enough support from member countries' government reflected by a clear statement of countries' leader. It is such a good circumstance to start an international collaboration. Sounds of sensitive issues of natural resources extraction and different land use policies along border line bring to the formulation of agreement which is voluntary with respect to the each sovereignty and respective laws. Something that can still be considered as the weakness of this collaboration is that it does not regulate any rule yet which legally binding each other. As other environment institutional buildings in this region, cooperation among member state is fragile to solve environment problem without such punishment to member countries.

Institutional framework which has been proposed by member countries is varies each other. The institutional arrangement of member countries is deeply influenced by national system of forest governance which involve existing stakeholder in charge. It also applies for the transboundary action plan in each member countries which constitutes an extension of national forest governance and does not integrated yet into the framework of the Heart of Borneo initiative. Generally, the role of national government is dominant rather than government at local level as well as other involved stakeholders. Their roles as formal public leader who has enough power and authority enable them to lead the process since the early stage of transboundary collaboration formulation.

Another key stakeholder is indicated from their deep involvement since the initiation process of the Heart of Borneo initiative up to the implementation of this collaboration. For this reason, WWF as the most involved NGO which has initiate this transboundary collaboration since 2000s is undoubtedly categorized as the key stakeholder. Their involvement either in political level through shaping international opinion or in practice level through field assistance to local communities are recognized as a remarkable support for the establishment of this transboundary collaboration. Unfortunately, the absence of local communities' involvement in formulating such transboundary collaboration is considered as the weakness as also highlighted by some researchers. Ideally, the involvement of local communities should be showed since the early stage of creation this initiative.

This transboundary collaboration also involves wider range sectors and agencies. The complexity of issues as well as the importance of Borneo environment toward adjacent countries leads to the need of wider perspectives and approaches to tackle existing transboundary issues. Nevertheless, instead of enrich perspectives and approaches to handle transboundary issues, the involvement of too many stakeholders have also possibilities to be pitfall for the success of transboundary collaboration. It can hamper the effectiveness of natural resources management across border. Therefore, if the proposed institution framework of the Heart of Borneo in each national level does not effectively run to reach the goals, thus the formulation of institution framework should be simplified and brought down into lowest level possible.

The need of sufficient finance to run this transboundary collaboration also becomes attention the Heart of Borneo initiative. There are already financial supports from external funding such as from international organization like ADB and ITTO as well as from corporate support such as Brunei Shell Petroleum and HSBC. But, it is not as easy as expected to seek some corporate donors because of less tangible benefit for corporate which lead companies become reluctant to give financial supports. The possibility to fund this collaboration sustainably might be reached by implementing environmental service market such as carbon trade, watershed service payment, and ecotourism. This effort has been introduced and observed to be implemented under the Heart of Borneo framework.

Considering that there is a gap between present condition and better condition of human resources capacity especially at local level, the Heart of Borneo initiates some capacity building programs to increase the level of human resources quality toward sustainable development principles. It is realized that balanced human resources capacity in adjacent local communities across border will be valuable to ensure equal power of decision making within the framework of the Heart of Borneo initiative. Therefore, conducting capacity building since the early stage in this transboundary collaboration is highly important.

3. Transboundary forest management in planning perspective

Transboundary forest management in Borneo border area cannot be separated from the presence of complex condition in this area. Huge interests toward forest values and the existence of multi-stakeholders in forest management lead to the acknowledgement of dynamic and complex condition in this transboundary forest. Acceptation of this complex condition in the formulation of the Heart of Borneo initiative is reflected on the sounds of acknowledging local wisdom value with respects to each sovereignty and respective laws consider to different circumstances of political, social and culture in adjacent countries.

The presence of multi-actors in this transboundary forest management is also acknowledged and accepted in this trilateral collaboration. Nevertheless, the involvement of multi-actor especially for local communities who living surrounding forest area is still limited in the planning and decision making process of the Heart of Borneo initiative even though too many involved stakeholders will also prone to be pitfall for the success of transboundary forest management. It is such challenge for government who play central roles to distribute the role and selecting the only very-competent stakeholders to be involved. In certain context, the implementation of adaptive management in Borneo transboundary context has been practiced through community-based transboundary ecotourism program which involves connected local communities from adjacent countries since the early stage of formulation even though, in general, this approach is still lack in practice. Consider to the valuable support from local communities and the sustainability of programs, thus such adaptive management should be encouraged as common approach in planning and decision making process especially at lowest level in Borneo trans-border area.

6.2. Reflection

The growing attention of transboundary forest management is basically based on the nature of environment which could not be limited by political and administrative boundaries that will dissect environmental management administratively. Thus the importance of doing transboundary forest management is to make sure that forest resources management will be ecologically re-connected due to the consideration of sustainable unity ecosystem. The basic principles of doing transboundary forest management according to van der Linde, et al (2001) are that there should be geographically across border and cover shared natural resources, there should be some active collaborations among member countries reflected from the performances of transboundary collaboration, and there should be significant increase of effectiveness in achieving shared goals and bring benefits for each member countries. These principles are used as point of reference to reflect the implementation of transboundary forest management in Borneo border area under the framework of the Heart of Borneo initiative.

Numerous emerging issues toward transboundary forest in Borneo border area which sometimes increase political tension among countries as deeply reviewed in chapter 3 indicate that there are shared natural resources situated across international border which attract multiple interests from adjacent countries which is partially managed in different circumstances of political, cultural, economical, as well as forest governance system of adjacent countries. These facts lead to the creation of transboundary forest management in Borneo border area through the Heart of Borneo initiative. From the raised point of reference, it reflects the principle that doing transboundary forest management should be geographically across border and cover certain shared natural

resources, which are forest resources in this context. At this perspective, the creation of the Heart of Borneo initiative as a transboundary forest resources collaboration in Borneo border area is deal with the basic principle of doing transboundary forest management. Several important issues such as illegal logging, smuggling, cross-border timber trade, and encroachment really threaten the existence of Borneo transboundary forest which are exactly happened across border line.

Effort to analyze institutional building under the framework of the Heart of Borneo initiative which represents Borneo transboundary forest management in this research constitutes an acknowledgement of the existence of active collaboration among adjacent countries. Trilateral institutional building through the Heart of Borneo framework then becomes the representation of active collaboration in Borneo transboundary forest management which is expected to effectively handle various environmental issues. It deals with the basic principle of doing transboundary forest management that there should be some active collaboration among member countries which are reflected from the performances of transboundary collaboration. It also connects to the principle that there should be significant increase of effectiveness in achieving goals even though it is too early to conclude whether this transboundary collaboration is running well or not. There are some conditions which still indicate the weak performance of Borneo transboundary forest management such as fragile consensus and less public participation as highlighted in this research. It is such of critics which should be encouraged in order to strengthen the establishment of institutional building in Borneo transboundary collaboration.

In planning perspective, the formulation of transboundary forest management in Borneo border area especially in terms of planning and decision making process could not be separated from the nature of complexity in transboundary areas. It leads to the recognitions of multi-actors and multi-interests toward transboundary forest management. Unfortunately, these acknowledgements are still not fully followed by enough accommodation of public participation in formulating this transboundary collaboration. There is growing trend in involving local communities since the early stage of decision making process in transboundary collaboration through community-based transboundary ecotourism program. This approach provides the enough space for local communities to formulate their own plan based on their desires, abilities, as well as their limitations. This approach should be accustomed in this transboundary collaboration especially for decision making which deeply implicate to local level.

Above all, transboundary forest management in Borneo border area has been successfully started with all of the effort to improve institutional building. Some lesson learns could be extracted from doing transboundary forest management in Borneo border area which are the importance of clear statement and long term commitment from participating governments; the importance of legally binding consensus especially on sensitive issues of natural resources extraction; public participation and the

involvement of very-competent stakeholders to avoid inefficiency of institutional framework to reach the goals; the importance of providing sustainable funding alternatives through environmental service payments; and the need of capacity building especially at local level. Those of lesson learns can be used as reflections for the implementation of transboundary forest management in Borneo border area as well as in other border areas around the world.

6.3. Policy recommendation

Result of study has determined some issues of the implementation of transboundary forest management which are proposed as policy recommendations as follow:

- a. Giving more attention on sensitive environmental issues
The presence of the Heart of Borneo initiative cannot be separated from some sensitive environmental issues such as illegal logging, smuggling and illegal trading, as well as forest fire. Therefore, the formulation of this transboundary collaboration should reach the essence issues and give more attention on these issues explicitly in certain part of strategic plan.
- b. Increase the level of agreement
The nature of this agreement is voluntary cooperation which just seems to be mutual understanding without any regulation that legally binding each other. With respect to each sovereignty, the level of this agreement might be increased into legally binding each other with such punishment fairly to the member countries regarding to the importance of Borneo environment toward wider human life in global context.
- c. Effectiveness of institutional framework
Considering to the many stakeholders involved with their diverse interests, it is important to monitor the performance of institution involved whether it can help to effectively reach the goal or not. If there is no significant increase on effectiveness of transboundary collaboration, then the institution framework should be simplified and rationalized.
- d. Transboundary collaboration should be brought down at the lowest level possible
It is important to make sure that transboundary collaboration concept can be practiced in field rather than only nicely formulated by national working group at higher level without significant implementation. Thus, bring the transboundary collaboration down to the lowest level possible is very important to make sure the implementation in field and the sustainability of transboundary collaboration.
- e. Bigger involvement of local communities
The essence of transboundary forest management is involving as many as local communities surrounding forest areas as a part of collaboration. The need of public participation in transboundary forest management is not only giving support but also

deeply involved in planning and decision making process since the early stage of formulation. Transboundary collaboration at local level will ensure public participation and tend to be long lasting rather than at higher level which prone to political change.

f. Sustainable financial support

Consider to the huge potencies of environmental services, it is chance to maximize fund raising by implementing environmental service market through carbon trade, watershed service payment, and transboundary ecotourism. These fund alternatives will more sustainable and affect to local communities surrounding forest areas rather than waiting for financial support from donors. The mechanism can be further explored in other researches.

6.4. Further researches

This study also raises some new questions which can be explored as further researches, which are:

a. Stakeholder audit at local level

Stakeholder audit in this study has been done in general mainly to map the stakeholder and their stakes at higher level. Detailed stakeholder audit can be observed at local level which may give different and richer information of interaction among existing actors. The tools of stakeholder audit by Bryson and Crosby (1992) can be used for this further stakeholder audit.

b. Informal institution framework

In line with stakeholder audit at local level, institutional arrangement at local level might be richer than at national level covering the cultures, norms, systems, and unwritten rules. Revealing this informal institution framework in detail will be very useful to formulate such adaptive planning at local level.

c. Sustainable funding

Sustainable funding alternatives through environmental service payment mechanism should be always encouraged. It is related to the long-term financial support which requires sets of precondition of institutions, policies, etc. The needed research is about how this mechanism works, what should be prepared, how supporting institution and policy should be, etc

REFERENCES

Articles:

- Abdullah, TSDS. 2005. *Integrated Water Resources Management and the Heart of Borneo*. Article in Heart of Borneo - Three countries one conservation vision workshop
- Bibi, MSA and Berudin, ZH. 2009. *Forest Land Management in Brunei Darussalam*
- Bebbington, A. and Kopp, A. 1998. *Networking and rural development through sustainable forest management: Frameworks for pluralistic approaches*. Unasylva 194, Vol. 49, 1998 11. <http://www.fao.org/waicent/faoinfo/forestry/unasylva/194/E/194-02e.pdf>
- Central Kalimantan HoB Working Group, 2009. *Profil Wilayah Heart of Borneo / Heart of Borneo Area Profile*
- Degorski, M. 2008. *Environmental Dimension of Transboundary Spatial Development – Driving Forces in Environmental Regionalism: A case study on the Polish-German borderland*.
- Harty, T, Daniel Potts, Donald Potts, and Jehan El-Jourbagy. 2005. *Handling Transboundary Cumulative Impacts in SEA*. Implementing Strategic Environment Assessment.
- Mamatkanov, DM. 2008. *Mechanism for Improvement of Transboundary Water Resources Management in Central Asia*. Article in Transboundary Water Resources: A Foundation for Regional Stability in Central Asia
- Negassa, A. 2007. *The role of trust among actors in common-pool resource management: Empirical evidence from participatory forest management in Ethiopia*. Article in Proceedings of Participatory Forest Management (PFM) Biodiversity and Livelihoods in Africa
- Ngece, N., W. Kakuru, K. Kimani, 2007. *Conflict management and community development projects as incentives for partners to participate in Participatory Forest Management (PFM) – The case of Loita and Lembus communities in Kenya*. Article in Proceedings of Participatory Forest Management (PFM) Biodiversity and Livelihoods in Africa
- Obidzinski, K. *Transboundary Biodiversity Conservation: The Pulong Tau National Park, Sarawak State Malaysia*.
- Patosaari, P. 2003. *Transboundary Conservation Area and Intergovernmental Forest Policy Dialogue*. International Workshop on Increasing the Effectiveness of Transboundary Conservation Areas in Tropical Forests, Thailand
- Payne, J. 2005. *Biodiversity in the Heart of Borneo*. Article in Heart of Borneo - Three countries one conservation vision workshop
- Petursson, JG., P. Vedeld, J. Kaboggaza. 2006. *Transboundary Biodiversity Management Challenges: the case of Mt. Elgon, Uganda and Kenya*.

- Sarre, A. 2005. *Opportunities for Transboundary Conservation in Borneo: Regional Perspective*. Article in Proceedings of “Heart of Borneo: Three Countries, One Conservation Vision” Workshop
- Steinmetz, E. 2005. *Transboundary Biosphere Reserves: Win-win Solutions for People and Nature*.
- Wadley, RL. and Eilenberg, M. 2007. *Vigilantes and gangsters in the borderland of West Kalimantan, Indonesia*
- Wood, A. 2007. *Through whose eyes? Understanding stakeholders’ perspectives on potential forest income, as the basis for successful PFM*. Article in Proceedings of Participatory Forest Management (PFM) Biodiversity and Livelihoods in Africa
- WWF. 2008. *Media Activity*. Fire Bulletin no. 19/2008
- Zuo Ting. 2001. *Cases of Local Transboundary Environmental Management in Border Areas of The Mekong Watershed in Yunnan, China*

Books:

- Aswandi, Z. 2006. *The governance of special region: Building institutional capacity in the planning process of trans-national border region between Indonesia-Malaysia in West Kalimantan Province*. Master Thesis. University of Groningen
- Bappeda Kalbar. 2004. *The analysis of agroforestry development for illegal logging mitigation in border area*. Government of West Kalimantan Province
- Bappeda Pontianak. 2009. *Long Term Development Planning (RPJP) Pontianak City*. City Government of Pontianak
- Boedihartono, A.K. 2008. *Punan hunter-gatherers and the Heart of Borneo initiative*. Tropenbos International. Wageningen, the Netherlands
- Breymeyer, A and Noble, R. 1996. *Biodiversity Conservation in Transboundary Protected Areas*. National Academies Press
- Bryson, JM., and Crosby, BC. 1992. *Leadership for the Common Good: Tackling Public Problems in a Shared-Power World*. San Francisco, CA: Jossey-Bass
- Citizen Welfare Ministry of Indonesia. 2005. *Human trafficking in person*. Government of Indonesia
- Cresswell, JW. 2009. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches 3rd edition*. Sage Publication Inc
- Eghenter, C. 2008. *Whose Heart of Borneo? Critical issues in building constituencies for equitable conservation*. Tropenbos International. Wageningen, the Netherlands
- Hasantoha Adnan, D. Tadjudin, E. Linda Yuliani, H. Komarudin, D. Lopulalan, YL. Siagian and DW. Munggoro. 2008. *Belajar dari Bungo, Mengelola Sumberdaya Alam di Era Decentralisasi*. Centre for International Forestry Research (CIFOR)

- HoB. 2008. *Heart of Borneo: Strategic Plan of Action, Bridging Conservation and Sustainable Development in Three Countries*. Heart of Borneo
- Iskandarsyah, N. 2006. *Comparative study on the environmental institution building in the European Union and Association of Southeast Asian Nations*. Master Thesis. University of Groningen
- Persoon, GA. And Osseweijer, M. 2008. *Reflections on the Heart of Borneo*. Tropenbos International. Wageningen, the Netherlands
- van der Linde, H., J. Oglethorpe, T. Sandwith, D. Snelson, and Y. Tessema (with contributions from Anada Tiéga and Thomas Price). 2001. *Beyond Boundaries: Transboundary Natural Resource Management in Sub-Saharan Africa*. Washington, D.C., U.S.A.: Biodiversity Support Program
- Wakker, E. 2006. *The Kalimantan Border Oil Palm Mega Project*. AIDEnvironment
- Wollenberg, E., J. Anderson, C. Lopez. 2005. *Though all things differ: pluralism as a basis for cooperation in forests*. Centre for International Forestry Research (CIFOR)
- World Bank. 2004. *Mozambique: Transfrontier Conservation Areas Pilot and Institutional Strengthening Project*
- WWF. 2005. *Borneo: Treasure Island at risk. Status of forest, wildlife and related threats at the island of Borneo*. Frankfurt am Main, WWF Germany
- Yong, C. 2006. *Forest governance in Malaysia; An NGO perspective*. FERN

Journals:

- Agrawal, A. 2000. *Adaptive management in transboundary protected areas: The Bialowieza National Park and Biosphere Reserve as a case study*. Environmental Conservation 27/4 (2000): 326-333
- Busch, J. 2008. *Gains from configuration: The transboundary protected area as a conservation tool*. Journal of Ecological Economics 67 (2008): 394-404
- Da Ming, HE, Liu Jiang, Hu JinMing, Fen Yan, and Gan Su. 2007. *Transboundary Ecoscience and Its Regulation System in the Longitudinal Range-George Region*. Chinese Science Bulletin 52 (2007): 1-9
- Fox, CA and Sneddon, C. 2007. *Transboundary river basin agreements in the Mekong and Zambezi basins: enhancing environmental security of securitizing the environment?*. Journal of International Environment Agreement 7 (2007): 237-261
- Hanks, J. 2003. *Transfrontier Conservation Areas (TFCAs) in Southern Africa: Their Role in Conserving Biodiversity, Socioeconomic Development and Promoting a Culture of Peace*. Journal of Sustainable Forestry 17 (2003): 1-20

- Hitchner, S.L., F. Lapu Apu, L. Tarawe, S. Galih, S. Nabun Aran, and E. Yesaya. 2009. *Community-based transboundary ecotourism in the Heart of Borneo: a case study of the Kelabit Highlands of Malaysia and the Kerayan Highlands of Indonesia*. *Journal of Ecotourism* 8/2 (2009): 193-213
- Jiang, L and Daming, H.E. 2006. *Research Agenda for Understanding Transboundary Ecosystem Changes and Ecosystem Security in Southwestern China*. *Journal of Mountain Science* 3/1 (2006): 81-90
- Kelson, A.R and Lilieholm, R.J. 1999 *Transboundary Issues in Wilderness Management*. *Environmental Management Journal* 23/3 (2006): 297-305
- King, B and Wilcox, S. 2008. *Peace Parks and Jaguar Trails: Transboundary Conservation in a Globalizing World*. *GeoJournal* 71 (2008): 221-231
- Obidzinski, K., Andrianto, A., Wijaya, C. 2007. *Cross-border timber trade in Indonesia: critical or overstated problem? Forest governance lessons from Kalimantan*. *Journal of International Forestry Review* 9 (1), 2007: 526-535
- Petheram, R.J., Stephen, P., Gilmour, D. 2004. *Collaborative forest management: a review*. *Australian Forestry* 2004 67/2 (2004): 137-146
- Purnomo, H., Mendoza, G.A., Prabhu, R., Yasmi, Y. 2005. *Developing Multi-Stakeholder Forest Management Scenarios: A Multi-Agent System Simulation Approach Applied in Indonesia*. *Forest Policy and Economics* 7 (2005): 475-491
- Rishi, P. 2007. *Joint forest management in India; An attitudinal analysis of stakeholders*. *Resources, Conservation and Recycling* 51 (2007): 345 - 354
- Roberts, N.C. and King, P.J. 1989, *The Stakeholder Audit Goes Public*, *Organizational Dynamics* 17/3 (1989): 63-79
- Rosser, J.B. 2005. *Complexities of Dynamic Forest Management Policies*. *Economic, Sustainability, and Natural Resources: Economics of Sustainable Forest Management*. (2005): 191-206
- Sharma, E and Chettri, N. 2005. *ICIMOD's Transboundary Biodiversity Management Initiative in the Hindu Kush-Himalayas*. *Mountain Research and Development Journal* 25/3 (2005): 278-281
- Singh, I.J. and Moharir, S. 2003. *Forest Management Using Remote Sensing and GIS in Barbatpur Range, Betul Forest Division*. *Journal of the Indian Society of Remote Sensing* 31/3 (2003): 149-156
- Trisurat, Y. 2006. *Transboundary Biodiversity Conservation of the Pha Taem Protected Forest Complex: A Bioregional Approach*. *Journal of Applied Geography* 26 (2006): 260-275
- Wang, S., 2004. *One hundred faces of sustainable forest management*. *Forest Policy and Economics* 6 (2004): 205-213
- Wang, S. and Wilson, B. 2007. *Pluralism in the economics of sustainable forest management*. *Forest Policy and Economics* 9 (2007): 743-750

Presentation:

MIPR of Brunei. 2008. *Heart of Borneo Project Implementation Framework Brunei Darussalam*. Ministry of Industries and Primary Resources of Brunei Darussalam

Wibisono. 2008. *Heart of Borneo Strategic Plan of Action*. National working group of Heart of Borneo Program

WWF Indonesia - HOB. 2008. *Heart of Borneo Three Countries, One Conservation Vision "A common heritage for a sustainable future: Partnership with indigenous communities and trans-boundary conservation in the Heart of Borneo"*

Website:

Butler, RA. 2010. *Borneo*. Downloaded from <http://www.mongabay.com/borneo.html> at 1 July 2010

WWF. 2007. *Leaders endorse Heart of Borneo declaration*. Downloaded from wwf.panda.org/what_we_do/where_we_work/borneo_forests/news/?91420/Leaders-endorse-Heart-of-Borneo-declaration at 3 March 2010

Report:

Indonesian National Working Group - HoB. 2008. *National strategic and action plan of Heart of Borneo*. National Working Group – HoB

BIMP-EAGA. 2007. *Report of the Forestry and Environment Working Group 4th BIMP-EAGA Natural Resources Development Cluster Meeting*. Brunei Darussalam, 21-23 April 2007